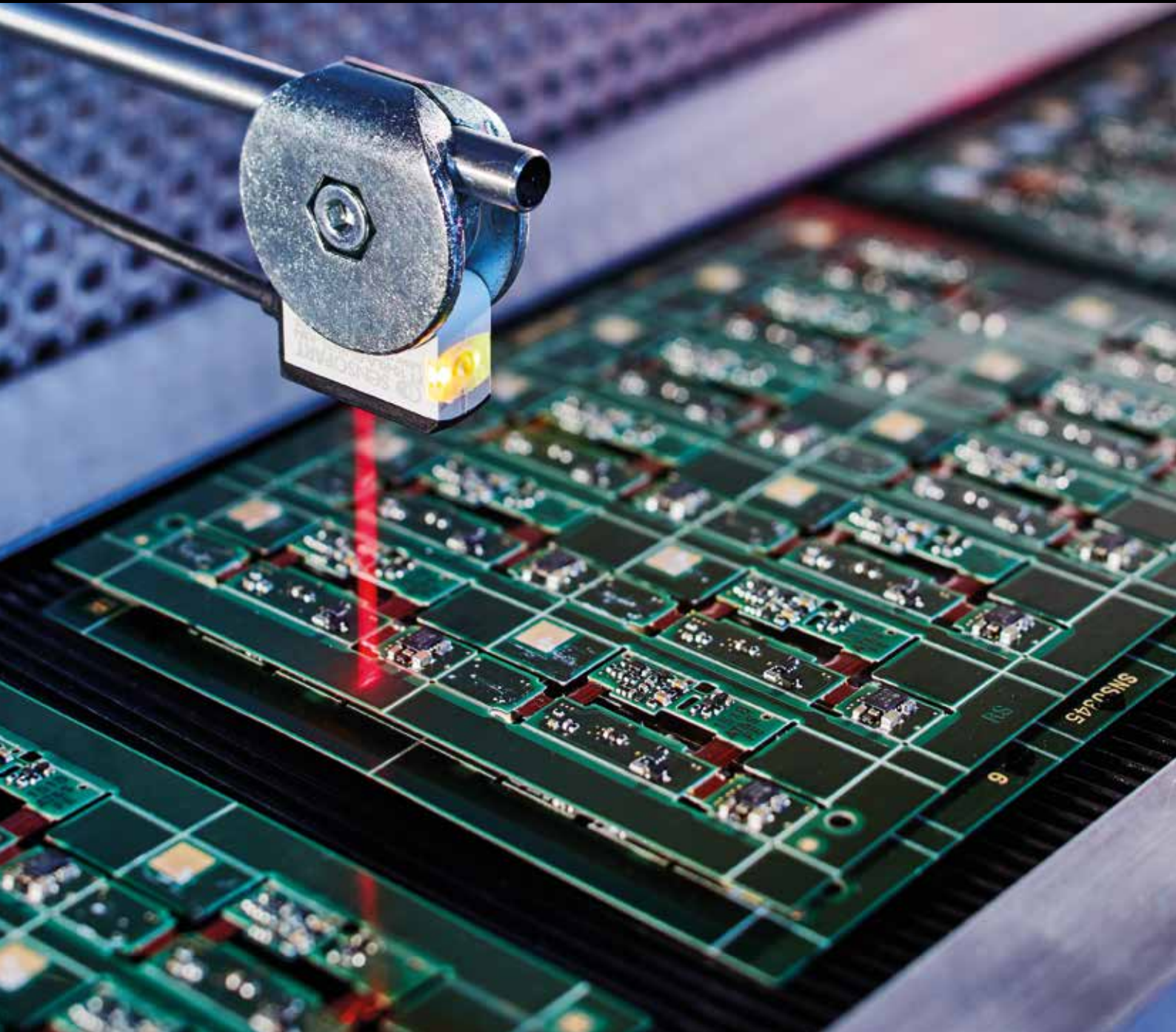


FT 10-RLA

The smallest optical distance sensor in the world



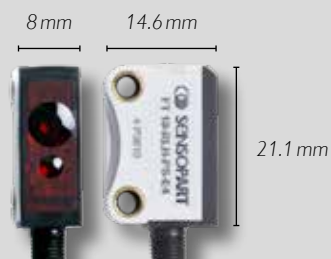
FT 10-RLA – The smallest optical distance sensor in the world

