

Features

- Premium device for level measurement in liquids
- Measuring range up to 45 m (148 ft)
- Process connection from 3/4 in thread or flange
- Temperature range up to 200 °C (392 °F)
- Pressure range up to 40 bar (600 psi)
- Up to SIL3 acc. to IEC 61508

Function

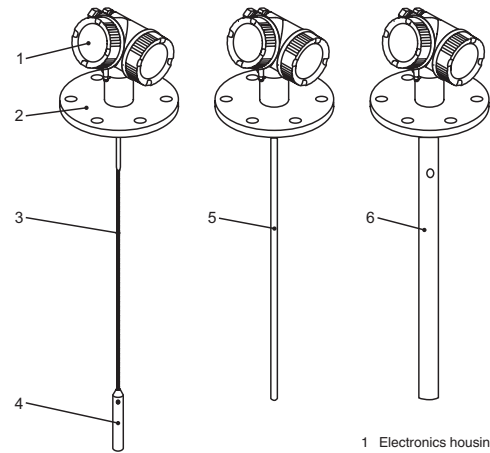
The device offers the following benefits:

- 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)

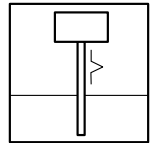
Assembly



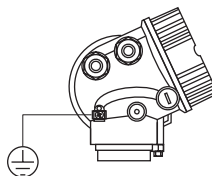
- 1 Electronics housing
- 2 Process connection (e. g. flange)
- 3 Rope probe
- 4 End-of-probe weight
- 5 Rod probe
- 6 Coax probe



