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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 with quick commissioning wizards
- Programming using 4-button HMI or SIMATIC PDM
- Communication using HART
- ETFE or PVDF transducers for chemical compatibility
- Process Intelligence signal processing
- IQ Guard for health monitoring, 250 point diagnostic log, limit monitoring, 2010 point trend log, over 40 NE107 diagnostics, and quality verification report via Mobile IQ
- Auto False Echo Suppression for fixed obstruction avoidance
- Low power and current startup
- Optional Bluetooth configuration and monitoring via SITRANS mobile IQ
- Rotating enclosure for ease of installation

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.

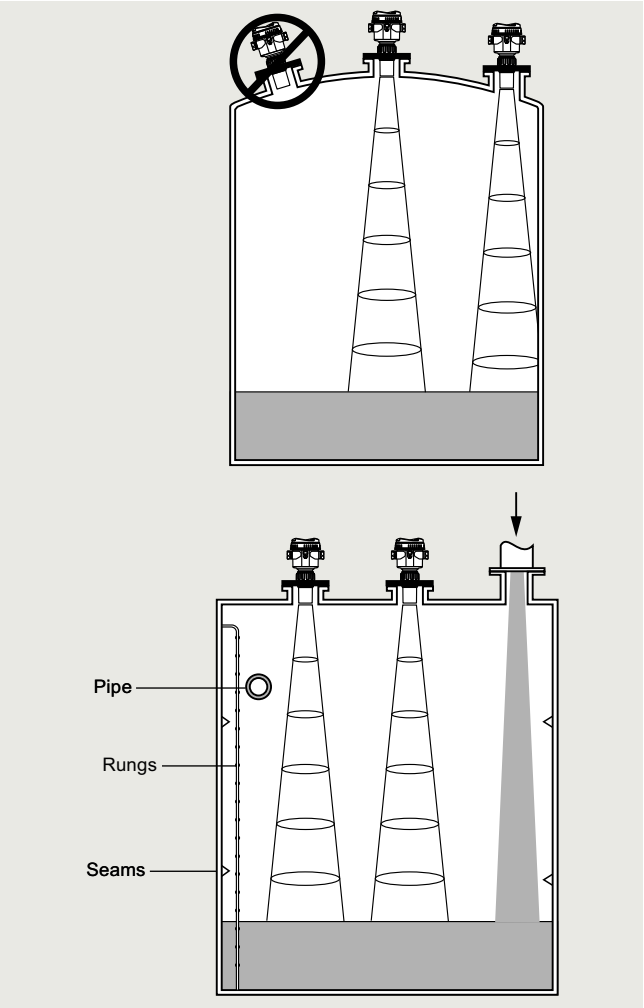
SITRANS mobile IQ is a Bluetooth app that provides an intuitive interface to quickly configure, set up, and monitor SITRANS Probe LU240 series (available for Android, Apple, and Windows devices). For more information: http://www.siemens.com/mobileIQ.

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

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Configuration



SITRANS Probe LU240 mounting

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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.	Article No. 7ML51	1	●	-	●	●	●	0	●	-	4	●	●	●
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.														
Communications														
HART (4 ... 20 mA) level, volume, volume flow[5]			0											
4 ... 20 mA[1] level only			7											
Ingress protection														
IP66, IP68, Type 4X, 6					1									
Measurement range/wetted parts														
200 ... 3 000 mm (7.87 ... 118.11 inch), PVDF Copolymer						B								
200 ... 3 000 mm (7.87 ... 118.11 inch), ETFE						C								
200 ... 6 000 mm (7.87 ... 236.22 inch), PVDF Copolymer						D								
200 ... 6 000 mm (7.87 ... 236.22 inch), ETFE						E								
200 ... 12 000 mm (7.87 ... 472.44 inch), PVDF Copolymer						G								
200 ... 12 000 mm (7.87 ... 472.44 inch), ETFE						H								
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)									7					
Type of protection														
Ordinary Locations/General Purpose (Non-Ex), $_{C}CSA_{US}$, CE, KC, RCM, EAC												A		
Ordinary Locations/General Purpose (Non-Ex), $_{C}CSA_{US}$, FM, CE, KC, RCM, EAC[2]												B		
Hazardous locations Ex ia / IS (Div. 1) / NI (Div. 2)[3]												C		
Electrical connections/cable entries														
2 x M20 x 1.5 (one general purpose Polyamide cable gland and one Polyamide blocking plug provided)													F	
1 x 1/2" NPT (no gland cable provided)													K	
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)														0
With display (blind lid of PBT/PC material)														1
With display (clear lid of PC material)														3

