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 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 Milltronics 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 to 8 m (1 to 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 to +65 °C (-4 to +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 or 1" BSPT
Degree of protection	IP68
Cable connection	2-core shielded/twisted, 0.5 mm² (20 AWG), PVC sheath
Cable (max. length)	• 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, DIN or JIS configuration
Flange adapter	Split flange (field mounting) for ASME, DIN 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

5

Echomax XRS-5

Selection and Ordering data	Order No.
Echomax® XRS-5 transducer	C) **7 M L 1 1 0 6 -**
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■
Process connection	
1" NPT (ANSI/ASME B1.20.1)	**1**
1" BSPT (EN 10226-1)	**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	
FM Class I, ATEX II 2G, CSA Class I Div. 2, SAA Class I	**2**
Mounting flange (flush mount)	
None	**A**
3" ASME, 150 lbs, flat faced	**B**
4" ASME, 150 lbs, flat faced	**C**
6" ASME, 150 lbs, 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**

Instruction manual	
Quick Start Manual, multi-language	C) **7ML1998-5QT81**
Note: Due to ATEX regulations, one Quick Start Manual is included with every transducer.	
Applications Guidelines, multi-language	C) **7ML1998-5HV61**
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 instruction manual library.	

Selection and Ordering data	Order No.
Accessories	
Tag, stainless steel with hole, 12 x 45 mm (0.47 x 1.77"), one text line for fastening on sensors	**7ML1930-1BJ**
Submergence shield kit	**7ML1830-1BH**
Easy Aimer 2, 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, with stainless steel coupling	**7ML1830-1AU**
Easy Aimer 304, with M20 adapter and 1" and 1½" BSPT 304 SS 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 5/118 for more information.)	**7ML1830-1BQ**
1" NPT locknut, plastic	**7ML1830-1DS**
1" BSPT locknut, plastic	**7ML1830-1DR**
Split flanges	
3", aluminum	**7ML1830-1AV**
3", 304 stainless steel	**7ML1830-1AW**
Gasket Kit 3", neoprene	**7ML1930-1BF**
4", aluminum	**7ML1830-1BA**
4", 304 stainless steel	**7ML1830-1BB**
Gasket Kit 4", neoprene	**7ML1930-1BG**
6", aluminum	**7ML1830-1BC**
6", 304 stainless steel	**7ML1830-1BD**
Gasket Kit 6", neoprene	**7ML1930-1BH**
Instruction manual	**7ML1998-1EP01**

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

5

■ Dimensional drawings

Standard

25 mm (0.98")

127 mm (5.0")

89 mm (3.5")

Flange (optional)

127 mm (5.0")

ANSI, DIN, or JIS

Submergence Shield (optional)

155 mm (6.1")

124 mm (4.9")

Split Flange (optional)

133 mm (5.2") nominal

ANSI, DIN, or JIS
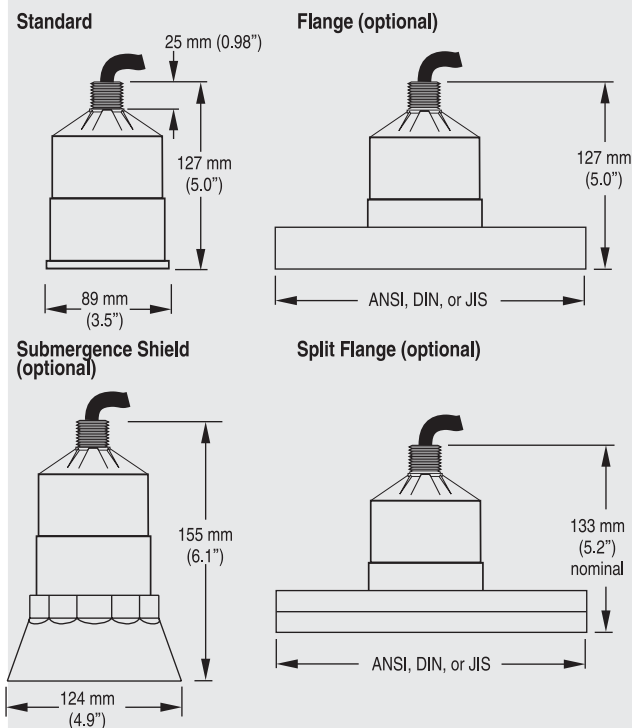
Mounting: Suspended Conduit