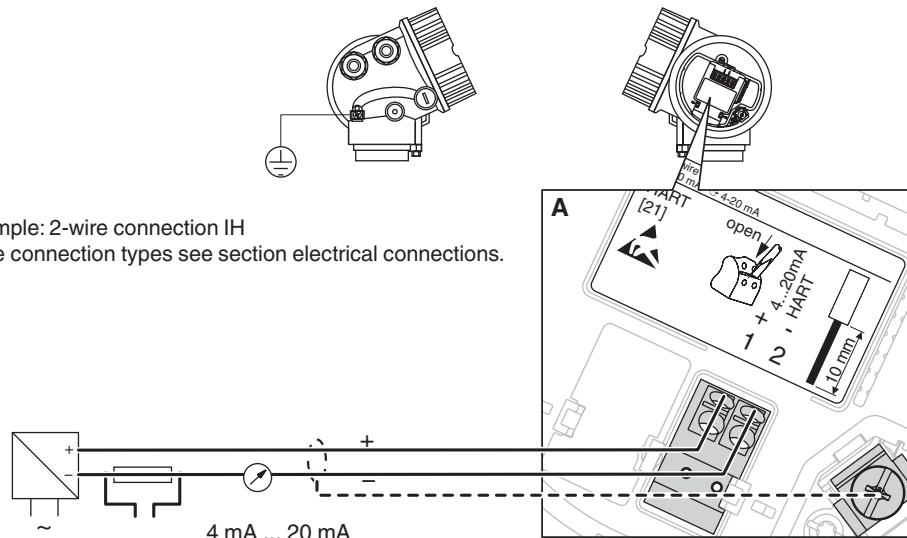
SIL 3



Connection



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



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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 coax probe device with rope probe
Supply	
Rated voltage U_n	11.5 ... 35 V DC, 2-wire 10.4 ... 48 V DC, 4-wire 90 ... 253 V AC, 50/60 Hz
Input	
Measured variable	distance between reference point and product surface
Measurement range	rod probe: 4 m/10 m (13 ft/33 ft) (for divisible/indivisible rod probes) coax probe: 6 m (20 ft) rope probe: 45 m (148 ft)
Output	
Output signal	4 ... 20 mA 2 x 4 ... 20 mA
Communication	4 ... 20 mA HART (standard) PROFIBUS PA (option)
Directive conformity	
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
Conformity	
Degree of protection	IEC 60529:2001
Measurement accuracy	
Accuracy	digital: - measuring range up to 15 m (49 feet): ± 2 mm (0.08 inch) - measuring range > 15 m (49 feet): ± 10 mm (0.39 inch) analog: 0.02 % sum of non-linearity, non-repeatability and hysteresis included in the maximum measured error
Operating conditions	
Process conditions	
Process temperature	-40 ... 200 °C (-40 ... 392 °F)
Process pressure (static pressure)	-1 ... 40 bar (-14.5 ... 580.2 psi)
Dielectric constant	rod probe: DC \geq 1.6 coax probe: DC \geq 1.4 rope probe: DC \geq 1.6
Ambient conditions	
Ambient temperature	-40 ... 80 °C (-40 ... 176 °F)
Mechanical specifications	
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, coax probe: 1.4404/316L rope probe: 1.4401/316 process connections: 1.4404/316L, 2.4602/Alloy C22 process membran, seal: Viton, EPDM, Kalrez, gas-tight feed through as option
Process connection	threads: from 3/4 in flanges: DIN EN from DN40, ANSI from 1-1/2 in, JIS from DN40
Data for application in connection with Ex-areas	
EC-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
International approvals	
IECEX approval	see instruction manuals (SI)
Certificates and approvals	
Overspill protection	see approval (ZE)
Telecommunications	radio license FCC
General information	

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Supplementary documentation	technical information (TI) manuals, brief instructions (BA, KA) instruction manuals (SI) approval (ZE)
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .
Accessories	
Designation	see technical information (TI)

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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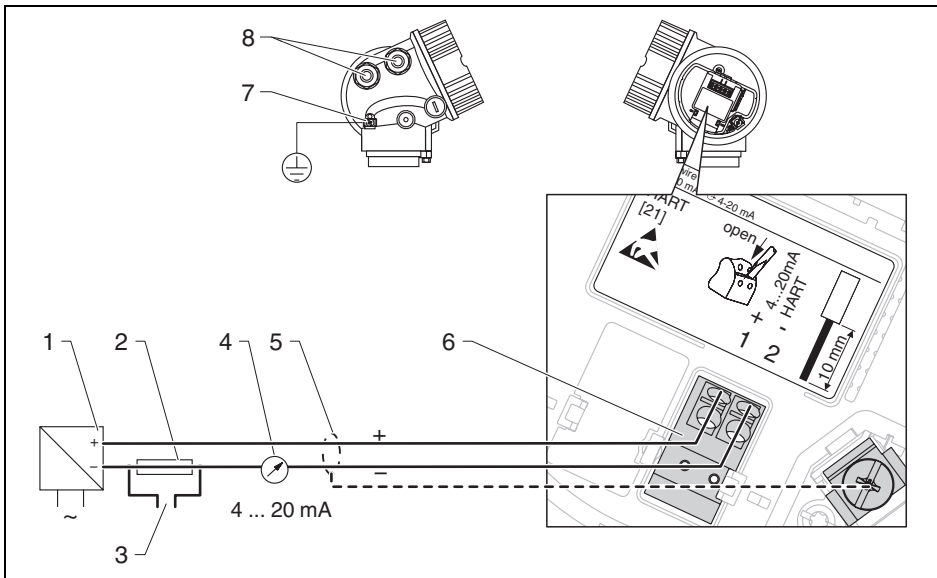
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Electrical Connections (Excerpt)

