

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.

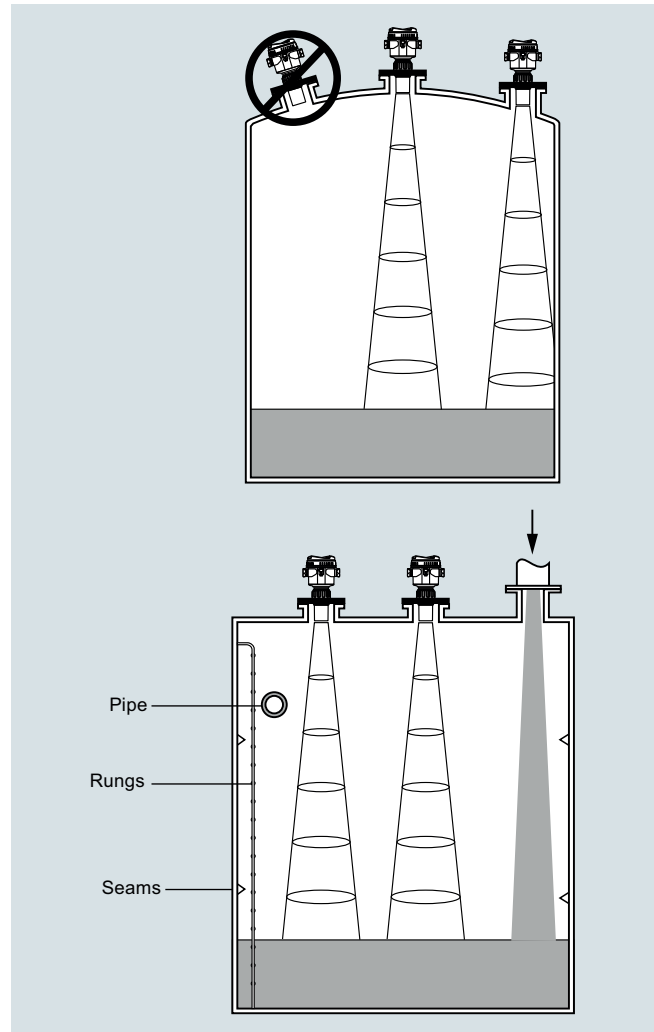
The range of SITRANS Probe LU240 is 6 or 12 m (20 or 40 ft). Using Process Intelligence, Auto False Echo Suppression for fixed obstruction avoidance, and accuracy of 0.15 % of range or 6 mm (0.25 inch), the Probe LU240 provides unmatched reliability.

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		Process connection	
Measuring principle	Ultrasonic level measurement	Threaded connection	2" NPT [(Taper), ASME B1.20.1] R 2" [(BSPT), EN 10226] or G 2" [(BSPP), EN ISO 228-1]
Typical application	Level measurement in storage vessels and simple process vessels	Flange connection	3 inch (80 mm) universal flange
Inputs		Other connection	FMS 200 mounting bracket (see page 4/186) or customer supplied mount
Measuring range		Display and Controls	
• 6 m (20 ft) model	0.2 ... 6 m (8 inch ... 20 ft)	Interface	Local: LCD display Remote: Available via HART
• 12 m (40 ft) model	0.2 ... 12 m (8 inch ... 40 ft)	Configuration	4-button HMI
Frequency	54 kHz	Memory	Non-volatile EEPROM, no battery required
Outputs		Power supply	
mA/HART		4 ... 20 mA/HART	10.5 ... 30 V DC
• Range	4 ... 20 mA	Certificates and Approvals	
• Accuracy	± 0.02 mA	General	
Performance		FM, CSA _{US/C} , CE, RCM	
Resolution	≤ 3 mm (0.12 inch)	Hazardous	
Accuracy	± the greater of 0.15 % of range or 6 mm (0.24 inch) [valid from 0.25 m (0.82 ft)]	• Intrinsically Safe	
Non-repeatability	≤ 3 mm (0.12 inch)	- Europe	
Blanking distance	0.2 m (0.66 ft)	- International	
Update time	≤ 4 s	- USA/Canada	
Temperature compensation	Built-in to compensate over temperature range	- Brazil	
Beam angle	10°	- China	
Rated operating conditions		- South Africa	
Ambient conditions		• Non-incendive	
• Location	Indoor/outdoor	- USA	
• Ambient temperature	• Storage: -40 ... +85 °C (-40 ... +185 °F) • Operating: -40 ... +80 °C (-40 ... +176 °F)	ATEX II 1G Ex ia IIC T4 Ga IECEX SIR 18.0013X Ex ia IIC T4 Ga FM/CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III T4 INMETRO Ex ia IIC T4 Ga NEPSI Ex ia IIC T4 Ga SABS Ex ia IIC Tx Ga	
• Relative humidity/ingress protection	Suitable for outdoor	FM, Class I, Div. 2, Groups A, B, C, D Tx	
• 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		

