



# Fiber optic sensor

## SU18/16/35/40a/110/115a/126a

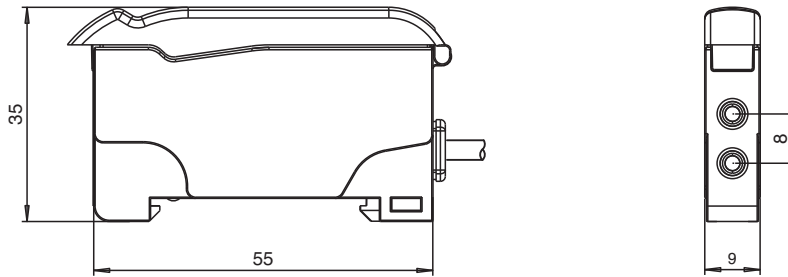


- Basic line for DIN rail installation
- High power version
- Sleek design
- 3 response times selectable
- Protected against mutual interference (no cross-talk)
- Self diagnosis function

Fiber optic sensor for glass fiber optics and plastic fiber optics



### Dimensions



<input type="checkbox"/>	Ultra	Ultra = Ultra
<input type="checkbox"/>	HPwr	HPwr = High-Power
<input type="checkbox"/>	Std	Std = Standard
<input type="checkbox"/>	Off.D	Off.D = Off Delay
<input type="checkbox"/>	T.Off	T.Off = Timer off
<input type="checkbox"/>	On.D	On.D = On Delay
<input type="checkbox"/>	LO	LO = Light on
<input type="checkbox"/>	DO	DO = Dark on

### Technical Data

General specifications	
Sensor range	up to 460 mm (KLR-C02-2,2-2,0-K146)
Detection range	up to 1500 mm (KLE-C01-2,2-2,0-K116)
Light source	LED
Light type	modulated visible red light , 640 nm
Ambient light limit	10000 Lux
Functional safety related parameters	
MTTF <sub>d</sub>	690 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

Release date: 2023-07-21 Date of issue: 2023-07-21 Filename: 808701\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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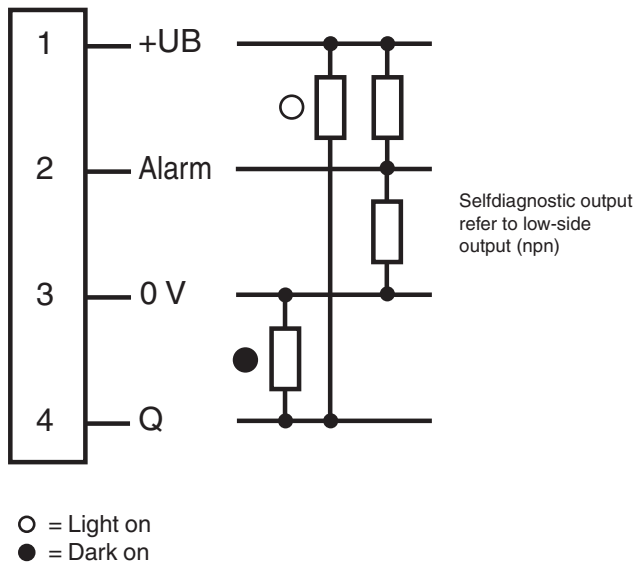
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## Technical Data

Indicators/operating means		
Operation indicator		LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator		LED yellow: static illumination switching state, flashes when falling short of the operating reserve
Control elements		Potentiometer for setting sensitivity slide switch 2 positions: light/dark switching slide switch 3 positions: timer function - timer off, on delay 40 ms, off-delay 40 ms slide switch 3 positions: operating mode - Standard, High Power, Ultra
Electrical specifications		
Operating voltage	$U_B$	10 ... 30 V DC
Ripple		10 %
No-load supply current	$I_0$	≤ 30 mA
Output		
Stability alarm output		1 push-pull (4 in 1) output NPN/PNP , short-circuit protected
Switching type		light/dark on, switchable
Signal output		1 push-pull (4 in 1) output NPN/PNP , short-circuit protected
Switching voltage		max. 30 V DC
Switching current		max. 100 mA , resistive load
Voltage drop	$U_d$	≤ 2 V DC at 100 mA ; ≤ 0.7 V at 10 mA
Switching frequency	$f$	Standard mode: 3 kHz , High power mode: 1 kHz , Ultra mode: 100 Hz
Response time		Standard mode: 160 μs , High power mode: 500 μs , Ultra mode: 5 ms
Repeat accuracy	$R$	≤ 0.5 % of adjusted sensor range
Conformity		
Product standard		EN 60947-5-2
Approvals and certificates		
UL approval		cULus Listed, Class 2 Power Source, Type 1 enclosure
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
Ambient temperature		-10 ... 55 °C (14 ... 131 °F)
Storage temperature		-20 ... 70 °C (-4 ... 158 °F)
Mechanical specifications		
Housing width		9 mm
Housing height		34.5 mm
Housing depth		62.3 mm
Degree of protection		IP50
Connection		200 mm, PVC cable with M8 connector, 4-pin
Material		
Housing		PC
Mass		45 g

