

## Level Measurement

Continuous level measurement  
Ultrasonic transmitters

### SITRANS Probe LU240

#### Overview



SITRANS Probe LU240 ultrasonic level transmitter, ideal for level, volume, and volume flow measurements. It works with liquids, slurries, and bulk materials up to 12 m (40 ft).

#### 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.

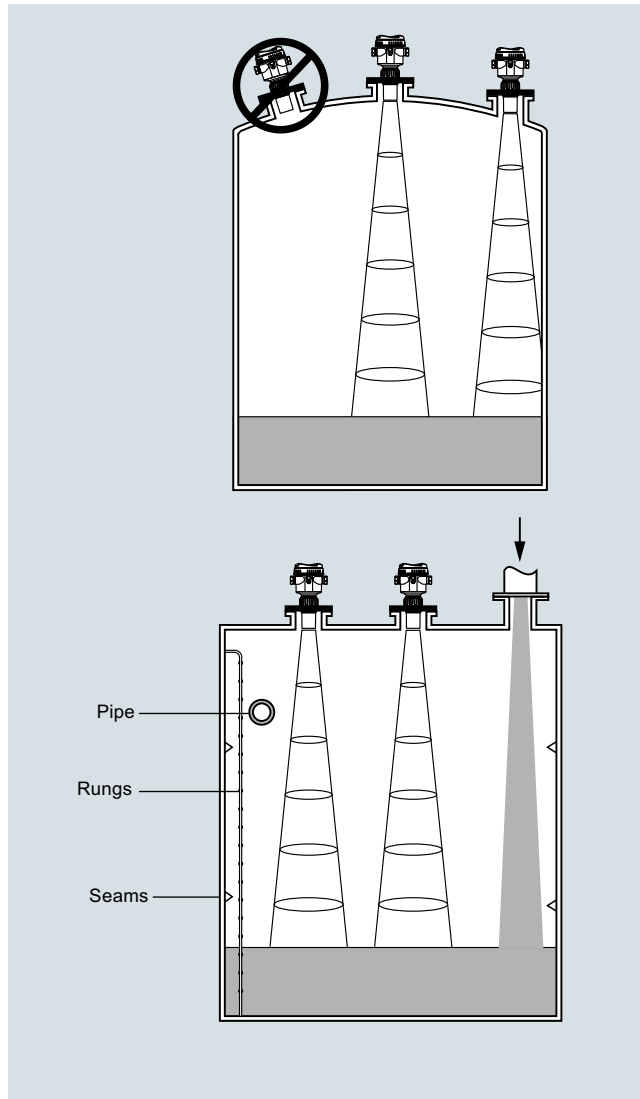
The range of SITRANS Probe LU240 is 6 or 12 m (20 or 40 ft). Using Process Intelligence, Auto False Echo Suppression for fixed obstruction avoidance, and accuracy of 0.15 % of range or 6 mm (0.25 inch), the Probe LU240 provides unmatched reliability.

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

<b>Mode of operation</b>	
Measuring principle	Ultrasonic level measurement
Typical application	Level measurement in storage vessels and simple process vessels
<b>Inputs</b>	
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
<b>Outputs</b>	
mA/HART	
• Range	4 ... 20 mA
• Accuracy	± 0.02 mA
• HART version	7
• Startup current	3.6 mA
• Fail-safe	Programmable as high, low, or hold (loss of echo) per NAMUR NE43
<b>Performance</b>	
Resolution	≤ 3 mm (0.12 inch)
Accuracy	± the greater of 0.15 % of range or 6 mm (0.25 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°
<b>Rated operating conditions</b>	
Ambient conditions	
• Location	Indoor/outdoor
• Ambient temperature	<ul style="list-style-type: none"> <li>• Storage: -40 ... +85 °C (-40 ... +185 °F)</li> <li>• Operating: -40 ... +80 °C (-40 ... +176 °F)</li> </ul>
• 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)
<b>Design</b>	
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

