

# FR 55-RL

## Laser retroreflective photoelectric sensor



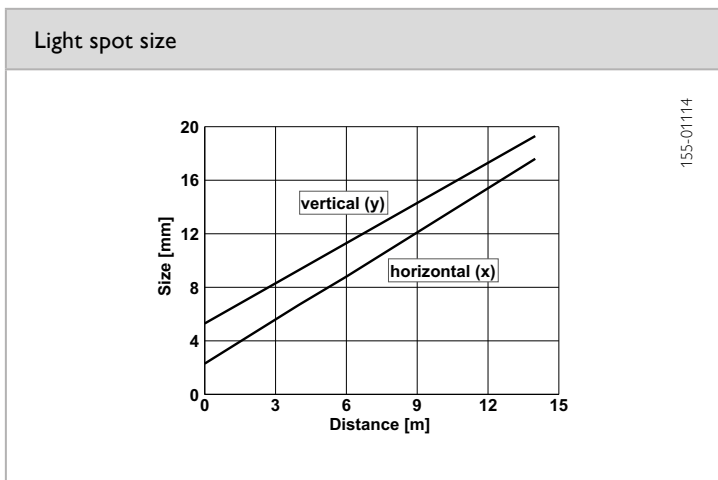
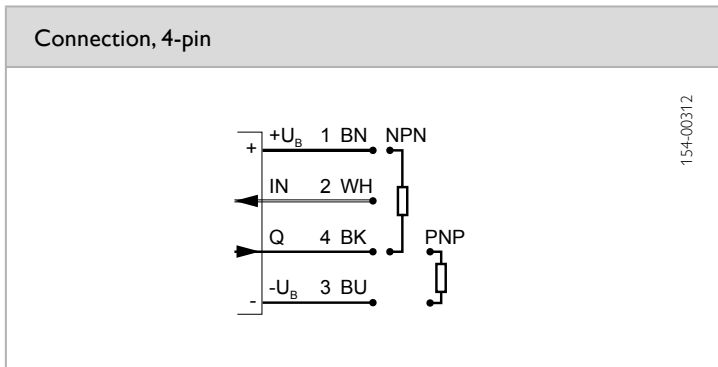
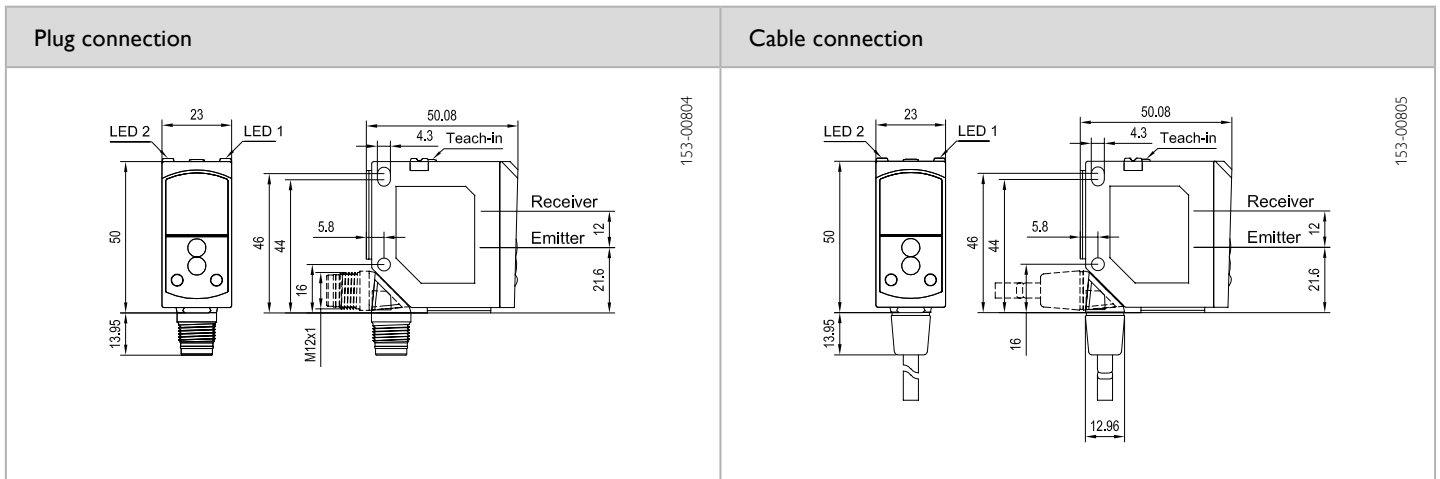
### PRODUCT HIGHLIGHTS

