

Level Measurement

Continuous level measurement - Ultrasonic transducers

Echomax XRS-5

Overview



Echomax® XRS-5 ultrasonic transducer provides reliable, continuous level monitoring of liquids and slurries in narrow lift stations/wet wells, flumes, weirs and filter beds using a beam angle of just 10° and a CSM rubber face.

Benefits

- Narrow beam angle of only 10°
- Chemically resistant PVDF copolymer enclosure and CSM rubber face
- Measuring range: 8 m (26 ft) for measurement of liquids and slurries
- Fully submersible: IP68 degree of protection
- Easy installation with 1" NPT or R 1" BSPT connection

Application

The XRS-5 is non-contacting with a measuring range from 0.3 to 8 m (1 to 26 ft). Advanced echo processing ensures reliable data even in conditions with obstructions, turbulence and foam.

The hermetically sealed CSM rubber face and the PVDF copolymer enclosure are designed for maximum resistance to methane, salt water, caustics and harsh chemicals common to wastewater installations. With an IP68 degree of protection, this rugged sensor is fully submersible in the event of flood conditions. Use a submergence shield if full submergence is possible in the application. A submergence shield will maintain a high level reading output during submerged conditions.

The low-cost XRS-5 transducer is compatible with a full range of Siemens controllers, from a basic system for high/low alarm or simple pump control, up to advanced control systems with communications, telemetry and SCADA integration capabilities.

- Key Applications: wet wells, flumes, weirs, filter beds

Technical specifications

Mode of operation	
Measuring principle	Ultrasonic transducer
Input	
Measuring range	0.3 ... 8 m (1 ... 26 ft), dependent on application
Output	
Frequency	44 kHz
Beam angle	10°
Accuracy	
Temperature error	Compensated by integral temperature sensor
Rated operating conditions	
Vessel pressure	Normal atmospheric pressure
Ambient conditions	
• Ambient temperature	-20 ... +65 °C (-4 ... +149 °F)
Design	
Weight (approximate shipping weight of sensor with standard cable length)	1.2 kg (2.6 lbs)
Material (enclosure)	PVDF copolymer enclosure and CSM face
Process connection	1" NPT [(Taper), ANSI/ASME B1.20.1] or R 1" [(BSPT), EN 10226]
Degree of protection	IP65/IP68
Cable connection	2-core shielded/twisted, 0.5 mm ² (20 AWG), PVC sheath
Cable (max. length)	<ul style="list-style-type: none"> • 365 m (1200 ft) with RG 62 A/U coaxial cable • 365 m (1200 ft) with 2-core twisted pair, foil shield, 0.5 mm² (20 AWG), PVC sheath, only for SITRANS LUC500, MultiRanger 100/200
Options	
Flange version	Factory flange with PTFE face for ASME, EN or JIS configuration
Submergence shield	For applications with flooding possible
Certificates and approvals	
CE (EMC certificate available on request), CSA Class I Div. 2, FM Class I, ATEX II 2G, SAA Ex s Class I	

