

FR 10-R

Photoelectric retro-reflective sensor



PRODUCT HIGHLIGHTS

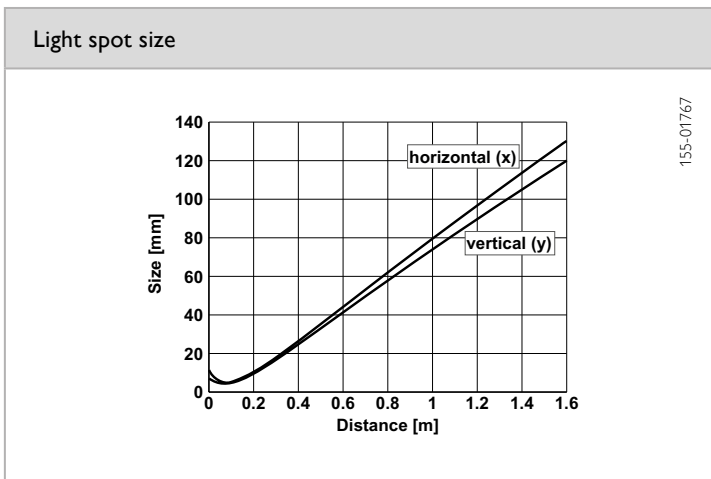
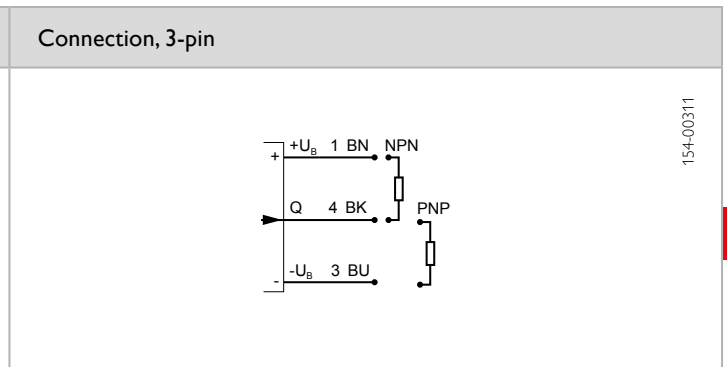
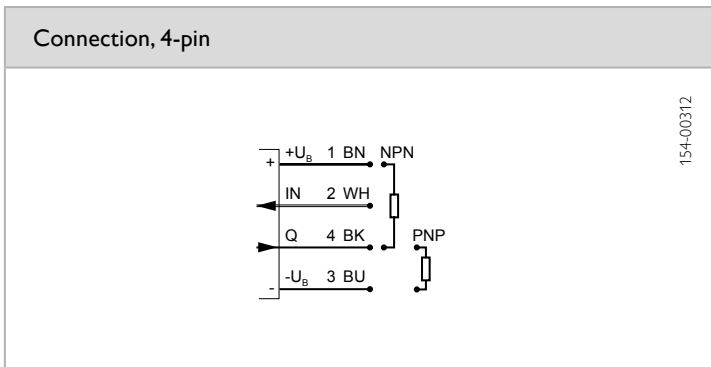
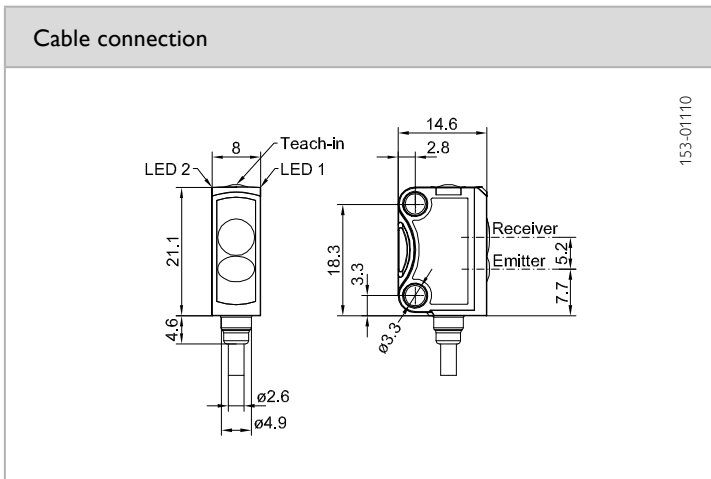
- Sub-miniature sensor for installation in the smallest of spaces
- Despite very small sensor housing very long operating range of 1.6 m
- Fast response time: only 500 μ s
- Static and dynamic teach-in via electronic teach-in button or control line
- Simple mounting and adjustment through innovative dovetail clamp mounting

Optical data		Functions	
Operating range	0.1 ... 1.6 m ¹	Indicator LED green	Operating voltage indicator
Used light	LED, red, 650 nm	Indicator LED yellow	Switching output indicator
Light spot size	See diagram	Sensitivity adjustment	Via Teach-in button and control input ³
Polarising filter	Yes	Teach-in modes	Mode 1: during running process Mode 2: during standing process
		Adjustment possibilities	N.O./N.C. via Teach-in button and control input ³ Button lock via control input ³
		Default settings	Max. range and N.O.
Electrical data		Mechanical data	
Operating voltage, +U _B	10 ... 30V DC ²	Dimensions	21,1 × 14,6 × 8 mm
No-load current, I ₀	≤ 20 mA	Enclosure rating	IP 67 ⁴
Output current, I _e	≤ 50 mA	Material, housing	PUR
Protective circuits	Reverse-polarity protection, U _B / 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 ⁵
Switching output, Q	PNP/NPN (see selection table)	Ambient temperature: storage	-20 ... +80 °C
Output function	N.O./N.C.	Weight (cable device)	Approx. 22 g
Switching frequency, f (ti/tp 1:1)	≤ 1000 Hz	Weight (pigtail)	Approx. 10 g
Response time	500 μ s		
Control input, I _N ³	+U _B = teach-in -U _B = button locked Open = normal operation		

¹ Reference material reflector R5 ² Max. 10 % ripple within U_B, ~ 50 Hz / 100 Hz ³ Only 4-pin design ⁴ With connected IP 67 plug ⁵ UL: -20 ... +30 °C

Operating range	Switching output	Type of connection	Part number	Article number-Nr.
0.1 ... 1.6 m ¹	PNP	Cable, 2 m, 4-wire	FR 10-R-PS-K4	603-11001
0.1 ... 1.6 m ¹	NPN	Cable, 2 m, 4-wire	FR 10-R-NS-K4	603-11004
0.1 ... 1.6 m ¹	PNP	Pigtail, 200 mm with M8 plug, 4-pin	FR 10-R-PS-KM4	603-11002
0.1 ... 1.6 m ¹	NPN	Pigtail, 200 mm with M8 plug, 4-pin	FR 10-R-NS-KM4	603-11005
0.1 ... 1.6 m ¹	PNP	Pigtail, 200 mm with M8 plug, 3-pin	FR 10-R-PS-KM3	603-11003
0.1 ... 1.6 m ¹	NPN	Pigtail, 200 mm with M8 plug, 3-pin	FR 10-R-NS-KM3	603-11006

Including dovetail clamp mounting MBD F 10 for all types



Reflector / Reflective foil*	Operating range (min./max. reflector distance)	Accessories	
R5	0.1 ... 1.6 m	Reflectors Connection cables Brackets	From Page A-18
R1	0.1 ... 1 m		From Page A-38
R2-2LB1	0,15 ... 0,5 m		From Page A-4
R3-2LK1	0,15 ... 0,5 m		
RF-100 KL*	0,15 ... 1 m		