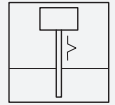




# Guided Level Radar LTC50



- Basic device for level measurement in liquids
- Measuring range up to 12 m
- Process connection 3/4 inch thread or with adapter flange
- Temperature range up to 80 °C (176 °F)
- Pressure range up to 6 bar (87 psi)
- Up to SIL 3 acc. to IEC/EN 61508

## CE SIL 3 Ü

### Function

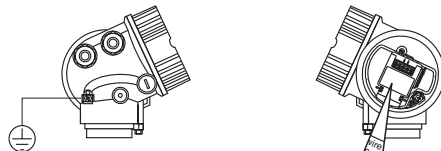
The device offers the following benefits:

- Reliable measurement even for changing product and process conditions
- HistoROM data management for easy commissioning, maintenance and diagnostics
- Highest reliability due to Multi-Echo tracking
- Seamless integration into control or asset management systems
- Intuitive user interface in national languages
- Approvals: ATEX, IECEx

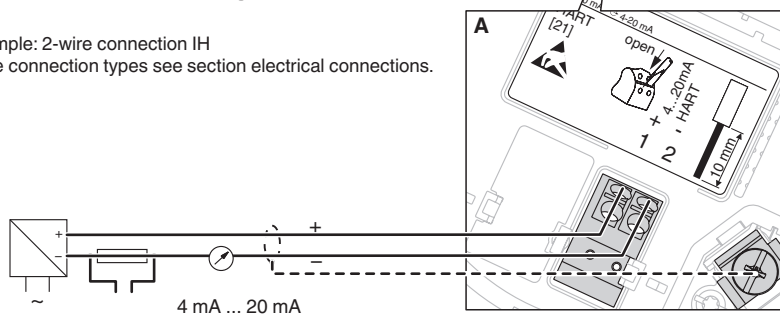
The following interfaces are available for system integration:

- HART with 4 mA ... 20 mA analog (standard)
- PROFIBUS PA (option)

### Connection



Example: 2-wire connection IH  
More connection types see section electrical connections.



### Technical Data

#### General specifications

Measuring method	The device is a measuring system that functions according to the time-of-flight method. The distance from the reference point (process connection of the measuring device) to the product surface is measured.
Construction type	device with rod probe device with rope probe
Series	LTC50

#### Functional safety related parameters

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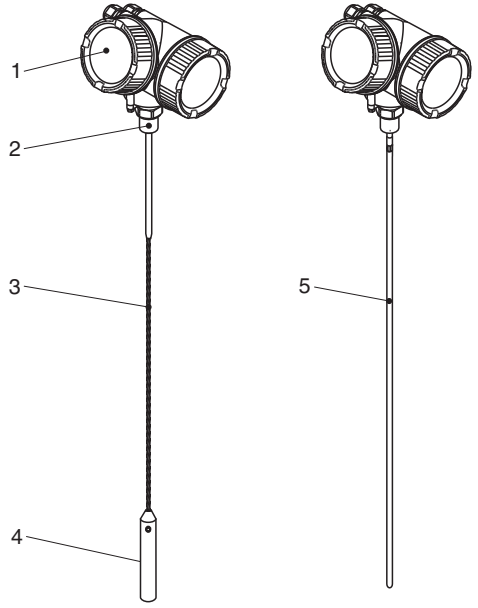
## Technical Data

