

Level Measurement
Continuous level measurement

Ultrasonic / 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

Level Measurement
Continuous level measurement

Ultrasonic / Ultrasonic transducers / EchoMax XRS-5

Selection and ordering data

EchoMax XRS-5 Ultrasonic level transducer Continuous, non-contact, 8 m (26 ft) range, for liquids and slurries.		Article No. 7ML1106- ● ● ● ● 0 - 0 ●							
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.									
Process connection 1" NPT [(Taper), ASME B1.20.1] R 1" [(BSPT), EN 10226]		1							
		2							
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. 2, Groups A, B, C, D; CSA Class II, Div. 1, Groups E, F, G; FM Class I, Zone 1, AEx m IIC, T6; FM Class II, III, Div. 1, Groups E, F, G T6; ATEX II 2GD Ex mb IIC T6 Gb, Ta = -20°C to +65°C; ATEX II 2GD Ex tb IIIC T85°C Db; UKEX II 2GD Ex mb IIC T6 Gb, Ta = -20°C to +65°C; UKEX II 2GD Ex tb IIIC T85°C Db; IECEX Ex mb IIC T6 Gb, Ta = -20°C to +65°C; IECEX Ex tb IIIC T85°C Db; INMETRO Ex mb IIC T6 Gb, IP66/IP68, -20°C ≤ Ta ≤ +65°C; INMETRO Ex tb IIIC T85°C Db, IP66/IP68; CE, UKCA, RCM, KC					2				
Mounting flange (flush mount) None 3" ASME, 150 lb, flat faced 4" ASME, 150 lb, flat faced 6" ASME, 150 lb, 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

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

Selection and ordering data	Article No.
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 ¾" x 1" PVC coupling	7ML1830-1AQ
Easy Aimer 2, aluminum with M20 adapter and 1" and 1½" 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 1½" BSPT 304 stainless steel couplings	7ML1830-1GN
FMS-200 universal box bracket, mounting kit	7ML1830-1BK
FMS-210 channel bracket, wall mount	7ML1830-1BL

Selection and ordering data	Article No.
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 catalog page for more information)	7ML1830-1BQ
1" NPT locknut, plastic	7ML1830-1DS
1" BSP locknut, plastic	7ML1830-1DR
1" BSP locknut, flanged, plastic	7ML1830-1DN
Plastic adapter 1" BSP - 20 mm	7ML1830-1EA
Plastic adapter 1" NPT	7ML1930-1FX
Plastic adapter 1" NPT/M20	7ML1830-1EF
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	

Level Measurement
Continuous level measurement

Ultrasonic / Ultrasonic transducers / EchoMax XRS-5

Selection and ordering data (continued)

EchoMax XRS-5C Ultrasonic level transducer Continuous, non-contact, 8 m (26 ft) range, for liquids and slurries.		Article No. 7ML1105- ● ● ● ● 1 - 0 ●							
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.									
Process connection 1" NPT [(Taper), 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	
Operating Instructions All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation									

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

Selection and ordering data	Article No.
Accessories Submergence shield kit Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling	7ML1830-1BH 7ML1830-1AQ

Selection and ordering data	Article No.
Easy Aimer 304, NPT with 1" stainless steel coupling	7ML1830-1AU
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 catalog page for more information)	7ML1830-1BQ