rigid metal conduit

coupling
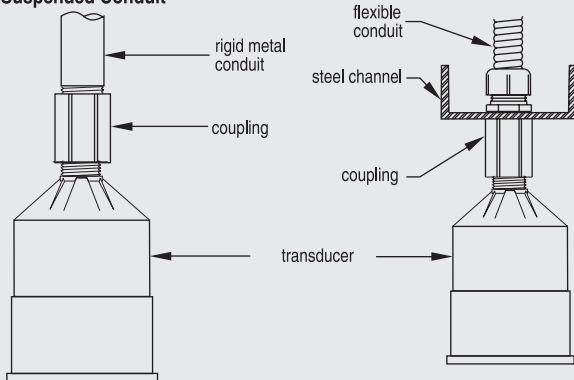
transducer

Flexible conduit transducer should not be subjected to wind, vibration or jarring.

Bracket

flexible conduit

steel channel

coupling

transducer

Plywood

coupling
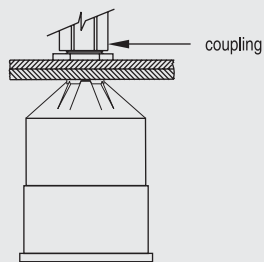
Plywood mounting provides excellent isolation (must be rigid).

Submersible

rigid metal conduit

coupling

submergence shield
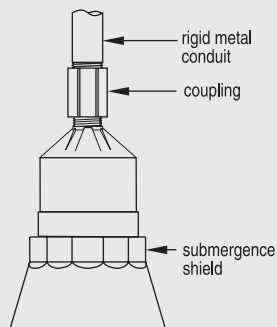
Transducer with submergence shield, used in applications where flooding is possible.

XRS-5 ultrasonic transducer dimensions

■ Schematics

Direct Connection

blk/hot   wht/shld

black

white

shield

Coaxial Extension

junction box

extend cable using RG-62 A/U coax.

3 Terminal Direct*

black

white

shield
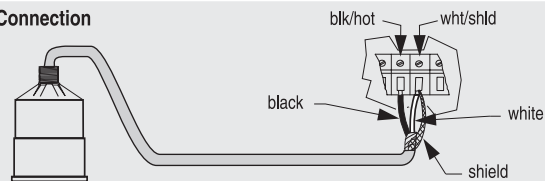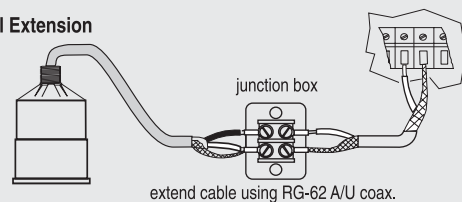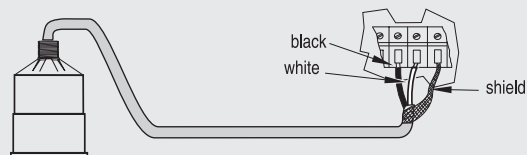
3 Terminal Extension*

white   black

shield
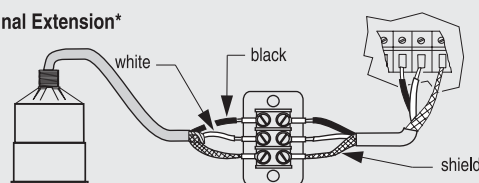
*For SITRANS LUC 500, MultiRanger 100/200, HydroRanger 200

XRS-5 ultrasonic transducer connections

5