

SITRANS L Level instruments

Continuous measurement - Ultrasonic transmitters

The Probe

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
- PVDF copolymer or ETFE transducers available
- Sanitary models available
- Patented Sonic Intelligence® echo processing
- Integral temperature compensation

Application

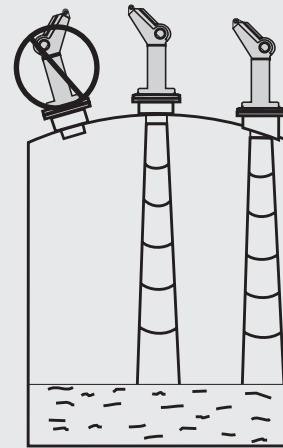
The transducer is available in ETFE or PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

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.

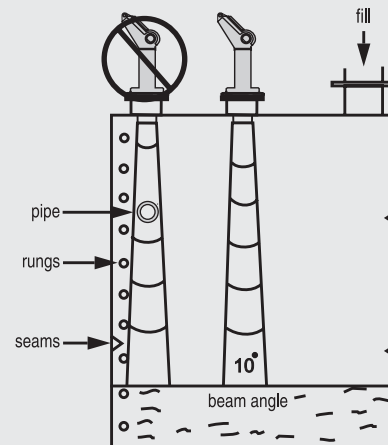
- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

Configuration

Parabolic Mounting



Flat Mounting and Beam Angle



The Probe mounting

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Technical specifications

	Three-wire version	Two-wire version (standard)
Mode of operation		
Measuring principle	Ultrasonic level measurement	Ultrasonic level measurement
Input		
Measuring range	0.25 to 5 m (0.8 to 16.4 ft)	0.25 to 5 m (0.8 to 16.4 ft)
Output		
• mA	4 to 20 mA	4 to 20 mA
- Span	Proportional/ inversely proportional	Proportional/ inversely proportional
- Max. load	750 Ω at 24 V DC	600 Ω in the loop at 24 V DC
• Relay	For level alarm or fault	No
Power supply		
• Supply voltage	18 to 30 V DC, max. 0.2 A	12 to 28 V DC, 0.1 A surge
• Max. power consumption	5 W (200 mA at 24 V DC)	0.75 W (25 mA at 24 V DC)
Certificates and approvals	CE; CSA _{NRTL/C} , FM, 3A	CE; CSA _{NRTL/C} , FM, 3A

Accuracy

• Error in measurement	0.25% of measuring range (in air)
• Resolution	3 mm (0.125")
• Temperature compensation	Built in
• Echo processing	Sonic Intelligence

Rated operation conditions

• Beam angle	12°
• Ambient temperature	
- Standard	-40 to +60 °C (-40 to +140 °F)
- Metallic mounting	-20 to +60 °C (-5 to +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	ETFE or PVDF copolymer
• Degree of protection	IP65
• Process connection	2" NPT or 2" BSPT or 2" G
• Flange adapter	3" Universal, (fits DN 65, PN 10 and 3" ASME) 4" sanitary
• Cable inlet	2 inlets for PG 13.5 or ½" NPT cable glands

Selection and Ordering data

Order No.

The Probe

Short-range integrated ultrasonic level transmitter, ideal for liquids and slurries in open or closed vessels

Measuring range

5 m (16.40 ft)

Transducer/Process connection

ETFE, 2" NPT (ANSI/ASME B1.20.1)

ETFE, 2" BSPT (EN 10226-1)

ETFE, 2" G (EN ISO 228-2)

PVDF copolymer, 2" NPT (ANSI/ASME B1.20.1)

PVDF copolymer, 2" BSPT (EN 10226-1)

PVDF copolymer, 2" G (EN ISO 228-2)

PVDF copolymer, 4" Sanitary mounting, 3A approved

Model/Approval

3 Wire, 24 V DC, CSA, CE, FM

2 Wire, 24 V DC, CE

Additional instruction manual

3 Wire, 24 V model, Multi-language manual

2 Wire model, Multi-language manual

(One instruction manual is included with the Probe.)