<b>Process connection</b>	
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
<b>Display and Controls</b>	
Interface	Local: LCD display Remote: Available via HART
Configuration	4-button HMI
Memory	Non-volatile EEPROM, no battery required
<b>Power supply</b>	
4 ... 20 mA/HART	10.5 ... 30 V DC
<b>Certificates and Approvals</b>	
General	FM, cCSA <sub>US</sub> , 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/cCSA <sub>US</sub> , 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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Selection and Ordering data	Article No.
<b>SITRANS Probe LU240 Ultrasonic Level, HART</b> SITRANS Probe LU240 ultrasonic level transmitter, ideal for level, volume, and volume flow measurements. It works with liquids, slurries, and bulk materials up to 12 m (40 ft). Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	<b>7ML51</b> 1 - 0 - 4
<b>Communications</b> HART (4 ... 20 mA) level, volume, volume flow	0
<b>Ingress protection</b> IP66, IP68, Type 4X, 6	1
<b>Measurement range/wetted parts</b> 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	D E G H
<b>Process connection</b> 2" NPT [(Taper), ASME B1.20.1] R 2" [(BSPT), EN 10226] G 2" [(BSPP), EN ISO 228-1]	D E F
<b>Non-wetted parts</b> Plastic (PBT/PC material)	7
<b>Type of protection</b> Non-Ex (ordinary locations) cCSA <sub>US</sub> , CE, RCM, EAC Non-Ex (ordinary locations) cCSA <sub>US</sub> , FM, CE, RCM <sup>1)</sup> Ex i (ia) (Ex-Zone 0/Div. 1)/IS, FM NI (Class I, Div. 2) <sup>2)</sup>	A B C
<b>Electrical connections/cable entries</b> 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: <a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> .	F K
<b>Local HMI</b> Without display (blind lid of PBT/PC material) With display (blind lid of PBT/PC material) With display (clear lid of PC material)	0 1 3

Selection and Ordering data	Order code
<b>Further designs</b> 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. 32 characters) specify in plain text	<b>Y15</b>
<b>Certificates</b> Test certificate: Manufacturer's test certificate M to DIN 55350, Part 18 and ISO 9000	<b>C11</b>
Certificate EN 10204-2.2	<b>C14</b>
<b>Approvals<sup>3)</sup></b> ATEX, SABS, IECEx - 1G, EAC Ex, Ex ia IIC T4 Ga	<b>E31</b>
FM non-incendive - Class I, Div. 2, Groups A, B, C, D T5 (Ta = 80 °C), T6 (Ta = 40 °C) <sup>1)</sup>	<b>E32</b>
NEPSI, IECEx - Ex ia IIC T4 Ga	<b>E33</b>
cCSA <sub>US</sub> , KCs, FM - Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G, T4, INMETRO, IECEx - Ex ia IIC T4 Ga <sup>1)</sup>	<b>E34</b>
For customs, contact a local sales person. For more information please visit <a href="http://www.automation.siemens.com/aspa_app">http://www.automation.siemens.com/aspa_app</a> .	