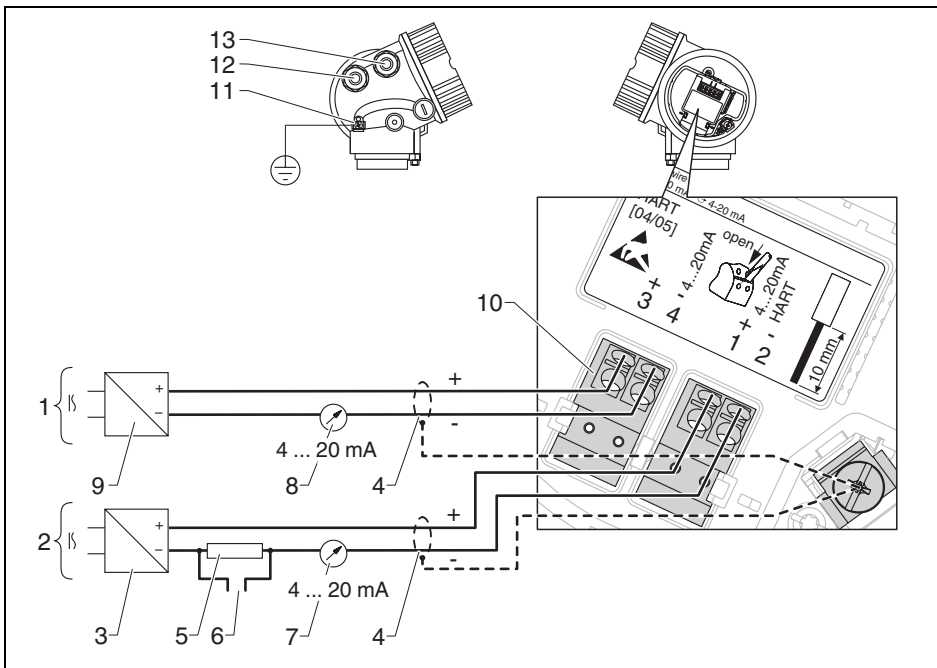
2-wire, 4 mA ... 20 mA HART (version IH)



- 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

Electrical Connections (Excerpt)

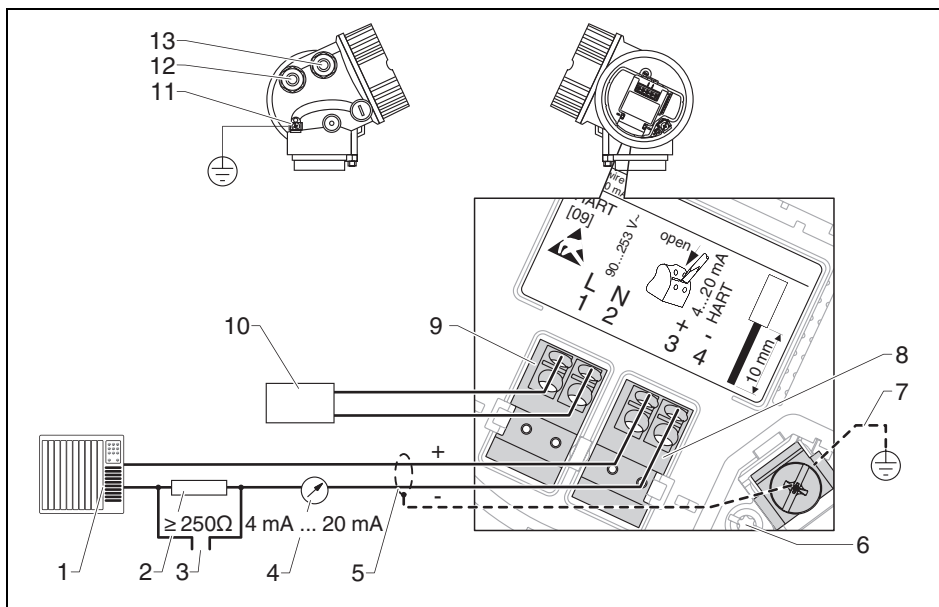
2-wire, 4 mA ... 20 mA HART, 4 mA ... 20 mA (version IE)



- 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

Electrical Connections (Excerpt)

