

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

EchoMax XRS-5

Selection and ordering data

| | | Article No. | | | | | | |
|--|--|-------------|---|---|---|---|---|---|
| EchoMax XRS-5 Ultrasonic level transducer Continuous, non-contact, 8 m (26 ft) range, for liquids and slurries. | | 7 | M | L | 1 | 1 | 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] | | 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 | | | | | |
| Facings | | | | | | | | |
| Standard (CSM rubber) | | | | | A | | | |
| PTFE (flange versions) | | | | | B | | | |
| Approvals | | | | | | 2 | | |
| 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, EAC Ex | | | | | | | | |
| 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. | | | | | | | | |

| 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 | |

Selection and ordering data (continued)

| | Article No. |
|--|------------------|
| EchoMax XRS-5C Ultrasonic level transducer Continuous, non-contact, 8 m (26 ft) range, for liquids and slurries. | 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 | 7ML1830-1BH |
| Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling | 7ML1830-1AQ |

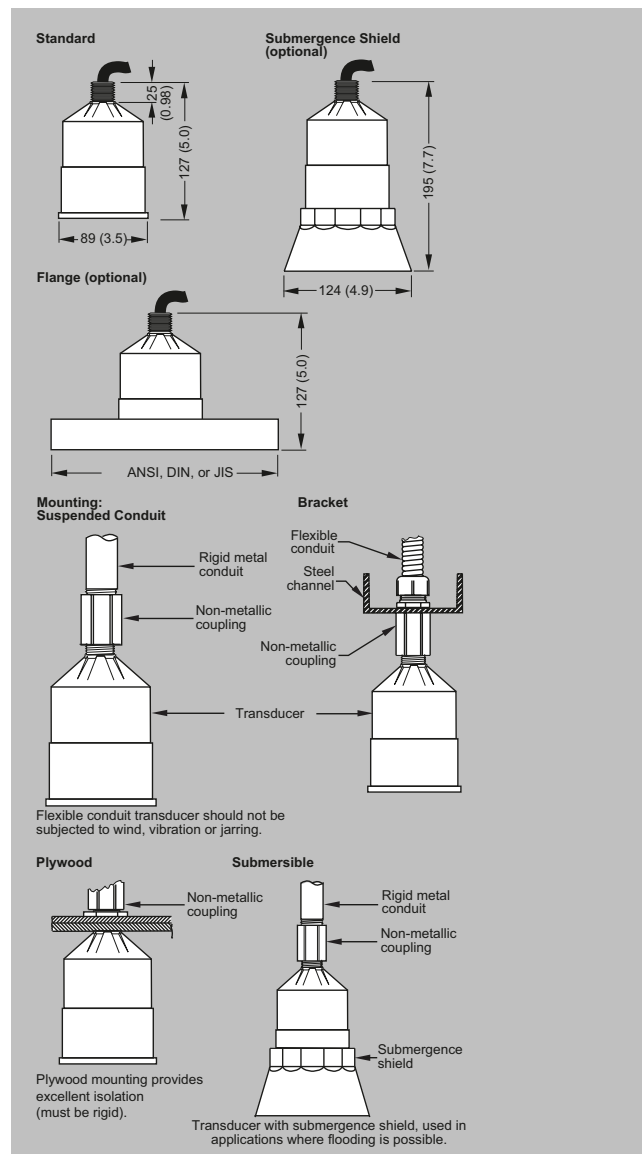
| Selection and ordering data | Article No. |
|---|-------------|
| Easy Aimer 304, NPT with 1" stainless steel coupling | 7ML1830-1AU |
| FMS-200 universal box bracket, mounting kit | 7ML1830-1BK |
| FMS-210 channel bracket, wall mount | 7ML1830-1BL |
| FMS-220 extended channel bracket, wall mount | 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 |

EchoMax XRS-5

Technical specifications

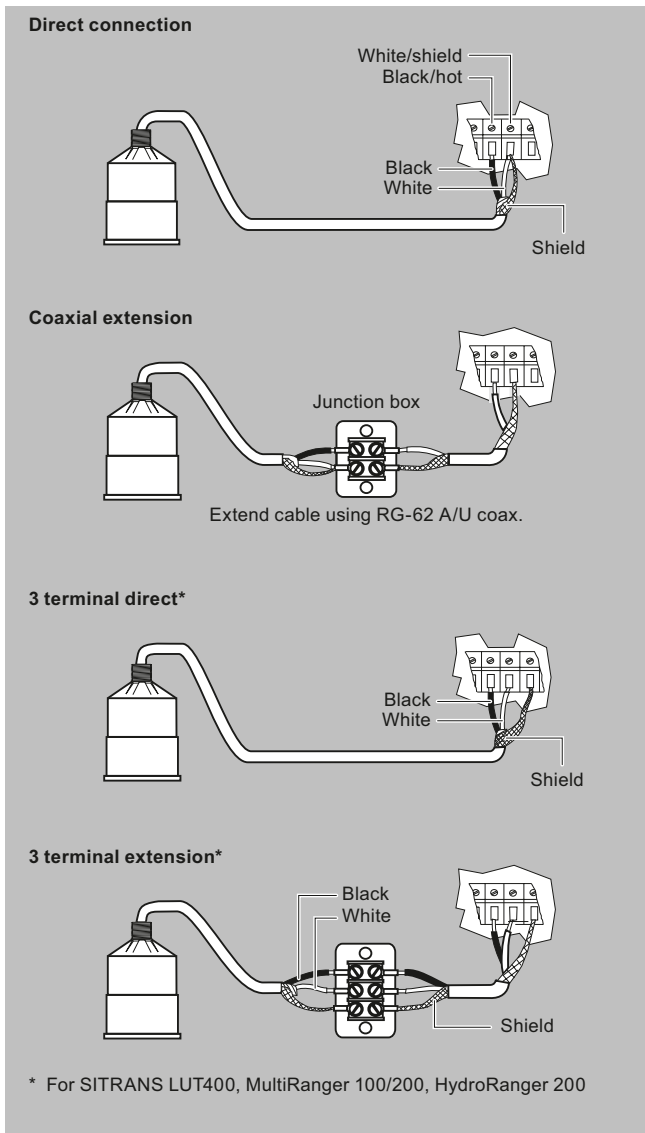
| EchoMax XRS-5 | |
|---|--|
| Mode of operation | |
| Measuring principle | Ultrasonic transducer |
| Input | |
| Measuring range | 0.3 ... 8 m (1 ... 26 ft), dependent on application |
| Output | |
| Frequency | 44 kHz |
| Beam angle | 10° |
| Accuracy | |
| Temperature error | Compensated by integral 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 |
| Material (flange) | <ul style="list-style-type: none"> • CPVC • Option: PTFE face with CPVC flange |
| 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, UKCA, RCM, KC, EAC Ex 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 IIC T85°C Db VLAREM II |

Dimensional drawings



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

Circuit diagrams



XRS-5 ultrasonic transducer connections