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	**Y15**
Certificates	
Declaration of compliance DIN 55350-18, Type M / ISO 9001 delivery meets order requirements	**C19**
Certificate EN 10204-2.2	**C14**
Wireless communication [6]	
Bluetooth	**F50**
Approvals [4]	
ATEX II 1 G Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C; IECEx Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C; EAC Ex 0Ex ia IIC T4 Ga X; SABS Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C;	**E31**
FM (Non-incendive) Class I, Div. 2, Groups A, B, C, D, T5 for Ta = -40 °C to +75 °C, T6 for Ta = -40 °C to +40 °C;[2]	**E32**

Selection and Ordering data	Order code
IECEx Ex ia IIC T4 Ga, Ta = -40 °C to +80 °C; KCs Ex ia IIC T4, Tamb = -40 °C to +80 °C; NEPSI Ex ia IIC T4 Ga;	**E33**
CSA Class I, Div. 2, Groups A, B, C, D, T4, CSA Class II, Div.1, Groups E, F, G, T4, CSA Class III; FM Class I, Div. 2, Groups A, B, C, D, T4, FM Class II, Div.1, Groups E, F, G, T4, FM Class III; CSA Class I, Zone 0, AEx ia IIC T4 Ga, Tamb = -40 °C to +80 °C; IECEx Ex ia IIC T4 Ga 2), Ta = -40 °C to +80 °C; INMETRO Ex ia IIC T4 Ga, -40 °C ≤ Ta ≤ +80 °C; KCs Ex ia IIC T4, Tamb = -40 °C to +80 °C;[2]	**E34**
VLAREM II (Available with approval option A or B or E31 only.)	**E61**
For customs, contact a local sales person. For more information please visit http://www.automation.siemens.com/aspa_app.	

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Selection and ordering data (continued)

Spare parts and accessories	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
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	**7ML1830-1DQ**
Stainless steel sun shield	**A5E52107153**
Over-voltage protection up to 6 kV (external), M20 x 1.5	**7MF7903-7AB**
Over-voltage protection up to 6 kV (external), ½" NPT	**7MF7903-7AC**
Cable Gland Polyamide - General Purpose (-20 ... +60 °C)	**A5E34457564**
Bluetooth kit	**A5E50514198**
SIMATIC RTU3010C compact, remote data manager with alarming	**6NH3112-0BA00--0XX0**
SIMATIC RTU3030C compact, remove data manager with alarming	**6NH3112-3BA00--0XX0**
HART modem with USB interface	**7MF4997-1DC**
Intrinsically safe barrier	**7NG4124-1AA00**

Spare parts and accessories	Article No.
SITRANS RD100, loop powered display	**7ML5741-.....-.**
SITRANS RD150, remote digital display for 4 to 20 mA and HART devices	**7ML5742-.....-....**
SITRANS RD200, universal input display with Modbus conversion	**7ML5740-.....-..**
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion	**7ML5744-.....-..**
SITRANS LT500, a versatile, single and multi-vessel level monitor/controller for virtually any application in a wide range of industries.	**7ML60..-.....-....**
Spare Parts	
Spare lid, clear	**A5E44267491**
Spare lid, blind	**A5E44267497**
Spare o-ring for lid	**A5E44267501**
Spare segmented display and 4-button HMI	**A5E44809382**

1) For use only with Measurement range/wetted parts options B, C, D, and E.
2) Available only with Electrical connections/cable entries option K only.
3) Available only with order codes E31, E32, E33, and E34.
4) Order codes E31, E32, E33, E34 only available with Type of protection option C.
5) For use only with Measurement range/wetted parts option D, E, G, and H.
6) For use only with Type of protection options A and B, and Communications option 0.