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## Connection Assignment



## Connection Assignment



Wire colors in accordance with EN 60947-5-2

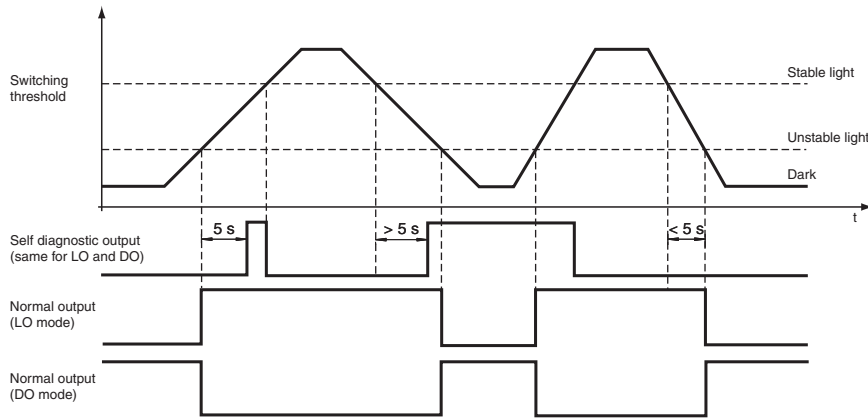
1		BN	(brown)
2		WH	(white)
3		BU	(blue)
4		BK	(black)

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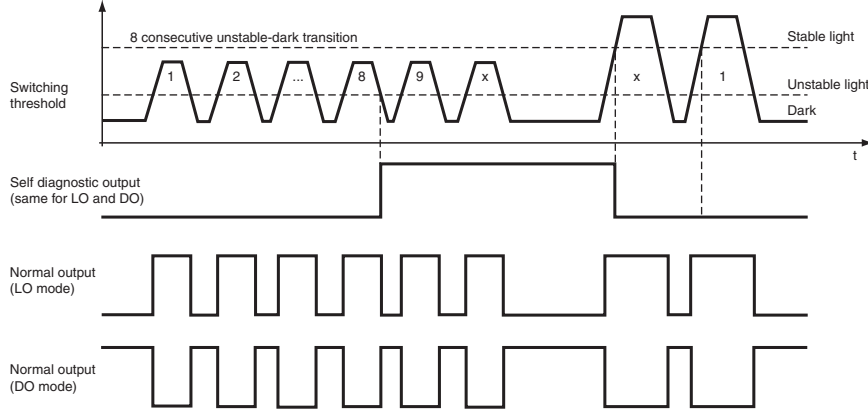
**Characteristic Curve**

**Self-Diagnostic definition and operation:**

5 sec. rule for light-ON (LO) and dark-ON (DO) mode



8 cyc. rule for light-ON (LO) and dark-ON (DO) mode



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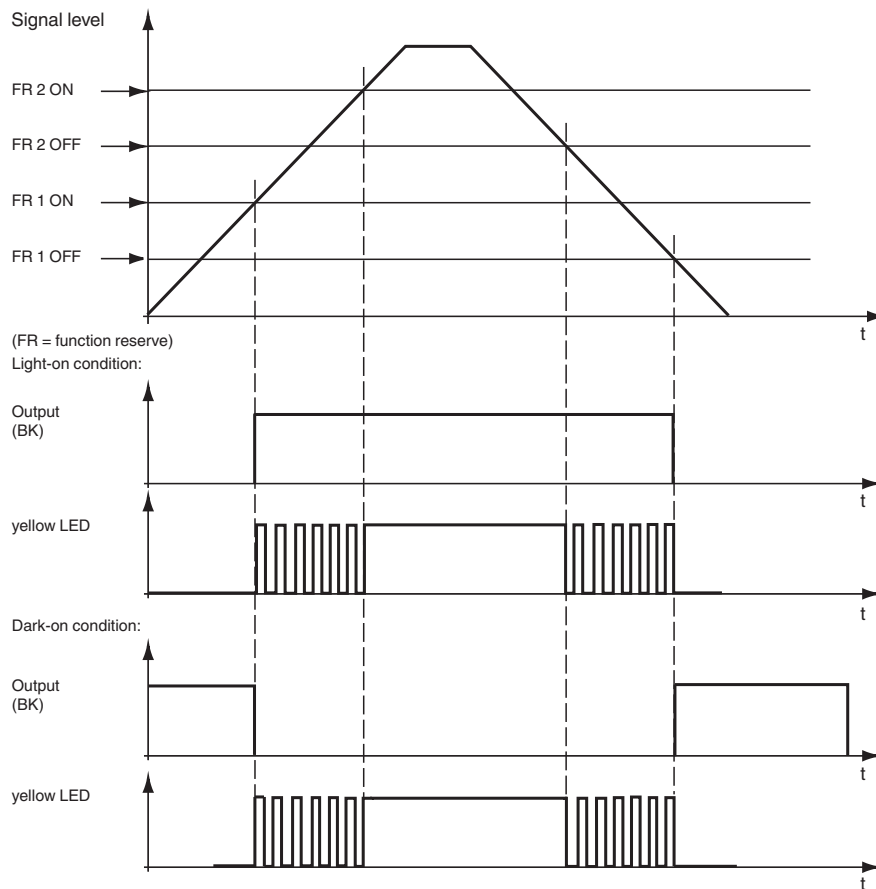
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## Characteristic Curve

