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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)	• 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 mm^2 (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 IIIC T85 °C Db

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Selection and Ordering data	Article No.
EchoMax XRS-5 transducer ↗	**7ML1106-**
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)	■■■■ **0 - 0** ■
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
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	**2**
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	

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	Article No.
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**
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 4/193 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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EchoMax XRS-5

Selection and Ordering data	Article No.
EchoMax XRS-5C transducer ↗	**7ML1105-**
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)	■■■■ **1 - 0** ■
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	
Process connection	
1" NPT [(Taper), ANSI/ASME B1.20.1]	**1**
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	
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	**A**
3" ASME, 150 lb, flat faced	**B**
4" ASME, 150 lb, flat faced	**C**
6" ASME, 150 lb, flat faced	**D**
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	

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	Article No.
Submergence shield kit	**7ML1830-1BH**
Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling	**7ML1830-1AQ**
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 on page 4/193 for more information)	**7ML1830-1BQ**

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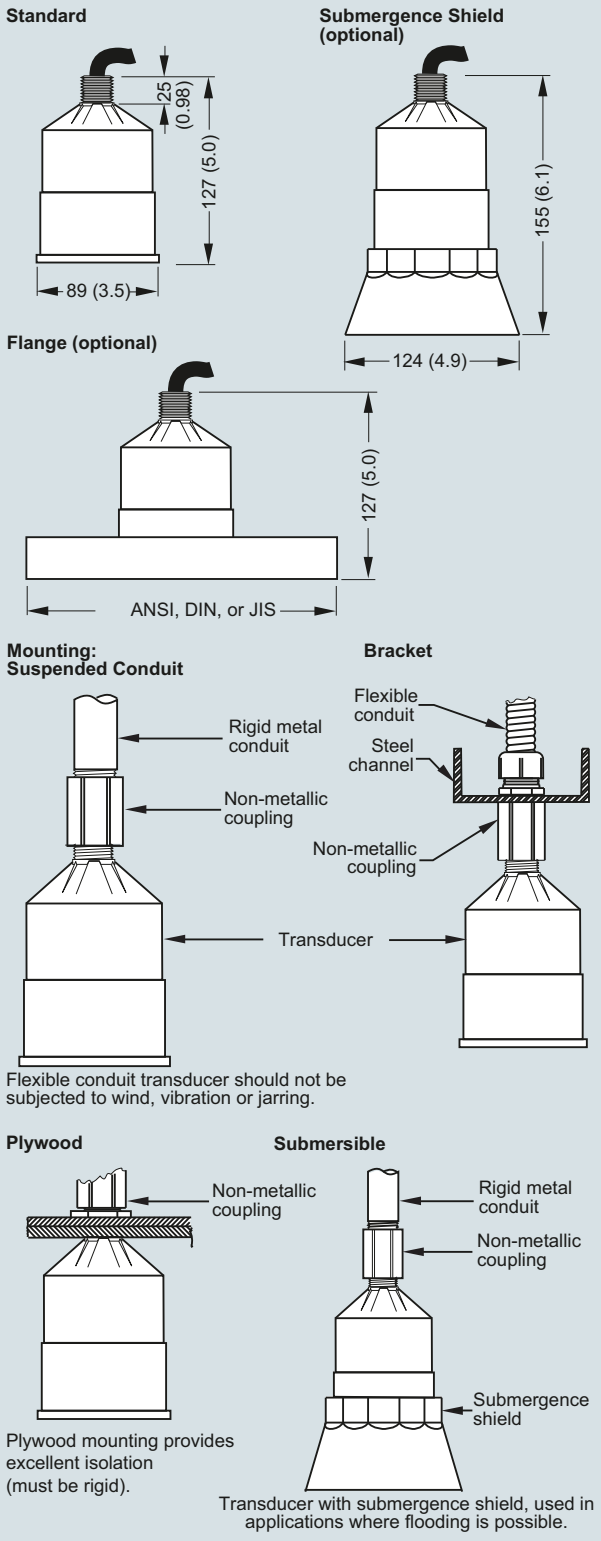
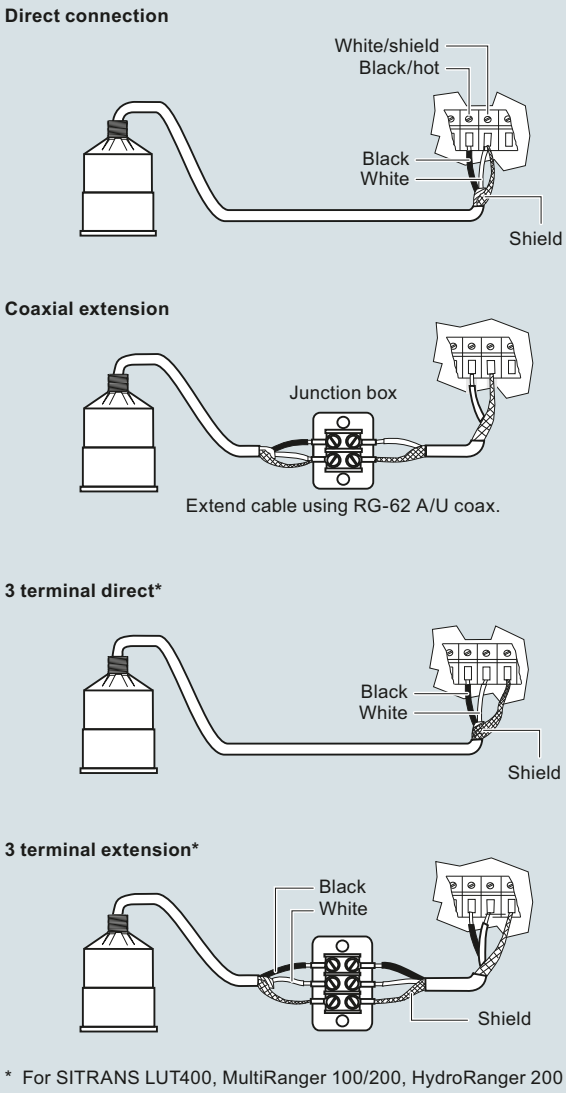
Dimensional drawings



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

Circuit diagrams



XRS-5 ultrasonic transducer connections