Level Measurement
Continuous level measurement
Ultrasonic transmitters

SITRANS Probe LU240

Overview

SITRANS Probe LU240 ultrasonic level transmitter with HART, 4 to 20 mA is ideal for level, volume, and volume flow measurements. It works with liquids, slurries, and bulk materials up to 12 meters (40 feet).

Benefits

- Continuous level measurement up to 12 m (40 ft) range
- Easy installation and simple startup
- Programming using 4-button HMI or SIMATIC PDM
- Communication using HART
- ETFE or PVDF transducers for chemical compatibility
- Process Intelligence signal processing
- Auto False Echo Suppression for fixed obstruction avoidance
- Low power and current startup

Application

The SITRANS Probe LU240 is ideal for level monitoring in the water and wastewater industry, chemical storage vessels, and small bulk hoppers.
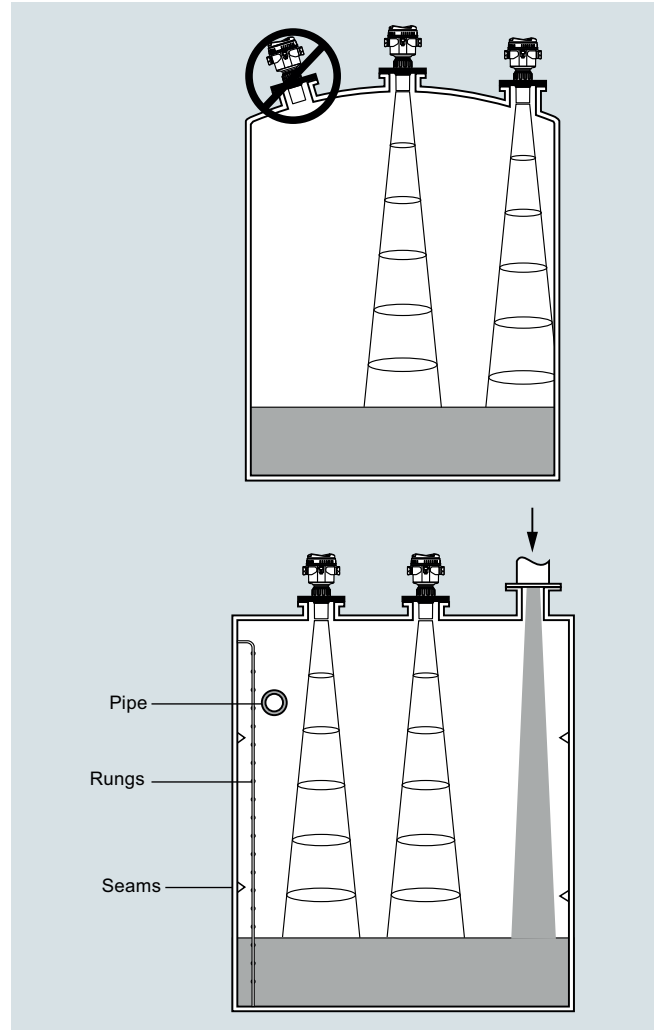
The range of SITRANS Probe LU240 is 6 or 12 m (20 or 40 ft). Using Process Intelligence, Auto False Echo Suppression for fixed obstruction avoidance, and accuracy of 0.15 % of range or 6 mm (0.25 inch), the Probe LU240 provides unmatched reliability.

The Probe LU240 offers HART communication.

The transducer on the Probe LU240 is available as ETFE or PVDF to suit the chemical conditions of your application. As well, for applications with varying material and process temperatures, the Probe LU240 incorporates an internal temperature sensor to compensate for temperature changes.

- Key Applications: chemical storage vessels, filter beds, liquid storage vessels

Configuration
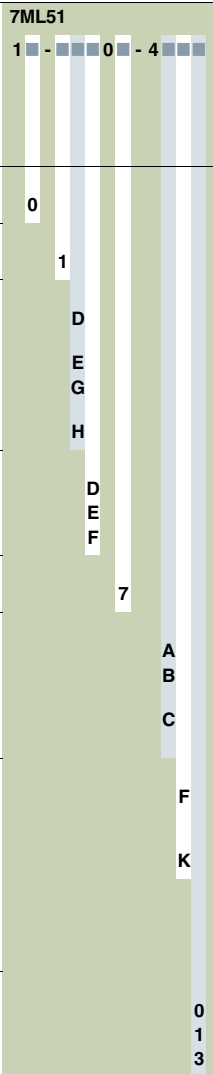

SITRANS Probe LU240 mounting

■ **Technical specifications**

Mode of operation	
Measuring principle	Ultrasonic level measurement
Typical application	Level measurement in storage vessels and simple process vessels