Safety Integrity Level (SIL)	SIL 3	
<b>Supply</b>		
Rated voltage	$U_r$	11.5 ... 35 V DC, 2-wire 10.4 ... 48 V DC, 4-wire 90 ... 253 V AC, 50/60 Hz
<b>Input</b>		
Measured variable	distance between reference point and product surface	
Measurement range		rod probe: 4 m (13 ft) rope probe: 12 m (39 ft)
<b>Output</b>		
Output signal		4 ... 20 mA 2 x 4 ... 20 mA
Communication		4 ... 20 mA HART (standard) PROFIBUS PA (option)
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2006 , EN 61326-2-3:2006
Low voltage		
Directive 2014/35/EU		EN 61010-1:2010
<b>Conformity</b>		
Degree of protection		IEC 60529:2001
<b>Measurement accuracy</b>		
Accuracy		digital: $\pm 2$ mm (0.08 inch) analog: 0.02 % sum of non-linearity, non-repeatability and hysteresis included in the maximum measured error
<b>Operating conditions</b>		
Process conditions		
Process temperature		-20 ... 80 °C (-4 ... 176 °F)
Process pressure (static pressure)		-1 ... 6 bar (-14.5 ... 87 psi)
Dielectric constant		rod probe: DC $\geq$ 1.6 rope probe: DC $\geq$ 1.6
<b>Ambient conditions</b>		
Ambient temperature		-40 ... 80 °C (-40 ... 176 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP68, NEMA 6P (24 hours in water 1.83 m (6 ft) deep) IP66, NEMA 4X
Connection		gland M20 thread M20, G1/2, NPT1/2 device plug M12, 7/8 in
Material		materials in contact with process : rod probe: 1.4404/316L rope probe: 1.4401/316 process connections: 1.4404/316L, PPS-GF40 process membran, seal: Viton
Process connection		threads: G3/4, MNPT3/4 flanges: universal flange
<b>Data for application in connection with hazardous areas</b>		
EU-type examination certificate		see instruction manuals (SI)
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-1:2007 , EN 60079-11:2012 , EN 60079-15:2010 , EN 60079-26:2007 , EN 60079-31:2009
<b>International approvals</b>		
IECEx approval		see instruction manuals (SI)
<b>Certificates and approvals</b>		
Overspill protection		see approval (ZE)
Telecommunications		radio license FCC
<b>General information</b>		

**Technical Data**

Supplementary documentation	technical information (TI) manuals, brief instructions (BA, KA) instruction manuals (SI) approval (ZE)
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .
<b>Accessories</b>	
Designation	see technical information (TI)

**Assembly**



- 1 Electronics housing
- 2 Process connection (thread)
- 3 Rope probe
- 4 End-of-probe weight
- 5 Rod probe

**Type Code**

This overview does not mark options which are mutually exclusive.  
 Option with \* = on request/in preparation  
 Option with \*\* = multiple options can be selected

L	T	C	5	0	-	(1)	-	(2)	(3)	(4)	-	(5)	(6)	(7)	-	(8)	(9)	.	L
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<b>LTC50</b>	<b>Device</b>
LTC50	Guided level radar

<b>(1)</b>	<b>Type of probe</b>
1	in mm, rod Ø8 mm, 1.4404/316L
2	in mm, rope Ø4 mm, 1.4401/316
3	in inch, rod Ø1/6 inch, 1.4401/316
5	in inch, rope Ø1/3 inch, 1.4404/316L
X	Special version

<b>(2)</b>	<b>Process connection</b>
Threads	
G21	G3/4, ISO 228, 1.4404/316L
N21	MNPT3/4, ANSI, 1.4404/316L
XXX	Special version

<b>(3)</b>	<b>Electrical connection</b>
A	Gland M20, IP66/68, NEMA 4X/6P
B	Thread M20, IP66/68, NEMA 4X/6P
C	Thread G1/2, IP66/68, NEMA 4X/6P
D	Thread NPT1/2, IP66/68, NEMA 4X/6P

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## Type Code

(3)	Electrical connection
I	Connector M12, IP66/68, NEMA 4X/6P
M	Connector 7/8 inch, IP66/68, NEMA 4X/6P
X	Special version

(4)	Seal
2	Viton, -20 to +80 °C
X	Special version

(5)	Housing
A1	GT19 dual compartment, plastics PBT
A2	GT20 dual compartment, alu coated
XX	Special version

