

### 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
- Optional Bluetooth configuration and monitoring via SITRANS mobile IQ

### 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).

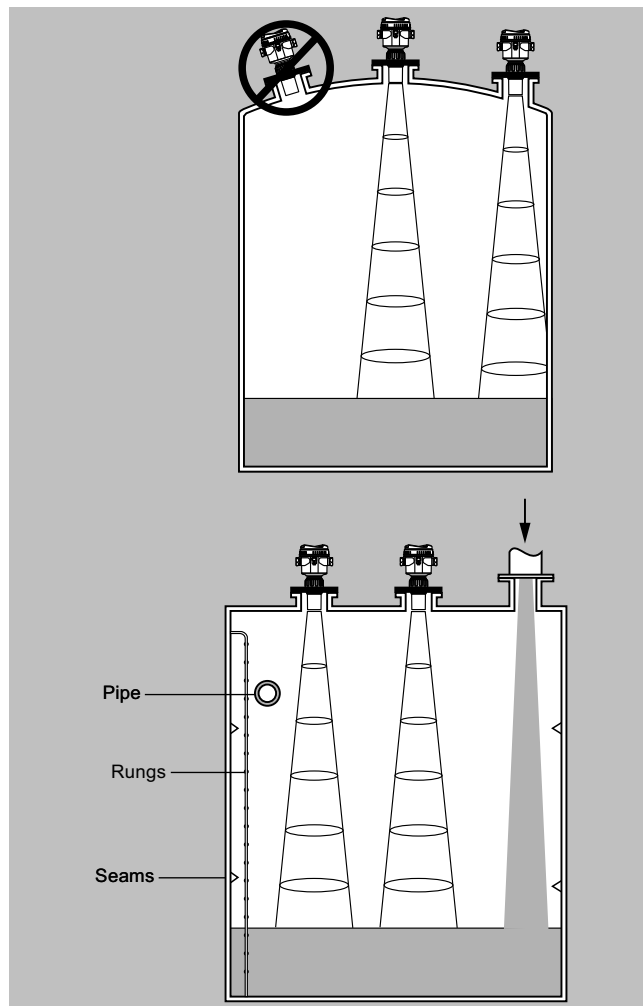
SITRANS Probe LU240 offers HART communication on certain models and mA output on all models.

SITRANS mobile IQ is a Bluetooth app that provides an intuitive interface to quickly configure, set up, and monitor SITRANS Probe LU240 series (available for Android, Apple, and Windows devices). For more information: <http://www.siemens.com/mobileIQ>.

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, 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

