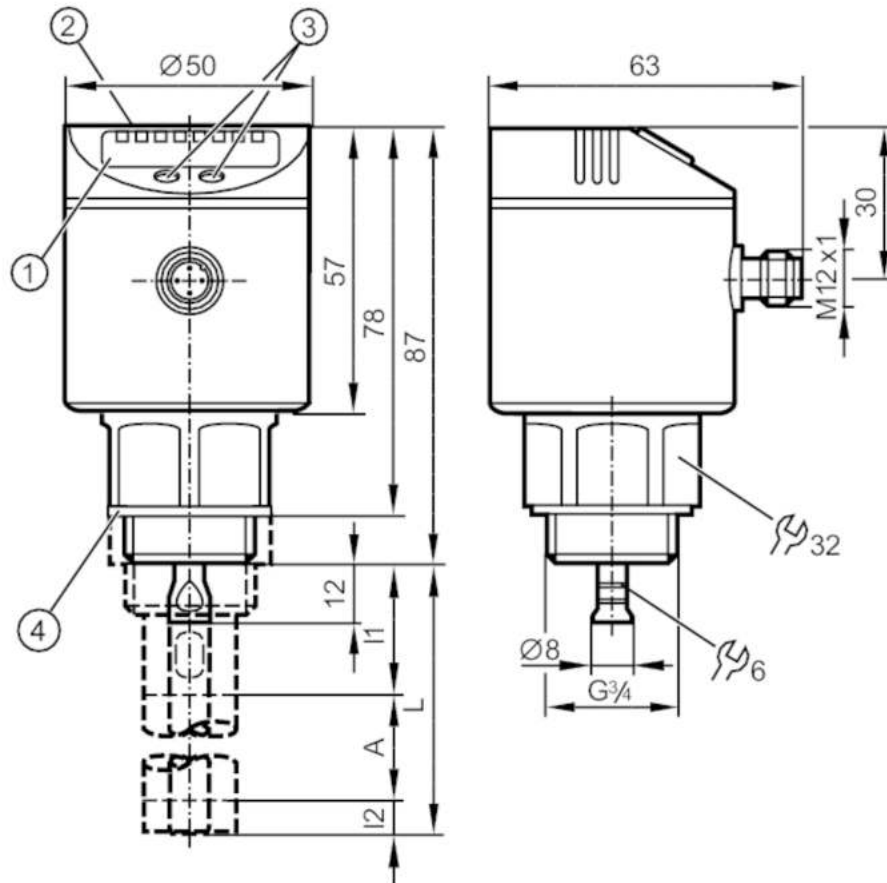


LR3000



Continuous level sensor (guided wave radar)

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- 1 alphanumeric display 4-digit
- 2 LEDs Display unit / switching status
- 3 programming buttons
- 4 Sealing
- A active range
- I1 / I2 inactive ranges



Product characteristics

Number of inputs and outputs	Number of digital outputs: 1; Number of analogue outputs: 1
Probe length L [mm]	100...1600
Process connection	G 3/4 external thread

Application

Special feature	Gold-plated contacts
Media	hydrous coolants; oils; oil-based media; water; media similar to water
Dielectric constant of the medium	≥ 2; (for media with a dielectric constant of 2...20 (e.g. oils), a coaxial pipe is needed for operation)
Cannot be used for	greases; granulates; bulk material; acids; alkali; heavily foaming media
Medium temperature [°C]	0...80; (90 < 1 h)
Tank pressure [bar]	-1...16
MAWP (for applications according to CRN) [bar]	25

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Electrical data		
Operating voltage [V]		18...30 DC
Current consumption [mA]		< 80
Protection class		III
Reverse polarity protection		yes
Power-on delay time [s]		< 3
Measuring principle		guided wave radar
Inputs / outputs		
Number of inputs and outputs		Number of digital outputs: 1; Number of analogue outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analogue signal; IO-Link
Electrical design		PNP
Number of digital outputs		1
Output function		normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC [V]		2.5
Permanent current rating of switching output DC [mA]		200
Number of analogue outputs		1
Analogue current output [mA]		4...20
Max. load [Ω]		500
Analogue voltage output [V]		0...10
Min. load resistance [Ω]		2000
Short-circuit protection		yes
Type of short-circuit protection		thermal, pulsed
Overload protection		yes
Measuring/setting range		
Probe length L [mm]		100...1600
Active range A [mm]		L-40 (L-60); (when set to oil and oil based media)
Inactive range I1 / I2 [mm]		30 / 10 (30); (when set to oil and oil based media)
Setting range		
Set point SP [mm]		≥ 15 (35) / $\leq L-30$
Note on setpoint SP		when set to oil and oil based media
Reset point rP [mm]		≥ 10 (30) / $\leq L-35$
Note on reset point rP		when set to oil and oil based media
In steps of [mm]		5
Hysteresis [mm]		> 5
Accuracy / deviations		
Repeatability [mm]		± 5
Switch point accuracy [mm]		$\pm (15 + 0,5 \%)$; (% of the final value of the measuring range: L - 30 mm)
Offset error [mm]		10
Measuring sensitivity		16 mA \div MEW

