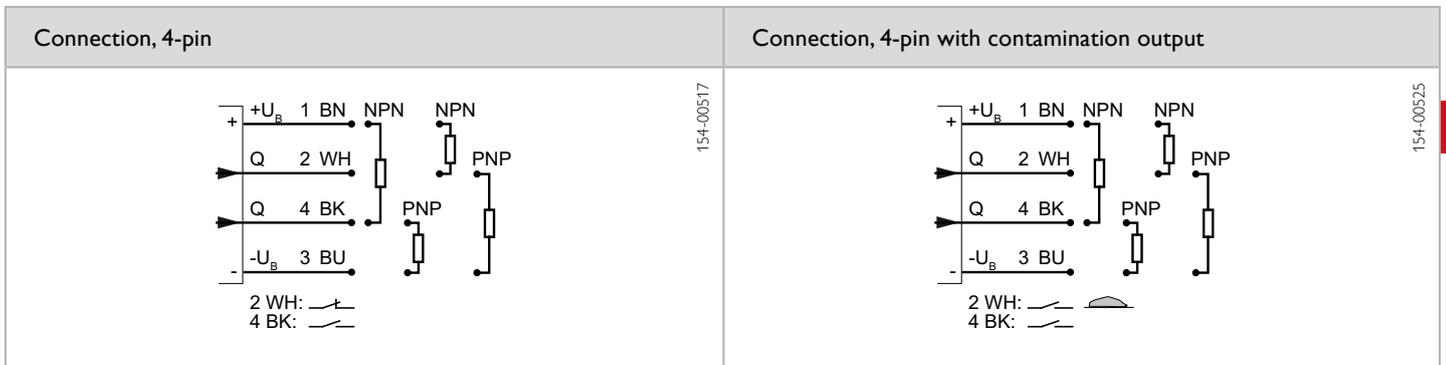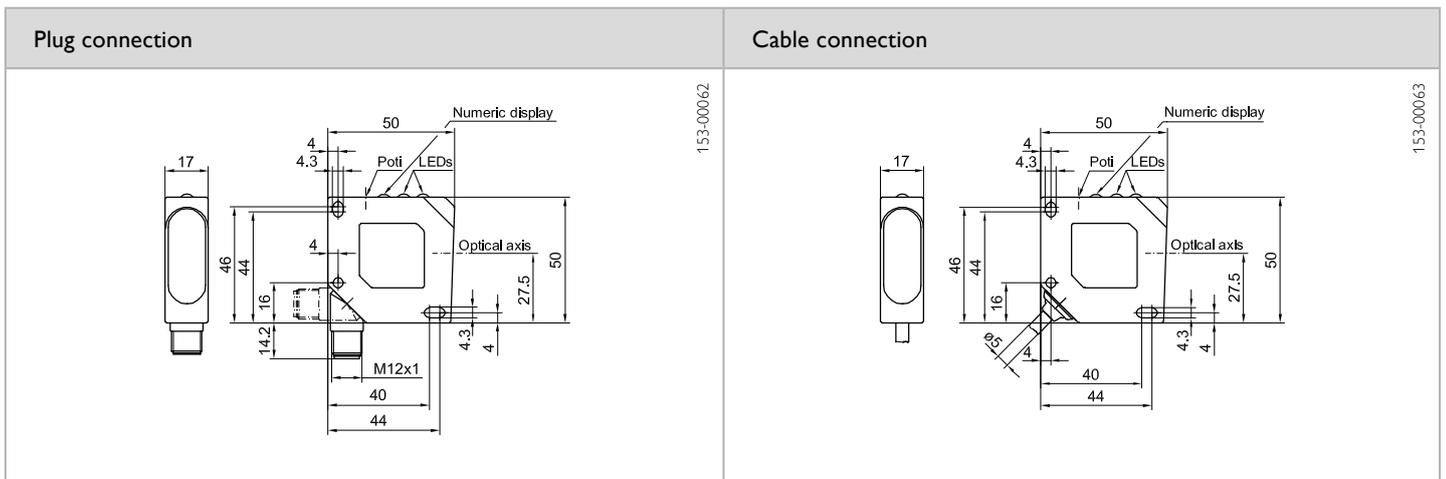# FR 50 R

Photoelectric retro-reflective sensor

PRODUCT HIGHLIGHTS

- Autocollimation principle for maximum precision even at long ranges
- No blind zone – detection from range of 0 mm
- Plug connector rotatable

Optical data	
Limit operating range	0 … 6 m[1]
Operating range	0 … 5.5 m[1]
Type of light	LED, red, 660 nm
Light spot size	See table

Functions		
Indicator LED, green	Operating voltage indicator
Indicator LED, yellow	Switching output indicator
Indicator LED, red	Contamination indicator
Sensitivity adjustment	Via potentiometer

Electrical data	
Operating voltage, $+U_B$	10 … 30 V DC[2]
No-load current, I_0	≤ 30 mA[3]
Output current, Ie	≤ 200 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, antivalent (see selection table)
Output function	N.O./N.C. (see selection table)
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz
Response time	500 µs
Connection, BK	N.O.
Connection, WH[4]	N.C.
Contamination output, WH (optional)	N.O. (see selection table)

Mechanical data	
Dimensions	50 × 50 × 17 mm
Enclosure rating	IP 67[5]
Material, housing	ABS
Material, front screen	PMMA
Type of connection	See selection table
Ambient temperature: operation	-20 … +60 °C
Ambient temperature: storage	-20 … +80 °C
Weight (plug device)	40 g
Weight (cable device)	130 g
Vibration and impact resistance	EN 60947-5-2

[1] Reference material: RD8 reflector   [2] Max. 10 % ripple, within U_B [3] At 24 V DC   [4] Without contamination output   [5] With connected IP 67 plug

Operating range	Switching output	Type of connection	Contamination output	Part number	Article number
0 … 5.5 m	PNP, antivalent	Plug, M12x1, 4-pin	No	FR 50 R-PAL4	571-50004
0 … 5.5 m	NPN, antivalent	Plug, M12x1, 4-pin	No	FR 50 R-NAL4	571-50005
0 … 5.5 m	PNP (N.O.)	Plug, M12x1, 4-pin	Yes	FR 50 R-PSVL4	571-50006
0 … 5.5 m	NPN (N.O.)	Plug, M12x1, 4-pin	Yes	FR 50 R-NSVL4	571-50007
0 … 5.5 m	PNP (N.C.)	Plug, M12x1, 4-pin	Yes	FR 50 R-POVL4	571-50033
0 … 5.5 m	PNP, antivalent	Cable, 3 m, 4-wire	No	FR 50 R-PAK4	571-50000
0 … 5.5 m	NPN, antivalent	Cable, 3 m, 4-wire	No	FR 50 R-NAK4	571-50001
0 … 5.5 m	PNP (N.O.)	Cable, 3 m, 4-wire	Yes	FR 50 R-PSVK4	571-50002
0 … 5.5 m	NPN (N.O.)	Cable, 3 m, 4-wire	Yes	FR 50 R-NSVK4	571-50003

Version: 03/2022. Subject to changes; diagrams similar

Plug connection	Cable connection
153-00062	153-00063

Connection, 4-pin	Connection, 4-pin with contamination output
154-00517	154-00525

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Light spot size

Operating range (m)	0.1	0.5
Light spot size (mm)	15 × 10	Ø 15

Accessories

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