# Level Measurement

## Continuous level measurement

### Ultrasonic / Ultrasonic transmitters / SITRANS Probe LU240

#### Selection and ordering data

| Article No.                                                                                                                                                                                                                              |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| SITRANS Probe LU240 Ultrasonic level transmitter<br>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. |  |  |  |  |  |  |  |  |  |  |  |
| Click on the Article No. for the online configuration in the PIA Life Cycle Portal.                                                                                                                                                      |  |  |  |  |  |  |  |  |  |  |  |
| <b>Communications</b>                                                                                                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |
| HART (4 ... 20 mA) level, volume, volume flow <sup>4)</sup>                                                                                                                                                                              |  |  |  |  |  |  |  |  |  |  |  |
| 4 ... 20 mA level <sup>5)</sup>                                                                                                                                                                                                          |  |  |  |  |  |  |  |  |  |  |  |
| <b>Ingress protection</b>                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  |  |  |
| IP66, IP68, Type 4X, 6                                                                                                                                                                                                                   |  |  |  |  |  |  |  |  |  |  |  |
| <b>Measurement range/wetted parts</b>                                                                                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  |
| 200 ... 3 000 mm (7.87 ... 118.11 inch), PVDF Copolymer                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |  |  |
| 200 ... 3 000 mm (7.87 ... 118.11 inch), ETFE                                                                                                                                                                                            |  |  |  |  |  |  |  |  |  |  |  |
| 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                                                                                                                                                                                           |  |  |  |  |  |  |  |  |  |  |  |
| <b>Process connection</b>                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  |  |  |
| 2" NPT [(Taper), ASME B1.20.1]                                                                                                                                                                                                           |  |  |  |  |  |  |  |  |  |  |  |
| R 2" [(BSPT), EN 10226]                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |  |  |
| G 2" [(BSPP), EN ISO 228-1]                                                                                                                                                                                                              |  |  |  |  |  |  |  |  |  |  |  |
| <b>Non-wetted parts</b>                                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |  |  |
| Plastic (PBT/PC material)                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  |  |  |
| <b>Type of protection</b>                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  |  |  |
| Ordinary Locations/General Purpose (Non-Ex), cCSA <sub>US</sub> , CE, UKCA, KC, RCM, EAC                                                                                                                                                 |  |  |  |  |  |  |  |  |  |  |  |
| Ordinary Locations/General Purpose (Non-Ex), cCSA <sub>US</sub> , FM, CE, UKCA, KC, RCM, EAC <sup>1)</sup>                                                                                                                               |  |  |  |  |  |  |  |  |  |  |  |
| Ex i (ia) (Ex-Zone 0/Div. 1)/IS, FM NI (Class I, Div. 2) <sup>2)</sup>                                                                                                                                                                   |  |  |  |  |  |  |  |  |  |  |  |
| <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>                    |  |  |  |  |  |  |  |  |  |  |  |
| <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)                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |  |  |

| 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>                                                                                                                                                                                                                             |            |
| Declaration of compliance 2.1 (EN 10204) - delivery meets order requirements                                                                                                                                                                    | <b>C19</b> |
| Certificate EN 10204-2.2                                                                                                                                                                                                                        | <b>C14</b> |
| <b>Wireless communication</b>                                                                                                                                                                                                                   |            |
| Bluetooth <sup>6)</sup>                                                                                                                                                                                                                         | <b>F50</b> |
| <b>Approvals <sup>3)</sup></b>                                                                                                                                                                                                                  |            |
| ATEX II 1G Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C;<br>UKEX II 1G Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C;<br>IECEx Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C;<br>EAC Ex OEx ia IIC T4 Ga, IP67/IP68;<br>SABS Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C | <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, KCs, IECEx - Ex ia IIC T4 Ga                                                                                                                                                                                                             | <b>E33</b> |

### Selection and ordering data (continued)

| Selection and Ordering data                                                                                                                                                                                                                                                                                                   | Order code |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 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><br>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> . | <b>E34</b> |

| Spare parts and accessories                                                                                                                                                                                                                          | Article No.        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>Operating Instructions</b><br>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>Accessories</b>                                                                                                                                                                                                                                   |                    |
| Tag, stainless steel, 12 x 45 mm, one text line (max. 16 characters)                                                                                                                                                                                 | <b>7ML1930-1AC</b> |
| Stainless steel FMS200 universal box bracket mounting kit                                                                                                                                                                                            | <b>7ML1830-1BK</b> |
| 3" ASME/DIN Universal mounting adapter, 2" NPT, ETFE                                                                                                                                                                                                 | <b>7ML1830-1BT</b> |
| 3" ASME/DIN Universal mounting adapter, 2" BSP, ETFE                                                                                                                                                                                                 | <b>7ML1830-1BU</b> |
| 2" NPT nylon plastic locknut                                                                                                                                                                                                                         | <b>7ML1830-1DT</b> |
| 2" BSP nylon plastic locknut                                                                                                                                                                                                                         | <b>7ML1830-1DQ</b> |
| Over-voltage protection up to 6 kV (external), M20 x 1.5                                                                                                                                                                                             | <b>7MF7903-7AB</b> |
| Over-voltage protection up to 6 kV (external), ½" NPT                                                                                                                                                                                                | <b>7MF7903-7AC</b> |
| Cable Gland Polyamide - General Purpose (-20 ... +60 °C)                                                                                                                                                                                             | <b>A5E34457564</b> |
| Bluetooth kit                                                                                                                                                                                                                                        | <b>A5E50514198</b> |
| SITRANS LT500, a versatile, single and multi-vessel level monitor/controller for virtually any application in a wide range of industries.                                                                                                            | <b>7ML60.....</b>  |
| <b>Spare Parts</b>                                                                                                                                                                                                                                   |                    |
| Spare lid, clear                                                                                                                                                                                                                                     | <b>A5E44267491</b> |
| Spare lid, blind                                                                                                                                                                                                                                     | <b>A5E44267497</b> |
| Spare o-ring for lid                                                                                                                                                                                                                                 | <b>A5E44267501</b> |
| Spare segmented display and 4-button HMI                                                                                                                                                                                                             | <b>A5E44809382</b> |