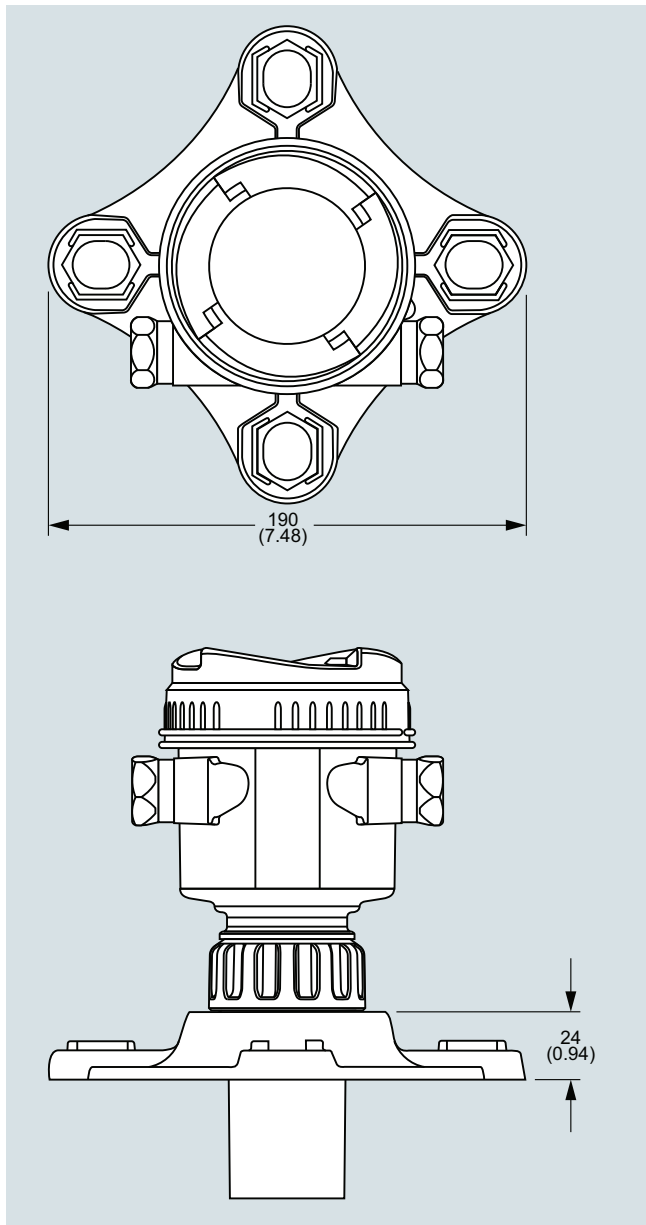
Selection and Ordering data	Article No.
<b>Compact operating instructions</b> English, German, French, Spanish, Italian, Chinese Estonian, Latvian, Lithuanian, Polish, Romanian, Croatian Bulgarian, Czech, Finnish, Slovakian, Slovenian, Dutch Danish, Greek, Portuguese, Swedish, Hungarian Note: The Operating 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 <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a>	<b>A5E42673704</b>  <b>A5E42673708</b>  <b>A5E42673746</b>  <b>A5E42673748</b>
<b>Accessories</b> Tag, stainless steel, 12 x 45 mm, one text line (max. 16 characters) Stainless steel FMS200 universal box bracket mounting kit 3" ASME/DIN Universal mounting adapter, 2" NPT, ETFE 3" ASME/DIN Universal mounting adapter, 2" BSP, ETFE 2" NPT nylon plastic locknut 2" BSP nylon plastic locknut Cable Gland Polyamide - General Purpose (-20 ... +60 °C)	<b>7ML1930-1AC</b>  <b>7ML1830-1BK</b>  <b>7ML1830-1BT</b>  <b>7ML1830-1BU</b>  <b>7ML1830-1DT</b> <b>7ML1830-1DQ</b> <b>A5E34457564</b>
<b>Spare Parts</b> Spare lid, clear Spare lid, blind Spare o-ring for lid Spare segmented display and 4-button HMI	<b>A5E44267491</b> <b>A5E44267497</b> <b>A5E44267501</b> <b>A5E44809382</b>

<sup>1)</sup> For use with Electrical connections/cable entries option K only.

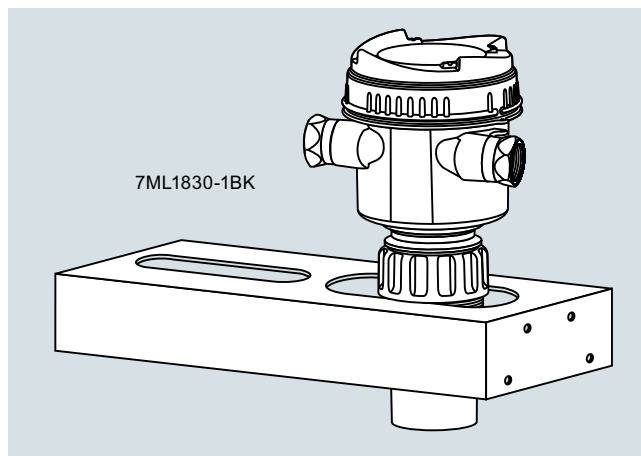
<sup>2)</sup> For use with only one order code (E31, E32, E33, E34).

