



Fiber optic sensor SU18-40a/110/115a

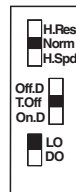
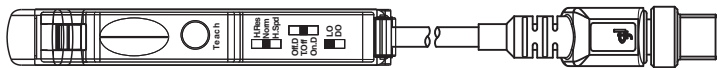
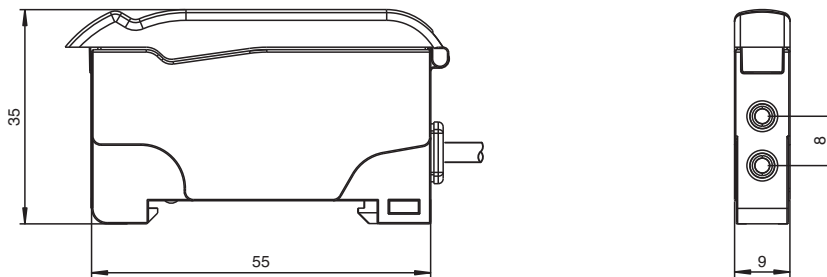


- Basic line for DIN rail installation
- Sleek design
- 3 response times selectable
- High switching frequency

Fiber optic sensor for glass fiber optic and plastic fiber optic, slim design, red light, 3 response times available, light/dark on, push-pull output, fixed cable with M8 plug



Dimensions



H.Res = High Resolution
 Norm = Normal
 H.Spd = High Speed
 Off.D = Off Delay
 T.Off = Timer off
 On.D = On Delay
 LO = Light on
 DO = Dark on

Technical Data

General specifications

Sensor range	up to 150 mm (KLR-C02-2,2-2,0-K146)
Detection range	up to 450 mm (KLE-C01-2,2-2,0-K116)
Light source	LED
Light type	modulated visible red light , 660 nm
Ambient light limit	10000 Lux

Functional safety related parameters

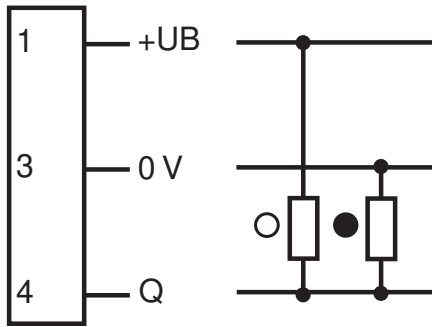
MTTF _d	690 a
Mission Time (T _M)	20 a

Technical Data

Diagnostic Coverage (DC)		0 %
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		Teach-In key 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 - normal, high speed , high resolution
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 speed mode: 6 kHz , High resolution: 500 Hz
Response time		Standard mode: 160 μ s , High speed mode: 80 μ s , High resolution: 1 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, 3-pin
Material		
Housing		PC
Mass		45 g

Connection Assignment

Option:



- = Light on
- = Dark on

Connection Assignment



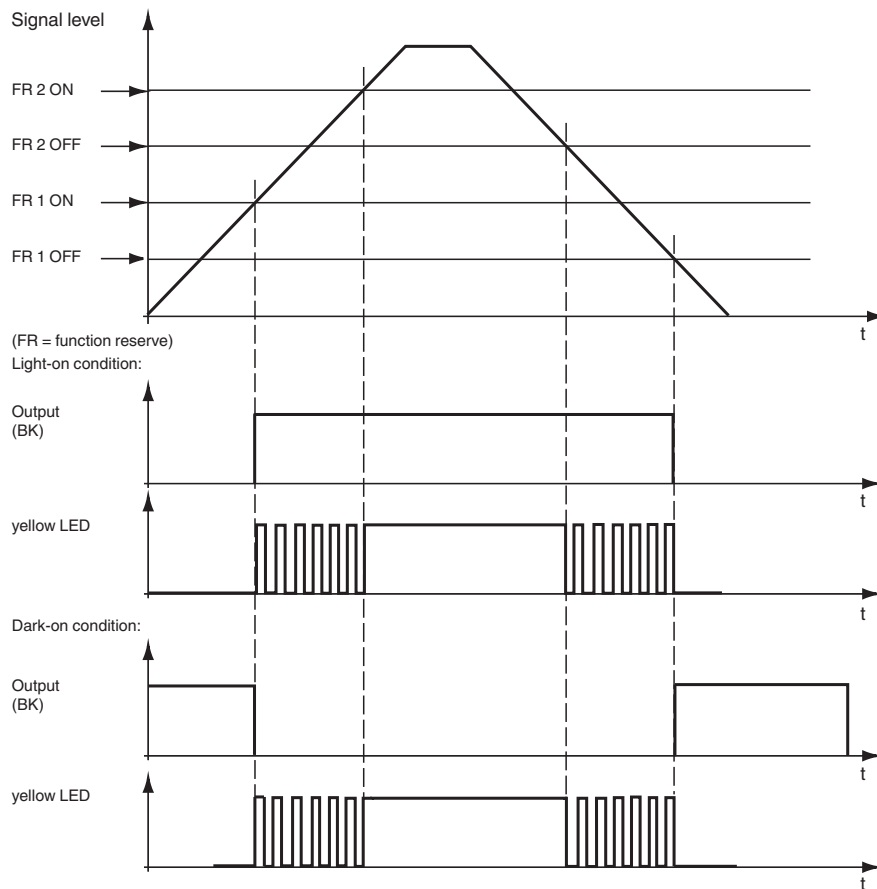
Wire colors in accordance with EN 60947-5-2