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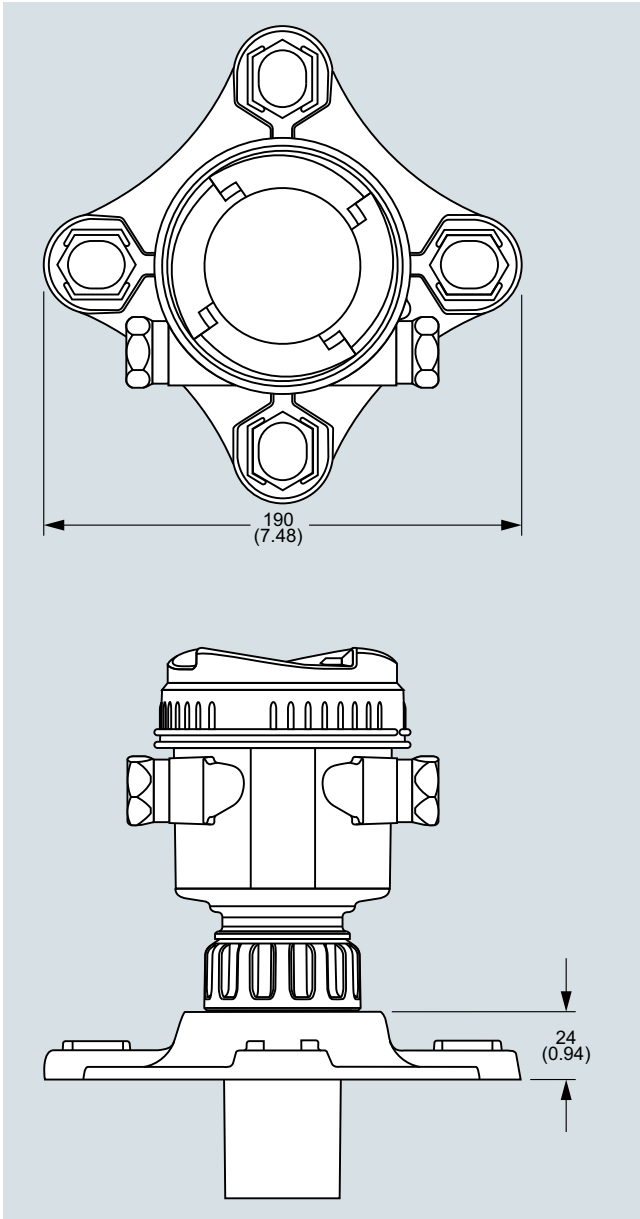
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Selection and ordering data