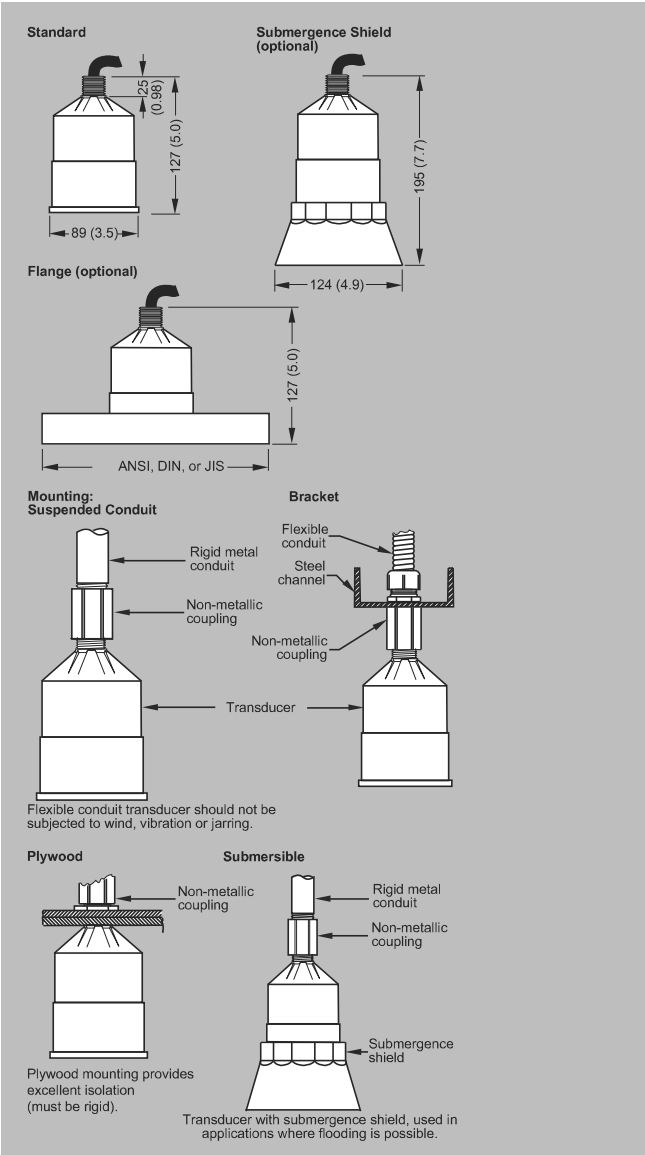
Level Measurement
Continuous level measurement

Ultrasonic / Ultrasonic transducers / EchoMax XRS-5

Technical specifications

EchoMax XRS-5	
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)
• Storage 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" [(BSP), EN 10226]
Degree of protection	IP65/IP68
Cable connection	2-core shielded/twisted, 0.5 mm² (20 AWG), PVC sheath
Cable (max. length)	<ul style="list-style-type: none">365 m (1 200 ft) with RG 62 A/U coaxial cable365 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, UKCA, RCM, KC 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 / UKEX II 2GD / IECEx / INMETRO Ex mb IIC T6 Gb, Ex tb IIIC T85°C Db

Dimensional drawings

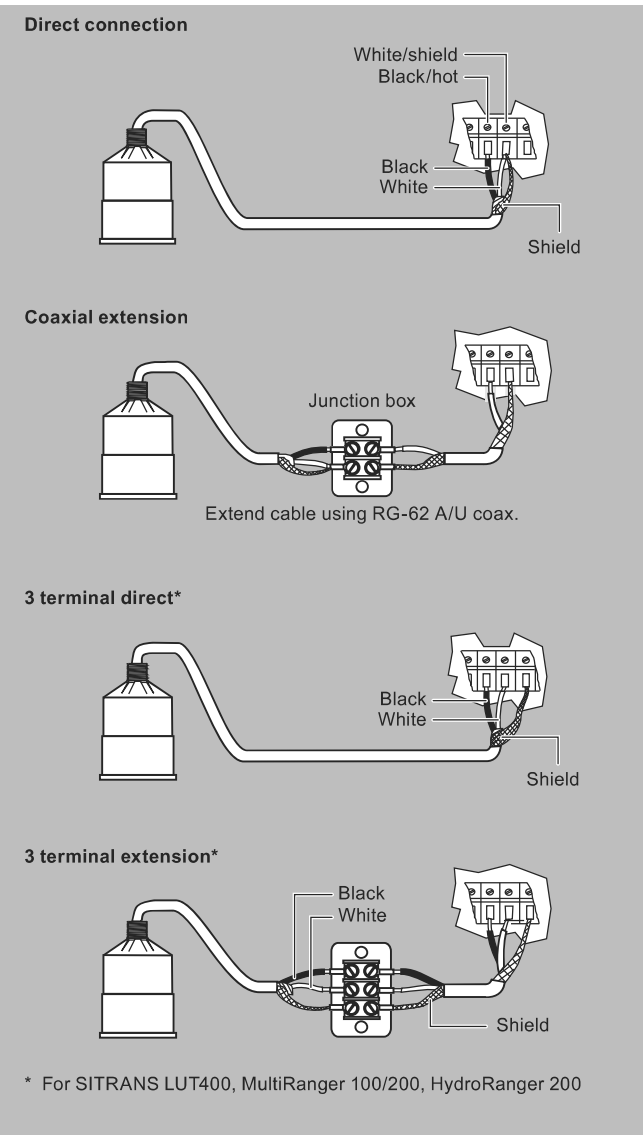


XRS-5 ultrasonic transducer, dimensions in mm (inch)

Level Measurement
Continuous level measurement

Ultrasonic / Ultrasonic transducers / EchoMax XRS-5

Circuit diagrams



XRS-5 ultrasonic transducer connections