(6)	Electrical output
AH	4-wire, 90 to 253 V AC, 4 to 20 mA, HART
DH	4-wire, 10.4 to 48 V DC, 4 to 20 mA, HART
ID	2-wire, 4 to 20 mA, HART, switching output
IE	2-wire, 4 to 20 mA, HART, 4 to 20 mA
IH	2-wire, 4 to 20 mA, HART
PA	2-wire, PROFIBUS PA, switching output
XX	Special version

(7)	Display, operation
B	Without display, via communicator
D	SD02 4-line, push-buttons and data backup function
E	* SD03 4-line, illuminated, touch control and data backup function

(8)	Approval
C1	* CSA C/US IS Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex ia
C2	* CSA C/US XP Cl.I,II,III Div.1 Gr.A-G, NI Cl.1 Div.2, Ex d
CB	CSA C/US IS Cl.I Div.1 Gr.A-D
CC	CSA C/US XP Cl.I Div.1 Gr.A-D
CG	CSA C/US General Purpose
E1	ATEX II 1G Ex ia IIC T6...T1 Ga
E3	ATEX II 3G Ex nA IIC T6...T1 Gc
E4	ATEX II 3G Ex ic IIC T6...T1 Gc
ED	ATEX II 1/2G Ex d [ia] IIC T6...T1 Ga/Gc
EG	* ATEX II 1/2G Ex d [ia] IIC T6...T1 Ga/Gb or 1/2 D Ex ta IIIC Txx°C Da/Db
EW	ATEX II 1/2G Ex ia IIC T6...T1 Ga/Gb or 1/2 G Ex d [ia] IIC T6...T1 Ga/Gb
EX	ATEX II 1/2G Ex ia IIC T6...T1 Ga/Gb
FI	* FM IS Cl.I,II,III Div.1 Gr.A-G, AEx ia, NI Cl.1 Div.2
FM	* FM IS Cl.I Div.1 Gr.A-D
FN	* FM XP Cl.I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
FX	* FM XP Cl.I Div.1 Gr.A-D
IA	IECEX Ex ia T6...T1 Ga
IB	IECEX Ex ia IIC T6...T1 Ga/Gb
IC	IECEX Ex d [ia] IIC T6...T1 Ga/Gb
ID	IECEX Ex ic [ia] IIC T6...T1 Ga/Gc
IG	IECEX Ex nA IIC T6...T1 Gc
IH	IECEX Ex ic IIC T6...T1 Gc
NA	Version for non-explosion-hazardous area
SX	* ATEX II 1/2G Ex ia IIC T6...T1 Ga/Gb or 1/2 D Ex ia IIIC Txx°C Da/D

### Additional Options

(9)	Additional operation language
C	French
D	Spanish
E	Italian
F	Dutch
G	Portuguese
H	Polish
I	Russian
J	Turkish
K	Chinese abbreviations
L	Japanese
M	Korean

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## Type Code

<b>(9) Additional operation language</b>	
O	Bahasa
Q	Vietnamese
R	Czech
<b>(9) Calibration</b>	
4	5-point linearity protocol
<b>(9) Service **</b>	
T	Customized parametrization HART
U	Customized parametrization PA
<b>(9) Test, certificate **</b>	
A	Material certificate, wetted metallic parts, EN 10204-3.1 inspection certificate
<b>(9) Additional approval **</b>	
S	SIL Functional Safety
W	WHG overfill protection
<b>(9) Probe design **</b>	
B	Sensor remote, 3 m cable, detachable, with mounting bracket
C	Sensor remote, 6 m cable, detachable, with mounting bracket
D	Sensor remote, 9 m cable, detachable, with mounting bracket
<b>(9) Firmware version</b>	
5	01.00.zz, HART, DevRev01
7	01.00.zz, PROFIBUS PA, DevRev01
<b>(9) Marking</b>	
1	Tagging (TAG), see additional specification
2	Bus address, see additional specifications
<b>L Probe length</b>	
Length	Length depends on chosen type of probe: - Rod probe: length in mm, 16 mm to 4000 mm - Rope probe: length in mm, 16 mm to 12000 mm