1		BN	(brown)
3		BU	(blue)
4		BK	(black)

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Characteristic Curve

LED indicators and operating chart:













Accessories

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

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Accessories

	KHTR-C02-2,2-2,0-K88	Plastic fiber optic - diffuse
	KLE-C01-2,2-2,0-K116	Plastic fiber optic - thru-beam
	KLE-C01-2,2-2,0-K103	Plastic fiber optic - thru-beam
	KLE-C01-2,2-2,0-K102	Plastic fiber optic - thru-beam
	KLE-C01-2,2-2,0-K101	Plastic fiber optic - thru-beam
	KLE-C01-2,2-2,0-K113	Plastic fiber optic - thru-beam
	KLE-C01-1,0-2,0-K120	Plastic fiber optic - thru-beam
	KHE-C01-2,2-2,0-K122	Plastic fiber optic - thru-beam
	KHTE-C01-2,2-2,0-K118	Plastic fiber optic - thru-beam
	LHE 00-1,1-1,0-20M4	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
Slot	2 x 3.2 mm	KLE-C02-1.25-2.0-K135	PMMA	10 mm	2 x 0.25 mm		2 m	min. 10 mm		

Diffuse Mode Sensor Selection Table

Head type	Mounting	Designation	Core	Sensing range	Fiber cross-section	Length of fiber optics	Bending radius	Dimensional drawing	Special Properties
High-precision									
Thread	M3 x 0.5	KLR-C02-1.0-2.0-K75	PMMA	4 mm	2 x 0.25 mm	2 m	At least 10 mm		
Thread	M4 x 0.7	KLR-C02-1.0-2.0-K73	PMMA	4 mm	2 x 0.25 mm	2 m	At least 10 mm		
Thread	M3 x 0.5	KLR-C04-1.25-2.0-K78	PMMA	8 mm	4 x 0.25 mm	2 m	At least 15 mm		
Cylindrical	Dia. 2.0 mm	KLR-C02-1.0-2.0-K91	PMMA	4 mm	2 x 0.25 mm	2 m	At least 10 mm		
Cylindrical	Dia. 3.0 mm	KLR-C02-1.0-2.0-K90	PMMA	4 mm	2 x 0.25 mm	2 m	At least 10 mm		
Cylindrical	Dia. 1.5 mm	KLR-C04-1.25-2.0-K80	PMMA	8 mm	4 x 0.25 mm	2 m	At least 15 mm		
Cylindrical	Dia. 1.5 mm	KLR-C04-1.0-2.0-K133	PMMA	7 mm	4 x 0.25 mm	2 m	At least 15 mm		
Cylindrical	Dia. 2.0 mm	KLR-C02-1.0-2.0-K87	PMMA	25 mm	2 x 0.5 mm	2 m	At least 15 mm		
Cylindrical	Dia. 3.0 mm	KLR-C04-1.25-2.0-K79	PMMA	8 mm	4 x 0.25 mm	2 m	At least 15 mm		

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Head type	Mounting	Designation	Core	Sensing range	Fiber cross-section	Length of fiber optics	Bending radius	Dimensional drawing	Special Properties
Cubic	3 x M3 x 0.5	KLR-A32-2.2-2.0-K83	PMMA	35 mm	10.85 mm	2 m	At least 25 mm		
Cubic	2 x 3.2 mm	KLR-A32-2.2-2.0-K141	PMMA	35 mm	16 x 0.25 mm	2 m	At least 25 mm		
Resistant to high temperatures									
Thread	M6	KHTR-C02-2.2-2.0-K88	PMMA	80 mm	2 x 1.0 mm	2 m	At least 25 mm		-55 °C ... +115 °C
Cylindrical	Dia. 5.0 mm	KHTR-C02-2.2-2.0-K89	PMMA	80 mm	2 x 1.0 mm	2 m	At least 25 mm		-55 °C ... +115 °C
Robust design									
Thread	M3 x 0.5	LHR 00-0.8-1.0-14M3	Glass	40 mm	0.8 mm	1 m	4 mm static		-40 °C ... +180 °C
Thread	M4 x 0.7	LHR 00-0.8-1.0-20M4	Glass	40 mm	0.8 mm	1 m	4 mm static		-40 °C ... +180 °C
Thread	M6	LHR 00-1.1-1.0-G	Glass	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	70 mm	1.1 mm	1 m	4 mm static		-40 °C ... +180 °C
Special design									
Cubic		KHR-C02-1.0-2.0-K129	PMMA	5 ~ 10 mm	2 x 0.5 mm	2 m	At least 1 mm		Crossed light beam for background suppression Only 1 mm bending radius
Cubic		KLR-C02-1.3-2.0-K130	PMMA	1 ~ 8 mm	2 x 1.0 mm	2 m	At least 25 mm		Crossed light beam for background suppression

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