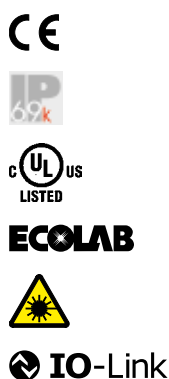


# FT 55-RLAP

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) <sup>1</sup>	Indicator LED 2, green	Operating voltage indicator
Resolution	< 5 mm (12-bit)	Indicator LED 2, yellow	Status indicator analogue output
Linearity	$\pm 30$ mm <sup>1,2</sup>	Indicator LED 1 yellow	Switching output indicator
Repeatability	1.2 mm <sup>1,2,3</sup>	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 (IEC 60825-1)	1		Switching output $Q$ (window mode)
			N.O. / N.C. and Auto-Detect / NPN / PNP via teach-in and control line
		Default settings	See selection table
<b>Electrical data</b>			
Operating voltage $+U_B$	18 ... 30V DC	Response time $Q$	2 ms
No-load current $I$	$\leq 60$ mA	Load	$\leq 500$ Ohm (4 ... 20 mA) $\geq 4$ k Ohm (0 ... 10 V)
Output current $I_e Q$	$\leq 100$ 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) <sup>4</sup>	Control input $I_N$	$+U_B$ = Teach-in / $-U_B$ = button locked Open = normal operation
Output function	N.O./N.C.		
Switching frequency $f$ (ti/tp 1:1) $Q$	$\leq 250$ Hz		
<b>Mechanical data</b>		<b>IO-Link</b>	
Dimensions	50 x 50.1 x 23 mm	Communication mode	COM 2
Enclosure rating	IP 67 & IP 69K <sup>5</sup>	Min. cycle time	2.7 ms
Material, housing	ABS	SIO mode	compatible
Material, front screen	PMMA	Process bit length	24 Bit
Type of connection	See selection table	Specification	1.1
Ambient temperature: operation	-40 ... +60 °C <sup>6,7</sup>		
Ambient temperature: storage	-40 ... +80 °C		
Weight (plug device)	42 g		
Resistance to vibration and impacts	EN 60947-5-2		

