

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 lb)
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 (1 200 ft) with RG 62 A/U coaxial cable • 365 m (1 200 ft) with 2-core twisted pair, foil shield, 0.5 mm² (20 AWG), PVC sheath, only for 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, RCM, KCC	
CSA Class I, Div. 2, Groups A, B, C, D, Class II, Div. 1 Groups E, F, G	
FM Class I, Zone 1, AEx m IIC, T6 Class II, III, Div. 1, Groups E, F, G T6	
ATEX II 2GD / IECEx / INMETRO Ex mb IIC T6 Gb, Ex tb IIC T85 °C Db	

Selection and Ordering data	Article No.
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) ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML1106-
Process connection 1" NPT [(Taper), ANSI/ASME B1.20.1] ◆ 1 R 1" [(BSPT), EN 10226] ◆ 2	
Cable length 5 m (16.40 ft) ◆ A 10 m (32.81 ft) ◆ B 30 m (98.43 ft) ◆ C	
Facing Standard (CSM rubber) ◆ A PTFE (flange versions) ◆ B	
Approvals CE, RCM, KCC, CSA Class I, Div. 2, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G FM Class I, Zone 1, AEx m IIC, T6 Class II, III, Div. 1, Groups E, F, G T6 ATEX II 2GD / IECEx / INMETRO Ex mb IIC T6 Gb, Ex tb IIIC T85 °C Db	
Mounting flange (flush mount) None ◆ A 3" ASME, 150 lb, flat faced ◆ B 4" ASME, 150 lb, flat faced ◆ C 6" ASME, 150 lb, flat faced ◆ D DN 80, PN 10/16, Type A, flat faced ◆ J DN 100, PN 10/16, Type A, flat faced ◆ K DN 150, PN 10/16, Type A, flat faced ◆ L JIS10K 3B style ◆ Q JIS10K 4B style ◆ R JIS10K 6B style ◆ S Note: flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1, or JIS B 2220 standard.	
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

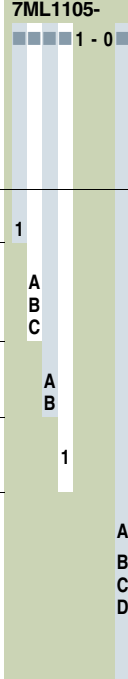











◆ We can offer shorter delivery times for configurations designated with the Quick Ship Symbol ◆. For details see page 10/11 in the appendix.



Selection and Ordering data	Order code
Further designs Please add "-Z" to Article No. and specify Order code(s). Acrylic coated, stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/identification (max. 16 characters) specify in plain text ◆ Y17	
Accessories Tag, stainless steel with hole, 12 x 45 mm (0.47 x 1.77 inch), one text line for fastening on sensors ◆ 7ML1930-1BJ Submergence shield kit ◆ 7ML1830-1BH Easy Aimer 2, aluminum, NPT with 3/4" x 1" PVC coupling ◆ 7ML1830-1AQ Easy Aimer 2, aluminum with M20 adapter and 1" and 1 1/2" BSPT aluminum couplings ◆ 7ML1830-1AX Easy Aimer 304, NPT with 1" stainless steel coupling ◆ 7ML1830-1AU Easy Aimer 304, with M20 adapter and 1" and 1 1/2" BSPT 304 stainless steel couplings ◆ 7ML1830-1GN FMS-200 universal box bracket, mounting kit ◆ 7ML1830-1BK FMS-210 channel bracket, wall mount ◆ 7ML1830-1BL FMS-220 extended channel bracket, wall mount ◆ 7ML1830-1BM FMS-310 channel bracket, floor mount ◆ 7ML1830-1BN FMS-320 extended channel bracket, floor mount ◆ 7ML1830-1BP FMS-350 bridge channel bracket, floor mount (see Mounting Brackets on page 4/179 for more information) ◆ 7ML1830-1BQ 1" NPT locknut, plastic ◆ 7ML1830-1DS 1" BSPT locknut, plastic ◆ 7ML1830-1DR Plastic adapter 1" BSP - 20 mm ◆ 7ML1830-1EA Plastic adapter 1" NPT ◆ 7ML1930-1FX Plastic adapter 1" NPT/M20 ◆ 7ML1830-1EF	
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
Continuous level measurement - Ultrasonic transducers

