

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

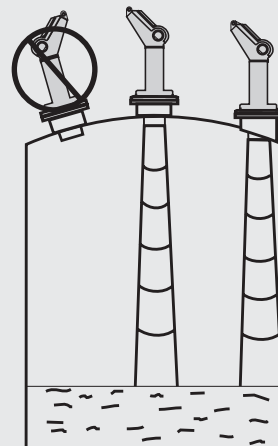
The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

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.

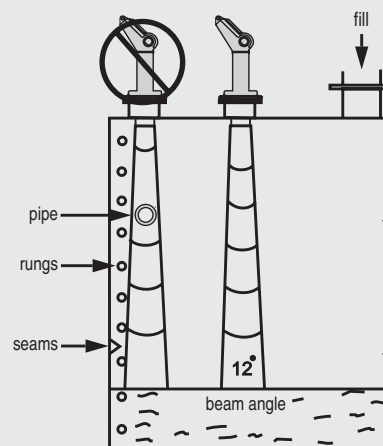
- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

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, C-TICK, CSA _{US/C} , FM	CE, C-TICK, CSA _{US/C}
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) 7ML1201-000
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 J
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	E F
3 Wire, 24 V DC, CE, C-TICK, CSA, FM	
2 Wire, 24 V DC, CE, C-TICK, CSA	
Further designs	Order code
Please add "-Z" to Order No. and specify Order code(s).	
Acrylic coated, stainless steel tag [13 x 45 mm (0.5 x 1.75")]: Measuring-point number/identification (max. 20 characters) specify in plain text	Y17
Additional Operating Instructions	
3 Wire, 24 V model, Multi-language manual	C) 7ML1998-5GD62
2 Wire model, Multi-language manual	C) 7ML1998-5GC63
This device is shipped with the Siemens Milltronics manual CD containing Quick Starts and Operating Instructions.	
Accessories	
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, 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 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 5/305	
SITRANS RD200 Remote display - see RD200 on page 5/307	
SITRANS RD500 Remote display - see RD500 on page 5/311	

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

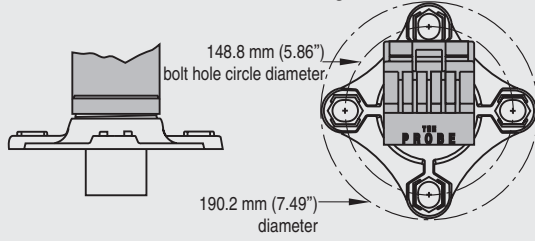
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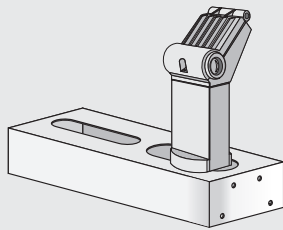
Options

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

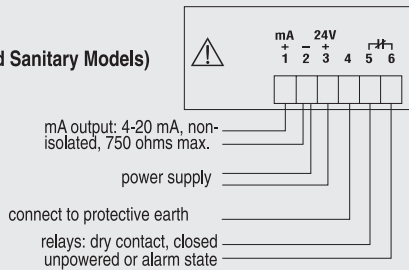
The Probe with FMS 200 Mounting Bracket



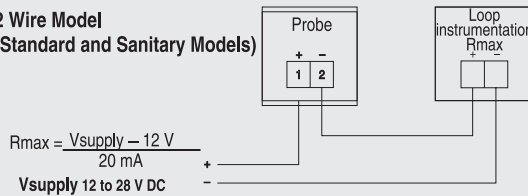
The Probe with Optional Mounting Bracket

Schematics

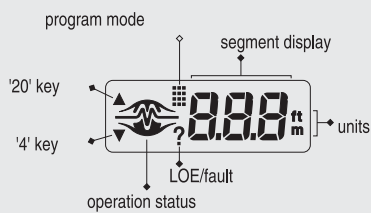
3 Wire Model (Standard and Sanitary Models)



2 Wire Model (Standard and Sanitary Models)



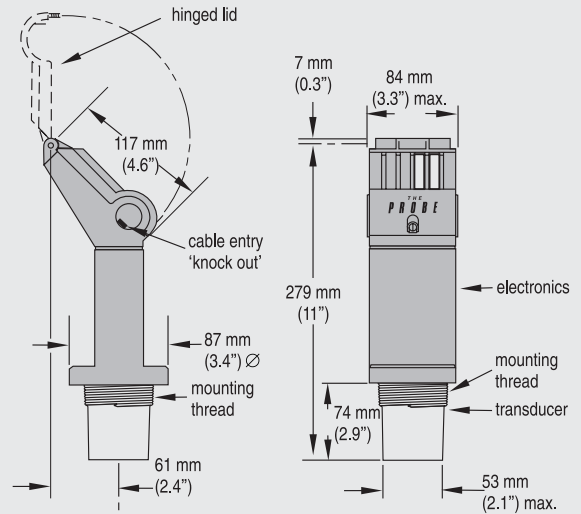
Display



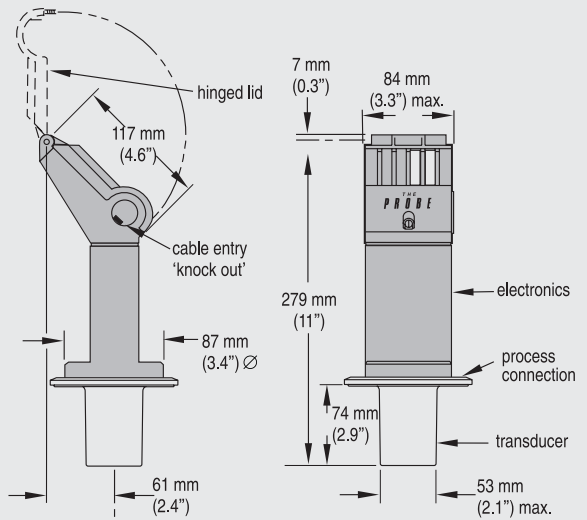
The Probe connections

Dimensional drawings

Standard Model



Sanitary Model



The Probe dimensions