

Level instruments

Continuous level 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
- Sanitary models available
- Patented Sonic Intelligence® echo processing
- Integral temperature compensation

Application

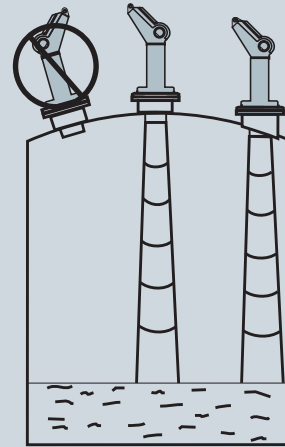
The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

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.

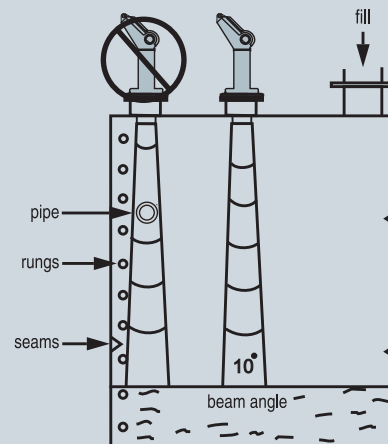
- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

Configuration

Parabolic Mounting



Flat Mounting and Beam Angle



The Probe mounting

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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 (-4 to +140 °F)
• Max. static operating pressure	Normal atmospheric pressure
• Degree of protection	IP65

Design

• Weight	
- Without flange adapter	1.5 kg (3.3 lbs)
- With flange adapter	1.7 kg (3.7 lbs)
• Material	
- Electronics enclosure	PVC
- Transducer	PVDF copolymer
• Degree of protection	IP65
• Process connection	2" NPT [(Taper), ANSI/ASME B1.20.1] R 2" [(BSPT), EN 10226] or G 2" [(BSPP), EN ISO 228-1]
• 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

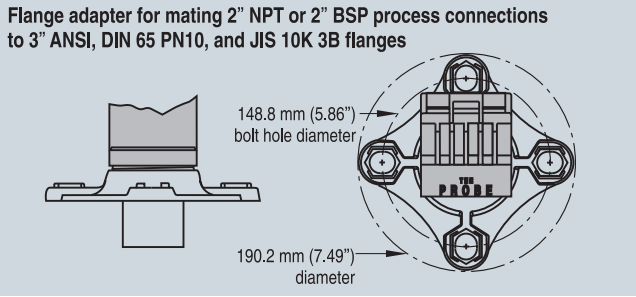
	Order No.
The Probe	C) 7ML1201-00
Short-range integrated ultrasonic level transmitter, ideal for liquids and slurries in open or closed vessels	
Measuring range	1
5 m (16.40 ft)	
Transducer/Process connection	E F G H
PVDF copolymer, 2" NPT [(Taper), ANSI/ASME B1.20.1] PVDF copolymer, R 2" [(BSPT), EN 10226] PVDF copolymer, G 2" [(BSPP), EN ISO 228-1] PVDF copolymer, 4" Sanitary mounting, 3A approved	
Model/Approval	E F
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	C) 7ML1998-5GD61
2 Wire model, Multi-language manual	C) 7ML1998-5GC61
This device is shipped with the Siemens Milltronics manual CD containing ATEX Quick Starts and instruction manuals.	
Accessories	
Tag, stainless steel, 12 x 45 mm (0.47 x 1.77"), one text line suitable for enclosures	7ML1930-1AC
Universal Box Bracket Mounting kit	7ML1830-1BK
Sanitary 4" mounting clamp	7ML1830-1BR
Power Supply, 24 V DC, 200 mA for 2 probes (105 to 125 V AC input)	C) 7ML1930-1AA
Power Supply, 24 V DC, 100 mA for 1 probe (105 to 125 V AC input)	C) 7ML1930-1AB
3" ASME, DIN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT	7ML1830-1BT
3" ASME, DIN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT	7ML1830-1BU
2" NPT locknut, plastic	7ML1830-1DT
2" BSPT locknut, plastic	7ML1830-1DQ
Plastic M20 cable gland with metal locknut	7ML1930-1DB
SITRANS RD100 Remote display - see RD100 on page 5/263	
SITRANS RD200 Remote display - see RD200 on page 5/265	
C) Subject to export regulations AL: N, ECCN: EAR99	

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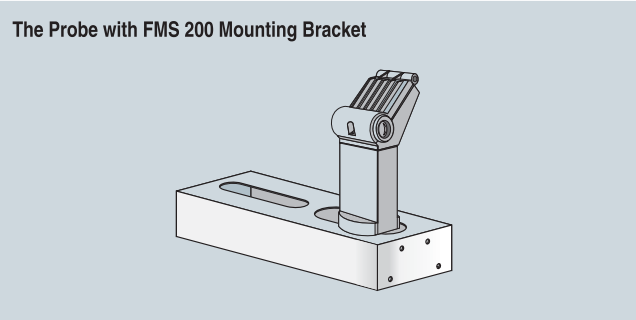
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Options

