

FR 55-RLAP

Distance sensor with a reflector for large distances – Time-of-flight technology



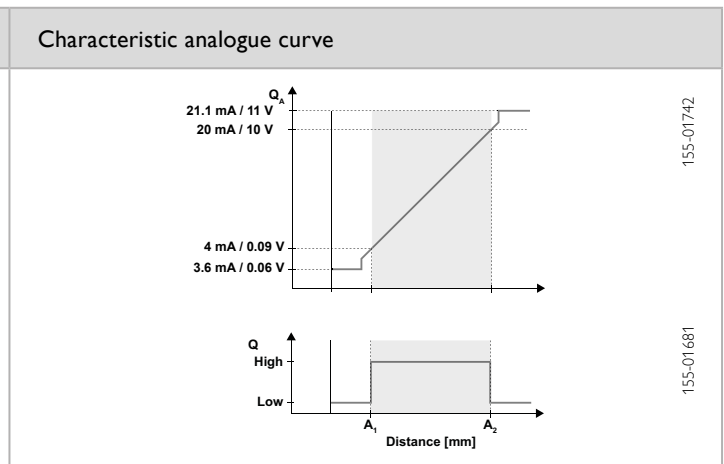
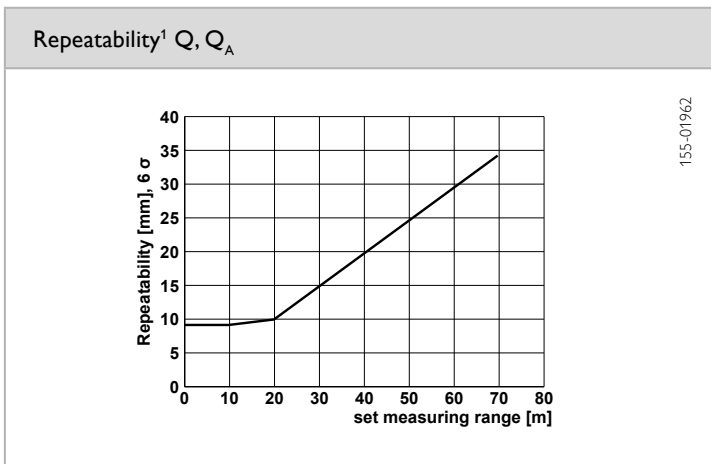
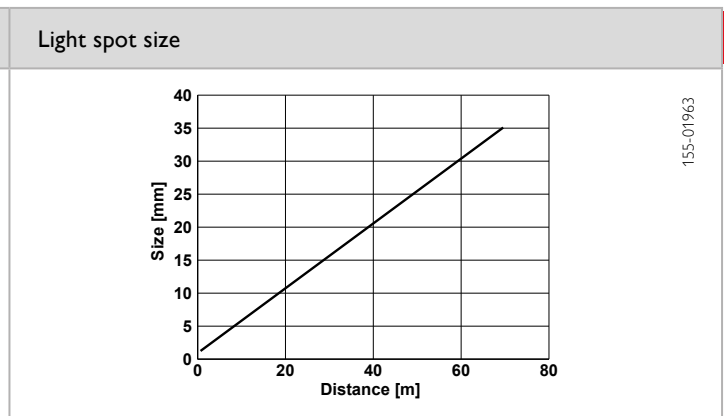
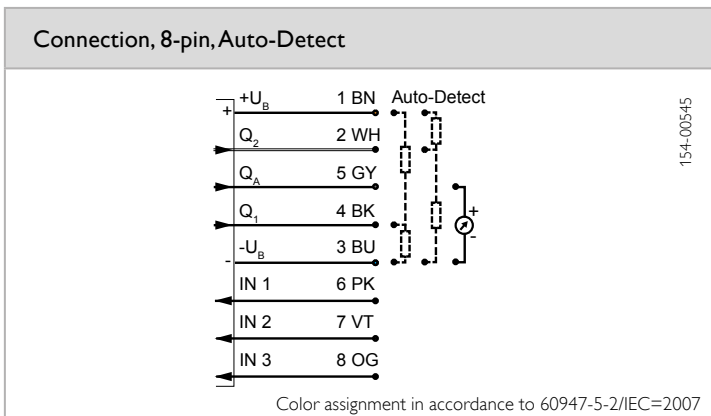
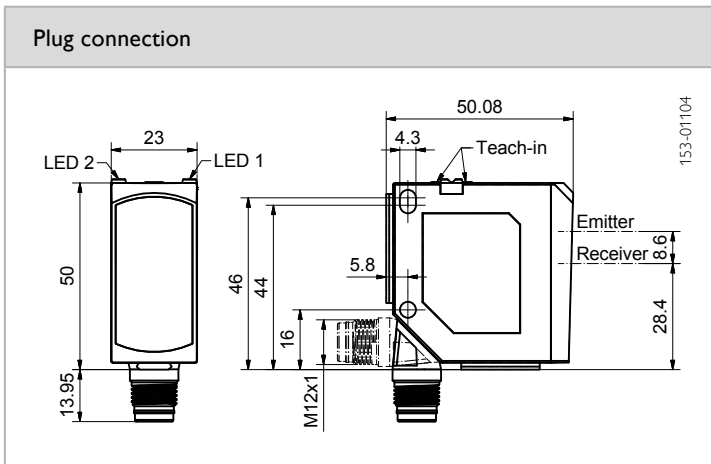
PRODUCT HIGHLIGHTS