EchoMax XRS-5

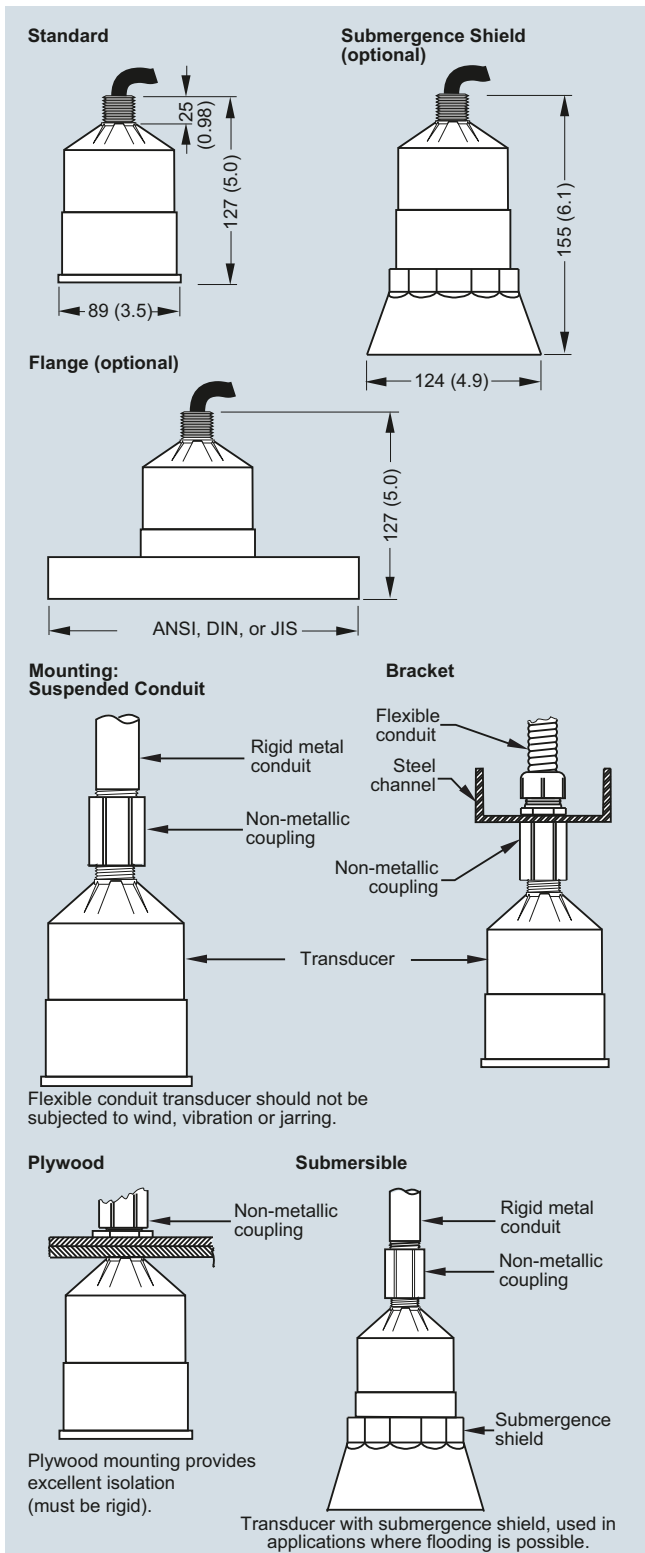
Selection and Ordering data	Article No.
EchoMax XRS-5C transducer With a beam angle of 10°, the XRS-5 provides reliable, continuous level monitoring of liquids and slurries in narrow lift stations/wet wells, flumes, weirs and filter beds. Measuring range: min. 0.3 m (1 ft), max. 8 m (26 ft) ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	7ML1105- 
Process connection 1" NPT [(Taper), ANSI/ASME B1.20.1]	 1
Cable length 5 m (16.40 ft) 10 m (32.81 ft) 30 m (98.43 ft)	 A  B  C
Facing Standard (CSM rubber) PTFE (flange versions)	 A  B
Approvals CSA Class I Div. 1, Groups A, B, C, D; Class II Div. 1, Groups E, F, G; Class III	 1
Mounting flange (flush mount) None 3" ASME, 150 lb, flat faced 4" ASME, 150 lb, flat faced 6" ASME, 150 lb, flat faced 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
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Further designs Please add "-Z" to Article No. and specify Order code(s). Acrylic coated, stainless steel tag [13 x 45 mm (0.5 x 1.75 inch)]: Measuring-point number/identification (max. 16 characters) specify in plain text	 Y17
Accessories Submergence shield kit Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling Easy Aimer 304, NPT with 1" stainless steel coupling 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 4/179 for more information)	Article No. 7ML1830-1BH 7ML1830-1AQ 7ML1830-1AU 7ML1830-1BK 7ML1830-1BL 7ML1830-1BM 7ML1830-1BN 7ML1830-1BP 7ML1830-1BQ

