

# FINE CONTROLS (UK) LTD



Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product range representing leading technologies & brands:

**Flow:** Flow Meters & Transmitters, Flow Switches, Flow Control Valves & Batch Control Systems

**Temperature:** Temperature Probes & Thermowells, Temperature transmitters, Temperature Regulators & Temperature Displays

**Level:** Level Transmitters & Switches

**Pressure:** Pressure Gauges & Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume boosters.

**Precision Pneumatics:** Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

**Valves:** Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

**Services:** Repair, Calibration, Panel Build, System Design & Commissioning

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**FAIRCHILD**



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**SIEMENS**



**alcon**  
SOLENOID VALVES

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**Honeywell**



**Bourdon**  
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# Level Measurement

## 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

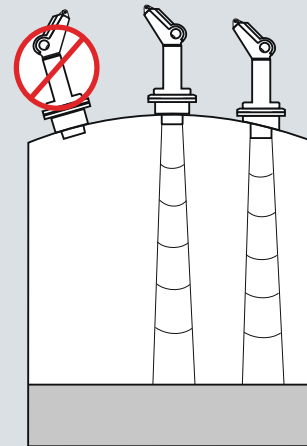
The transducer is available in PVDF copolymer, making the device suitable for use in a wide variety of applications. The Probe is easy to install and maintain, and can be quickly removed for cleaning as required by the food, beverage and pharmaceutical industries.

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.

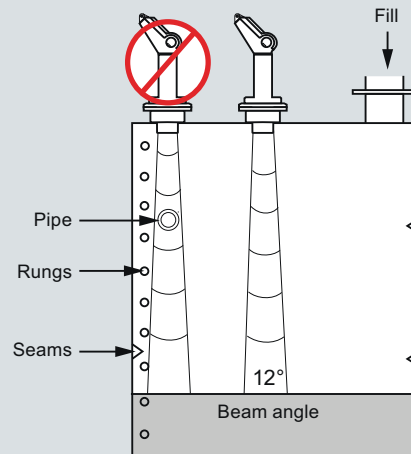
- Key Applications: chemical storage vessels, filter beds, mud pits, liquid storage vessels, food applications

### Configuration

#### Parabolic Mounting



#### Flat Mounting and Beam Angle



The Probe mounting

# Level Measurement

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### The Probe

#### Technical specifications

	Two-wire version (standard)	Three-wire version
<b>Mode of operation</b>		
Measuring principle	Ultrasonic level measurement	Ultrasonic level measurement
<b>Input</b>		
Measuring range	0.25 ... 5 m (0.8 ... 16.4 ft)	0.25 ... 5 m (0.8 ... 16.4 ft)
<b>Output</b>		
mA	4 ... 20 mA	4 ... 20 mA
• Span	Proportional/inversely proportional	Proportional/inversely proportional
• Max. load	600 Ω in the loop at 24 V DC	750 Ω at 24 V DC
Relay	No	For level alarm or fault
<b>Power supply</b>		
Supply voltage	12 ... 28 V DC, 0.1 A surge	18 ... 30 V DC, max. 0.2 A
Max. power consumption	0.75 W (25 mA at 24 V DC)	5 W (200 mA at 24 V DC)
<b>Certificates and approvals</b>	CE, C-TICK, CSA <sub>US/C</sub>	CE, C-TICK, CSA <sub>US/C</sub> , FM
<b>Accuracy</b>		
Error in measurement	0.25 % of measuring range (in air)	
Resolution	3 mm (0.125")	
Temperature compensation	Built in	
Echo processing	Sonic Intelligence	
<b>Rated operation conditions</b>		
Beam angle	12°	
Ambient 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	
<b>Design</b>		
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.
<b>The Probe</b>	C) <b>7ML1201-000</b>
Short-range integrated ultrasonic level transmitter, ideal for liquids and slurries in open or closed vessels	
<b>Measuring range</b>	1
5 m (16.40 ft)	
<b>Transducer/Process connection</b>	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	
<b>Model/Approval</b>	E F
3 Wire, 24 V DC, CE, C-TICK, CSA, FM 2 Wire, 24 V DC, CE, C-TICK, CSA	

#### Selection and Ordering data

	Order code
<b>Further designs</b>	
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	<b>Y17</b>
<b>Additional Operating Instructions</b>	Order No.
3 Wire, 24 V model, Multi-language manual	C) <b>7ML1998-5GD62</b>
2 Wire model, Multi-language manual	C) <b>7ML1998-5GC63</b>
<b>Accessories</b>	
Universal Box Bracket Mounting kit	<b>7ML1830-1BK</b>
Sanitary 4" mounting clamp	<b>7ML1830-1BR</b>
Power Supply, 24 V DC, 200 mA for 2 probes (105 ... 125 V AC input)	C) <b>7ML1930-1AA</b>
Power Supply, 24 V DC, 100 mA for 1 probe (105 ... 125 V AC input)	C) <b>7ML1930-1AB</b>
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" NPT	<b>7ML1830-1BT</b>
3" ASME, DN 65 PN 10, JIS 10K 3B ETFE Flange adapter for 2" BSPT	<b>7ML1830-1BU</b>
2" NPT locknut, plastic	<b>7ML1830-1DT</b>
2" BSPT locknut, plastic	<b>7ML1830-1DQ</b>
Plastic M20 cable gland with metal locknut	<b>7ML1930-1DB</b>
SITRANS RD100 Remote display - see Chapter 8	
SITRANS RD200 Remote display - see Chapter 8	
SITRANS RD500 Remote display - see Chapter 8	
C) Subject to export regulations AL: N, ECCN: EAR99	