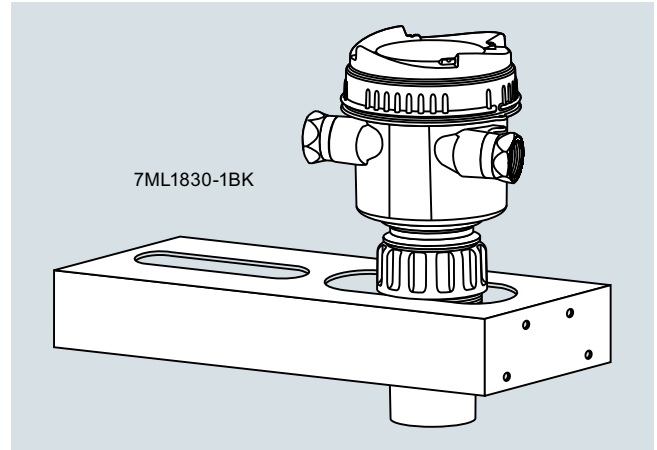
SITRANS Probe LU240 Ultrasonic Level, HART	Article No.	Order code
<p>SITRANS Probe LU240 ultrasonic level transmitter with HART, 4 to 20 mA is ideal for level, volume, and volume flow measurements. It works with liquids, slurries, and bulk materials up to 12 meters (40 feet).</p> <p>Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</p>	<p>7ML51</p> <p>1 - 0 - 4</p>	
<p>Communications HART (4 ... 20 mA) level, volume, volume flow</p>	0	
<p>Ingress protection IP68, TYPE6</p>	1	
<p>Measurement range/wetted parts 200 ... 6 000 mm (7.87 ... 236.22 inch), PVDF Copolymer 200 ... 6 000 mm (7.87 ... 236.22 inch), ETFE 200 ... 12 000 mm (7.87 ... 472.44 inch), PVDF Copolymer 200 ... 12 000 mm (7.87 ... 472.44 inch), ETFE</p>	D E G H	
<p>Process connection 2" NPT [(Taper), ASME B1.20.1] R 2" [(BSPT), EN 10226] G 2" [(BSPP), EN ISO 228-1]</p>	D E F	
<p>Non-wetted parts Plastic (PBT/PC material)</p>	7	
<p>Type of protection Non-Ex (ordinary locations) cCSAus, CE, RCM Non-Ex (ordinary locations) cCSAus, FM, CE, RCM¹⁾ Ex i (ia) (Ex-Zone 0/Div. 1)/IS, FM NI (Class I, Div. 2)²⁾</p>	A B C	
<p>Electrical connections/cable entries 2 x M20 x 1.5 (one general purpose Polyamide cable gland and one Polyamide blocking plug provided) 1 x 1/2" NPT (no gland cable provided) For custom electrical connections/cable entries, contact a local sales person. For more information please visit: http://www.automation.siemens.com/aspa_app</p>	F K	
<p>Local HMI Without display (blind lid of PBT/PC material) With display (blind lid of PBT/PC material) With display (clear lid of PC material)</p>	0 1 3	
		<p>Further designs</p> <p>Please add "-Z" to Article No. and specify Order code(s).</p> <p>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</p> <p>Certificates Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000 C11 Certificate EN 10204-2.2 C14</p> <p>Approvals³⁾ 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 Ga¹⁾ E34</p> <p>For customs, contact a local sales person. For more information please visit http://www.automation.siemens.com/aspa_app.</p> <p>Compact Operating Instructions English, German, Spanish, French, Italian, Chinese Article No. A5E42673704</p> <p>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</p> <p>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</p> <p>Spare Parts Spare lid, clear A5E44267491 Spare lid, blind A5E44267497 Spare o-ring for lid A5E44267501 Spare segmented display and 4-button HMI A5E44809382</p>

