

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

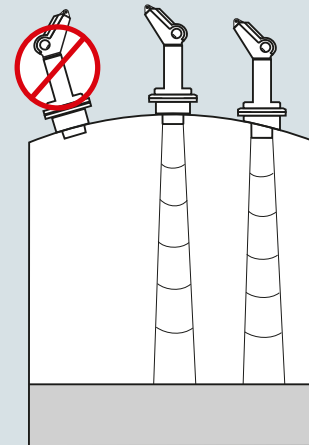
The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

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.

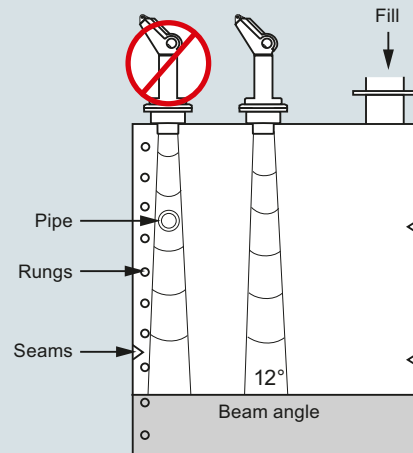
- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

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	-40 ... +60 °C (-40 ... +140 °F)
• Metallic mounting	-20 ... +60 °C (-4 ... +140 °F)
Storage temperature	
• Standard	-40 ... +60 °C (-40 ... +140 °F)
• Metallic mounting	-20 ... +60 °C (-4 ... +140 °F)
Max. static operating pressure	Normal atmospheric pressure
Degree of protection	IP65
Design	
Weight	
• Without flange adapter	1.5 kg (3.3 lb)
• With flange adapter	1.7 kg (3.7 lb)
Material	
• Electronics enclosure	PVC
• Transducer	PVDF copolymer
Degree of protection	IP65
Process connection	<ul style="list-style-type: none"> • 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.

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.

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Measuring range

5 m (16.40 ft)

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

Model/Approval

3-wire, 24 V DC, CE, RCM, CSA, FM

Further designs

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

Operating Instructions

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

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

Accessories

Universal Box Bracket Mounting kit
Sanitary 4" mounting clamp
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT
2" NPT nylon plastic locknut
2" BSP nylon plastic locknut
Plastic M20 cable gland with metal locknut
SITRANS RD100, loop powered display - see Chapter 7
SITRANS RD150, remote digital display for 4 ... 20 mA and HART devices - see Chapter 7
SITRANS RD200, universal input display with Modbus conversion - see Chapter 7
SITRANS RD300, dual line display with totalizer and linearization curve and Modbus conversion - see Chapter 7
For applicable back up point level switch see point level measurement section.

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Order code

Y17

Article No.

7ML1830-1BK

7ML1830-1BR

7ML1830-1BT

7ML1830-1BU

7ML1830-1DT

7ML1830-1DQ

7ML1930-1DB

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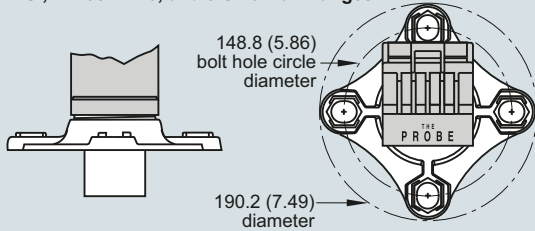
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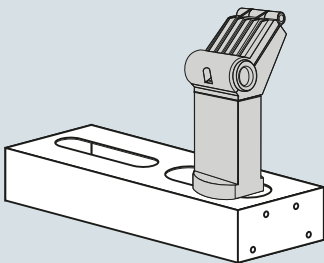
Options

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



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

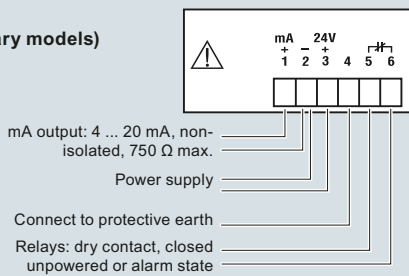
The Probe with FMS 200 mounting bracket



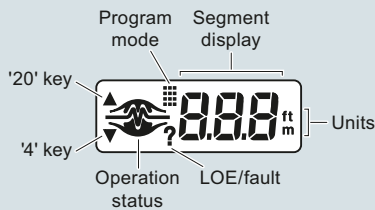
The Probe with optional mounting bracket

Circuit diagrams

3 wire model (standard and sanitary models)



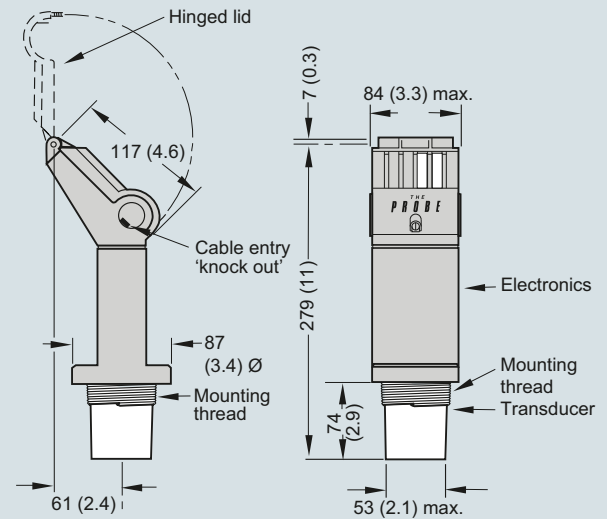
Display



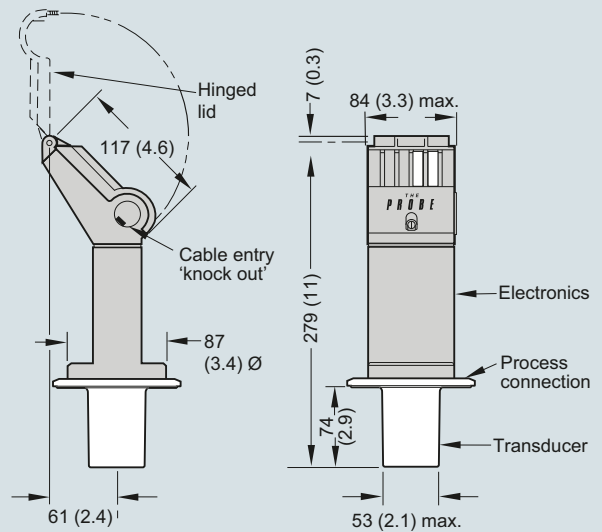
The Probe connections

Dimensional drawings

Standard model



Sanitary model



The Probe, dimensions in mm (inch)