### LED indicators and operating chart:



## Accessories

	<b>KLR-C02-2,2-2,0-K146</b>	Plastic fiber optic - diffuse
	<b>KLR-C02-2,2-2,0-K70</b>	Plastic fiber optic - diffuse
	<b>KLR-C02-1,0-2,0-K75</b>	Plastic fiber optic - diffuse
	<b>KLR-C09-1,25-2,0-K76</b>	Plastic fiber optic - diffuse
	<b>KLR-C09-1,25-2,0-K74</b>	Plastic fiber optic - diffuse
	<b>KLR-C16-2,2-2,0-K71</b>	Plastic fiber optic - diffuse
	<b>KLR-A32-2,2-2,0-K83</b>	Plastic fiber optic - diffuse
	<b>KHR-C02-2,2-2,0-K131</b>	Plastic fiber optic - diffuse

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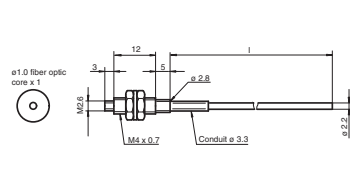
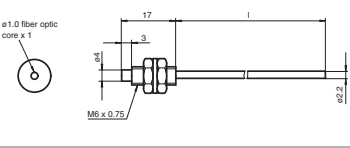
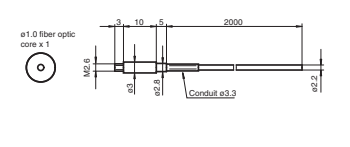
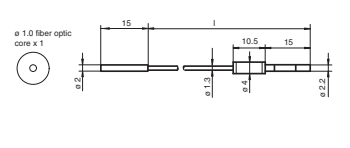
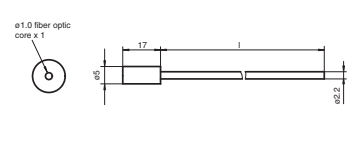
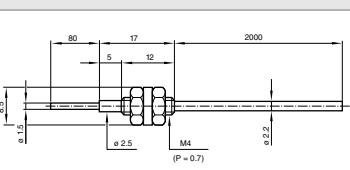
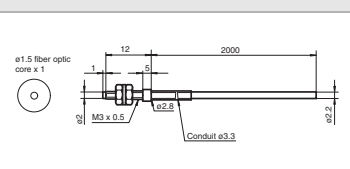
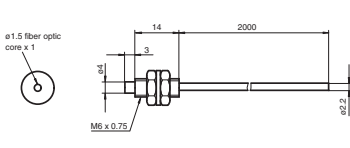
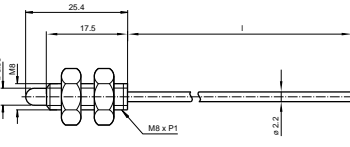
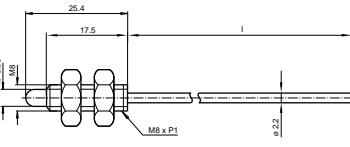
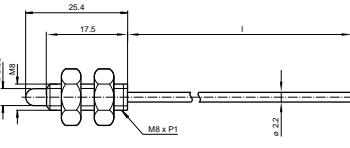
## Accessories

	<b>KHTR-C02-2,2-2,0-K88</b>	Plastic fiber optic - diffuse
	<b>KLE-C01-2,2-2,0-K116</b>	Plastic fiber optic - thru-beam
	<b>KLE-C01-2,2-2,0-K103</b>	Plastic fiber optic - thru-beam
	<b>KLE-C01-2,2-2,0-K102</b>	Plastic fiber optic - thru-beam
	<b>KLE-C01-2,2-2,0-K101</b>	Plastic fiber optic - thru-beam
	<b>KLE-C01-2,2-2,0-K113</b>	Plastic fiber optic - thru-beam
	<b>KLE-C01-1,0-2,0-K120</b>	Plastic fiber optic - thru-beam
	<b>KHE-C01-2,2-2,0-K122</b>	Plastic fiber optic - thru-beam
	<b>KHTE-C01-2,2-2,0-K118</b>	Plastic fiber optic - thru-beam
	<b>LHE 00-1,1-1,0-20M4</b>	Glass fiber optic - thru-beam with silicon covering







Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross section	minimum Object size	Fiber optic length	Bend radius	Dimensions	Special features
Threaded	M4 x 0.7 /M2.6	KLE-C01-2.2-2.0-K102	PMMA	Ultra: 920 mm HiPwr: 520 mm Std: 220 mm	1 mm	0.25 mm	2 m	min. 25 mm		4 x high Detection range with Auxiliary lens K-LA01/ 8 x high Detection range with Auxiliary lens K-LA06 Side view / Periscope with K-LA02
Threaded	M6	KLE-C01-2.2-2.0-K100	PMMA	Ultra: 920 mm HiPwr: 520 mm Std: 220 mm	1 mm	0.32 mm	2 m	min. 25 mm		
Threaded	M2.6	KLE-C01-2.2-2.0-K113	PMMA	Ultra: 800 mm HiPwr: 480 mm Std: 200 mm	1 mm	0.25 mm	2 m	min. 25 mm		4 x high Detection range with Auxiliary lens K-LA01/ 8 x high Detection range with Auxiliary lens K-LA06 Side view / Periscope with K-LA02
Cylindrical	dia. 2 mm	KLE-C01-1.3-2.0-K114	PMMA	Ultra: 920 mm HiPwr: 520 mm Std: 220 mm	1 mm	0.25 mm	2 m	min. 25 mm		
Cylindrical	dia. 5 mm	KLE-C01-2.2-2.0-K101	PMMA	Ultra: 920 mm HiPwr: 520 mm Std: 220 mm	1 mm	0.32 mm	2 m	min. 25 mm		
Bendable tip										
Threaded	M4	KLE 00-2.2-2.0-K55	PMMA	Ultra: 872 mm HiPwr: 500 mm Std: 228 mm	1 mm		2 m	min. 25 mm		
High detection range										
Threaded	M3	KLE-C01-2.2-2.0-K116	PMMA	Ultra: 1500 mm HiPwr: 950 mm Std: 450 mm	1.5 mm	0.35 mm	2 m	min. 40 mm		
Threaded	M6	KLE-C01-2.2-2.0-K115	PMMA	Ultra: 1500 mm HiPwr: 950 mm Std: 450 mm	1.5 mm	0.35 mm	2 m	min. 40 mm		
Threaded	M8 x 1	FEF-PLT1	PMMA	Ultra: 25620 mm HiPwr: 15070 mm Std: 6000 mm calculated values related on 2 m Fiber optic length	1 mm		1 m	min. 25 mm		Narrow beam
Threaded	M8 x 1	FEF-PLT1-L2	PMMA	Ultra: 25620 mm HiPwr: 15070 mm Std: 6000 mm calculated values related on 2 m Fiber optic length	1 mm		2 m	min. 25 mm		Narrow beam
Threaded	M8 x 1	FEF-PLT1-L5	PMMA	Ultra: 25620 mm HiPwr: 15070 mm Std: 6000 mm calculated values related on 2 m Fiber optic length	1 mm		4 m	min. 25 mm		Narrow beam

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Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross section	minimum Object size	Fiber optic length	Bend radius	Dimensions	Special features
Cylindrical	dia. 3 mm	KLE-C01-2.2-2.0-K117	PMMA	Ultra: 1360 mm HiPwr: 820 mm Std: 400 mm	1.5 mm	0.35 mm	2 m	min. 25 mm		
Side view / Periscope										
Cylindrical	dia. 4.75 mm	KHE-C01-2.2-2.0-K136	PMMA	Ultra: 200 mm HiPwr: 110 mm Std: 50 mm	0.5 mm	0.15 mm	2 m	min. 1 mm		only 1 mm Bend radius
Array										
Rectangular	3 x M2 x 0.5	KLE-A16-2.2-2.0-K109	PMMA	Ultra: 420 mm HiPwr: 240 mm Std: 100 mm	16 x 0.25 mm	0.05 mm	2 m	min. 25 mm		
Rectangular	3 x M3 x 0.5	KLE-A16-2.2-2.0-K110	PMMA	Ultra: 420 mm HiPwr: 240 mm Std: 100 mm	16 x 0.25 mm	0.05 mm	2 m	min. 25 mm		
Rectangular	3 x M3 x 0.5	KLE-A16-2.2-2.0-K111	PMMA	Ultra: 420 mm HiPwr: 240 mm Std: 100 mm	16 x 0.25 mm	0.05 mm	2 m	min. 25 mm		
Rectangular	2 x 3.2 m	KLE-A32-2.2-2.0-K142	PMMA	Ultra: 140 mm HiPwr: 80 mm Std: 35 mm	32 x 0.25 mm		2 m	min. 25 mm		
High temperature resistance										
Cylindrical	dia. 3 mm	KHTE-C01-2.2-2.0-K118	PMMA	Ultra: 475 mm HiPwr: 270 mm Std: 115 mm	1 mm	0.35 mm	2 m	min. 25 mm		-55°C ... +115 °C
Sturdy design										
Threaded	M3	LHE 00-1.1-1.0-14M3	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		-40°C ... +180 °C
Threaded	M4 x 0.7 / M2.6	LHE 00-1.1-1.0-20M4	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		4 x high Detection range with Auxiliary lens K-LA01/ 8 x high Detection range with Auxiliary lens K-LA06 Side view / Periscope with K-LA02/ -40°C ... +180 °C
Threaded	M6	LHE 00-1.1-1.0-G	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		-40°C ... +180 °C