Subminiature distance sensor for precision measurement tasks in confined spaces



When things get too cramped:

The **FT 10-RLA** demonstrates outstanding ability, even in extremely cramped installation conditions. As the smallest optical distance sensor in the world, it is ideally suited to challenging measurement tasks, e.g. during assembly of semi-conductor devices or in robotics applications.



Small but powerful

Measuring just 21.1 x 14.6 x 8 mm in size and only 10 grammes in weight, it is scarcely larger than the tip of your finger – and therefore ideal for cramped conditions.

TYPICAL FT 10-RLA

- Minimum weight, ideal for robotics applications
- Also suited to smallest installation space thanks to minimal dimensions
- Output of measured values via IO-Link
- Excellent sensor characteristics with repeat accuracy and linearity
- Measuring range 10 to 70 mm
- Laser class 1 for optimum eye safety



Small sensor with big performance

- Excellent repeat accuracy and linearity. Ideal for challenging applications.
- With a blind zone of just 10 mm, nothing escapes the sensor!
- Can also be used in cramped conditions; ideal alternative to fibre-optic cables.
- Digital output of measured values via IO-Link – equipped for the future!



Checking accuracy of installation or presence of components



Detection of double layers on printed-circuit boards, or checking the height and presence of components



Distance measurement in robotics applications directly from the gripper

Examples of sectors and applications:

- Robotics, e.g. distance measurement on gripper
- Electronics production, e.g. double layer control on printed circuit boards or height check of components
- Assembly and handling technology, e.g. for checking accuracy of installation

FT 10-RLA

Sub-miniature laser distance sensor



PRODUCT HIGHLIGHTS

- Measurement value output via IO-Link
- Minimum weight
- Also suited to smallest installation spaces thanks to minimal dimensions
- Adjustable averaging times
- Laser class 1 for optimum eye safety

Optical data		Functions	
Measurement range	10 ... 70 mm ¹	Indicator LED, green	Operating voltage indicator
Resolution	0.01 mm	Indicator LED, yellow	Switching output indicator
Linearity	± 0.2 ... 0.8 mm (see characteristics) ²	Measurement range adjustment	Via IO-Link
Repeatability	0.01 ... 0.2 mm (6 σ, see characteristics) ^{2,3}	Adjustment possibilities	Button lock via control input
Type of light	Laser, red, 655 nm		N.O./N.C. and Auto-Detect / NPN / PNP via Teach-in button or IO-Link
Light spot size	1 x 3 mm	Default settings	Smart functions and averaging times via IO-Link
Laser class (IEC 60825-1)	1		See selection table
Resistance to ambient light	≤ 5000 Lux		
Electrical data		Mechanical data	
Operating voltage, +U _B	10 ... 30V DC	Dimensions	21.1 x 14.6 x 8 mm
No-load current, I ₀	≤ 12 mA	Enclosure rating	IP 67 ⁵
Output current, I _{e Q}	≤ 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
Switching output, Q	1x Auto-Detect (PNP/NPN) ⁴	Ambient temperature: operation	-20 ... +50 °C ⁶
Output function Q	N.O./N.C.	Ambient temperature: storage	-20 ... +60 °C
Switching frequency, f (ti/tp 1:1) Q	≤ 1000 Hz	Weight (cable device)	22 g
Response time Q	500 μs	Weight (pigtail)	10 g
Warm-up time	10 min.	Resistance to vibrations and impacts	EN 60947-5-2
Response time measurement value	4 ms		
Averaging times	4 / 40 / 80 / 120 / 160 / 200 / 240 / 280 / 320 / 360 / 400 ms (Default setting 4 ms)		
Temperature-specific measurement deviation	0.01 mm/K (typ.)		
IO-Link			
Communication mode	COM 2		
Min. cycletime	2.7 ms		
SIO mode	Compatible		
Data storage	Compatible		
Length process data	24 Bit		
Specification	1.1		