Inputs	
Measuring range	
• 6 m (20 ft) model	0.2 ... 6 m (8 inch ... 20 ft)
• 12 m (40 ft) model	0.2 ... 12 m (8 inch ... 40 ft)
Frequency	54 kHz

Outputs	
mA/HART	
• Range	4 ... 20 mA
• Accuracy	± 0.02 mA

Performance	
Resolution	≤ 3 mm (0.12 inch)
Accuracy	± the greater of 0.15 % of range or 6 mm (0.24 inch) [valid from 0.25 m (0.82 ft)]
Non-repeatability	≤ 3 mm (0.12 inch)
Blanking distance	0.2 m (0.66 ft)
Update time	≤ 4 s
Temperature compensation	Built-in to compensate over temperature range
Beam angle	10°

Rated operating conditions	
Ambient conditions	
• Location	Indoor/outdoor
• Ambient temperature	• Storage: -40 ... +85 °C (-40 ... +185 °F)
	• Operating: -40 ... +80 °C (-40 ... +176 °F)
• Relative humidity/ingress protection	Suitable for outdoor
• Installation category	I
• Pollution degree	4
Medium conditions	
• Temperature at flange or threads	-40 ... +85 °C (-40 ... +185 °F)
• Pressure (vessel)	0.5 bar g (7.25 psi g)

Design	
Material (enclosure)	PBT (Polybutylene Terephthalate)
Degree of protection	Type 4X, Type 6, IP66, IP68
Weight	0.93 kg (2.1 lb)
Cable inlet	2 x M20 x 1.5 cable gland or 1 x ½" NPT thread
Material (transducer)	ETFE (Ethylene Tetrafluoroethylene) or PVDF (Polyvinylidene Fluoride) Buna-N seal

Process connection	
Threaded connection	2" NPT [(Taper), ASME B1.20.1]
	R 2" [(BSPT), EN 10226]
	or
	G 2" [(BSPP), EN ISO 228-1]
Flange connection	3 inch (80 mm) universal flange
Other connection	FMS 200 mounting bracket (see page 4/186) or customer supplied mount

Display and Controls	
Interface	Local: LCD display
	Remote: Available via HART
Configuration	4-button HMI
Memory	Non-volatile EEPROM, no battery required

Power supply	
4 ... 20 mA/HART	10.5 ... 30 V DC

Certificates and Approvals	
General	FM, CSA$_{US/C}$, CE, RCM
Hazardous	
• Intrinsically Safe	
- Europe	ATEX II 1G Ex ia IIC T4 Ga
- International	IECEx SIR 18.0013X Ex ia IIC T4 Ga
- USA/Canada	FM/CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III T4
- Brazil	INMETRO Ex ia IIC T4 Ga
- China	NEPSI Ex ia IIC T4 Ga
- South Africa	SABS Ex ia IIC Tx Ga
• Non-incendive	
- USA	FM, Class I, Div. 2, Groups A, B, C, D Tx

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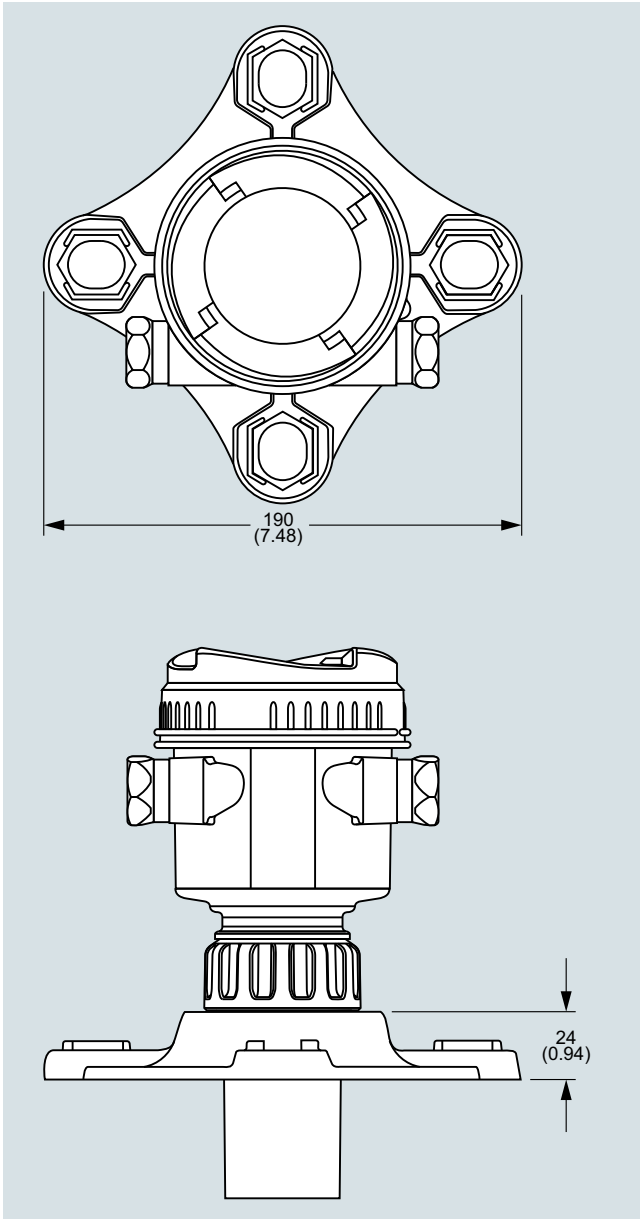### SITRANS Probe LU240

