

# FR 55-RL

## Retro-reflective laser sensor



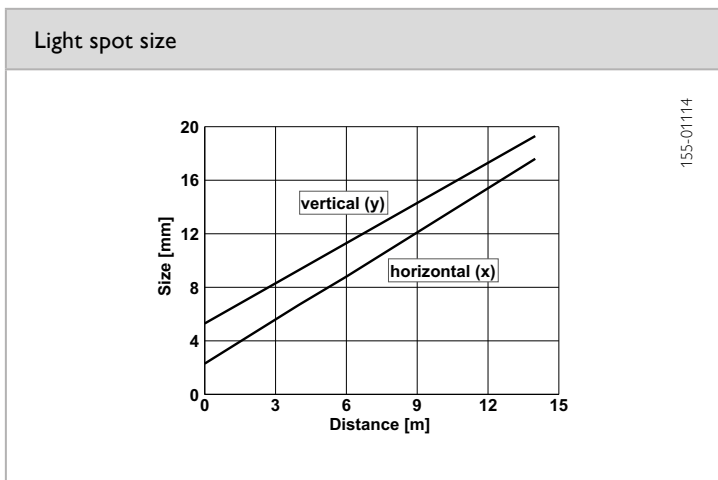
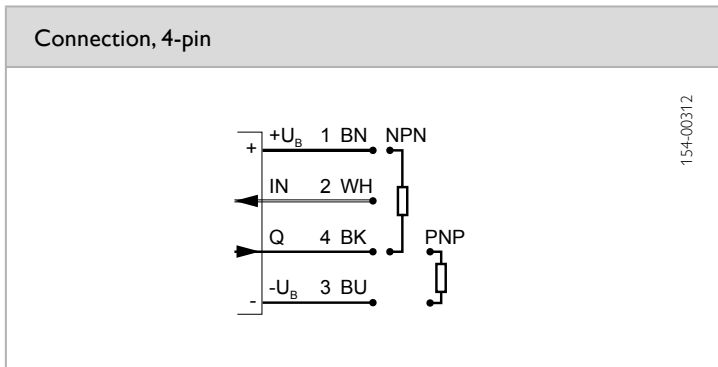
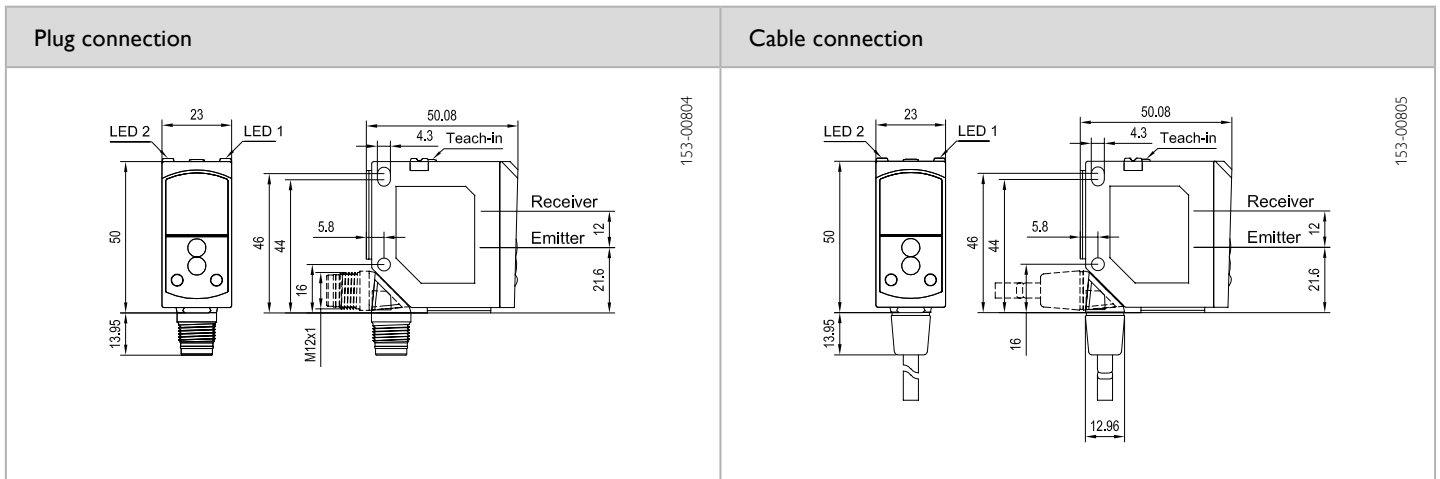
### PRODUCT HIGHLIGHTS

- 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<br>Mode 2: during standing process                |
| Laser Class (IEC 60825-1)          | 1   | Adjustment possibilities        | N.O./N.C. via Teach-in button and control input<br>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<br>- U <sub>b</sub> = button locked<br>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  |