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



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

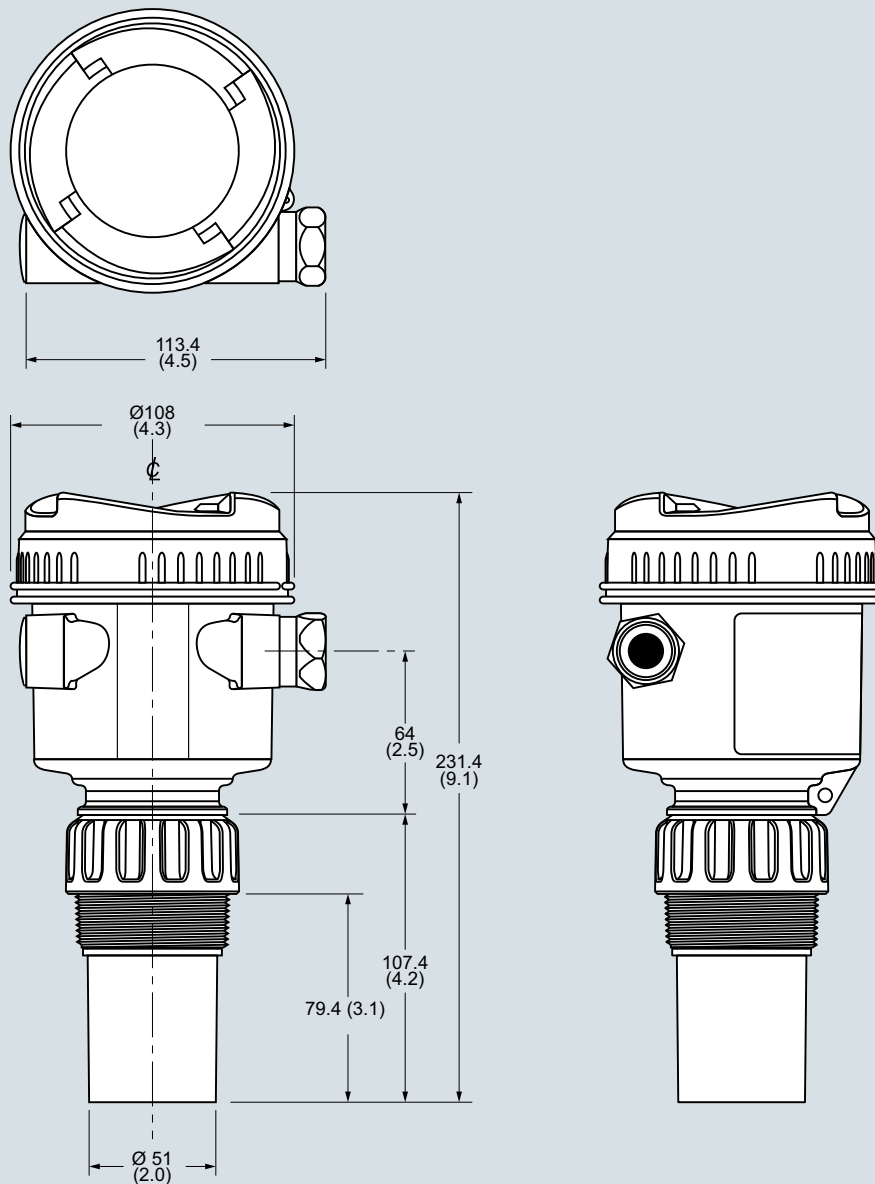


SITRANS Probe LU240 with optional FMS 200 universal box bracket

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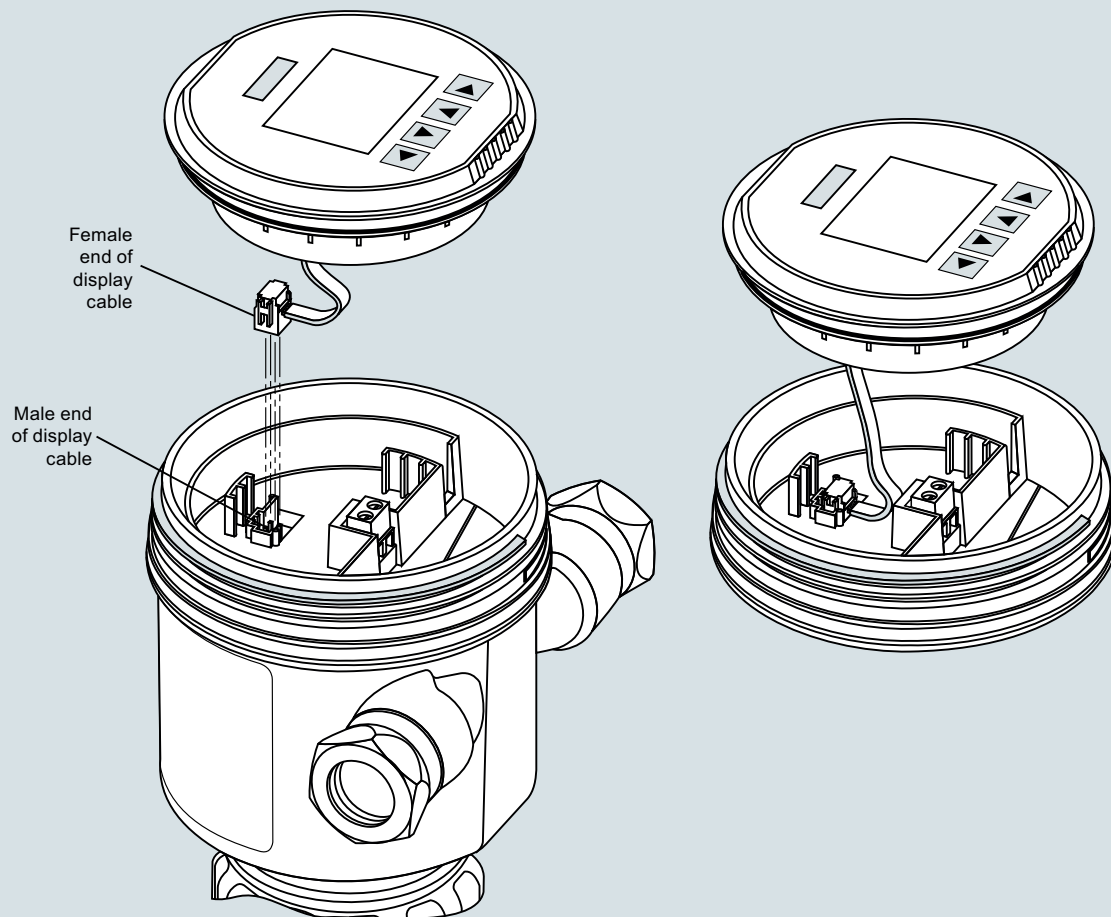
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SITRANS Probe LU240**Dimensional drawings**

SITRANS Probe LU240, dimensions in mm (inch)

Circuit diagrams



SITRANS Probe LU240 connections