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

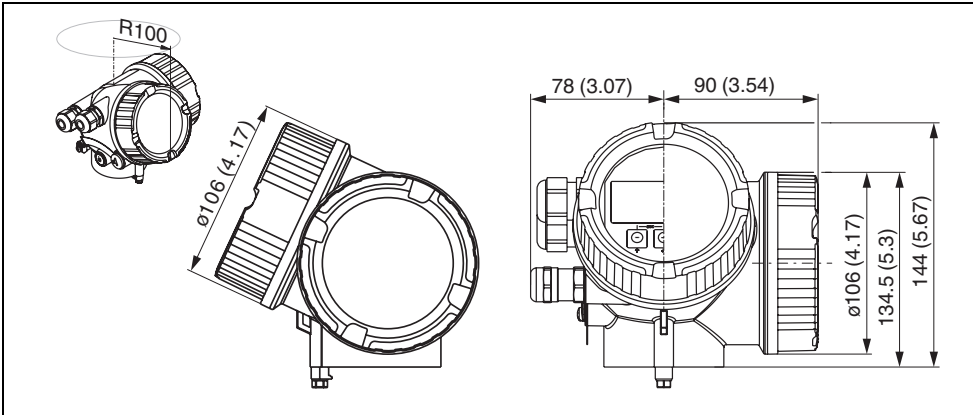


- 1 Evaluation unit, e. g. PLC
- 2 HART communication resistor ($\geq 250 \Omega$): observe maximum load
- 3 Connection for optional filed communicator
- 4 Analog display device: observe maximum load
- 5 Signal cable including screening (if required), observe cable specification
- 6 Protective connection; 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

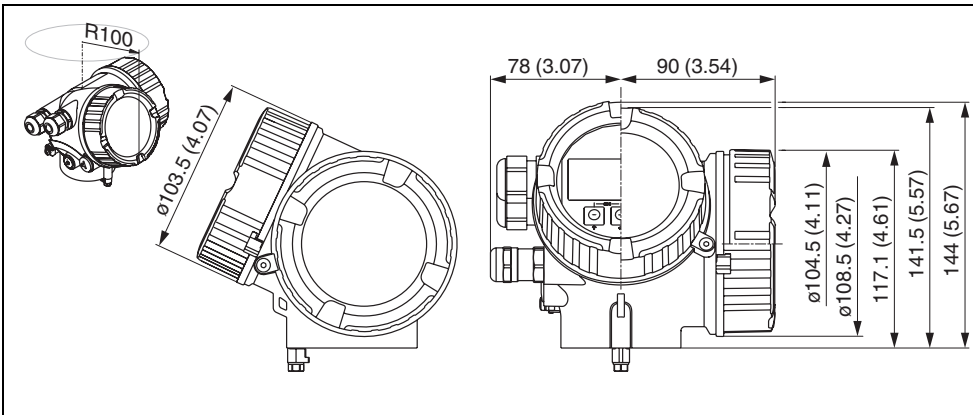
Housing GT19, plastics PBT (version A1)

Dimensions in mm (in)



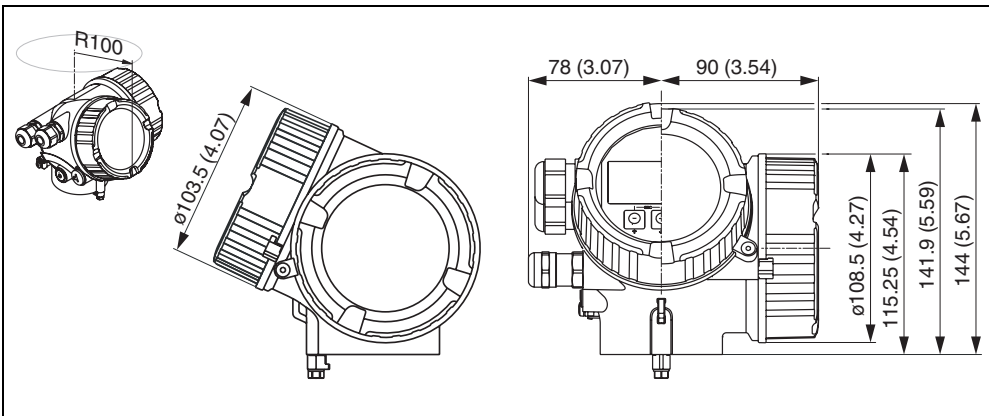
Housing GT20, alu coated (version A2)

Dimensions in mm (in)



Housing GT18, stainless steel (version A3)