## Accessories

	<b>DTM Level Control</b>	DTM collection
	<b>PACTware 5.0</b>	FDT Framework

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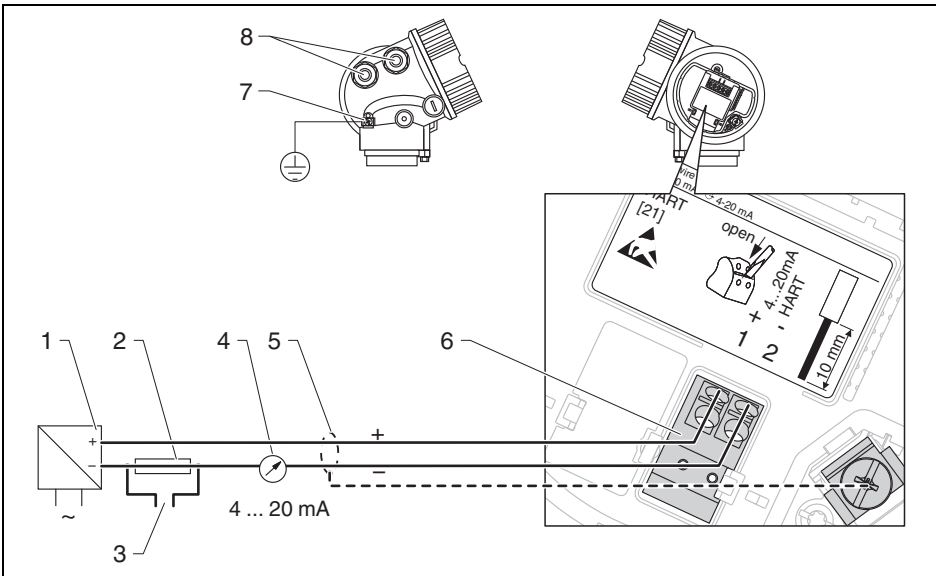
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**Connection**

**2-wire, 4 mA ... 20 mA HART (version IH)**



- 1 Active barrier with power supply (e. g. KCD2-STC-Ex1): observe terminal voltage
- 2 HART communication resistor ( $\geq 250 \Omega$ ): observe maximum load
- 3 Connection for optional field communicator
- 4 Analog display device: observe maximum load
- 5 Cable screen; observe cable specification
- 6 4 mA ... 20 mA HART (passive): terminals 1 and 2
- 7 Terminal for potential equalization line
- 8 Cable entry

