Overview

The Probe is a short-range integrated ultrasonic level transmitter, ideal for liquids and slurries in open or closed vessels.

Benefits

- Easy to install, program, and maintain
- Accurate and reliable
- Sanitary models available
- Sonic Intelligence echo processing
- Integral temperature compensation

Application

The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

The reliability of the level data is based on the Sonic Intelligence echo processing algorithms. A filter discriminates between the true echo and false echoes from acoustic or electrical noises and agitator blades in motion. The ultrasonic pulse propagation time to the material and back is temperature-compensated and converted into distance for display, analog output and relay actuation.
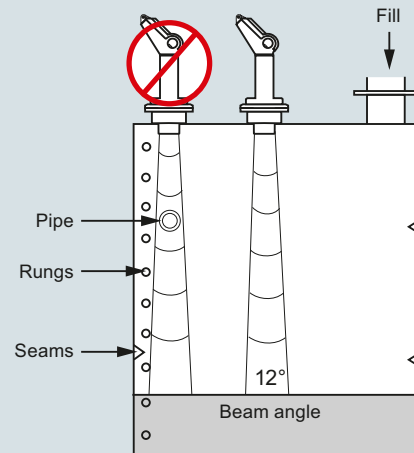
- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

Configuration

Parabolic mounting
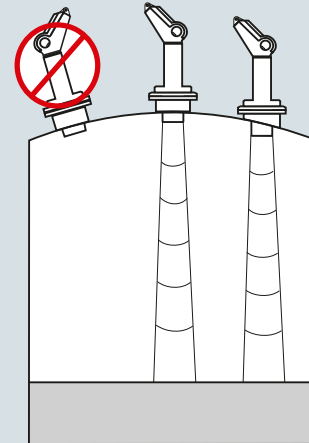
Flat mounting and beam angle

The Probe mounting

Level measurement
Continuous level measurement
Ultrasonic transmitters

The Probe

Technical specifications

	3-wire version
Mode of operation	
Measuring principle	Ultrasonic level measurement
Input	
Measuring range	0.25 ... 5 m (0.8 ... 16.4 ft)
Frequency	54 kHz
Output	
mA	4 ... 20 mA
• Span	Proportional/ inversely proportional
• Max. load	750 Ω at 24 V DC
Relay	For level alarm or fault
Power supply	
Supply voltage	18 ... 30 V DC, max. 0.2 A
Max. power consumption	5 W (200 mA at 24 V DC)
Certificates and approvals	CE, RCM, CSA$_{US/C}$, FM
Accuracy	
Error in measurement	0.25 % of measuring range (in air)
Resolution	3 mm (0.125 inch)
Temperature compensation	Built in
Echo processing	Sonic Intelligence
Rated operation conditions	
Beam angle	12°
Ambient temperature • Standard • Metallic mounting	 -40 ... +60 °C (-40 ... +140 °F) -20 ... +60 °C (-4 ... +140 °F)
Storage temperature • Standard • Metallic mounting	 -40 ... +60 °C (-40 ... +140 °F) -20 ... +60 °C (-4 ... +140 °F)
Max. static operating pressure	Normal atmospheric pressure
Degree of protection	IP65
Design	
Weight • Without flange adapter • With flange adapter	 1.5 kg (3.3 lb) 1.7 kg (3.7 lb)
Material • Electronics enclosure • Transducer	 PVC PVDF copolymer
Degree of protection	IP65
Process connection	• 2" NPT [(Taper), ANSI/ASME B1.20.1] • R 2" [(BSPT), EN 10226] • G 2" [(BSPP), EN ISO 228-1] • 4" sanitary
Flange adapter	3" Universal (fits DN 65, PN 10 and 3" ASME)
Cable inlet	2 inlets for PG 16 or ½" NPT cable glands

Selection and ordering data | Article No.

	Article No.
The Probe Ultrasonic level transmitter Continuous, non-contact, 5 m (16.4 ft) range. Monitors level for liquids and slurries. With 3-wire relay output.	**7ML1201-** ■ ■ ■ 0 0
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Measuring range 5 m (16.40 ft)	**1**
Transducer/Process connection PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1] PVDF copolymer, R 2" [(BSPT), EN 10226] PVDF copolymer, G 2" [(BSPP), EN ISO 228-1] PVDF copolymer, 4" Sanitary mounting	 **E** **F** **G** **J**
Model/Approval 3-wire, 24 V DC, CE, RCM, CSA, FM	 **E**

Further designs	Order code
Please add "**-Z**" to Article No. and specify Order code(s).	
Acrylic coated, stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/identification (max. 20 characters) specify in plain text	**Y17**

Operating Instructions

All literature is available to download for free, in a range of languages, at

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

Accessories	Article No.
Universal Box Bracket Mounting kit	**7ML1830-1BK**
Sanitary 4" mounting clamp	**7ML1830-1BR**
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT	**7ML1830-1BT**
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT	**7ML1830-1BU**
2" NPT nylon plastic locknut	**7ML1830-1DT**
2" BSP nylon plastic locknut	**7ML1830-1DQ**
Plastic M20 cable gland with metal locknut	**7ML1930-1DB**
SITRANS RD100, loop powered display - see Chapter 7	**7ML5741-.....-.**
SITRANS RD150, remote digital display for 4 ... 20 mA and HART devices - see Chapter 7	**7ML5742-.....-....**
SITRANS RD200, universal input display with Modbus conversion - see Chapter 7	**7ML5740-.....-..**
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7	**7ML5744-.....-..**
For applicable back up point level switch see point level measurement section.	