Dimensions in mm (in)



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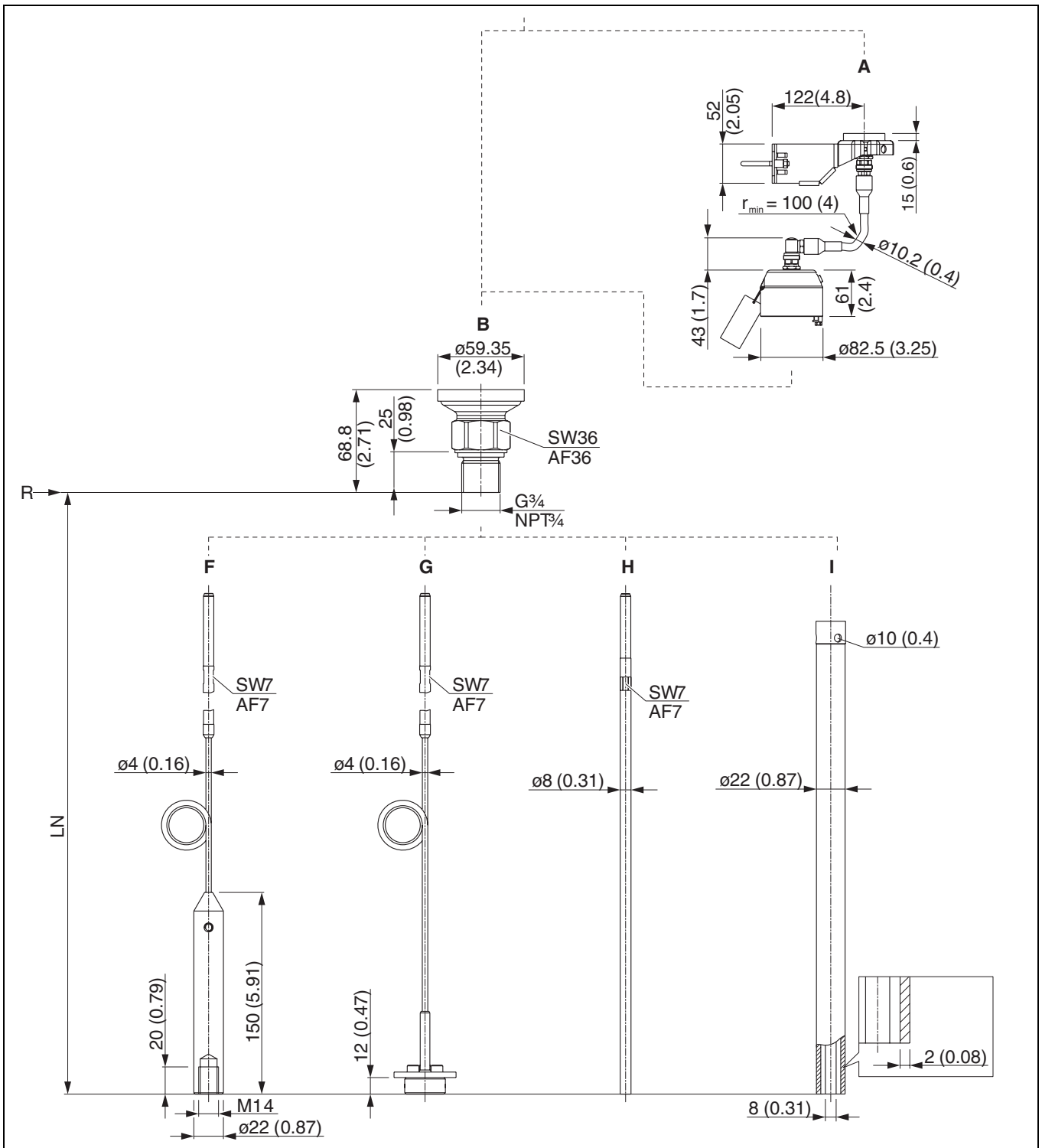
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Dimensions