■ Selection and ordering data

SITRANS Probe LU240 Ultrasonic Level, HART	Article No.
SITRANS Probe LU240 ultrasonic level transmitter ↗ with HART, 4 to 20 mA is ideal for level, volume, and volume flow measurements. It works with liquids, slurries, and bulk materials up to 12 meters (40 feet).	**7ML51**
	1■ - ■■■0■ - 4■■■
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Communications	
HART (4 ... 20 mA) level, volume, volume flow	**0**
Ingress protection	
IP68, TYPE6	**1**
Measurement range/wetted parts	
200 ... 6 000 mm (7.87 ... 236.22 inch), PVDF Copolymer	**D**
200 … 6 000 mm (7.87 ... 236.22 inch), ETFE	**E**
200 … 12 000 mm (7.87 ... 472.44 inch), PVDF Copolymer	**G**
200 … 12 000 mm (7.87 ... 472.44 inch), ETFE	**H**
Process connection	
2" NPT [(Taper), ASME B1.20.1]	**D**
R 2" [(BSPT), EN 10226]	**E**
G 2" [(BSPP), EN ISO 228-1]	**F**
Non-wetted parts	
Plastic (PBT/PC material)	**7**
Type of protection	
Non-Ex (ordinary locations) cCSAus, CE, RCM	**A**
Non-Ex (ordinary locations) cCSAus, FM, CE, RCM[1]	**B**
Ex i (ia) (Ex-Zone 0/Div. 1)/IS, FM NI (Class I, Div. 2)[2]	**C**
Electrical connections/cable entries	
2 x M20 x 1.5 (one general purpose Polyamide cable gland and one Polyamide blocking plug provided)	**F**
1 x 1/2" NPT (no gland cable provided)	**K**
For custom electrical connections/cable entries, contact a local sales person. For more information please visit: http://www.automation.siemens.com/aspa_app	
Local HMI	
Without display (blind lid of PBT/PC material)	**0**
With display (blind lid of PBT/PC material)	**1**
With display (clear lid of PC material)	**3**

	Order code
Further designs	
Please add "**-Z**" to Article No. and specify Order code(s).	
Stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/identification (max. 27 characters) specify in plain text	**Y15**
Certificates	
Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	**C11**
Certificate EN 10204-2.2	**C14**
Approvals[3]	
ATEX, SABS, IECEx - 1G Ex ia IIC T4 Ga	**E31**
FM non-incendive - Class I, Div. 2, Groups A, B, C, D T5 (Ta = 80 °C), T6 (Ta = 40 °C)[1]	**E32**
NEPSI, IECEx - Ex ia IIC T4 Ga	**E33**
CSA, FM - Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G, T4, INMETRO, IECEx - Ex ia IIC T4 Ga[1]	**E34**
For customs, contact a local sales person. For more information please visit http://www.automation.siemens.com/aspa_app.	

