**Level Measurement**

Continuous level measurement

Ultrasonic transmitters

**SITRANS Probe LU240**

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### 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

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 3, 6, or 12 m (10, 20, or 40 ft). Probe LU240 provides unmatched reliability, using Process Intelligence, Auto False Echo Suppression for fixed obstruction avoidance, and accuracy of 0.15 % of range or 6 mm (0.25 inch) (on 6 m and 12 m models only).

SITRANS Probe LU240 offers HART communication on certain models and mA output on all models.

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

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## Technical specifications

### Mode of operation

<table>
<thead>
<tr>
<th>Measuring principle</th>
<th>Ultrasonic level measurement</th>
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<tbody>
<tr>
<td>Typical application</td>
<td>Level measurement in storage vessels and simple process vessels</td>
</tr>
</tbody>
</table>

### Inputs

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>0.2 ... 3 m (8 inch ... 10 ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 m (20 ft)</td>
<td>0.2 ... 6 m (8 inch ... 20 ft)</td>
</tr>
<tr>
<td>12 m (40 ft)</td>
<td>0.2 ... 12 m (8 inch ... 40 ft)</td>
</tr>
<tr>
<td>Frequency</td>
<td>54 kHz</td>
</tr>
</tbody>
</table>

### Outputs

- 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

### Performance

- Resolution: ≤ 3 mm (0.12 inch)
- Accuracy: 10 mm (0.39 inch), ± 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°

### Rated operating conditions

- Ambient conditions: 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)
- Display: -20 ... +80 °C (-4 ... +176 °F)

### 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, CE, RCM, EAC, KC, VLAREM
- 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/CCSAUS, 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
  - Russia: EAC Ex 1G Ex ia IIC T4 Ga
  - Korea: KOSHA KSs Ex ia IIC T4
  - Non-incendive: FM, Class I, Div. 2, Groups A, B, C, D
  - Marine: Lloyd’s Register, American Bureau of Shipping (ABS), DNV GL, Bureau Veritas, CCS
- Metrological: MCERTS, CPA, Kazakhstan patterna approval

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Level Measurement
Continuous level measurement
Ultrasonic transmitters

Selection and Ordering data

SITRANS Probe LU240 Ultrasonic level transmitter
Continuous, non-contact, up to 12 m (40 ft) range. Monitors level, volume, and volume flow (model dependent) in liquids, slurries, and solids. With easy to use quick start wizards.

Communications
HART (4 ... 20 mA) level, volume, volume flow

Ingress protection
IP66, IP68, TYPE 4X, 6

Measurement range/wetted parts
200 ... 3,000 mm (7.87 ... 118.11 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

Process connection
2" NPT [(Taper), ASME B1.20.1]
R 2" (BSPT), EN 10226
G 2" (BSPP), EN ISO 228-1

Non-wetted parts
Plastic (PBT/PC material)

Type of protection
Non-Ex (ordinary locations) cCSAUS, CE, KC, RCM, EAC
Non-Ex (ordinary locations) cCSAUS, CE, KC, RCM, EAC 1)
Ex ia IIC T4 Ga
Ex ia ia IIC T4 Ga

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.

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)

Selection and Ordering data

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. 32 characters) specify in plain text

Certificates
Test certificate: Manufacturer’s test certificate M to DIN 55350, Part 18 and ISO 9000
Certificate EN 10204:2-2

Selection and Ordering data

Order code

Approvals
ATEX, SABS, IECEx - 1G, EAC Ex, Ex ia IIC T4 Ga
FM non-incendive - Class I, Div. 2, Groups A, B, C, D T5 (Ta = 80 °C), T6 (Ta = 40 °C) 1)
NEPSI, KCS, IECEx - Ex ia IIC T4 Ga

Marine approvals 4)
DNV-GL Det Norske Veritas/Germanischer Lloyd
LR Lloyd Register
BV Bureau Veritas
ABS American Bureau of Shipping
China Classification Society (CCS)

For customs, contact a local sales person.
For more information please visit http://www.automation.siemens.com/aspa_app.

Accessories
Article No.
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 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

Certificates
Test certificate: Manufacturer’s test certificate M to DIN 55350, Part 18 and ISO 9000
Certificate EN 10204:2-2

1) Available only with Electrical connections/cable entries option K.
2) Available only with order codes E31, E32, E33, and E34.
3) Available only with measurement range/wetted parts options D, E, G, and H.
4) Available only with Measurement range/wetted parts options B and C.
Options

SITRANS Probe LU240 with optional FMS 200 universal box bracket

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

SITRANS Probe LU240 connections