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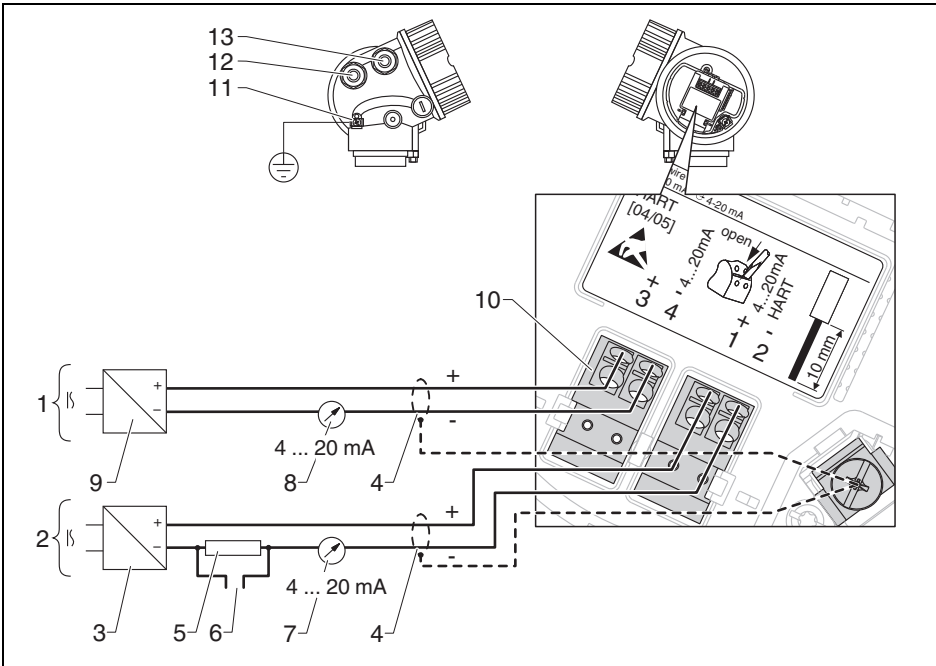
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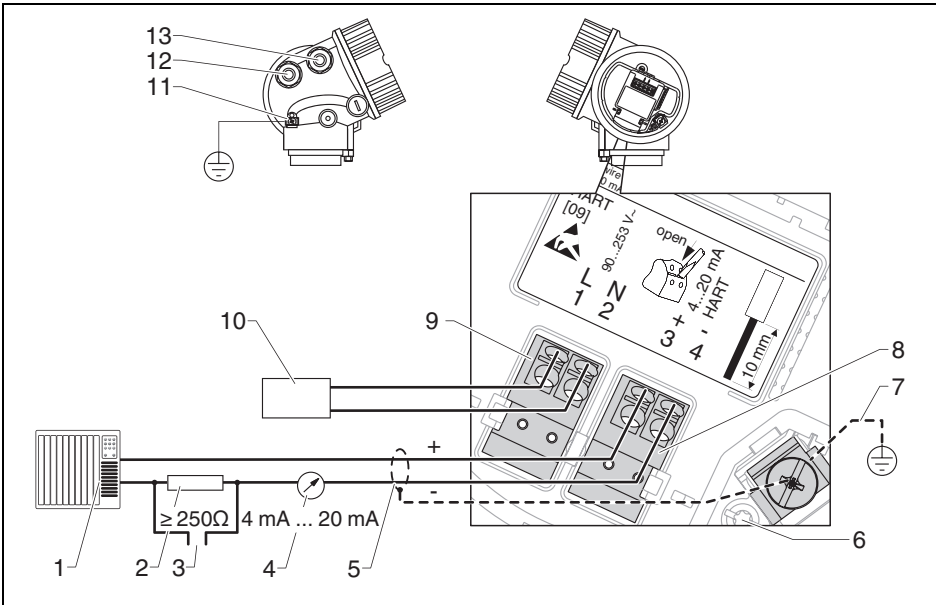
2-wire, 4 mA ... 20 mA HART, 4 mA ... 20 mA (version IE)



- 1 Connection current output 2
- 2 Connection current output 1
- 3 Supply voltage for current output 1 (e. g. KCD2-STC-Ex1); observe terminal voltage
- 4 Cable screen; observe cable specification
- 5 HART communication resistor ( $\geq 250 \Omega$ ); observe maximum load
- 6 Connection for optional field communicator
- 7 Analog display device; observe maximum load
- 8 Analog display device; observe maximum load
- 9 Supply voltage for current output 2 (e. g. KCD2-STC-Ex1); observe terminal voltage
- 10 Current output 2: terminals 3 and 4
- 11 Terminal for the potential equalization line
- 12 Cable entry for current output 1
- 13 Cable entry for current output 2

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4-wire: 4 ... 20 mA HART (90 ... 253 V AC) (version AH)

