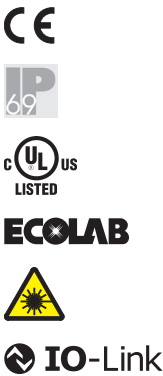


FT 55-RLAM-160 / FT 55-RL2AM-160

Distance sensor for a wide range of applications



PRODUCT HIGHLIGHTS

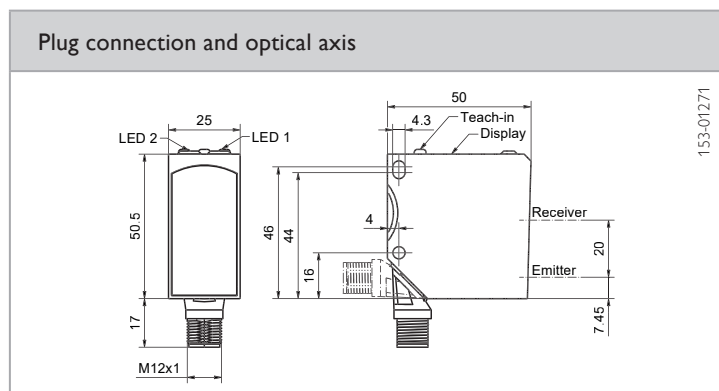
- Operating range up to 200 mm enables versatile applications
- Precise measurements thanks to repeatability up to $\leq 1 \dots 45 \mu\text{m}$
- Switching hysteresis of 0.35 mm enables precise smart part detection
- Variant with laser class 2 for measurements on very dark objects

Optical data		Functions	
Operating range	40 ... 200 mm	Indicator LED 1, green	Operating voltage indicator
Resolution (14 Bit)	$\leq 10 \mu\text{m}$	Indicator LED 2, yellow	Status indicator Q_1 / Q_2
Linearity (typ.) ^{1,2}	$\pm 0.2 \text{ mm}$	Measurement range adjustment	Via display or IO-Link
Repeatability ²	$\leq 1 \dots 45 \mu\text{m}$, see illustration	Adjustment possibilities	Teach-in Q_1 , Q_2 , Q_A , Q as switching window or switching point
Hysteresis ²	$\leq 0.35 \text{ mm}$		Setting of mean value at Q_A
Type of light	Laser, red 655 nm		Auto-Detect / NPN / PNP / Push-Pull
Immunity to ambient light	$\leq 10,000 \text{ lux}$ (laser class 2: 3000 Lux)		Smart Functions (On-delay and drop-out delay, counter, impulse, frequency)
Light spot size (w x h)	4 x 1 mm		
Measurement frequency	5 kHz (laser class 2: 2.5 kHz)		
Laser class (IEC 60825-1)	1 / 2, see selection table		
Electrical data			
Operating voltage + U_B	15 ... 30V DC	Load	$\leq 1 \text{ k}\Omega$ (2 ... 10 mA)
Power consumption	$\leq 1.5 \text{ W}$		$\leq 500 \Omega$ (4 ... 20 mA)
Output current I_Q	$< 50 \text{ mA}$		$\geq 2 \text{ k}\Omega$ (0 ... 10V, 2 ... 10V)
Protection circuits	Reverse polarity protection U_B / short-circuit protection (Q)	Switching frequency f (ti/tp 1:1) Q^4	$\leq 600 \text{ Hz}^9$ (laser class 2: 500 Hz ^{10/11})
Protection class	2	Response time Q	800 μs (laser class 2: 1 ms) ¹¹
Power On Delay	$< 300 \text{ ms}$	Response time Q_A	600 μs (laser class 2: 800 μs) ¹¹
Switching output Q	Auto-Detect ³ / PNP / NPN / Push-Pull	Averaging time ⁵	0.2 ms ¹² , 1 ms, 10 ms, 100 ms, 1000 ms
Output function Q	N.O./N.C.	Update time measured value	Update time Q_A + averaging time
Thermal response Q_A / digital	$\pm 0.02 \text{ \%}/\text{K}$ / $\pm 0.01 \text{ \%}/\text{K}$	Analogue output Q_A	2 ... 10 mA / 4 ... 20 mA
Warm-up time	20 min.		0 ... 10V ⁶ / 2 ... 10V
Mechanical data			
Dimensions	50 x 50.5 x 25 mm	Ambient temperature: operation	-20 ... +50 °C ⁸
Enclosure rating ⁷	IP 67 & IP 69	Ambient temperature: storage	-20 ... +60 °C
Material, housing	Zinc die-cast, matt chrome	Weight (plug device)	157 g
Material, front screen / Display	PMMA	Resistance to vibration and impacts	EN IEC 60947-5-2
Type of connection	See selection table	Display	LCD, with background illumination

¹ Output via IO-Link, deviation $Q_A < 0.2 \text{ mm}$ from digital value ² 5 ... 90 %; homogenous object, not moving ³ Auto-Detect: Automatic selection of PNP or NPN by the sensor; PNP or NPN can be fixed ⁴ all RL(2)AM: Switching frequency in IO-Link operation lower ⁵ Scalable ⁶ up to 0.1 V undefined accuracy ⁷ With connected IP 67 / IP 69 plug
⁸ UL: max. +45 °C ⁹ Reliable object detection at up to 1 kHz ¹⁰ Reliable object detection at up to 500 Hz ¹¹ Reference material white, 90% diffuse reflection
¹² Laser class 2: 0,4 ms

IO-Link			
Communication mode	COM 2	Length process data	32 Bit
Min. cycletime	3 ms	Data Storage	compatible
SIO mode	Compatible	Specification	1.1

Interface	Type of connection	Laser class	Part Number	Article number
IO-Link	Plug, M12x1, 5-pin, IO-Link	1	FT 55-RLAM-160-PNSUIDL-L5M	624-41000
RS485	Plug, M12x1, 8-pin	1	FT 55-RLAM-160-PNSUID-S1L8M	624-41001
IO-Link	Plug, M12x1, 5-pin, IO-Link	2	FT 55-RL2AM-160-PNSUIDL-L5M	624-41011



Connection, 5-pin, Auto-Detect ^{13, 14}	Connection, 8-pin, Auto-Detect ^{13, 14}

¹³ In IO-Link mode, a 4-pin cable must be used ¹⁴ For analogue transmission of measured values we recommend shielded cables ¹⁵ Can be used as output or input

Repeatability (typ.) ¹⁶	Linearity error (typ.)

¹⁶ Repeatability 6 σ , 5 ... 90 %, homogenous object, not moving

Default setting	Accessories										
<table> <tr> <td>Analogue output Q_A</td> <td>4 ... 20 mA, Measurement range limits</td> </tr> <tr> <td>Switching output Q_1</td> <td>90 mm, N.O.</td> </tr> <tr> <td>Switching output Q_2</td> <td>150 mm, N.O.</td> </tr> </table>	Analogue output Q_A	4 ... 20 mA, Measurement range limits	Switching output Q_1	90 mm, N.O.	Switching output Q_2	150 mm, N.O.	<table> <tr> <td>Connection cables¹⁷</td> <td rowspan="3">www.sensopart.com/en/accessories</td> </tr> <tr> <td>Bracket SensoClip MBD F 55ST2 (579-50012)</td> </tr> <tr> <td>SensIO (901-01001)</td> </tr> </table>	Connection cables ¹⁷	www.sensopart.com/en/accessories	Bracket SensoClip MBD F 55ST2 (579-50012)	SensIO (901-01001)
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SensIO (901-01001)											

¹⁷ For 8-pin versions, use EN IEC 60947-5-2 compliant cables, see From Page A-44