- <sup>1)</sup> Available only with Electrical connections/cable entries option K only.  
<sup>2)</sup> Available only with order codes E31, E32, E33, and E34.  
<sup>3)</sup> Order codes E31, E32, E33, E34 only available with Type of protection option C.  
<sup>4)</sup> Available only with Measurement range/wetted parts options D, E, G, and H.  
<sup>5)</sup> Available only with Measurement range/wetted parts options B and C.  
<sup>6)</sup> Available only with Type of protection options A and B.

# Level Measurement

## Continuous level measurement

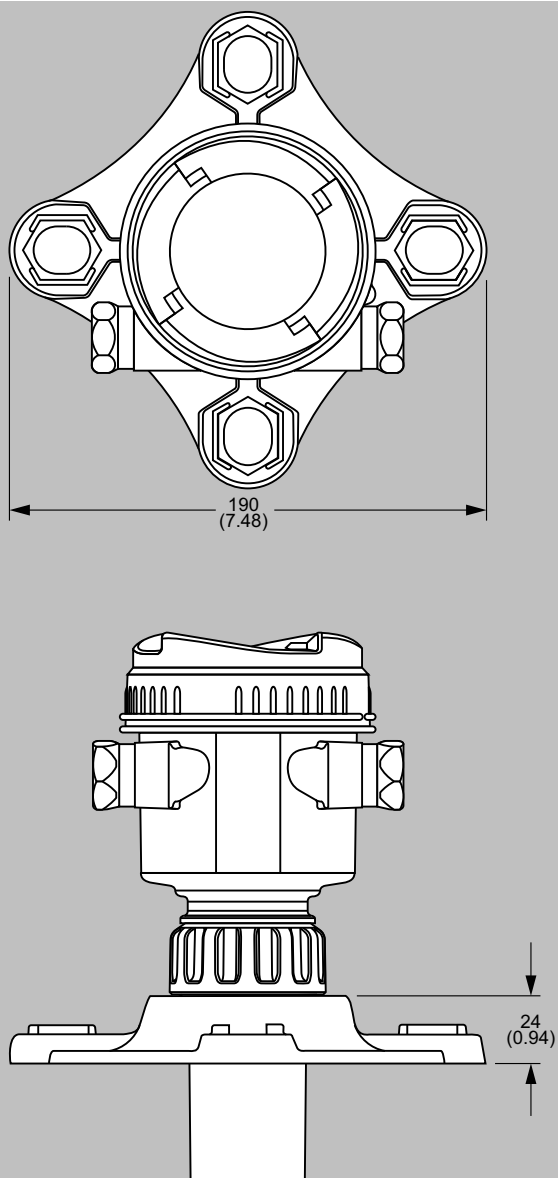
### Ultrasonic / Ultrasonic transmitters / SITRANS Probe LU240