<sup>3)</sup> 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)

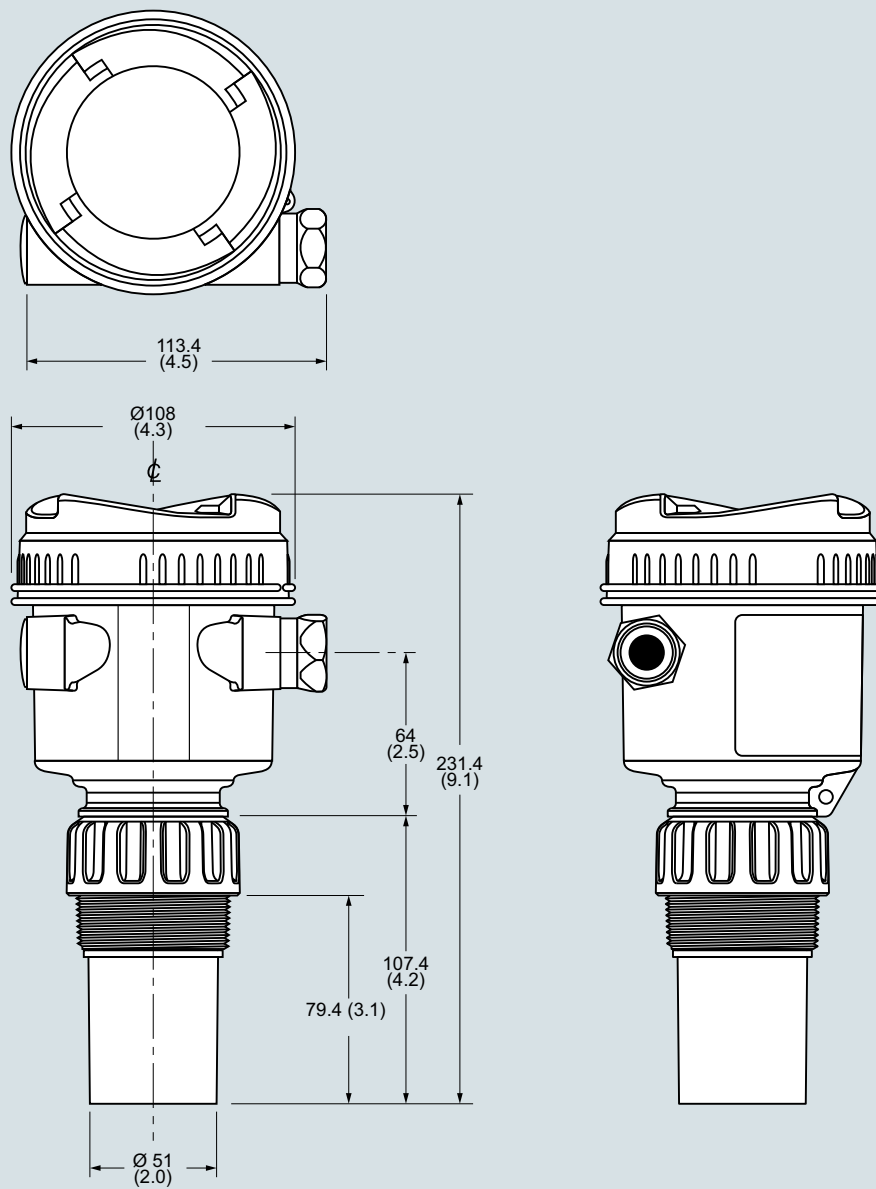


SITRANS Probe LU240 with optional FMS 200 universal box bracket

**Level Measurement**

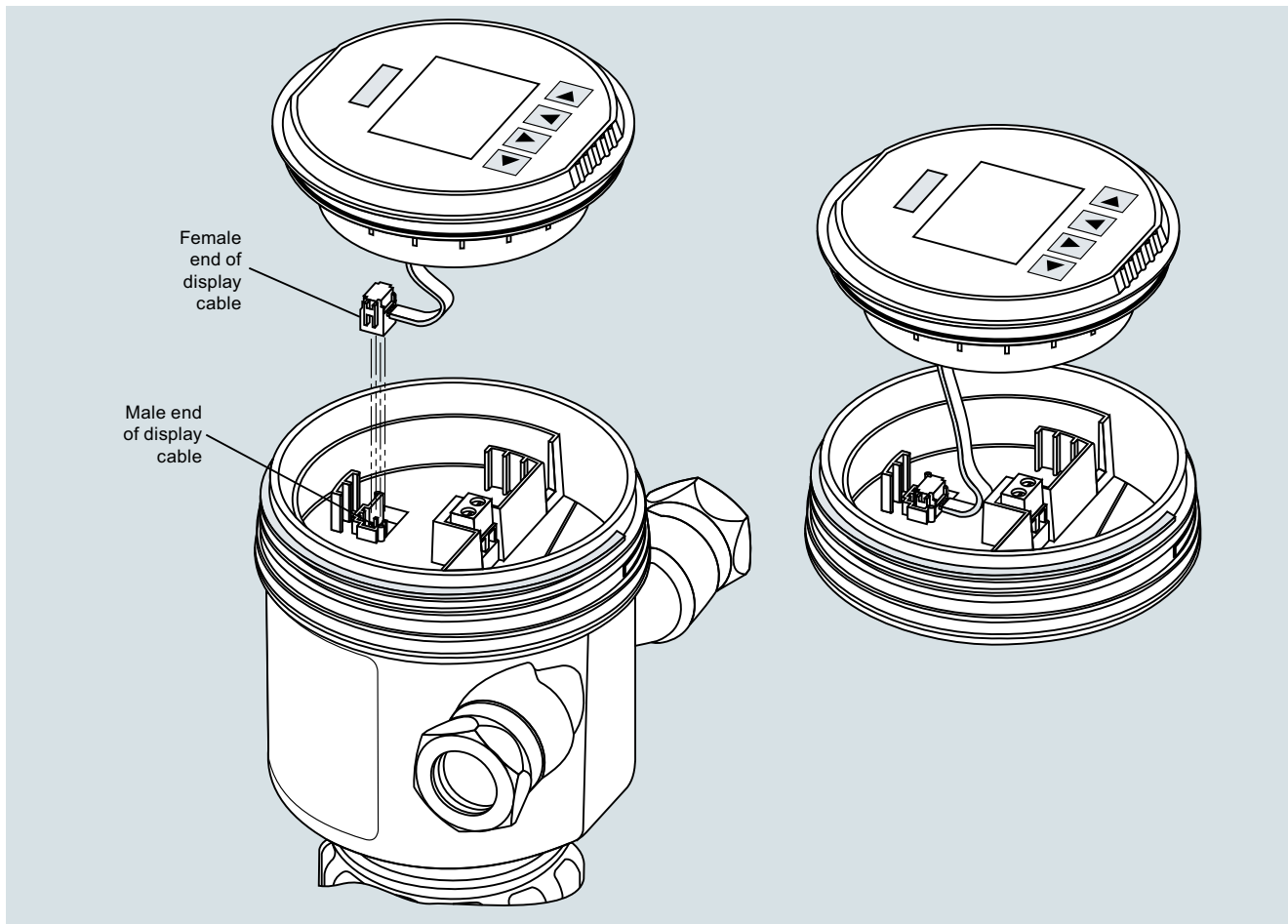
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**SITRANS Probe LU240****Dimensional drawings**

SITRANS Probe LU240, dimensions in mm (inch)

**Circuit diagrams**



SITRANS Probe LU240 connections