Compact Operating Intructions	Article No.
English, German, Spanish, French, Italian, Chinese	**A5E42673704**
Note: The Operating Instructions should be ordered as a separate item on the order. All literature is available to download for free, in a range of languages, at http://www.siemens.com/ processinstrumentation/ documentation	

Accessories	
Tag, stainless steel, 12 x 45 mm, one text line (max. 16 characters)	**7ML1930-1AC**
Stainless steel FMS200 universal box bracket mounting kit	**7ML1830-1BK**
3" ASME/DIN Universal mounting adapter, 2" NPT, ETFE	**7ML1830-1BT**
3" ASME/DIN Universal mounting adapter, 2" BSP, ETFE	**7ML1830-1BU**
2" NPT nylon plastic locknut	**7ML1830-1DT**
2" BSP nylon plastic locknut plastic	**7ML1830-1DQ**
Cable Gland Polyamide - General Purpose (-20 ... +60 °C)	**A5E34457564**

Spare Parts	
Spare lid, clear	**A5E44267491**
Spare lid, blind	**A5E44267497**
Spare o-ring for lid	**A5E44267501**
Spare segmented display and 4-button HMI	**A5E44809382**

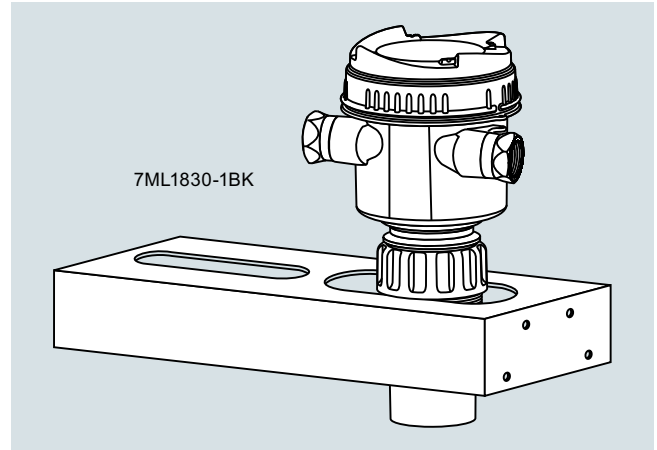[1] For use with Electrical connections/cable entries option K only.

[2] For use with only one order code (E31, E32, E33, E34).

[3] Order codes (E31, E32, E33, E34) only available with Type of protection option C.

■**Options**

7ML1830-1BK

SITRANS Probe LU240 with optional FMS 200 universal box bracket

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190
(7.48)

24
(0.94)

