

FT 55-RLAP

Distance sensor for large distances – Time-of-flight technology



PRODUCT HIGHLIGHTS

- For measurement and control tasks with all object surfaces at long scanning distances
- Stable and precise distance measurement even with tilted objects and with bright, highly reflective or shiny backgrounds
- Compact design for an easy integration
- High flexibility thanks to invertible analogue characteristic (Q_A) and window mode (Q)
- Easy installation and operation via external teach-in
- Clearly visible laser light spot (laser class 1) for an easy alignment and full eye safety

Optical data		Functions	
Measurement range	0.1 ... 5 m (see Selection Table) ¹	Indicator LED 2, green	Operating voltage indicator
Resolution	< 5 mm (12-bit)	Indicator LED 2, yellow	Status indicator analogue output
Linearity	$\pm 30 \text{ mm}^{1,2}$	Indicator LED 1 yellow	Switching output indicator
Repeatability	$1.2 \text{ mm}^{1,2,3}$	Measurement range adjustment	Via Teach-in button or control input
Hysteresis	20 mm	Adjustment possibilities	Analogue measurement range Q_A
Type of light	Laser, red 655 nm		Invertible analogue characteristic
Laser class (DIN EN 60825-1:2008-5)	1		Switching output Q (window mode)
			N.O. / N.C. and Auto-Detect / NPN / PNP via teach-in and control line
			Button lock via control input
		Default settings	See Selection Table
Electrical data			
Operating voltage $+U_B$	18 ... 30V DC	Response time Q	2 ms
No-load current I	$\leq 60 \text{ mA}$	Load	$\leq 500 \text{ Ohm}$ (4 ... 20 mA) $\geq 4 \text{ k Ohm}$ (0 ... 10 V)
Output current I_e Q	$\leq 100 \text{ mA}$	Analogue output Q_A	4 ... 20 mA / 0 ... 10 V
Protection circuits	Reverse polarity protection U_B / short-circuit protection (Q)	Update rate Q_A	2 ms
Protection class	2	Temperature drift	< 2 mm / K
Power On Delay	< 5 s	Warm-up time	20 min.
Switching output Q	Auto-Detect (PNP/NPN) ⁴	Control input IN	$+U_B$ = Teach-in $-U_B$ = Button locked Open = normal operation
Output function	N.O. / N.C.		
Switching frequency f (ti/tp 1:1)	$\leq 250 \text{ Hz}$		
Mechanical data			
Dimensions	50 x 50.1 x 23 mm	Ambient temperature: operation	-40 ... +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 90 % reflectivity