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Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross section	minimum Object size	Fiber optic length	Bend radius	Dimensions	Special features
Cylindrical	dia. 1.5 mm	LHE 00-1.1-1.0-10C1.5	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		-40°C ... +180 °C
Cylindrical	dia. 3 mm	LHE 00-1.1-1.0-15C3	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		-40°C ... +180 °C
Right angle	Bar 3 mm	LHE 00-1.1-1.0-WC3	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		-40°C ... +180 °C
Right angle	Bar 10 mm	LHE 00-1.1-1.0-K9	glass	Ultra: 710 mm HiPwr: 420 mm Std: 195 mm	1.1 mm		1 m	4 mm static		-40°C ... +180 °C
Special design										
Rectangular	2 x 2.2 m m	KHE-A01-1.0-2.0-K138	PMMA	Ultra: 100 mm HiPwr: 60 mm Std: 25 mm	0.5 mm	0.05 mm	2 m	min. 1 mm		only 1 mm Bend radius
Slot	2 x 3.2 m m	KLE-C02-1.25-2.0-K134	PMMA	5 mm	2 x 0.25 m m		2 m	min. 10 mm		
Slot	2 x 3.2 m m	KLE-C02-1.25-2.0-K135	PMMA	10 mm	2 x 0.25 m m		2 m	min. 10 mm		



Std: Standard Mode, 160 µs  
HiPwr: HighPower Mode, 500 µs  
Ultra: Ultra Mode, 5 ms

**Selection table - diffuse mode fiber optic cable**

Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross section	Fiber optic length	Bend radius	Dimensions	Special features	
Highly precise										
Threaded	M3 x 0.5	KLR-C02-1.0-2.0-K75	PMMA	Ultra: 12 mm HiPwr: 6 mm Std: 4 mm	2 x 0.25 m	2 m	min. 10 mm			
Threaded	M4 x 0.7	KLR-C02-1.0-2.0-K73	PMMA	Ultra: 12 mm HiPwr: 6 mm Std: 4 mm	2 x 0.25 mm	2 m	min. 10 mm			

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Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross-section	Fiber optic length	Bend radius	Dimensions	Special features
Threaded	M3 x 0.5	KLR-C04-1.25-2.0-K78	PMMA	Ultra: 25 mm HiPwr: 18 mm Std: 8 mm	4 x 0.25 mm	2 m	min. 15 mm		
Cylindrical	dia. 2.0 mm	KLR-C02-1.0-2.0-K91	PMMA	Ultra: 12 mm HiPwr: 6 mm Std: 4 mm	2 x 0.25 mm	2 m	min. 10 mm		
Cylindrical	dia. 3.0 mm	KLR-C02-1.0-2.0-K90	PMMA	Ultra: 12 mm HiPwr: 6 mm Std: 4 mm	2 x 0.25 mm	2 m	min. 10 mm		
Cylindrical	dia. 1.5 mm	KLR-C04-1.25-2.0-K80	PMMA	Ultra: 25 mm HiPwr: 18 mm Std: 8 mm	4 x 0.25 mm	2 m	min. 15 mm		
Cylindrical	dia. 1.5 mm	KLR-C04-1.0-2.0-K133	PMMA	Ultra: 25 mm HiPwr: 18 mm Std: 7 mm	4 x 0.25 mm	2 m	min. 15 mm		
Cylindrical	dia. 2.0 mm	KLR-C02-1.0-2.0-K87	PMMA	Ultra: 85 mm HiPwr: 52 mm Std: 25 mm	2 x 0.5 mm	2 m	min. 15 mm		
Cylindrical	dia. 3.0 mm	KLR-C04-1.25-2.0-K79	PMMA	Ultra: 25 mm HiPwr: 18 mm Std: 8 mm	4 x 0.25 mm	2 m	min. 15 mm		
Coaxial									
Threaded	M3 x 0.5	KLR-C09-1.25-2.0-K76	PMMA	Ultra: 100 mm HiPwr: 60 mm Std: 30 mm	1 x 0.5 mm Emitter 9 x 0.25 mm Receiver	2 m	min. 15 mm		only 0.5 mm light spot at 8 mm with auxiliary lens K-LA03
Threaded	M4 x 0.7 /M2.6	KLR-C09-1.25-2.0-K74	PMMA	Ultra: 100 mm HiPwr: 60 mm Std: 30 mm	1 x 0.5 mm Emitter 9 x 0.25 mm Receiver	2 m	min. 15 mm		only 0.7 mm light spot at 10 mm with auxiliary lens K-LA04/ 2 x high Detection range with Auxiliary lens K-LA01/ 3 x high Detection range with Auxiliary lens K-LA06
Threaded	M6 x 0.75	KLR-C16-2.2-2.0-K71	PMMA	Ultra: 300 mm HiPwr: 190 mm Std: 85 mm	1 x 1.0 mm Emitter 16 x 0.25 mm Receiver	2 m	min. 25 mm		
Cylindrical	dia. 1.0 mm	KLR-C06-1.25-2.0-K81	PMMA	Ultra: 70 mm HiPwr: 45 mm Std: 20 mm	1 x 0.25 mm Emitter 6 x 0.25 mm Receiver	2 m	min. 15 mm		