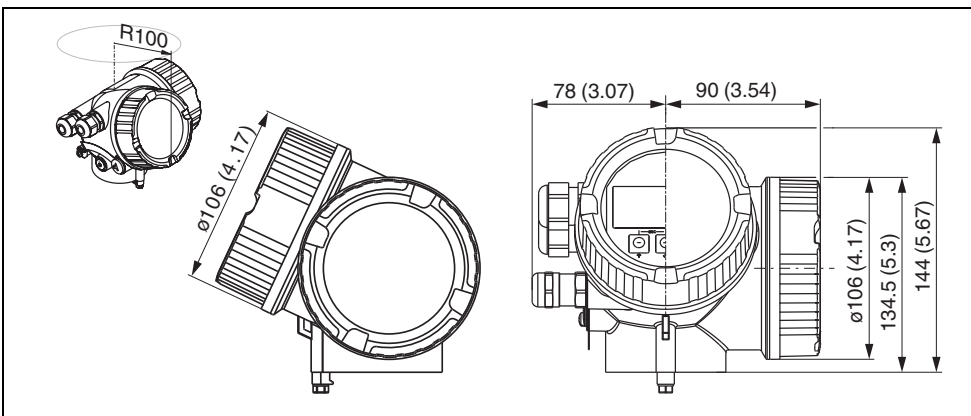


- 1 Evaluation unit, e. g. PLC
- 2 HART communication resistor ( $\geq 250 \Omega$ ): observe maximum load
- 3 Connection for optional filed communicator
- 4 Analog display device: observe maximum load
- 5 Signal cable including screening (if required), observe cable specification
- 6 Protective connection; do not disconnect!
- 7 Protective earth, observe cable specification
- 8 4 mA ... 20 mA HART (active): terminals 3 and 4
- 9 Supply voltage: terminals 1 and 2
- 10 Supply voltage: observe terminal voltage, observe cable specification
- 11 Terminal for potential equalization
- 12 Cable entry for signal line
- 13 Cable entry for power supply

Dimensions

Housing GT19, plastics PBT (version A1)

Dimensions in mm (in)



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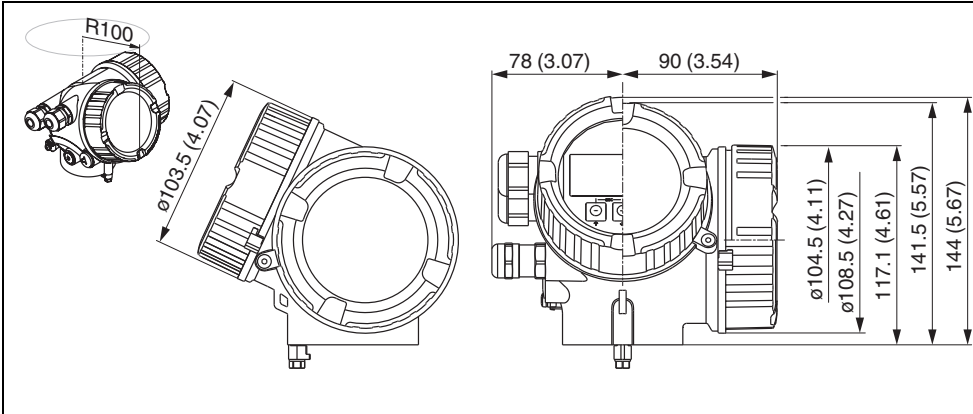
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Housing GT20, alu coated (version A2)

Dimensions in mm (in)