#### Technical specifications

| SITRANS Probe LU240                    |                                                                                                                                                                                                |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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                        |                                                                                                                                                                                                |
| • 3 m (10 ft)                          | 0.2 ... 3 m (8 inch ... 10 ft)                                                                                                                                                                 |
| • 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                             | ± 0.0096 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                               |                                                                                                                                                                                                |
| 3 m (10 ft) version                    | 10 mm (0.39 inch)                                                                                                                                                                              |
| 6 m (20 ft), 12 m (40 ft) version      | <ul style="list-style-type: none"> <li>± the greater of 0.15 % of range or 6 mm (0.25 inch) [valid from 0.25 m (0.82 ft)]</li> <li>± 2 mm (0.08 inch) on ranges 4 m (13 ft) or less</li> </ul> |
| 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)                                                                                                                                                                         |
| Display                                | -20 ... +80 °C (-4 ... +176 °F)                                                                                                                                                                |
| <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]<br>R 2" [(BSPT), EN 10226]<br>or<br>G 2" [(BSPP), EN ISO 228-1]                                                                                                 |
| Flange connection                      | 3 inch (80 mm) universal flange                                                                                                                                                                |

#### Technical specifications (continued)

| SITRANS Probe LU240               |                                                                                                                   |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Other connection                  | FMS 200 mounting bracket (see FMS mounting bracket product page for more information) or customer supplied mount. |
| <b>Display and Controls</b>       |                                                                                                                   |
| Interface                         | Local: LCD display<br>Remote: Available via HART or Bluetooth                                                     |
| 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, UKCA, RCM, EAC, KC, VLAREM II                                                        |
| Hazardous                         |                                                                                                                   |
| • Intrinsically Safe              |                                                                                                                   |
| - Europe                          | ATEX II 1G Ex ia IIC T4 Ga                                                                                        |
| - UK                              | UKEX 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 T4 Ga                                                                                              |
| - Russia                          | EAC Ex 1G Ex ia IIC T4 Ga                                                                                         |
| - Korea                           | KCs Ex ia IIC T4                                                                                                  |
| • Non-incendive                   |                                                                                                                   |
| - USA                             | FM, Class I, Div. 2, Groups A, B, C, D Tx                                                                         |
| Metrological                      | MCERTS, CPA, Kazakhstan pattern approval                                                                          |
| Radio (Bluetooth)                 | USA, Canada, EU, China                                                                                            |

**Options**

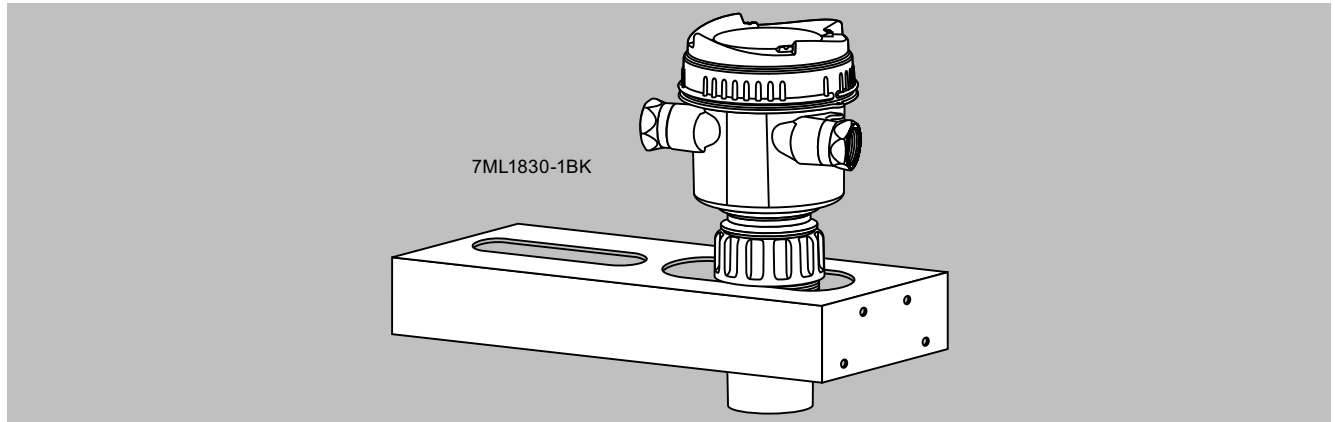
SITRANS Probe LU240 optional flange adapter, dimensions in mm (inch)