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Technical specifications

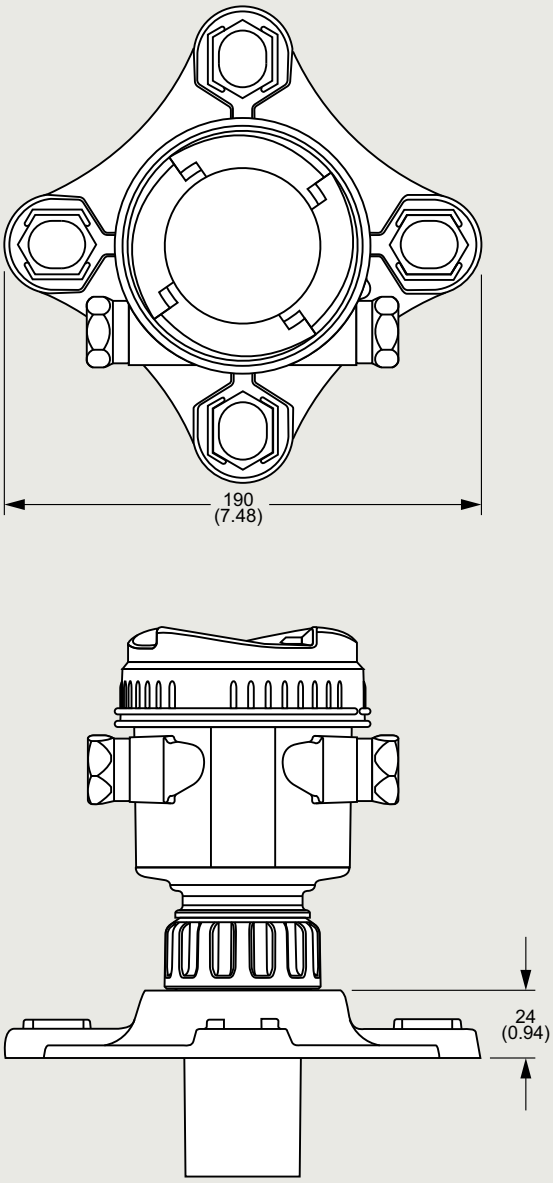
SITRANS Probe LU240	
Mode of operation	
Measuring principle	Ultrasonic level measurement
Typical application	Level measurement in storage vessels and simple process vessels
Inputs	
Measuring range	
• 3 m (10 ft)	0.2 ... 3 m (8 inch ... 10 ft)
• 6 m (20 ft) model	0.2 ... 6 m (8 inch ... 20 ft)
• 12 m (40 ft) model	0.2 ... 12 m (8 inch ... 40 ft)
Frequency	54 kHz
Outputs	
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
Performance	
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	• ± the greater of 0.15 % of range or 6 mm (0.25 inch) [valid from 0.25 m (0.82 ft)] • ± 2 mm (0.08 inch) on ranges 4 m (13 ft) or less
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	
• Location	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)	Normal atmospheric pressure / vent to atmosphere
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 FMS mounting bracket product page for more information) or customer supplied mount.
Display and Controls	
Interface	Local: LCD display Remote: Available via HART or Bluetooth
Configuration	4-button HMI

Technical specifications (continued)