- Sensor with large range for anticollision and positioning applications
- High flexibility thanks to adjustable analogue characteristic (Q_A)
- 4 distance positions with 2 switching outputs, adjustable via window function
- Q_1/Q_2 switchable to $Q_1/\overline{Q_1}$ as antivalent outputs
- Compact design for an easy integration
- Easy installation and operation via external teach-in
- Clearly visible laser light spot (laser class 1) for a precise alignment and full eye safety
- Laser can be switched off via control line

Optical data		Functions	
Measurement range	0.3 ... 70 m ¹	Indicator LED 1, green	Operating voltage indicator
Resolution	8 μ A	Indicator LED 1, yellow	Switching output indicator
Linearity	$\pm 0.5\%$ ^{1,2}	Indicator LED 2 yellow	Switching output indicator
Repeatability Q	1.5 mm ³	Measurement range adjustment	Via Teach-in button or control input
Hysteresis	60 mm	Adjustment possibilities	Analogue measurement range Q_A Invertible analogue characteristic Switching output Q (window mode) N.O. / N.C. / antivalent $Q_1/\overline{Q_1}$ and Auto-Detect / NPN / PNP via teach-in and control line Button lock via control input
Type of light	Laser, red 655 nm	Default settings	See selection table
Laser class (IEC 60825-1)	1		
Electrical data			
Operating voltage $+U_B$	18 ... 30V DC	Response time Q	10 ms
No-load current I_0	≤ 60 mA	Load	≤ 500 Ohm (4 ... 20 mA)
Output current I_e Q	≤ 100 mA	Analogue output Q_A	4 ... 20 mA
Protection circuits	Reverse polarity protection U_B / short-circuit protection (Q)	Update rate Q_A	10 ms
Protection class	2	Temperature drift	< 1 mm / K
Power On Delay	< 5 s	Warm-up time	20 min.
Switching output Q	Auto-Detect (PNP/NPN) ⁴	Control input IN 1 und IN 2	$+U_B$ = Teach-in $-U_B$ = Button locked Open = normal operation
Output function	N.O./N.C./antivalent $Q_1/\overline{Q_1}$	Control input IN 3	$+U_B$ = Laser off $-U_B$ = Laser on offen = Laser on
Switching frequency f (ti/tp 1:1)	≤ 50 Hz		
Mechanical data			
Dimensions	50 x 50.1 x 23 mm	Ambient temperature: operation	-30 ... +60 °C ⁶
Enclosure rating	IP 67 & IP 69K ⁵	Ambient temperature: storage	-40 ... +80 °C
Material, housing	ABS	Weight (plug device)	42 g
Material, front screen	PMMA	Resistance to vibration and impacts	EN 60947-5-2
Type of connection	See selection table		

¹ Reference material: RF250 reflector ² Of set measuring range ³ For 1 σ , the set measuring range is < 20 m, for further values see diagram ⁴ Auto-Detect: Automatic selection of PNP or NPN by the sensor; PNP or NPN can be fixed ⁵ With connected IP 67 / IP 69K plug ⁶ UL: max. +45 °C

Measurement range ¹	Analogue output	Switching output	Type of connection	Part Number	Article number
0.3 ... 70 m	4 ... 20 mA	2 x Auto-Detect	Plug, M12x1, 8-pin	FR 55-RLAP-70-2PNSI-L8	621-11026



¹ At constant ambient conditions

Default setting	Measurement range	Accessories	
Analogue output Q _A (4...20 mA)	2 ... 6 m	Mounting angle MA F 55 (579-50007)	From Page A-4
Switching output Q ₁ (A ₁ ...A ₂), N.O., Auto-Detect	2 ... 6 m	Further brackets	From Page A-4
Switching output Q ₂ (A ₁ ...A ₂), N.O., Auto-Detect	2 ... 6 m	Connection cables (C L8FG-S-2m-PUR / 902-51830)	From Page A-38
		Further connection cables	From Page A-38
		Reflective foil RF 250 (599-91009)	From Page A-18
		Further reflectors	From Page A-18