Process connections (G3/4, NPT3/4) 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")
- F** Rope probe 4 mm or 1/6 in (feature "Probe")
- G** Rope probe 4 mm or 1/6 in; centering disk on request (feature "Probe")
- H** Rod probe 8 mm or 1/3 in (feature "Probe")
- I** Coax probe (feature "Probe")
- LN** Length of probe
- R** Reference point of the measurement

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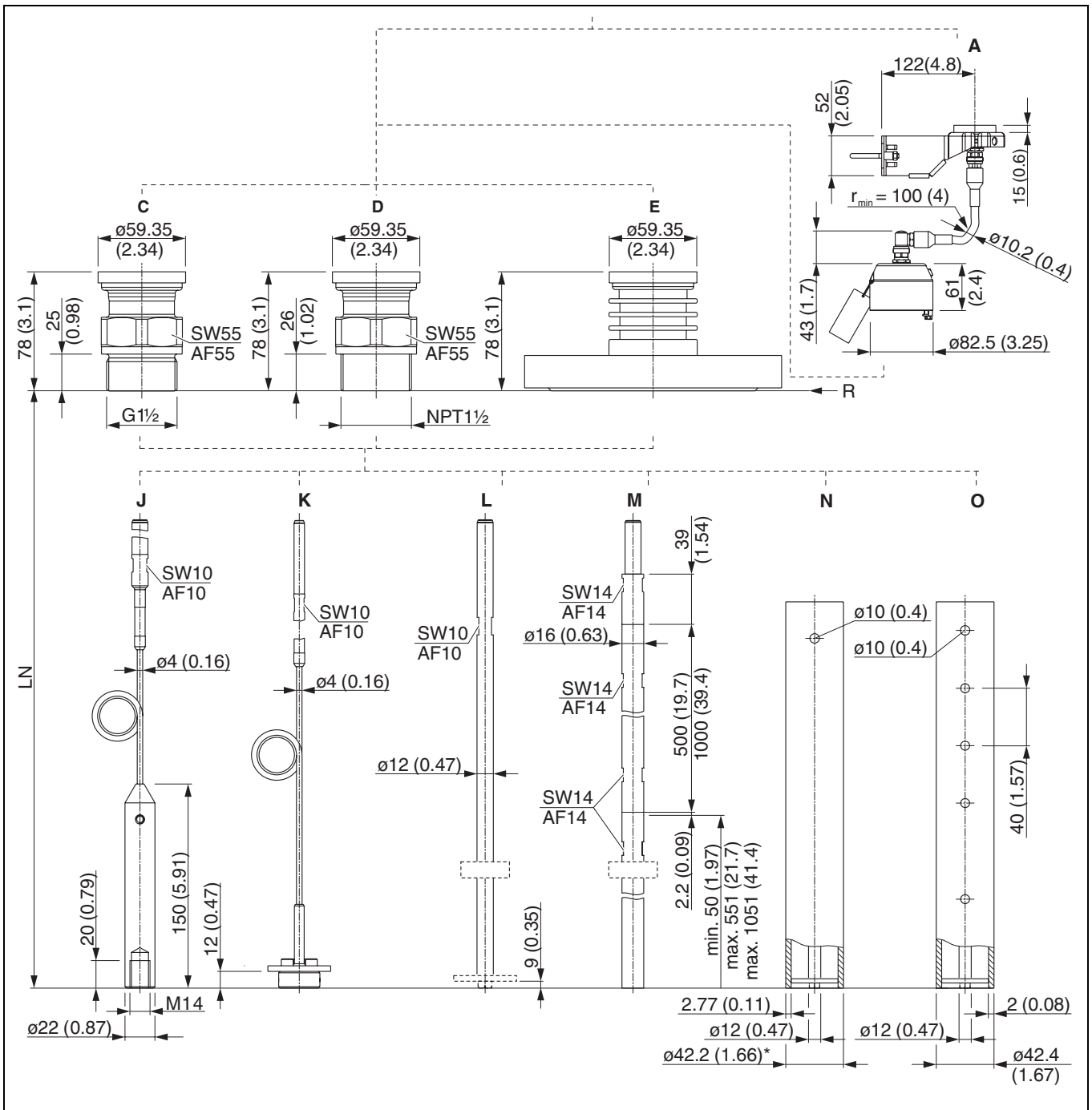
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Dimensions