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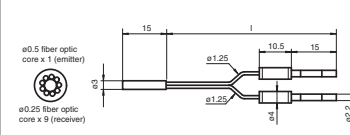
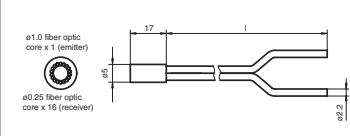
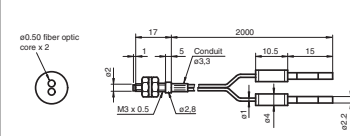
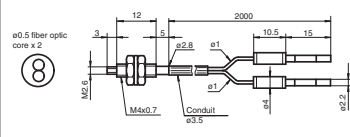
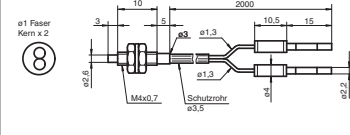
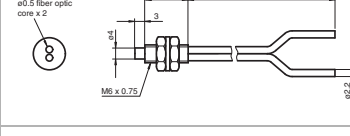
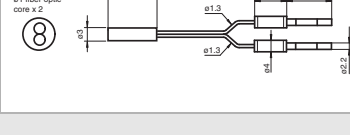
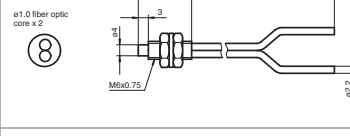
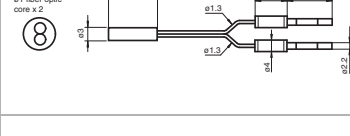
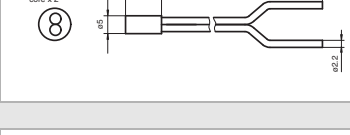
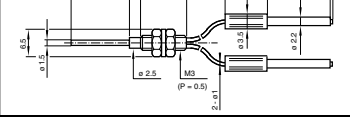
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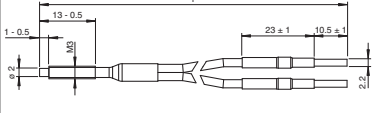
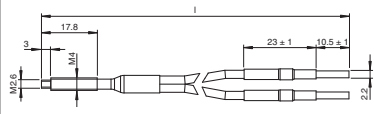
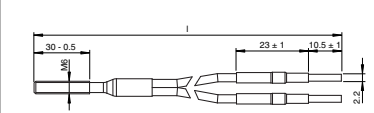
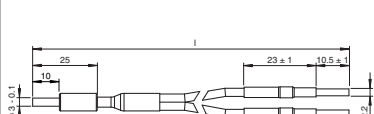
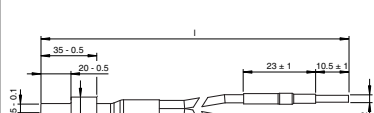
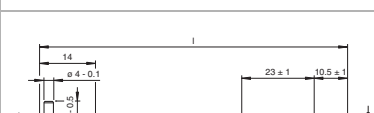
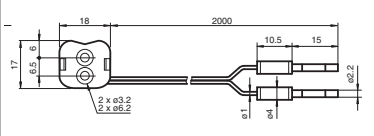
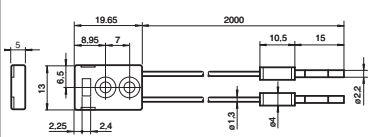
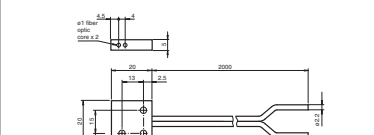
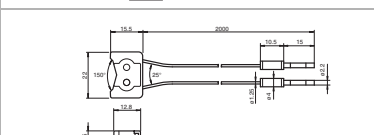
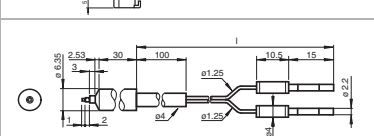
Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross-section	Fiber optic length	Bend radius	Dimensions	Special features
Cylindrical	dia. 3.0 mm	KLR-C09-1.25-2.0-K77	PMMA	Ultra: 110 mm HiPwr: 60 mm Std: 30 mm	1 x 0.5 mm Emitter 9 x 0.25 mm Receiver	2 m	min. 15 mm	 <p>                     e0.5 fiber optic core x 1 (emitter)                      e0.25 fiber optic core x 9 (receiver)                 </p>	
Cylindrical	dia. 5.0 mm	KLR-C16-2.2-2.0-K72	PMMA	Ultra: 300 mm HiPwr: 190 mm Std: 85 mm	1 x 1.0 mm Emitter 16 x 0.25 mm Receiver	2 m	min. 25 mm	 <p>                     e1.0 fiber optic core x 1 (emitter)                      e0.25 fiber optic core x 16 (receiver)                 </p>	
Highly flexible									
Threaded	M3	KHR-C02-1.0-2.0-K96	PMMA	Ultra: 40 mm HiPwr: 25 mm Std: 12 mm	2 x 0.5 mm	2 m	min. 1 mm	 <p>                     e0.50 fiber optic core x 2                      M3 x 0.5                      Conduit ø3.3                 </p>	
Threaded	M4	KHR-C02-1.0-2.0-K95	PMMA	Ultra: 40 mm HiPwr: 25 mm Std: 12 mm	2 x 0.5 mm	2 m	min. 1 mm	 <p>                     e0.5 fiber optic core x 2                      M4 x 0.5                      Conduit ø3.5                 </p>	
Threaded	M4	KHR-C02-1.3-2.0-K92	PMMA	Ultra: 210 mm HiPwr: 130 mm Std: 60 mm	2 x 1.0 mm	2 m	min. 2 mm	 <p>                     e1 Faser Kern x 2                      M4 x 0.7                      Schutzrohr ø3.5                 </p>	
Threaded	M6	KHR-C02-2.2-2.0-K94	PMMA	Ultra: 40 mm HiPwr: 25 mm Std: 12 mm	2 x 0.5 mm	2 m	min. 1 mm	 <p>                     e0.5 fiber optic core x 2                      M6 x 0.75                 </p>	
Cylindrical	dia. 3.0 mm	KHR-C02-1.3-2.0-K93	PMMA	Ultra: 200 mm HiPwr: 130 mm Std: 60 mm	2 x 1.0 mm	2 m	min. 2 mm	 <p>                     e1 fiber optic core x 2                 </p>	
Flexible									
Threaded	M6 x 0.75	KLR-C02-2.2-2.0-K70	PMMA	Ultra: 280 mm HiPwr: 180 mm Std: 80 mm	2 x 1.0 mm	2 m	min. 25 mm	 <p>                     e1.0 fiber optic core x 2                      M6 x 0.75                 </p>	
Cylindrical	dia. 3.0 mm	KLR-C02-1.3-2.0-K86	PMMA	Ultra: 280 mm HiPwr: 180 mm Std: 80 mm	2 x 1.0 mm	2 m	min. 25 mm	 <p>                     e1 fiber optic core x 2                 </p>	
Cylindrical	dia. 5.0 mm	KLR-C02-2.2-2.0-K85	PMMA	Ultra: 280 mm HiPwr: 180 mm Std: 80 mm	2 x 1.0 mm	2 m	min. 25 mm	 <p>                     e1 fiber optic core x 2                 </p>	
Bendable tip									
Threaded	M3 x 0.5	KLR 00-1.0-2.0-K58	PMMA	Ultra: 68 mm HiPwr: 40 mm Std: 20 mm		2 m	min. 15 mm	 <p>                     e1.5                      ø 1.5                      ø 2.5                      M3 (P = 0.5)                      ø 0.5                      ø 2.2                 </p>	