SITRANS Probe LU240 optional flange adapter, dimensions in mm (inch)
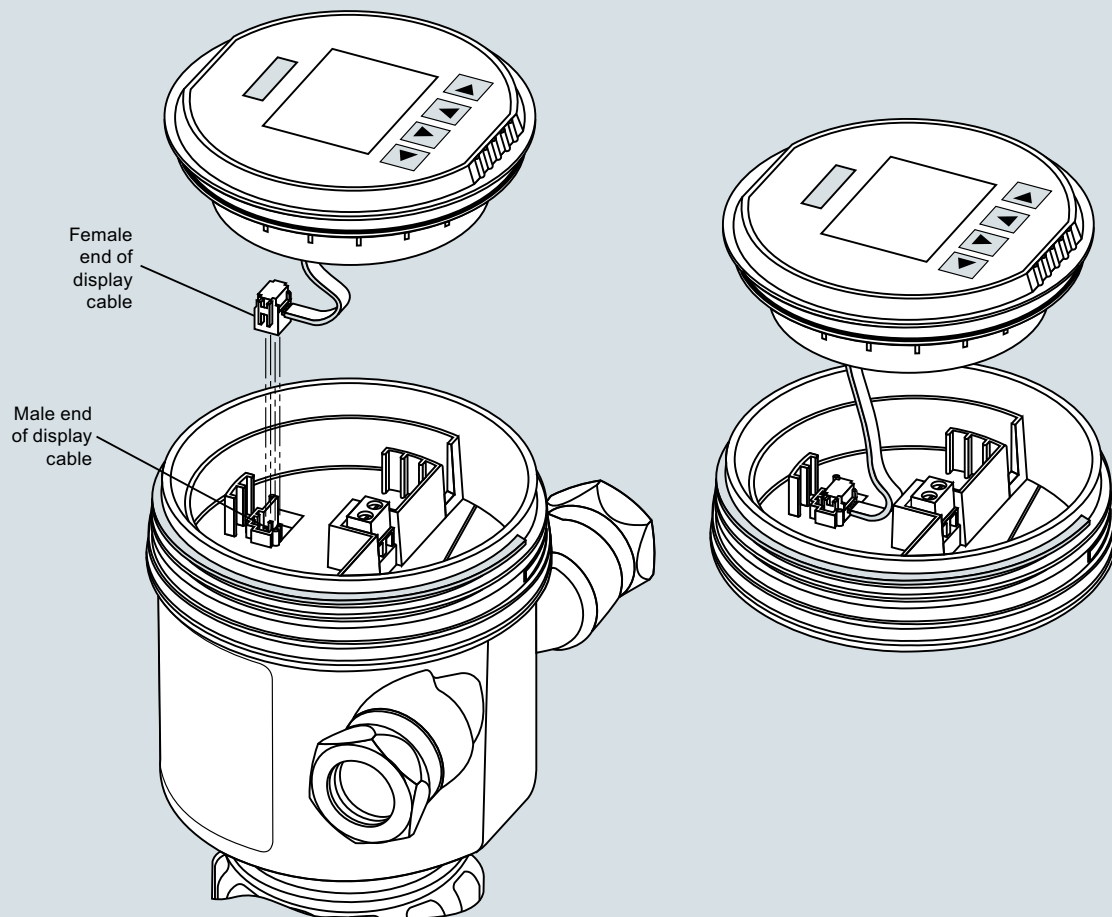
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■ Dimensional drawings
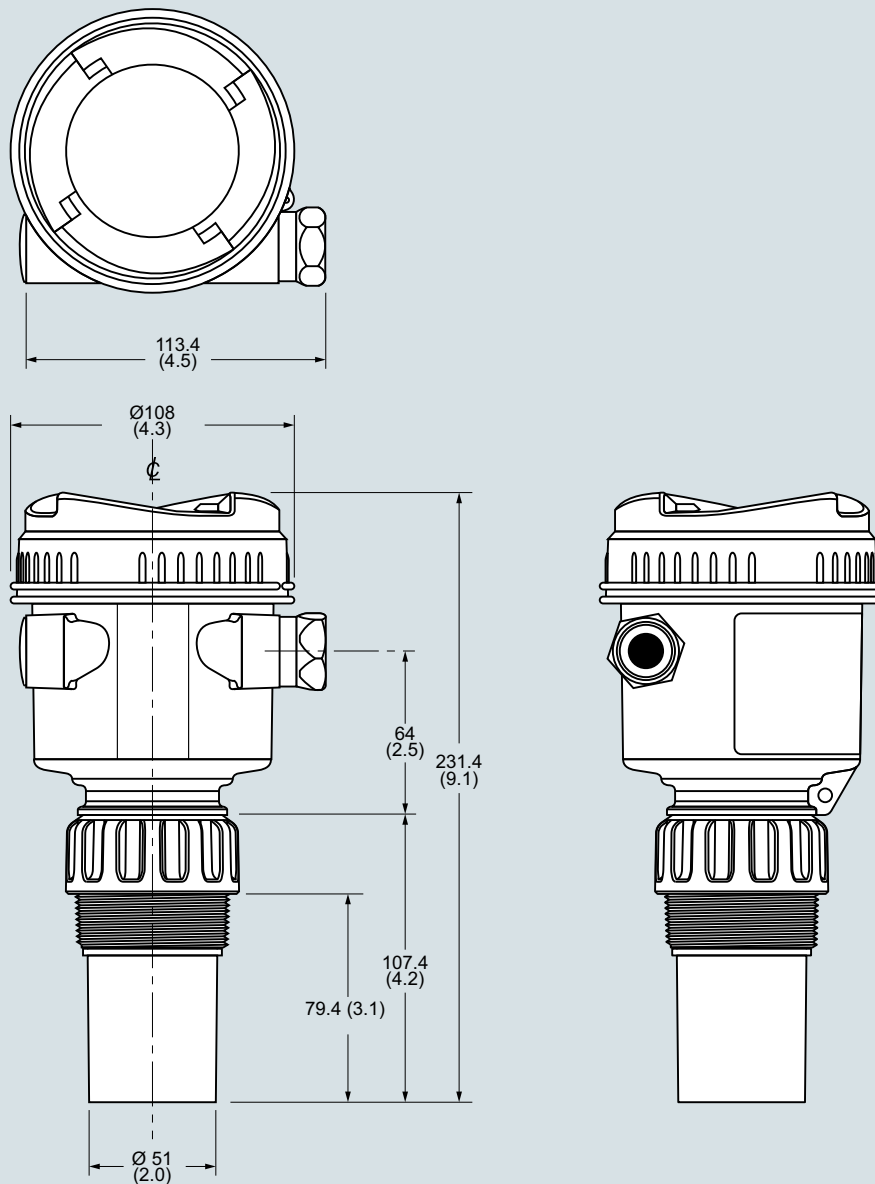
SITRANS Probe LU240, dimensions in mm (inch)

■ **Circuit diagrams**

SITRANS Probe LU240 connections