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Selection and Ordering data	Order No.	Selection and Ordering data	Order code
Echomax® XRS-5 transducer With a beam angle of 10°, the XRS-5 provides reliable, continuous level monitoring of liquids and slurries in narrow lift stations/wet wells, flumes, weirs and filter beds. Measuring range: min. 0.3 m (1 ft), max. 8 m (26 ft)	C) 7ML1106-0-0	Further designs 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. 16 characters) specify in plain text	Y17
Process connection 1" NPT [(Taper), ANSI/ASME B1.20.1] R 1" [(BSPT), EN 10226]	1 2	Accessories Submergence shield kit	Order No. 7ML1830-1BH
Cable length 5 m (16.40 ft) 10 m (32.81 ft) 30 m (98.43 ft)	A B C	Easy Aimer 2, NPT with ¾" x 1" PVC coupling	7ML1830-1AQ
Facing Standard (CSM rubber) PTFE (flange versions)	A B	Easy Aimer 2, aluminum with M20 adapter and 1" and 1½" BSPT aluminum couplings	7ML1830-1AX
Approvals CE, FM Class I, ATEX II 2G, CSA Class I Div. 2, SAA Class I	2	Easy Aimer 304, with stainless steel coupling	7ML1830-1AU
Mounting flange (flush mount) None 3" ASME, 150 lbs, flat faced 4" ASME, 150 lbs, flat faced 6" ASME, 150 lbs, flat faced DN 80, PN 10/16, Type A, flat faced DN 100, PN 10/16, Type A, flat faced DN 150, PN 10/16, Type A, flat faced JIS10K 3B style JIS10K 4B style JIS10K 6B style Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1, or JIS B 2220 standard.	A B C D J K L Q R S	Easy Aimer 304, with M20 adapter and 1" and 1½" BSPT 304 SS couplings	7ML1830-1GN
Operating Instructions Quick Start Manual, multi-language Applications Guidelines, multi-language Note: The Applications Guidelines should be ordered as a separate line item on the order. This device is shipped with the Siemens Milltronics manual CD containing the complete ATEX Quick Start and Operating Instructions library.	C) 7ML1998-5QT81 C) 7ML1998-5HV61	FMS-200 universal box bracket, mounting kit FMS-210 channel bracket, wall mount FMS-220 extended channel bracket, wall mount FMS-310 channel bracket, floor mount FMS-320 extended channel bracket, floor mount FMS-350 bridge channel bracket, floor mount (see Mounting Brackets on page 5/190 for more information)	7ML1830-1BK 7ML1830-1BL 7ML1830-1BM 7ML1830-1BN 7ML1830-1BP 7ML1830-1BQ
		1" NPT locknut, plastic 1" BSPT locknut, plastic	7ML1830-1DS 7ML1830-1DR

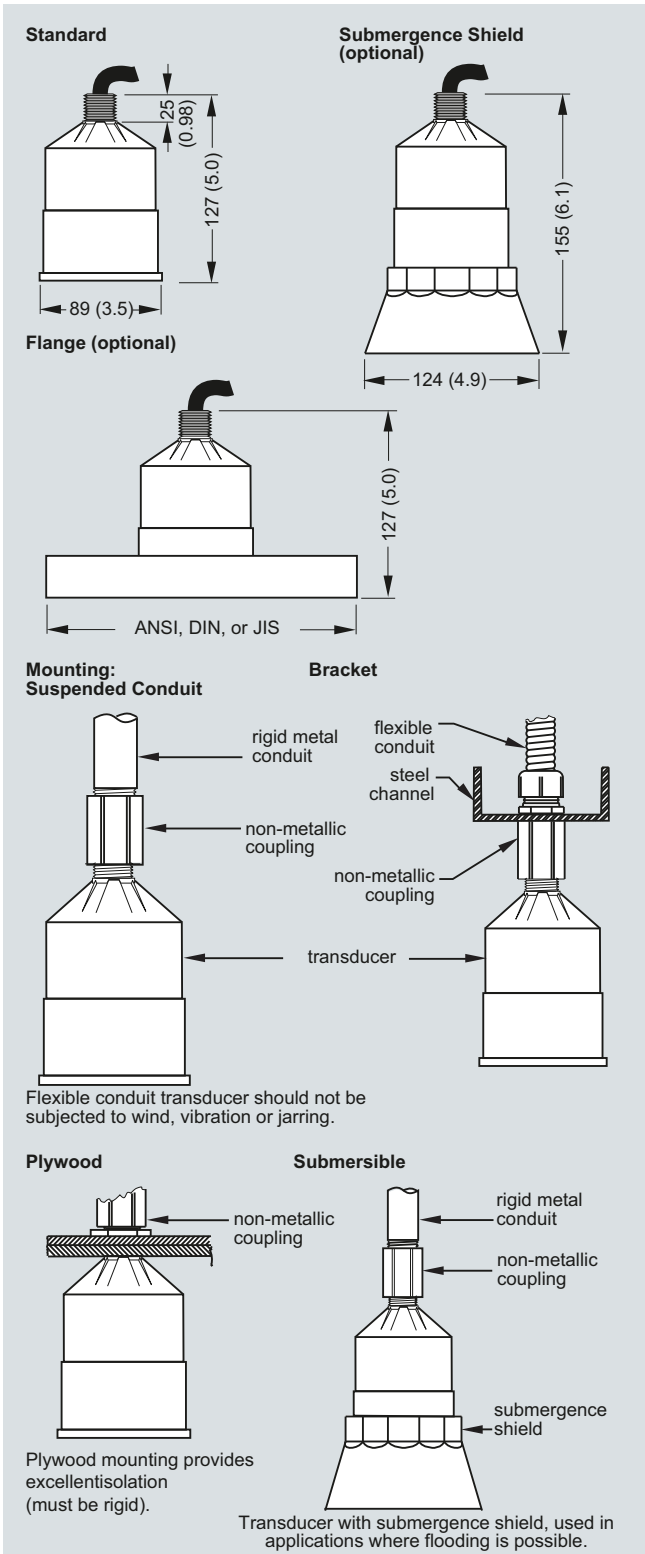
C) Subject to export regulations AL: N, ECCN: EAR99