Process connections (G1-1/2, NPT1-1/2, flange) and probes

Dimensions in mm (in)



- A** Mounting bracket for probe design "Sensor remote" (feature "Probe design")
- C** Thread ISO228 G1-1/2 (feature "Process connection")
- D** Thread ANSI MNPT1-1/2 (feature "Process connection")
- E** Flange ANSI B16.5, EN1092-1, JIS B2220 (feature "Process connection")
- J** Rope probe 4 mm or 1/6 in (feature "Probe")
- K** Rope probe 4 mm or 1/6 in; centering disk on request (feature "Probe")
- L** Rod probe 12 mm or 1/2 in; centering disk on request (feature "Probe")
- M** Rod probe 16 mm or 0.63 in, 20 in or 40 in divisible; centering disk on request (feature "Probe")
- N** Coax probe; Alloy C (feature "Probe")
- O** Coax probe; 316L (feature "Probe")
- LN** Length of probe
- R** Reference point of the measurement

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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*

Device	
LTC51	Guided level radar

Probe	
1	in mm, rod Ø8 mm, 1.4404/316L
2	in mm, rope Ø4 mm, 1.4401/316, max. 150 mm nozzle height, center rod
3	in inch, rope Ø1/6 inch, 1.4401/316, max. 6 in nozzle height, center rod
4	in mm, coax, 1.4404/316L
5	in inch, rod Ø1/3 inch, 1.4404/316L
6	in mm, rod Ø12 mm, Alloy C
7	in inch, rod Ø1/2 inch, Alloy C
8	in mm, rod Ø12 mm, 1.4404/316L
9	in inch, rod Ø1/2 inch, 1.4404/316L
A	in mm, rod Ø16 mm, 1.4404/316L, 500 mm divisible
B	in inch, rod Ø0.63 inch, 1.4404/316L, 20 inch divisible
C	in mm, rod Ø16 mm, 1.4404/316L, 1000 mm divisible
D	in inch, rod Ø0.63 inch, 1.4404/316L, 40 inch divisible
E	in mm, rope Ø4 mm, 1.4401/316, max. 300 mm nozzle height, center rod
F	in inch, rope Ø1/6 inch, 1.4401/316, max. 12 inch nozzle height, center rod
G	in inch, coax, 1.4404/316L
H	in mm, coax, Alloy C
K	in inch, coax, Alloy C
X	Special version

Length	
XXXXX	Always indicate length. Length specification depends on chosen probe.

Process connection	
A51	1-1/2 inch 150 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A52	1-1/2 inch 300 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A61	2 inch 150 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A62	2 inch 300 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A81	3 inch 150 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A82	3 inch 300 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A91	4 inch 150 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
A92	4 inch 300 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
AA1	6 inch 150 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
AB1	8 inch 150 lbs RF, 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C51	1-1/2 inch 150 lbs, Alloy C > 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C52	1-1/2 inch 300 lbs, Alloy C > 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C61	2 inch 150 lbs, Alloy C > 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C62	2 inch 300 lbs, Alloy C > 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C65	DN40 PN10-40, Alloy C > 1.4404/316L, flange EN 1092-1
C73	DN50 PN10/16, Alloy C > 1.4404/316L, flange EN 1092-1
C75	DN50 PN25/40, Alloy C > 1.4404/316L, flange EN 1092-1
C81	3 inch 150 lbs, Alloy C > 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C82	3 inch 300 lbs, Alloy C > 1.4401/316/1.4404/316L, flange ANSI B16.5 (CRN)
C93	DN80 PN10/16, Alloy C > 1.4404/316L, flange EN 1092-1
C95	DN100 PN10/16, Alloy C > 1.4404/316L, flange EN 1092-1
CA3	DN80 PN25/40, Alloy C > 1.4404/316L, flange EN 1092-1
CA5	DN100 PN25/40, Alloy C > 1.4404/316L, flange EN 1092-1
D65	DN40 PN10/40 B1, 1.4404/316L, flange EN 1092-1
D73	DN50 PN10/16 B1, 1.4404/316L, flange EN 1092-1
D75	DN50 PN25/40 B1, 1.4404/316L, flange EN 1092-1
D93	DN80 PN10/16 B1, 1.4404/316L, flange EN 1092-1
DA3	DN80 PN25/40 B1, 1.4404/316L, flange EN 1092-1
DA5	DN100 PN25/40 B1, 1.4404/316L, flange EN 1092-1
DC3	DN150 PN10/16 B1, 1.4404/316L, flange EN 1092-1