<sup>1</sup> Reference material 90 % reflectivity

<sup>2</sup> At 50 Hz

<sup>3</sup> For 1  $\sigma$ , see diagram for further values

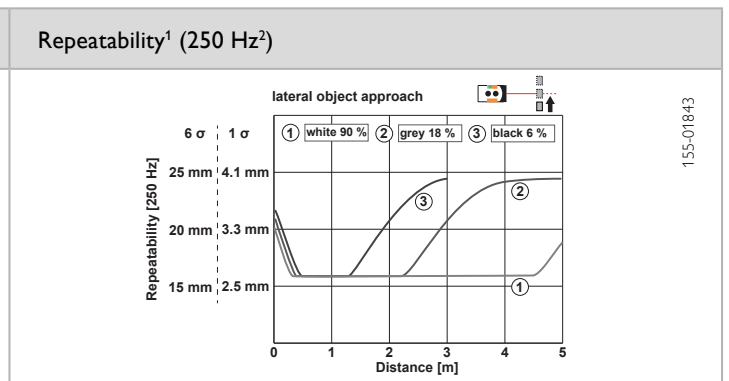
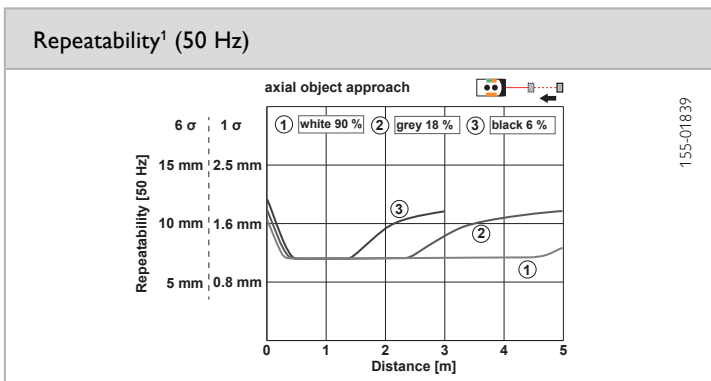
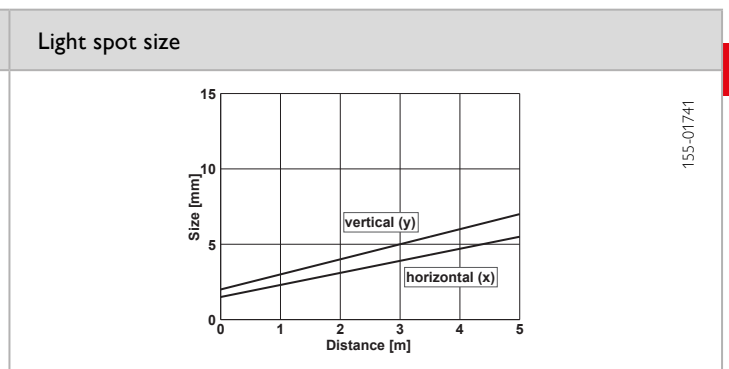
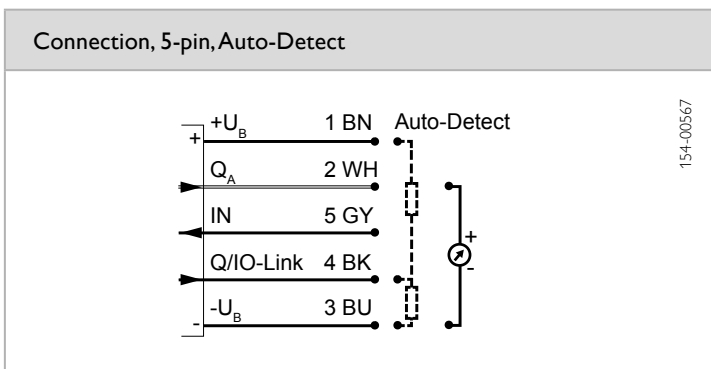
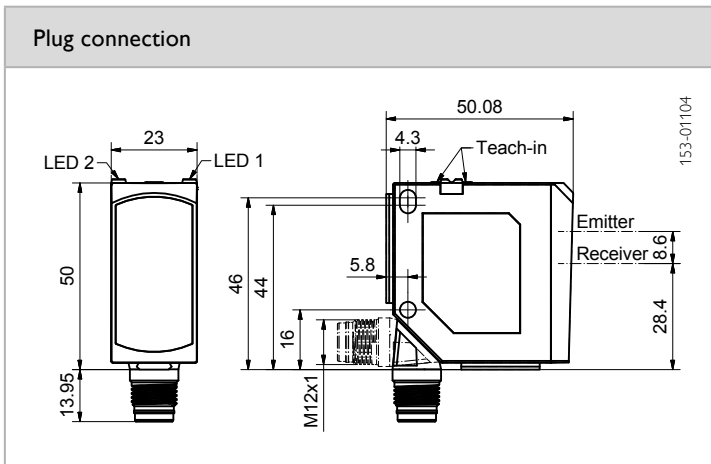
<sup>4</sup> Auto-Detect: Automatic selection of PNP or NPN by the sensor; PNP or NPN can be fixed

<sup>5</sup> With connected IP 67 / IP 69K plug

<sup>6</sup> Up to +50 °C with current output 4 ... 20 mA

<sup>7</sup> UL: max. +45 °C

Measurement range <sup>1</sup>	Analogue output	Switching output	Type of connection	Part Number	Article number
0.1 ... 5 m	4 ... 20 mA	Auto-Detect	Plug, M12x1, 5-pin, IO-Link	FT 55-RLAP-5-PNSIL-L5	622-21023
0.1 ... 5 m	0 ... 10V	Auto-Detect	Plug, M12x1, 5-pin, IO-Link	FT 55-RLAP-5-PNSUL-L5	622-21024



<sup>1</sup> At constant ambient conditions    <sup>2</sup> Automatic adjustment to 50 Hz at constant distance

Characteristic analogue curve	Reference material	Measurement range
<p>Analogue output: 21.1 mA / 11 V, 20 mA / 10 V, 4 mA / 0.09 V, 3.6 mA / 0.06 V.</p> <p>Switching output: High/Low, A<sub>1</sub>, A<sub>2</sub>.</p>	White (90 %) Grey (18 %) Black (6 %)	0.1 ... 5 m 0.1 ... 5 m 0.1 ... 3 m
	<b>Default setting<sup>3</sup></b>	
	Analogue output Q <sub>A</sub> (4...20 mA / 0,09 ... 10V)	0.3 ... 3 m
	Switching output Q (A <sub>1</sub> ...A <sub>2</sub> ), N.O., Auto-Detect	0.3 ... 3 m
<b>Accessories</b>		
	Connection cables	From Page A-38
	Brackets	From Page A-4

Reference: 155-01742, 155-01681

<sup>3</sup>The specified precision is achieved by teaching the distances