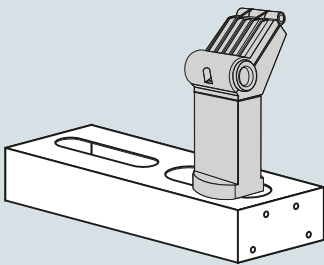## ■ Options

Flange adapter for mating 2" NPT or 2" BSP process connections to 3" ANSI, DN 65 PN10, and JIS 10K 3B flanges

148.8 (5.86) bolt hole circle diameter

190.2 (7.49) diameter
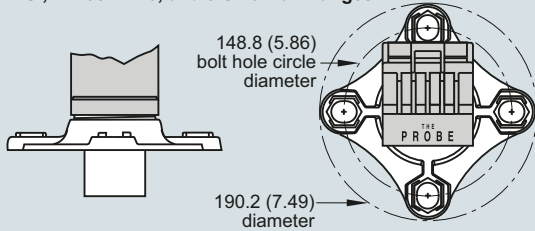
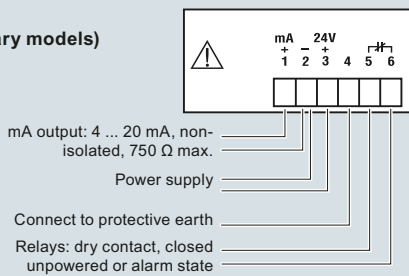The Probe optional flange adapter, dimensions in mm (inch)

The Probe with FMS 200 mounting bracket

The Probe with optional mounting bracket

■ Circuit diagrams
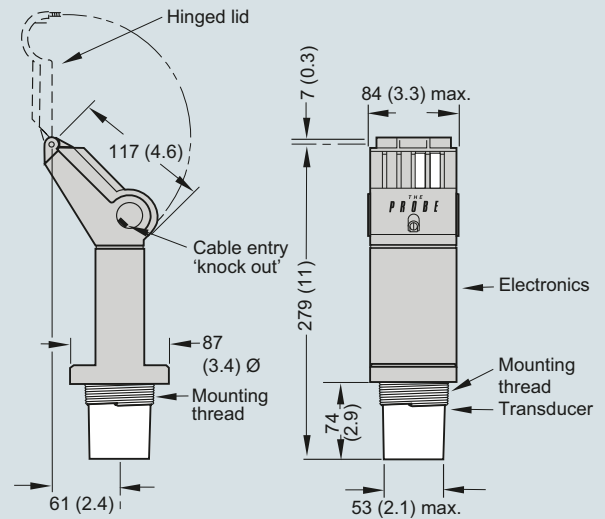
**3 wire model
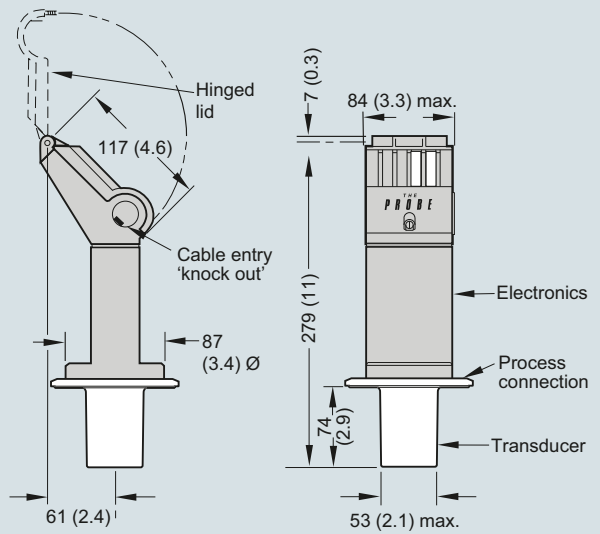(standard and sanitary models)**

mA   24V
+ − +
1 2 3 4 5 6

mA output: 4 ... 20 mA, non-isolated, 750 Ω max.
Power supply
Connect to protective earth
Relays: dry contact, closed unpowered or alarm state

Display

Program mode   Segment display
'20' key
'4' key
Operation status   LOE/fault
Units
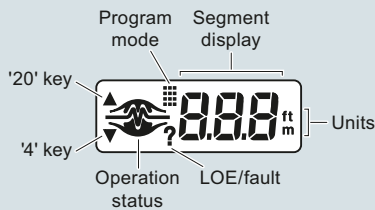
The Probe connections

■ Dimensional drawings

Standard model

Hinged lid
117 (4.6)
Cable entry 'knock out'
87 (3.4) Ø
Mounting thread
61 (2.4)

7 (0.3)
84 (3.3) max.
279 (11)
Electronics
Mounting thread
Transducer
74 (2.9)
53 (2.1) max.

Sanitary model

Hinged lid
117 (4.6)
Cable entry 'knock out'
87 (3.4) Ø
61 (2.4)

7 (0.3)
84 (3.3) max.
279 (11)
Electronics
Process connection
Transducer
74 (2.9)
53 (2.1) max.

The Probe, dimensions in mm (inch)

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