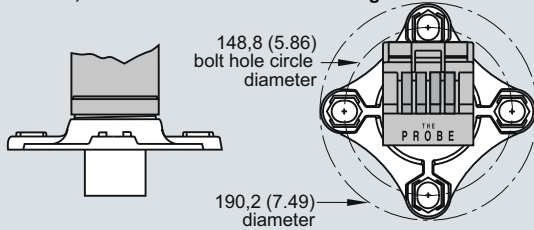
# Level Measurement

## Continuous level measurement - Ultrasonic transmitters

### The Probe

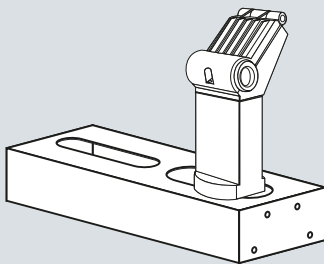
#### Options

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



The Probe Optional Flange Adapter, dimensions in mm (inch)

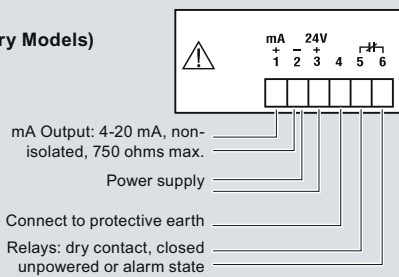
The Probe with FMS 200 Mounting Bracket



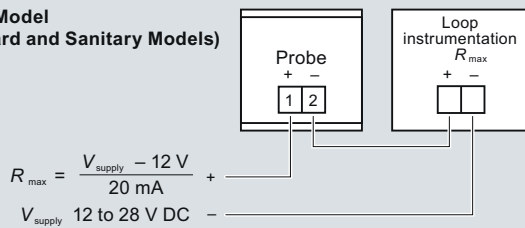
The Probe with Optional Mounting Bracket

#### Schematics

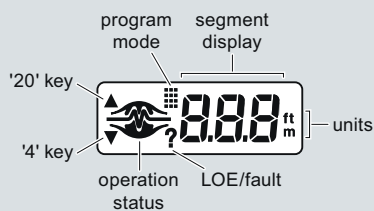
3 Wire Model  
(Standard and Sanitary Models)



2 Wire Model  
(Standard and Sanitary Models)



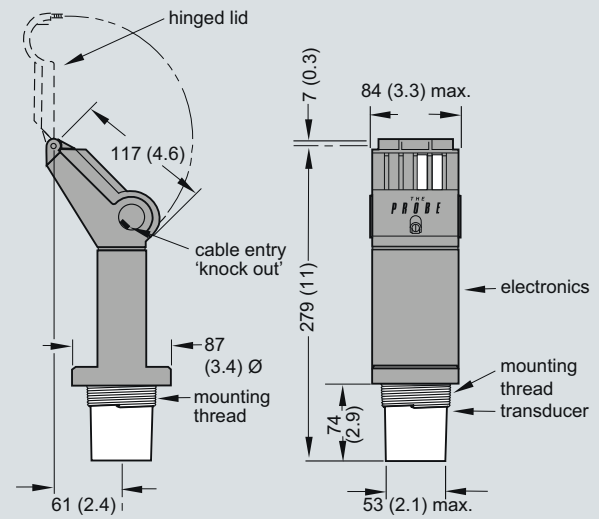
Display



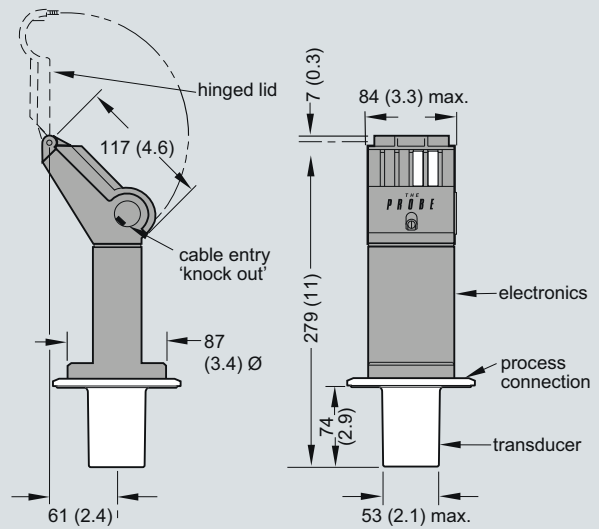
The Probe connections

#### Dimensional drawings

Standard Model



Sanitary Model



The Probe, dimensions in mm (inch)