Accessories

Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line suitable for enclosures

Universal Box Bracket Mounting kit

3" ASME, DIN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT

3" ASME, DIN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT

Sanitary 4" mounting clamp

Power Supply, 24 V DC, 200 mA for 2 probes (105 to 125 V AC input)

Power Supply, 24 V DC, 100 mA for 1 probe (105 to 125 V AC input)

2" NPT locknut, plastic

2" BSPT locknut, plastic

C) Subject to export regulations AL: N, ECCN: EAR99

C) 7ML1201 -

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1

A

B

C

E

F

G

H

E

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C) 7ML1998-1GD62

C) 7ML1998-1GC62

7ML1930-1AC

7ML1830-1BK

7ML1830-1BT

7ML1830-1BU

7ML1830-1BR

7ML1930-1AA

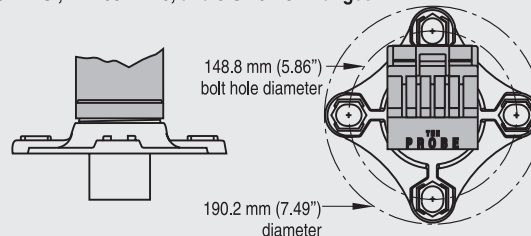
C) 7ML1930-1AB

7ML1830-1DT

7ML1830-1DQ

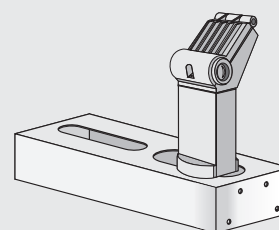
Options

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



The Probe Optional Flange Adapter

The Probe with FMS 200 Mounting Bracket



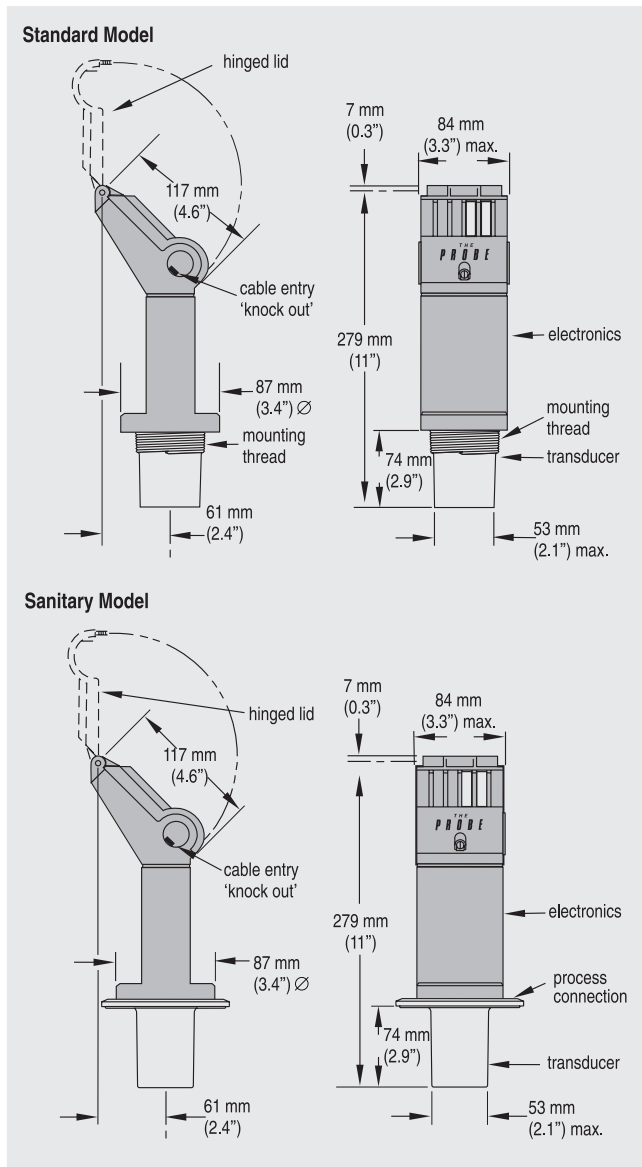
The Probe with Optional Mounting Bracket

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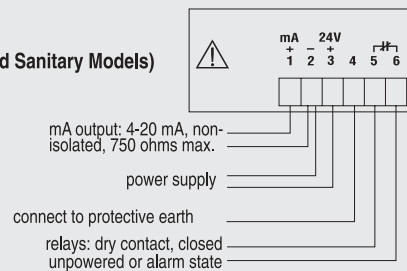
Dimensional drawings



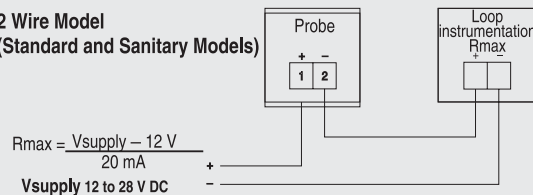
The Probe dimensions

Schematics

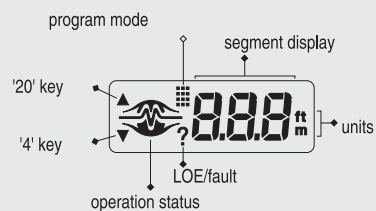
3 Wire Model (Standard and Sanitary Models)



2 Wire Model (Standard and Sanitary Models)



Display



The Probe connections