## Level Measurement

### Continuous level measurement

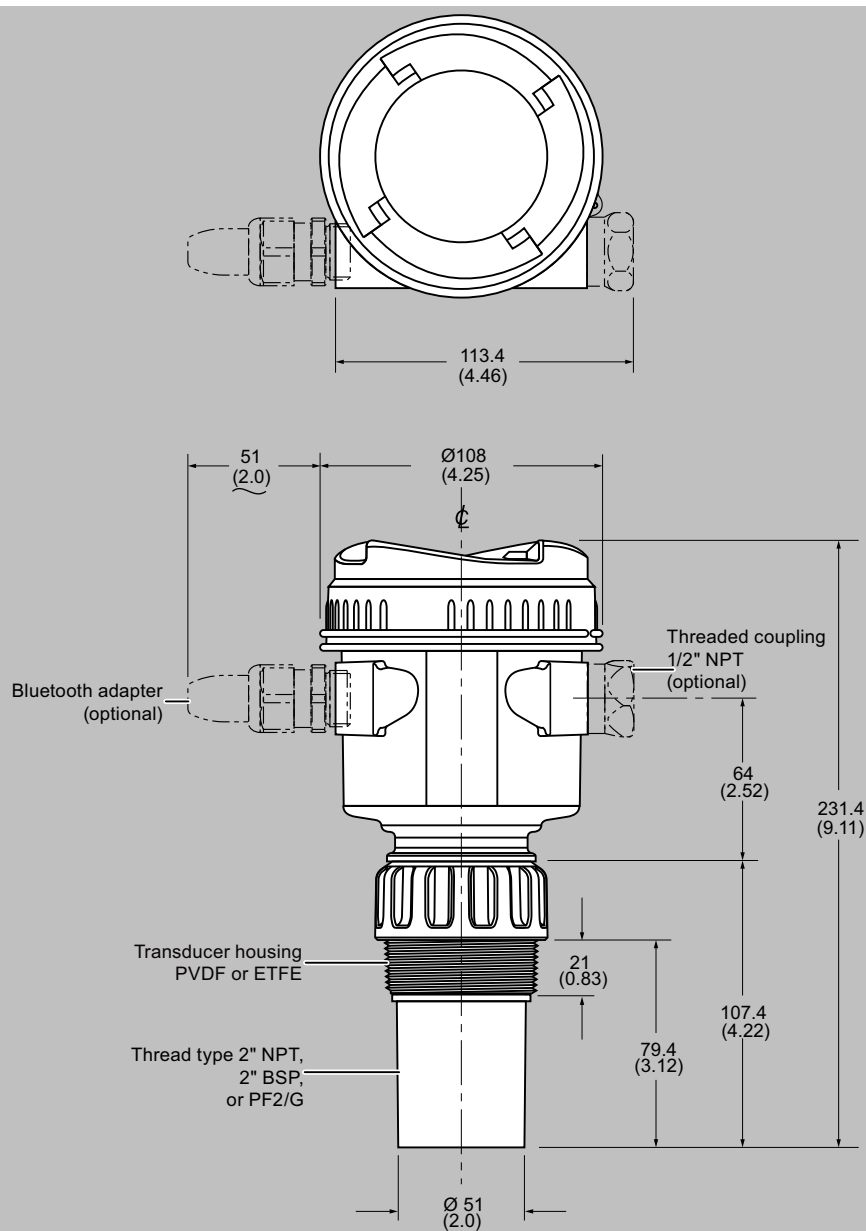
#### Ultrasonic / Ultrasonic transmitters / SITRANS Probe LU240