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Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross-section	Fiber optic length	Bend radius	Dimensions	Special features
Threaded	M6	KLR 00-2.2-2.0-K57	PMMA	Ultra: 210 mm HiPwr: 130 mm Std: 60 mm		2 m	min. 15 mm		
High detection range									
Threaded		KLR-C02-2.2-2.0-K146	PMMA	Ultra: 460 mm HiPwr: 270 mm Std: 150 mm		2 m	mind. 40 mm		
Threaded		KLR-C10-1.25-2.0-K144	PMMA	Ultra: 95 mm HiPwr: 60 mm Std: 30 mm		2 m	mind. 15 mm		
Side view / Periscope									
Threaded	M6	KHR-C02-2.2-2.0-K131	PMMA	Ultra: 210 mm HiPwr: 135 mm Std: 60 mm	2 x 1.0 mm	2 m	min. 2 mm		only 2 mm Bend radius
Threaded	dia. 5.0 mm	KHR-C02-1.0-2.0-K132	PMMA	Ultra: 52 mm HiPwr: 33 mm Std: 15 mm	2 x 0.5 mm	2 m	min. 1 mm		only 1 mm Bend radius
Array									
Rectangular	3 x M2 x 0.5	KLR-A18-1.3-2.0-K82	PMMA	Ultra: 86 mm HiPwr: 55 mm Std: 25 mm	18 x 0.25 m m	2 m	min. 25 mm		
Rectangular	3 x M3 x 0.5	KLR-A32-2.2-2.0-K83	PMMA	Ultra: 120 mm HiPwr: 78 mm Std: 35 mm	10.85 mm	2 m	min. 25 mm		
Rectangular	2 x 3.2 m m	KLR-A32-2.2-2.0-K141	PMMA	Ultra: 120 mm HiPwr: 78 mm Std: 35 mm	16 x 0.25 mm	2 m	mind. 25 mm		
High temperature resistance									
Threaded	M6	KHTR-C02-2.2-2.0-K88	PMMA	Ultra: 280 mm HiPwr: 180 mm Std: 80 mm	2 x 1.0 mm	2 m	min. 25 mm		- 55°C ... + 115°C
Cylindrical	dia. 5.0 mm	KHTR-C02-2.2-2.0-K89	PMMA	Ultra: 280 mm HiPwr: 180 mm Std: 80 mm	2 x 1.0 mm	2 m	min. 25 mm		- 55°C ... + 115°C
Sturdy design									