² At 50 Hz

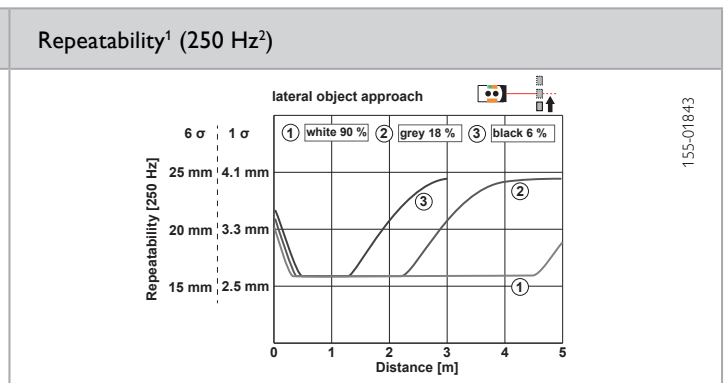
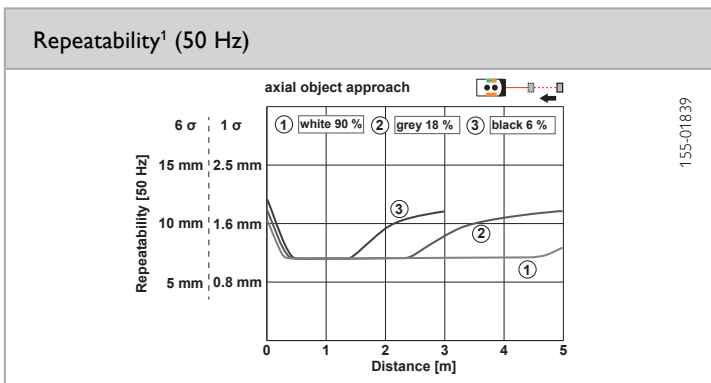
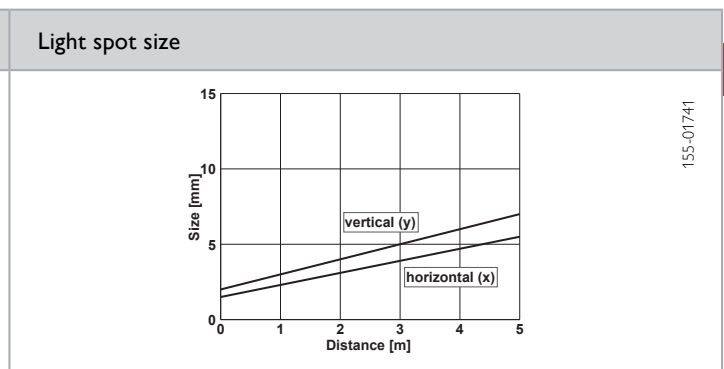
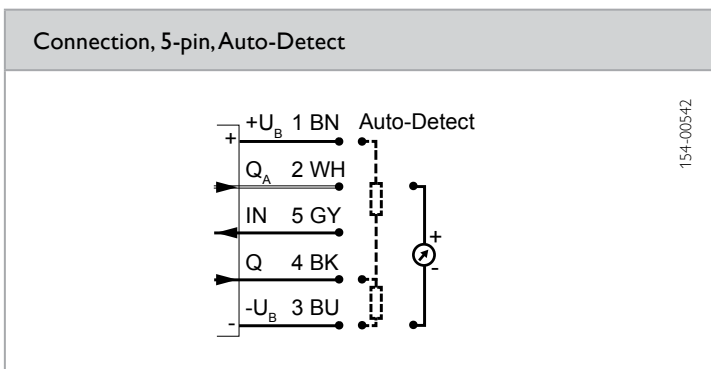
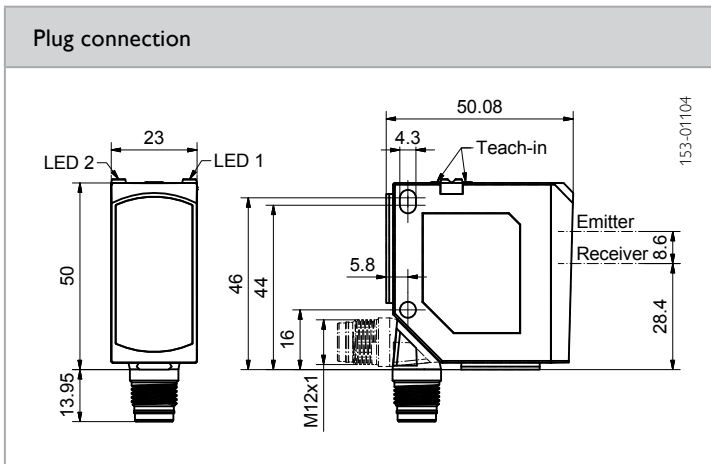
³ For 1 σ , see diagram for further values

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 Up to +50 °C with current output 4 ... 20 mA

Measurement range ¹	Analogue output	Switching output	Type of connection	Part Number	Article number
0.1 ... 5 m	4 ... 20 mA	Auto-Detect	Plug, M12x1, 5-pin	FT 55-RLAP-5-PNSI-L5	622-21018
0.1 ... 5 m	0 ... 10V	Auto-Detect	Plug, M12x1, 5-pin	FT 55-RLAP-5-PNSU-L5	622-21021



¹ At constant ambient conditions ² Automatic adjustment to 50 Hz at constant distance

Characteristic analogue curve	Reference material	Measurement range
	White (90 %)	0.1 ... 5 m
	Grey (18 %)	0.1 ... 5 m
	Black (6 %)	0.1 ... 3 m
	Default setting³	
	Analogue output Q_A (4...20 mA / 0,09 ... 10V)	0.3 ... 3 m
	Switching output Q (A_1 ... A_2), N.O., Auto-Detect	0.3 ... 3 m
Accessories		
Connection cables	From Page A-34	
Brackets	From Page A-4	

³The specified precision is achieved by teaching the distances