SITRANS Probe LU240	
Memory	Non-volatile EEPROM, no battery required
Remote configuration	• PC running SIMATIC PDM • PC running PACTware (SITRANS DTM) • PC running Emerson AMS Device Manager • PC running a Field Device Tool (FDT) • Field Communicator 375/475 (FC375/FC475) • Mobile device running SITRANS Mobile IQ (AW050 bluetooth)
Power supply	
4 ... 20 mA/HART	10.5 ... 30 V DC
Certificates and Approvals	
General	FM, $_{C}$CSA$_{US}$, CE, RCM, EAC, KC, VLAREM II, RoHS, China RoHS, WEEE, REACH
Radio	FCC, IC, RED, CMIIT, WPC ETA
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/$_{C}$CSA$_{US}$ Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III T4 CSA Ex ia IIC T4 Ga Class I, Zone 0, AEx ia IIC T4 Ga Tamb: -40 °C to +80 °C
- Japan	Japan Ex 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
- 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 metrology
Drinking water	NSF/ANSI/CAN 61, NSF/ANSI/CAN 372;
Radio (Bluetooth) AW050	Australia, Brazil, Canada, Chile, China, Colombia, Ecuador, Egypt, EU, Hong Kong, India, Israel, Japan, Kazakhstan, Malaysia, Mexico, New Zealand, Pakistan, Peru, South Africa, South Korea, Taiwan, UAE, UK, USA, Vietnam
Other	FDA (wetted sensor), Environmental Product Declaration (EPD), Siemens EcoTech Profile (SEP)
Production and development certification	• ISO 9001 • ISO 14001 • ISO 18001 • ISO 45001 • IEC 62443-4-1 • EN ISO/IEC 80079-34 • IEC 62443-4-1, maturity level 3

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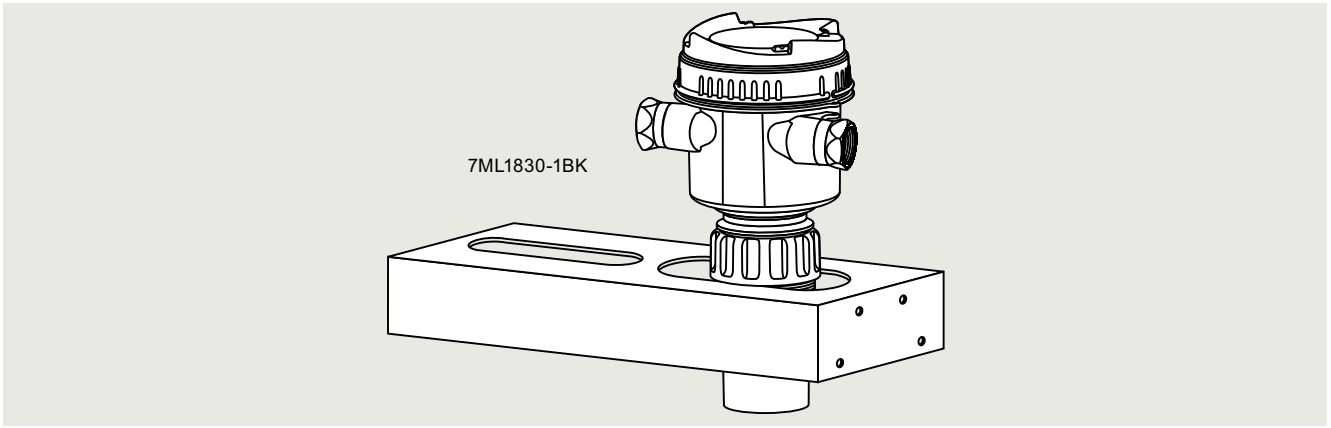
Options



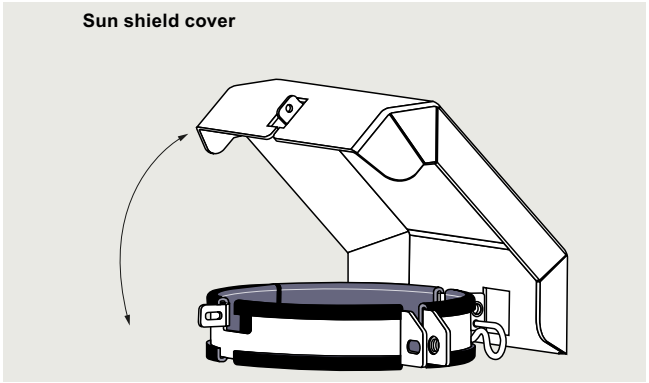
SITRANS Probe LU240 optional flange adapter, dimensions in mm (inch)