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Head shape	Mounting	Model number	Core	Detection distance *	Fiber cross-section	Fiber optic length	Bend radius	Dimensions	Special features
Threaded	M3 x 0.5	LHR 00-0.8-1.0-14M3	glass	Ultra: 195 mm HiPwr: 100 mm Std: 40 mm	0.8 mm	1 m	4 mm static		-40°C ... +180°C
Threaded	M4 x 0.7	LHR 00-0.8-1.0-20M4	glass	Ultra: 195 mm HiPwr: 100 mm Std: 40 mm	0.8 mm	1 m	4 mm static		-40°C ... +180°C
Threaded	M6	LHR 00-1.1-1.0-G	glass	Ultra: 230 mm HiPwr: 156 mm Std: 70 mm	1.1 mm	1 m	4 mm static		-40°C ... +180°C
Cylindrical	dia. 3 mm	LHR 00-1.1-1.0-Z1	glass	Ultra: 230 mm HiPwr: 156 mm Std: 70 mm	1.1 mm	1 m	4 mm static		-40°C ... +180°C
Cylindrical	dia. 4.5 mm	LHR 00-1.1-1.0-K1	glass	Ultra: 230 mm HiPwr: 156 mm Std: 70 mm	1.1 mm	1 m	4 mm static		-40°C ... +180°C
Right angle	10 mm Bar	LHR 00-1.1-1.0-K9	glass	Ultra: 230 mm HiPwr: 156 mm Std: 70 mm	1.1 mm	1 m	4 mm static		-40°C ... +180°C
Special design									
Rectangular		KHR-C02-1.0-2.0-K129	PMMA	5 ~ 10 mm	2 x 0.5 mm	2 m	min. 1 mm		crossed beam to background blanking only 1 mm Bend radius
Rectangular		KLR-C02-1.3-2.0-K130	PMMA	1 ~ 8 mm	2 x 1.0 mm	2 m	min. 25 mm		crossed beam to background blanking
Rectangular	3 x M3 x 0.5	KHR-A02-2.2-2.0-K127	PMMA	Ultra: 175 mm HiPwr: 112 mm Std: 50 mm	2 x 1.0 mm	2 m	min. 2 mm		only 2 mm Bend radius
Rectangular		KLR-C02-1.25-2.0-K128	PMMA	4~26 mm	2 x 0.5 mm	2 m	min. 15 mm		Level measurement
Cylindrical		KLR-C02-1,25-2,0-K147	PMMA			2 m	mind. 40 mm		Fluid detection

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	Std: Standard Mode, 160 $\mu$ s HiPwr: HighPower Mode, 500 $\mu$ s Ultra: Ultra Mode, 5 ms
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