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		10 V ÷ MEW
Resolution	[mm]	0,5 (L < 300 mm) 0,2% MEW (L > 300 mm)
Zero signal (voltage)	[V]	0...0.02
Zero signal (current)	[mA]	3.95...4.0
Full signal (voltage)	[V]	10.0...10.1
Full signal (current)	[mA]	20...20.2
Characteristics deviation		± 10

Interfaces

Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.1
SDCI standard		IEC 61131-9 CDV
Profiles		no profile
SIO mode		yes
Required master port type		A
Process data analogue		1
Process data binary		1
Min. process cycle time	[ms]	2.3
Supported DeviceIDs	Type of operation	DeviceID
	Default	344

Operating conditions

Ambient temperature	[°C]	0...60
Storage temperature	[°C]	-25...80
Protection		IP 67

Tests / approvals

EMC		IEC 60947-1
Shock resistance		DIN IEC 68-2-27
Vibration resistance		DIN IEC 68-2-6
MTTF	[years]	196

Mechanical data

Weight	[g]	378.4
Materials		stainless steel (1.4301 / 304); FKM; PBT; PC; PEI; TPE-V; PTFE
Materials (wetted parts)		stainless steel (1.4305 / 303); probe connection: stainless steel (1.4435 / 316L); PTFE; FKM; Sealing: NBR-PPTA 20
Process connection		G 3/4 external thread

Displays / operating elements

Display	Display unit	3 x LED, green
	switching status	1 x LED, yellow
	level	alphanumeric display, 4-digit
	parameter setting	alphanumeric display, 4-digit

Accessories

Accessories (optional)	Probe:, E43203...E43205 / E43207...E43210
	Coaxial pipe:, E43211...E43221, E43223, E43224

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Remarks

Pack quantity

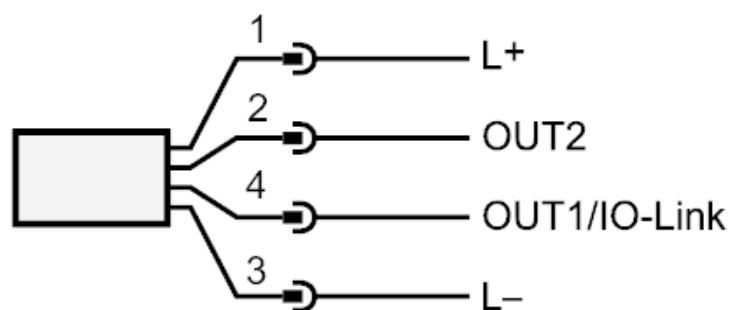
1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



OUT1: switching output

OUT2: analogue output

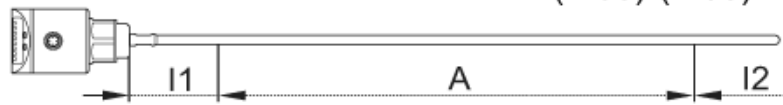
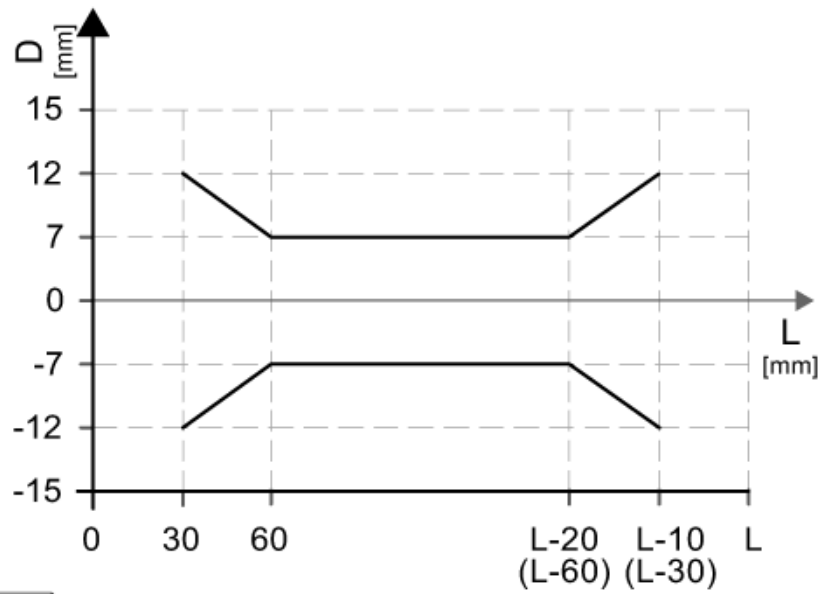
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Diagrams and graphs



Measurement deviation D at the limits of the active rod range