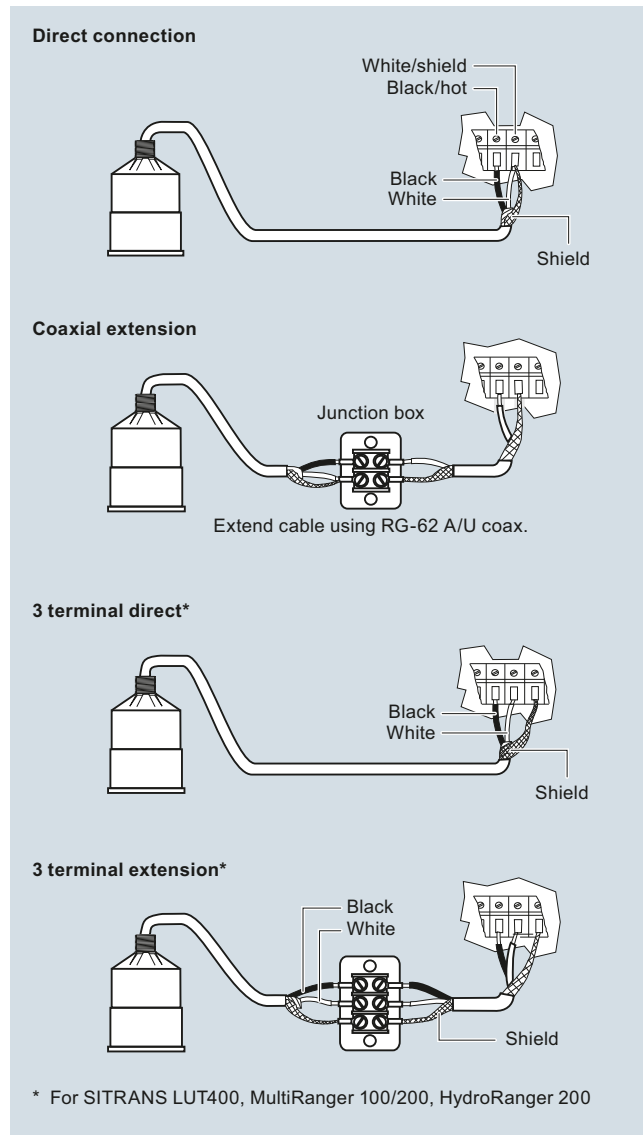
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Dimensional drawings



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

Schematics



XRS-5 ultrasonic transducer connections