##### Options (continued)



SITRANS Probe LU240 with optional FMS 200 universal box bracket

### Dimensional drawings



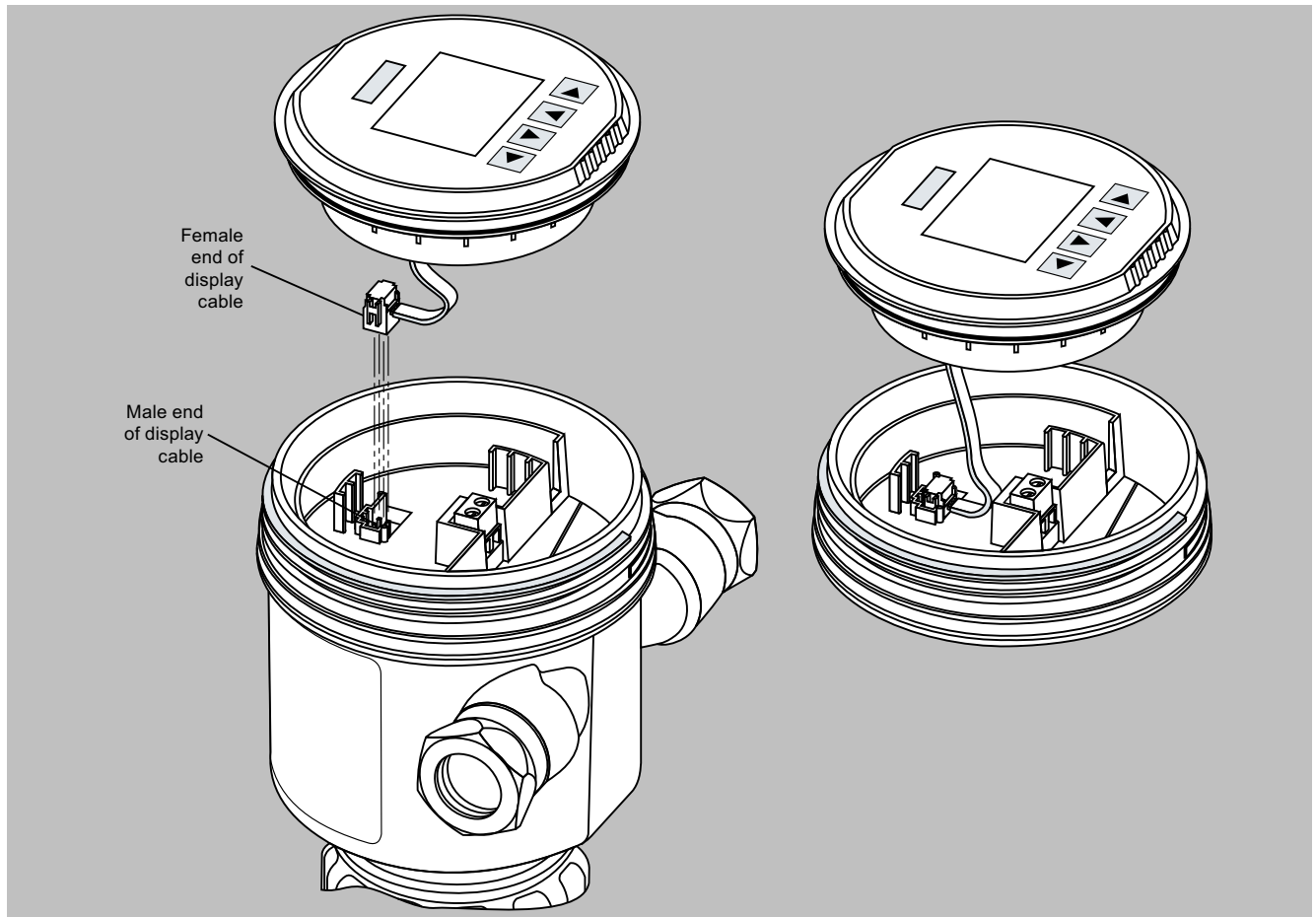
SITRANS Probe LU240 with optional Bluetooth adapter, dimensions in mm (inch)

## Level Measurement

### Continuous level measurement

#### Ultrasonic / Ultrasonic transmitters / SITRANS Probe LU240

##### Circuit diagrams



SITRANS Probe LU240 connections