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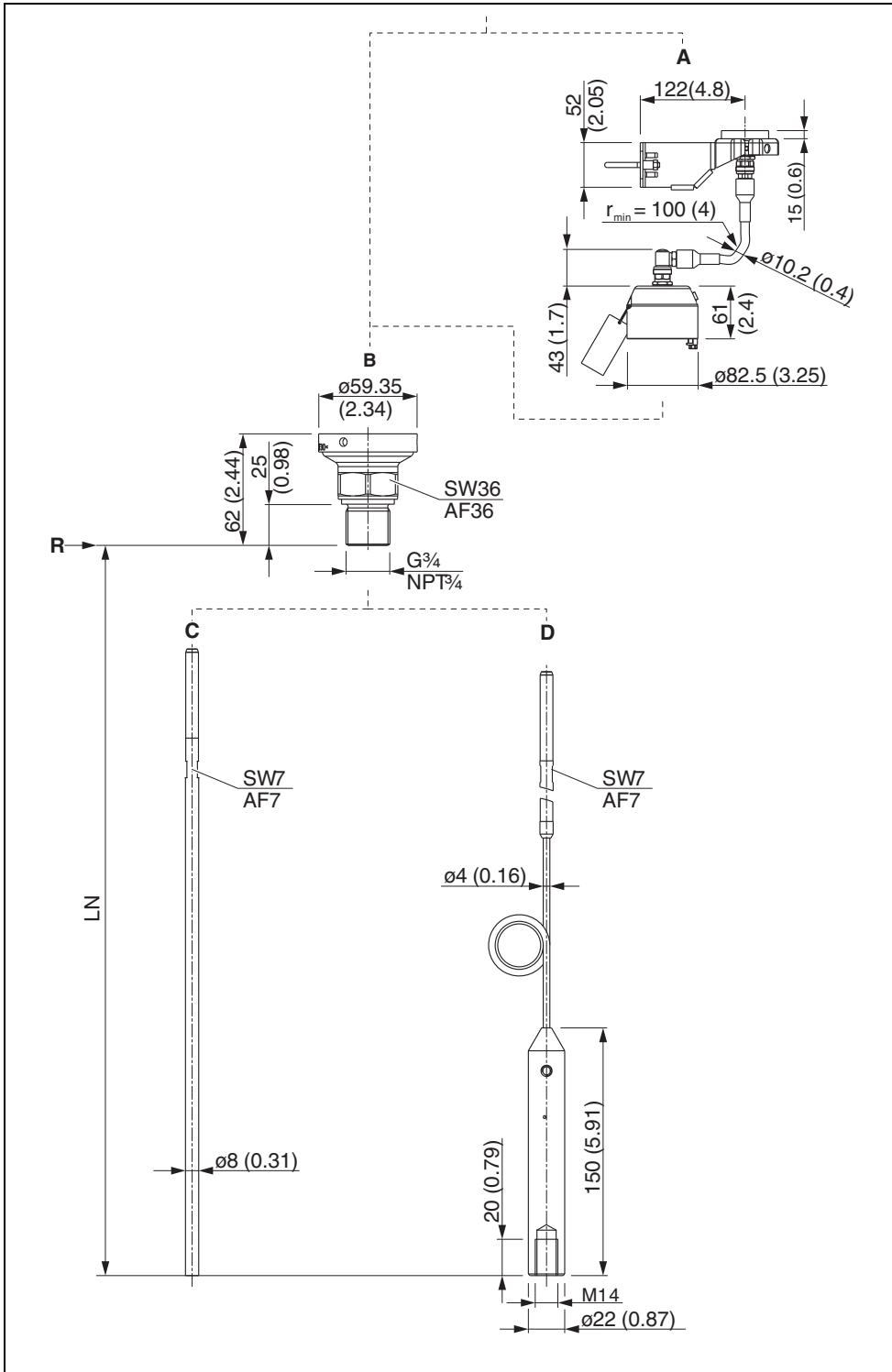
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Process connections and probes

Dimensions in mm (in)



- A** Mounting bracket for probe design "Sensor remote" (feature "Probe design")
- B** Thread ISO228 G3/4 or ANSI MNPT3/4 (feature "Process connection")
- C** Rod probe 8 mm or 1/3 in (feature "Probe")
- D** Rope probe 4 mm or 1/6 in (feature "Probe")
- LN** Length of probe
- R** Reference point of the measurement

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