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Options (continued)



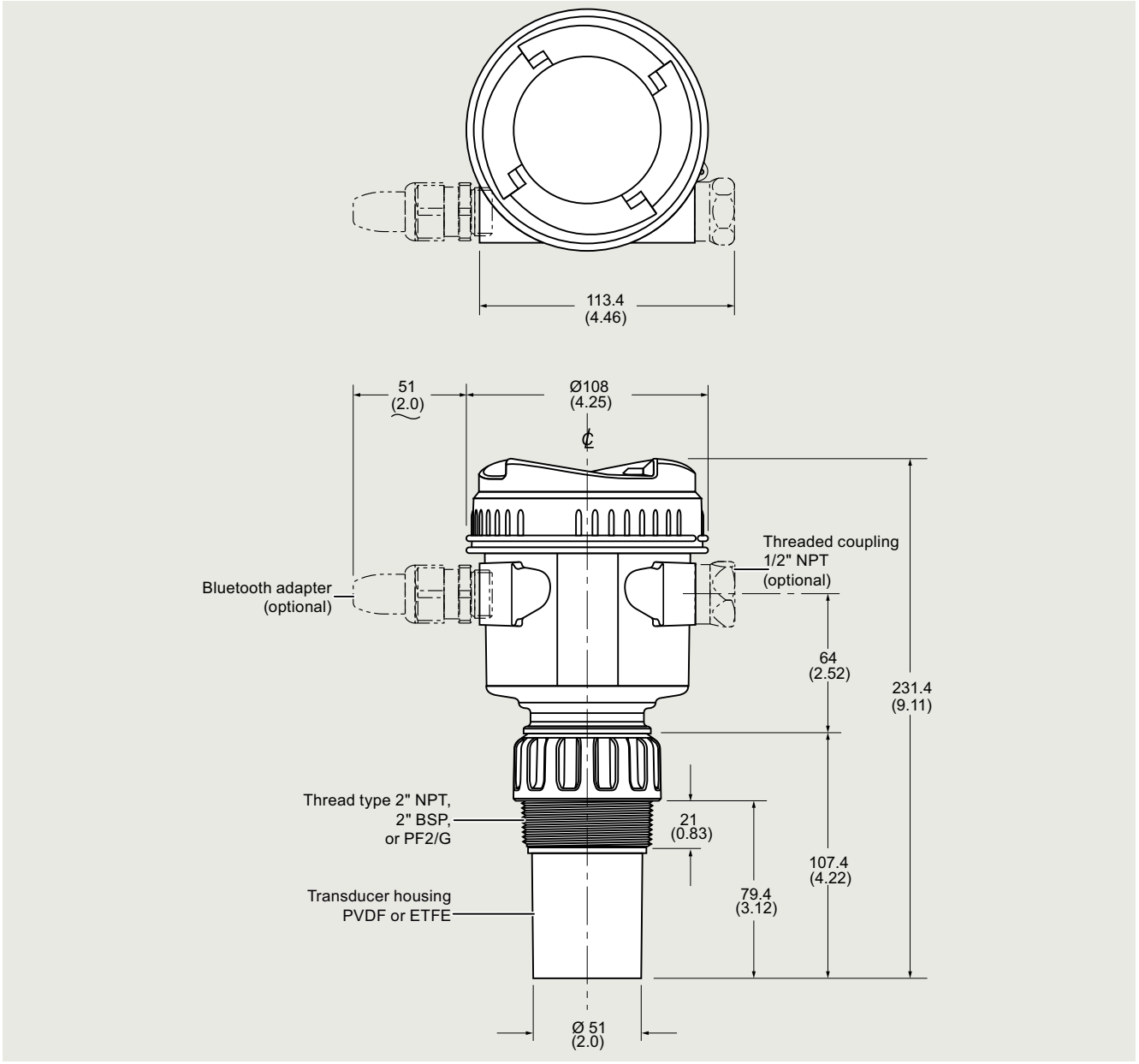
SITRANS Probe LU240 with optional FMS 200 universal box bracket



