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

## Mode of operation

<table>
<thead>
<tr>
<th>Measuring principle</th>
<th>Ultrasonic level measurement</th>
</tr>
</thead>
<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 ... 6 m (8 inch ... 20 ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 m (40 ft) model</td>
<td>0.2 ... 12 m (8 inch ... 40 ft)</td>
</tr>
<tr>
<td>Frequency</td>
<td>54 kHz</td>
</tr>
</tbody>
</table>

## Outputs

<table>
<thead>
<tr>
<th>mA/HART</th>
<th>4 ... 20 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>± 0.02 mA</td>
</tr>
<tr>
<td>HART version</td>
<td>7</td>
</tr>
<tr>
<td>Startup current</td>
<td>3.6 mA</td>
</tr>
<tr>
<td>Fail-safe</td>
<td>Programmable as high, low, or hold (loss of echo) per NAMUR NE43</td>
</tr>
</tbody>
</table>

## Performance

<table>
<thead>
<tr>
<th>Resolution</th>
<th>≤ 3 mm (0.12 inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>± the greater of 0.15 % of range or 6 mm (0.25 inch) [valid from 0.25 m (0.82 ft)]</td>
</tr>
<tr>
<td>Non-Repeatability</td>
<td>≤ 3 mm (0.12 inch)</td>
</tr>
<tr>
<td>Blanking distance</td>
<td>0.2 m (0.66 ft)</td>
</tr>
<tr>
<td>Update time</td>
<td>≤ 4 s</td>
</tr>
<tr>
<td>Temperature compensation</td>
<td>Built-in to compensate over temperature range</td>
</tr>
<tr>
<td>Beam angle</td>
<td>10°</td>
</tr>
</tbody>
</table>

## Rated operating conditions

<table>
<thead>
<tr>
<th>Ambient conditions</th>
<th>Indoor/outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Storage: -40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td></td>
<td>Operating: -40 ... +80 °C (-40 ... +176 °F)</td>
</tr>
<tr>
<td>Relative humidity/ingress protection</td>
<td>Suitable for outdoor</td>
</tr>
<tr>
<td>Installation category</td>
<td>I</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>4</td>
</tr>
<tr>
<td>Medium conditions</td>
<td></td>
</tr>
<tr>
<td>Temperature at flange or threads</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td>Pressure (vessel)</td>
<td>0.5 bar g (7.25 psi g)</td>
</tr>
<tr>
<td>Display</td>
<td>-20 ... +80 °C (-4 ... +176 °F)</td>
</tr>
</tbody>
</table>

## Power supply

| 4 ... 20 mA/HART                        | 10.5 ... 30 V DC                |

## Process connection

| Threaded connection                     | 2" NPT [(Taper), ASME B1.20.1] |
|                                        | R 2" [(BSPT), EN 10226]        |
|                                        | or                              |
| Flange connection                      | G 2" [(BSPP), EN ISO 228-1]    |
| Other connection                       | 3 inch (80 mm) universal flange |

## Display and Controls

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

## Design

<table>
<thead>
<tr>
<th>Material (enclosure)</th>
<th>PBT (Polybutylene Terephthalate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection</td>
<td>Type 4X, Type 6, IP66, IP68,</td>
</tr>
<tr>
<td>Weight</td>
<td>0.93 kg (2.1 lb)</td>
</tr>
<tr>
<td>Cable inlet</td>
<td>2 x M20 x 1.5 cable gland or</td>
</tr>
<tr>
<td></td>
<td>1 x ½&quot; NPT thread</td>
</tr>
<tr>
<td>Material (transducer)</td>
<td>ETFE (Ethylene Tetrafluoroethylene) or PVDF (Polyvinylidene Fluoride), Buna-N seal</td>
</tr>
</tbody>
</table>

## Certificates and Approvals

### General

| FM, C, CSA_US, CE, RCM                 |                                |

### Hazardous

- **Intrinsically Safe**
  - Europe: ATEX II 1G Ex ia IIC T4 Ga
  - International: IECEx 18.0013X Ex ia IIC T4 Ga
  - Brazil: INMETRO Ex ia IIC T4 Ga
  - China: NEPSI Ex ia IIC T4 Ga
  - South Africa: SABS Ex ia IIC Tx Ga
  - USA: FM, Class I, Div. 2, Groups A, B, C, D, Tx

### Display and Controls

- 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

### 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
Level Measurement
Continuous level measurement
Ultrasonic transmitters

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Selection and Ordering data

SITRANS Probe LU240 Ultrasonic Level, HART
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.

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

Ingress protection
IP66, IP68, TYPE 4X, 6

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

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)

Type of protection
Non-Ex (ordinary locations) cCSAUS, CE, ROM, EAC
Non-Ex (ordinary locations) cCSAUS, FM, CE, RCM1)

Ex i (ia) (Ex-Zone 0/Div. 1)/IS, FM NI (Class I, Div. 2)2)

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:

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

Compact operating instructions

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
http://www.automation.siemens.com/
processinstrumentation/documentation

Accessories
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)

Spare Parts
Spare lid, clear
Spare lid, blind
Spare o-ring for lid
Spare segmented display and 4-button HMI

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.

Selection and Ordering data

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

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, IECEx - Ex ia IIC T4 Ga

cCSAUS, KCs, FM - Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G, T4, INMETRO, IECEx - Ex ia IIC T4 Ga1)

For customs, contact a local sales person.
For more information please visit:
Options

SITRANS Probe LU240 with optional FMS 200 universal box bracket

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