- Particularly suitable for the detection of the smallest of objects – smallest detectable part < 2 mm
- Bright, precise laser light spot in Laser Class 1
- Suitable for a wide variety of different reflectors
- Sensor adjustment via teach-in and control input

Optical data		Functions	
Limit range	0.3 ... 14 m <sup>1</sup>	Indicator LED, green	Operating voltage indicator
Operating range	0.3 ... 12 m <sup>1</sup>	Indicator LED, yellow	Switching output indicator / contamination indicator
Type of light	Laser, red, 655 nm	Sensitivity adjustment	Via Teach-in button and control input
Light spot size	See diagram	Teach-in modes	Mode 1: during running process Mode 2: during standing process
Laser Class (IEC 60825-1)	1	Adjustment possibilities	N.O./N.C. via Teach-in button and control input Button lock via control input
Polarising filter	Yes	Default settings	Max. range and N.O.
Electrical data		Mechanical data	
Operating voltage, +U <sub>B</sub>	10 ... 30V DC <sup>2</sup>	Dimensions	50 × 50.1 × 23 mm
No-load current, I <sub>0</sub>	≤ 30 mA	Enclosure rating	IP 69K & IP 67 <sup>3</sup>
Output current, I <sub>e</sub>	≤ 100 mA	Material, housing	PC-ABS
Protective circuits	Reverse-polarity protection, U <sub>B</sub> / short-circuit protection (Q)	Material, front screen	PMMA
Protection Class	2	Type of connection	See Selection Table
Power On Delay	< 300 ms	Ambient temperature: operation	-20 ... +60 °C <sup>4</sup>
Switching output, Q	PNP/NPN (see Selection Table)	Ambient temperature: storage	-20 ... +80 °C
Output function	N.O./N.C.	Weight (plug device)	35 g
Switching frequency, f (ti/tp 1:1)	≤ 2000 Hz	Weight (cable device)	125 g
Response time	250 μs	Vibration and impact resistance	EN 60947-5-2
Control input, IN	+U <sub>B</sub> = teach-in - U <sub>B</sub> = button locked Open = normal operation		

<sup>1</sup> Reference material: R5/L reflector    <sup>2</sup> Max. 10 % ripple, within U<sub>B</sub> ~ 50 Hz / 100 Hz    <sup>3</sup> With connected IP 67 / IP 69K plug    <sup>4</sup> UL: max. +45 °C

Operating range	Switching output	Type of connection	Part number	Article number
0.3 ... 12 m	PNP	Plug, M12x1, 4-pin	FR 55-RL-PS-L4	621-11006
0.3 ... 12 m	NPN	Plug, M12x1, 4-pin	FR 55-RL-NS-L4	621-11007
0.3 ... 12 m	PNP	Cable, 3 m, 4-wire	FR 55-RL-PS-K4	621-11009
0.3 ... 12 m	NPN	Cable, 3 m, 4-wire	FR 55-RL-NS-K4	621-11010



Reflector / Reflective foil*	Operating range
R5/L	0.3 ... 12 m
RF-100 KL*	0.2 ... 6 m

**Accessories**

Reflectors	From Page A-18
Connection cables	From Page A-38
Brackets	From Page A-4