FS/FE 55-RL

Through-beam laser sensor
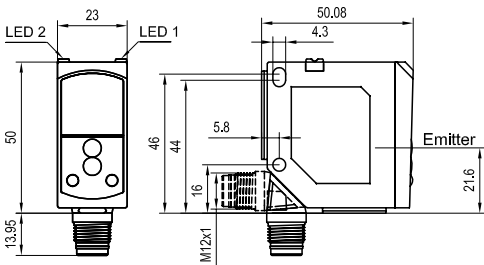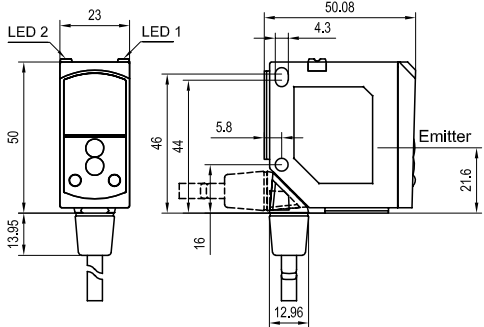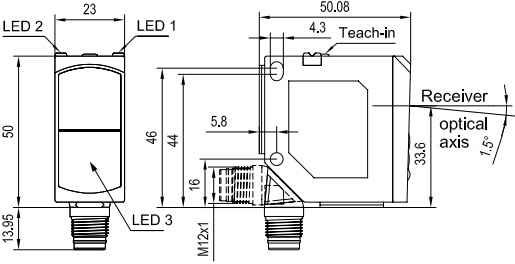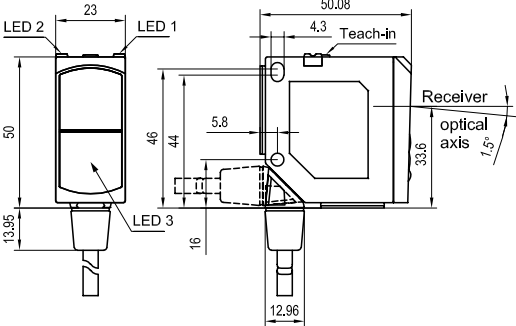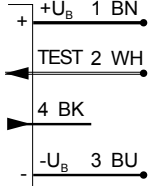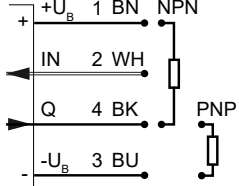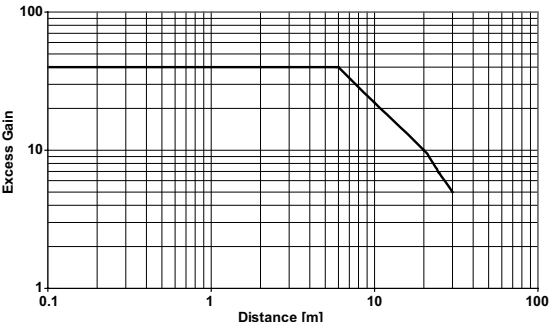

CE
IP 69k
c(UL)us LISTED
ECOLAB

PRODUCT HIGHLIGHTS

- Long range combined with precise laser light spot for extremely accurate small-part detection
- High switching frequency for the reliable detection of even the most rapid processes
- Sensor adjustment via teach-in and control input
- Plug and cable connection rotatable

Optical data	
Limit range	0 … 30 m
Operating range	0 … 25 m
Type of light	Laser, red, 655 nm
Light spot size	See diagram
Laser Class (IEC 60825-1)	1

Functions	
Indicator LED, green	Operating voltage indicator
Indicator LED, yellow	Switching output indicator / contamination indicator
Indicator LED, red (receiver)	Alignment indicator
Sensitivity adjustment (receiver)	Via Teach-in button and control input
Teach-in modes	Mode 1: during running process Mode 2: during standing process
Adjustment possibilities (receiver)	N.O./N.C. via Teach-in button and control input Button lock via control input
Default settings	Max. range and N.O.

Electrical data	
Operating voltage, $+U_B$	10 … 30 V DC[1]
No-load current, I_0	≤ 30 mA
Output current, Ie	≤ 100 mA
Protective circuits	Reverse-polarity protection, U_B / short-circuit protection (Q)
Protection Class	2
Power On Delay	< 300 ms
Switching output, Q	PNP/NPN (see selection table)
Output function	N.O./N.C.
Switching frequency, f (ti/tp 1:1)	≤ 3500 Hz
Response time	140 µs
Control input, IN (receiver)	$+U_B$ = teach-in -U_B = button locked Open = normal operation
Control input, TEST (transmitter)	$+U_B$ = Test (transmitter off) -U_B / Open = normal operation

Mechanical data	
Dimensions	50 × 50.1 × 23 mm
Enclosure rating	IP 69K & IP 67[2]
Material, housing	PC-ABS
Material, front screen	PMMA
Type of connection	See selection table
Ambient temperature: operation	-20 … +60 °C[3]
Ambient temperature: storage	-20 … +80 °C
Weight (plug device)	35 g
Weight (cable device)	125 g
Vibration and impact resistance	EN 60947-5-2

[1] Max. 10 % ripple, within U_B, ~ 50 Hz / 100 Hz   [2] With connected IP 67 / IP 69K plug   [3] UL: max. +45 °C

Operating range	Switching output	Type of connection	Part number	Article number
0 … 25 m	PNP	Plug, M12×1, 4-pin	FE 55-RL-PS-L4	620-21006
0 … 25 m	NPN	Plug, M12×1, 4-pin	FE 55-RL-NS-L4	620-21007
0 … 25 m	–	Plug, M12×1, 4-pin	FS 55-RL-L4	620-11002
0 … 25 m	PNP	Cable, 3 m, 4-wire	FE 55-RL-PS-K4	620-21009
0 … 25 m	NPN	Cable, 3 m, 4-wire	FE 55-RL-NS-K4	620-21010
0 … 25 m	–	Cable, 3 m, 4-wire	FS 55-RL-K4	620-11003

Version: 05/2021. Subject to changes; diagrams similar

Plug connection (transmitter)

153-00808

23
LED 2   LED 1
50.08
4.3
50
46
44
5.8
Emitter
16
21.6
13.95
M12x1

Cable connection (transmitter)

153-00809

23
LED 2   LED 1
50.08
4.3
50
46
44
5.8
Emitter
16
21.6
13.95
12.96

Plug connection (receiver)

153-00812

23
LED 2   LED 1
50.08
4.3   Teach-in
50
46
44
5.8
Receiver
optical
axis
1.5°
16
33.6
13.95
LED 3
M12x1

Cable connection (receiver)

153-00813

23
LED 2   LED 1
50.08
4.3   Teach-in
50
46
44
5.8
Receiver
optical
axis
1.5°
16
33.6
13.95
LED 3
12.96

7

Connection, transmitter, 4-pin

154-00315

$+U_B$ 1 BN
+
TEST 2 WH
4 BK
$-U_B$ 3 BU
-

Connection, receiver, 4-pin

154-00508

$+U_B$ 1 BN   NPN
+
IN   2 WH
Q   4 BK   PNP
$-U_B$ 3 BU
-

Functional reserves

155-01138

Excess Gain vs Distance [m]
100 / 10 / 1
0.1 / 1 / 10 / 100

Light spot size

155-01139

Size [mm]: 32 / 24 / 16 / 8 / 0
Distance [m]: 0 / 7 / 14 / 21 / 28

Accessories

Connection cables	www.sensopart.com/en/accessories
Brackets	www.sensopart.com/en/accessories