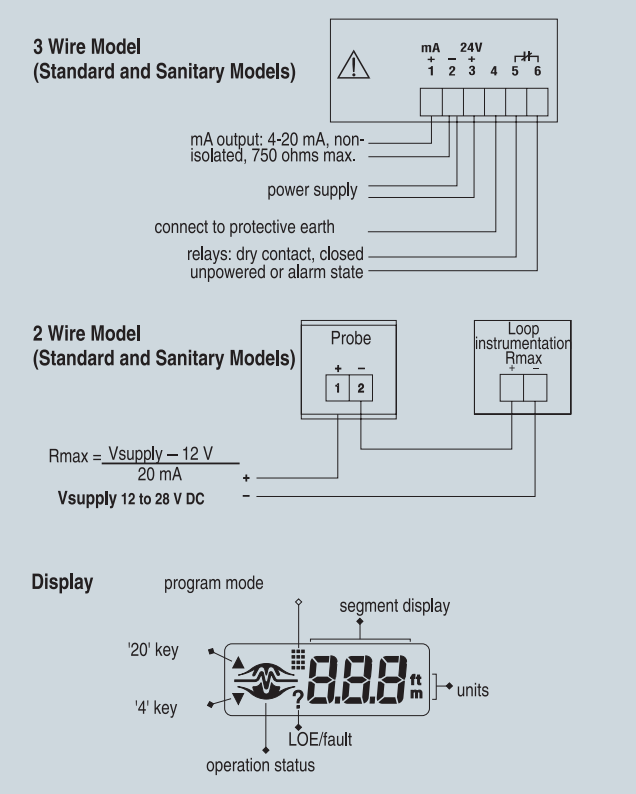


The Probe Optional Flange Adapter



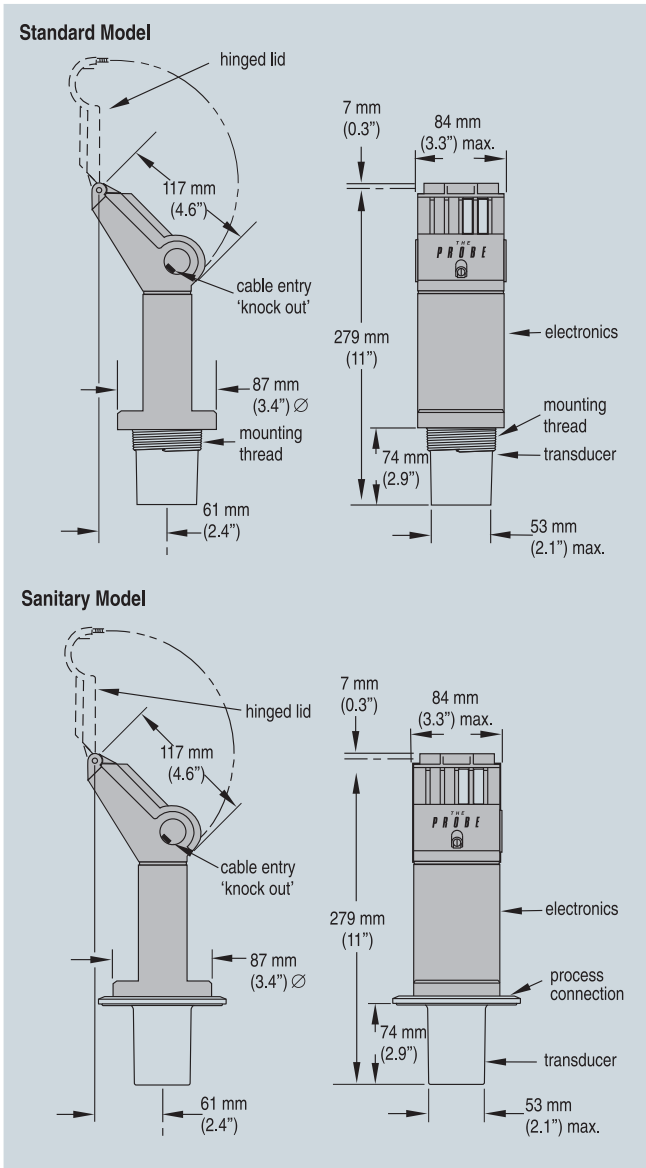
The Probe with Optional Mounting Bracket

Schematics



The Probe connections

Dimensional drawings



The Probe dimensions