SITRANS Probe LU240 Sunshield

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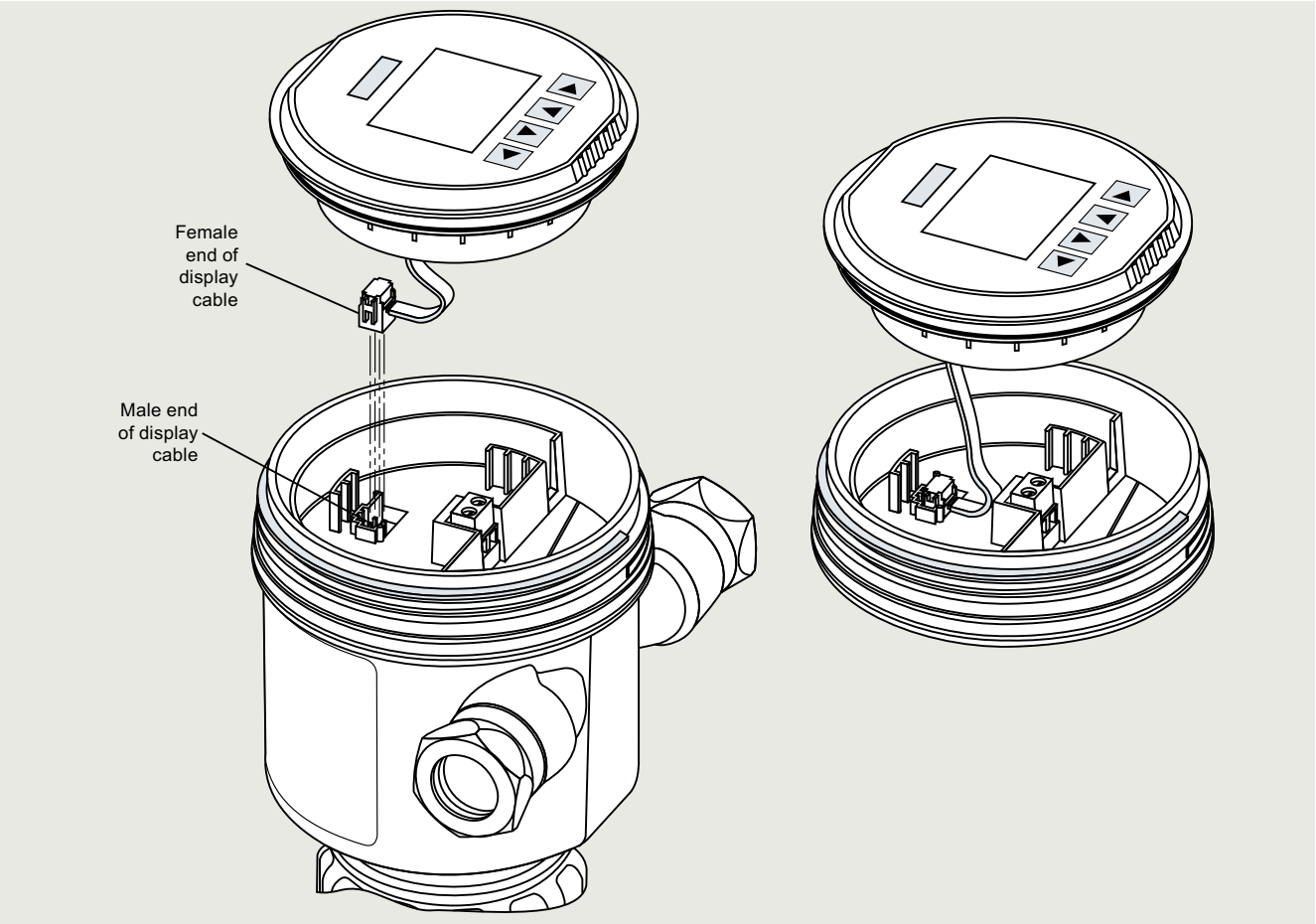
Dimensional drawings



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

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Circuit diagrams



SITRANS Probe LU240 connections