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Process connection	
DE3	DN200 PN16 B1, 1.4404/316L, flange EN 1092-1
G21	Thread ISO 228 G3/4, 1.4404/316L
G51	Thread ISO 228 G1-1/2, 1.4404/316L (CRN)
J16	10K 50A RF, 1.4404/316L, flange JIS B2220
J17	10K 80A RF, 1.4404/316L, flange JIS B2220
J18	10K 40A RF, 1.4404/316L, flange JIS B2220
J19	10K 100A RF, 1.4404/316L, flange JIS B2220
N21	Thread ANSI MNPT3/4, 1.4404/316L
N51	Thread ANSI MNPT1-1/2, 1.4404/316L (CRN)
XXX	Special version

Electrical connection	
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
I	Plug M12, IP66/68, NEMA 4X/6P
M	Plug 7/8 in, IP66/68, NEMA 4X/6P
X	Special version

Seal	
3	EPDM, -40 ... 120 °C
4	Kalrez, -20 ... 200 °C, saturated steam max. 150 °C
5	Viton, -30 ... 150 °C
X	Special version

Housing	
A1	GT19 dual compartment, plastics PBT
A2	GT20 dual compartment, alu coated
A3	GT18 dual compartment, 1.4404/316L
XX	Special version

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

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

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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
CG	CSA C/US General Purpose
E1	ATEX II 1G Ex ia IIC T6-T1 Ga
E2	ATEX II 1/3G Ex ic [ia] IIC T6-T1 Ga/Gc
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/Gb
EG	* ATEX II 1/2G Ex d [ia] IIC T6-T6 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
FN	* FM XP Cl.I,II,III Div.1 Gr.A-G, AEx d, NI Cl.1 Div.2
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-hazardous area
SX	* ATEX II 1/2G Ex ia IIC T6-T1 Ga/Gb or 1/2 D Ex ia IIIC Txx°C Da/Db

Additional Options

Additional operation language	
0	No option
A	English
B	German
C	French
D	Spanish
E	Italian
F	Dutch
G	Portuguese
H	Polish
I	Russian
J	Turkish
K	Chinese abbreviations
L	Japanese
M	Korean
N	* Arabian
O	Bahasa
P	* Thai
Q	Vietnamese
R	Czech

Application packages	
0	No option
9	Special version

Calibration	
0	No option
4	5-point linearity protocol
9	Special version

Service **	
0	No option
T	Customized parametrization HART
U	Customized parametrization PA
9	Special version

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Test, certificate **	
0	No option
A	Material certificate, wetted metallic parts, EN 10204-3.1 inspection certificate
9	Special version

Additional approval **	
0	No option
S	SIL
W	WHG overfill prevention
9	Special version

Probe design **	
0	No option
B	Sensor remote, 3 m cable, detachable, with mounting bracket
9	Special version

Accessory mounted * **	
0	No option
9	Special version

Accessory enclosed * **	
0	No option
B	Weather protection cover
G	Mounting kit, insulated, rope
9	Special version

Firmware version	
0	No option
5	01.00.zz, HART, DevRev01
7	01.00.zz, PROFIBUS PA, DevRev01

Tagging	
0	No option
1	Tagging (TAG), see additional specifications
2	Bus address, see additional specifications

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