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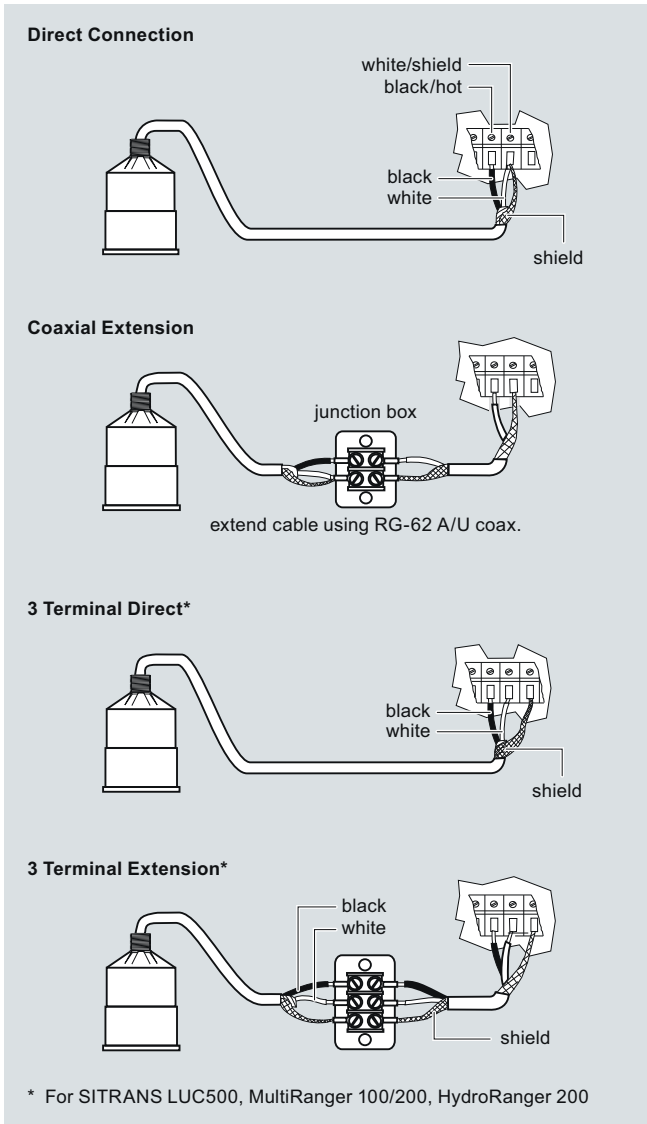
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Dimensional drawings



XRS-5 ultrasonic transducer, dimensions in mm (inch)

Schematics



XRS-5 ultrasonic transducer connections

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