¹ Reference material 5...90 % reflectivity be fixed
⁵ With connected IP 67 plug

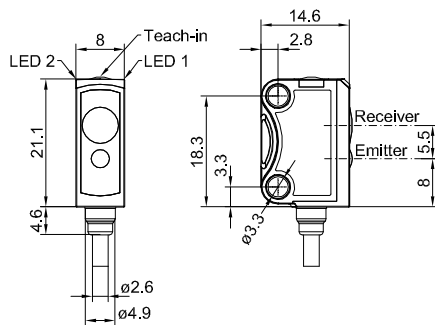
² Reference material 90 % reflectivity
⁶ UL: max. +30 °C

³ Stationary object,

⁴ Auto-Detect: Automatic selection of PNP or NPN by the sensor; PNP or NPN can

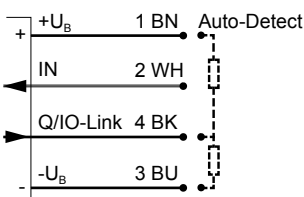
Measurement range	Measurement value output	Switching output	Type of connection	Part number	Article number
10 ... 70 mm	IO-Link	Auto-Detect	Pigtail, 200 mm with plug, M8 4-pin, IO-Link	FT 10-RLA-60-PNSL-KM4	600-11175
10 ... 70 mm	IO-Link	Auto-Detect	Cable, 2 m, 4-wire, IO-Link	FT 10-RLA-60-PNSL-K4	600-11176

Cable connection



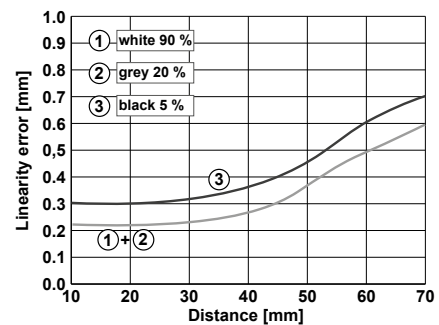
153-00895

Connection, 4-pin, IO-Link



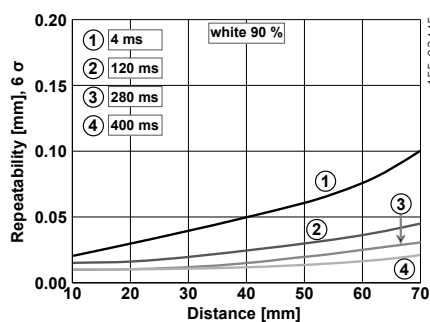
154-00566

Linearity error (typ.)

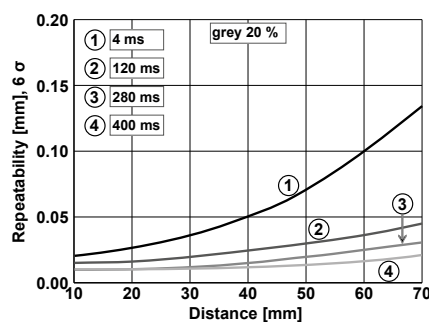


155-03282

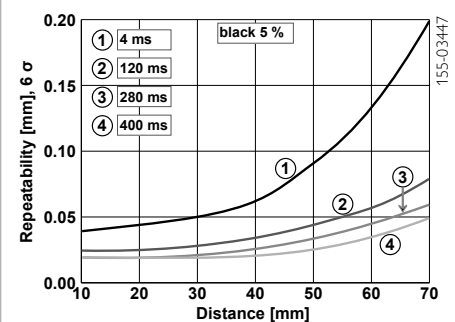
Repeatability¹ (typ.)



155-03445



155-03446



155-03447

¹ At constant ambient conditions, minimum distance between sensors 3 mm

Accessories

Connection cables

From Page A-46

Brackets

From Page A-4

SensolO (901-01000)

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