Datasheet

ECHOMAX XPS-10
ULTRASONIC TRANSDUCER

Supplied by

247able.com

Call us on +44 (0)118 916 9420 | Email info@247able.com
**Overview**

EchoMax XPS transducers use ultrasonic technology to measure level in a wide range of liquids and solids.

**Benefits**

- Integral temperature compensation
- Low ringing effect reduces blanking distance
- Optional foam facing for dusty applications
- Self-cleaning and low-maintenance
- Chemically resistant
- Hermetically sealed

**Application**

XPS transducers can be fully immersed, are resistant to steam and corrosive chemicals, and can be installed without flanges.

The XPS series offers versions for various measuring ranges up to 30 m (100 ft) and up to a max. temperature of 95 °C (203 °F).

During operation, the EchoMax transducers emit acoustic pulses in a narrow beam. The level monitor measures the propagation time between pulse emission and its reflection (echo) to calculate the distance.
## Technical specifications

<table>
<thead>
<tr>
<th></th>
<th>XPS-10</th>
<th>XPS-15 (standard and F models)</th>
<th>XPS-30</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measuring range</td>
<td>0.3 ... 10 m (1 ... 33 ft)</td>
<td>Standard: 0.3 ... 15 m (1 ... 50 ft)</td>
<td>0.6 ... 30 m (2 ... 100 ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XPS-15F: 0.45 ... 15 m (1.5 ... 50 ft)</td>
<td></td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>44 kHz</td>
<td>44 kHz</td>
<td>30 kHz</td>
</tr>
<tr>
<td>Beam angle</td>
<td>12°</td>
<td>6°</td>
<td>6°</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Indoors/outdoors</td>
<td>Standard: -40 ... +95 °C (-40 ... +203 °F)</td>
<td>-40 ... +95 °C (-40 ... +203 °F)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XPS-15F: -20 ... +95 °C (-4 ... +203 °F)</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Standard: 0.3 ... 15 m (1 ... 50 ft)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>XPS-15F: 0.45 ... 15 m (1.5 ... 50 ft)</td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td>8 bar g (120 psi g)</td>
<td>8 bar g (120 psi g)</td>
<td>0.5 bar g (7.25 psi g)</td>
</tr>
<tr>
<td></td>
<td>Flanged: 0.5 bar g (7.25 psi g)</td>
<td>Flanged: 0.5 bar g (7.25 psi g)</td>
<td></td>
</tr>
<tr>
<td><strong>Design</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.8 kg (1.8 lb)</td>
<td>1.3 kg (2.8 lb)</td>
<td>4.3 kg (9.5 lb)</td>
</tr>
<tr>
<td></td>
<td>Flanged: 2 Kg (4.4 lb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power supply</td>
<td>Operation of transducer only with approved Siemens controllers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flanged: PVDF with CPVC flange</td>
<td>Flanged: PVDF with CPVC flange</td>
<td>Flanged: PVDF</td>
</tr>
<tr>
<td></td>
<td>Option: PTFE face with CPVC flange</td>
<td>Option: PTFE face with CPVC flange</td>
<td>Option: PTFE face with CPVC flange</td>
</tr>
<tr>
<td>Color</td>
<td>Blue</td>
<td>Blue</td>
<td>Blue</td>
</tr>
<tr>
<td>Process connection</td>
<td>1&quot; NPT or 1&quot; BSPT</td>
<td>Standard: 1&quot; NPT or 1&quot; BSPT</td>
<td>1.5&quot; universal thread (NPT or BSPT)</td>
</tr>
<tr>
<td></td>
<td>XPS-15F: 1&quot; NPT</td>
<td>XPS-15F: 1&quot; NPT</td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP66/68</td>
<td>IP66/68</td>
<td>IP66/68</td>
</tr>
<tr>
<td>Cable</td>
<td>2-wire twisted pair/braided and foil shielded 0.5 mm² (20 AWG) PVC jacket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation</td>
<td>Max. 365 m (1,200 ft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Certificates and approvals</strong></td>
<td>Standard: CE, CSA, FM, ATEX, IECEx</td>
<td>CE, CSA, FM, ATEX, IECEx</td>
<td>CE, CSA, FM, ATEX, IECEx</td>
</tr>
</tbody>
</table>

1) EMC certificate available on request.
Continuous level measurement - Ultrasonic transducers

**EchoMax XPS**

**Selection and Ordering data**

- **Article No.**
  - 7ML1115-
  
- **Further designs**
  - Please add "-Z" to Article No. and specify Order code(s).

- **Cable length**
  - 5 m (16.40 ft)
  - 10 m (32.81 ft)
  - 30 m (98.43 ft)
  - 50 m (164.04 ft)
  - 100 m (328.08 ft)

- **Mounting flange**
  - None
  - 3" ASME, 150 lb, flat faced
  - 4" ASME, 150 lb, flat faced
  - 6" ASME, 150 lb, flat faced
  - 8" 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
  - JIS10K3B Style
  - JIS10K4B Style
  - JIS10K6B Style

- **Approvals**
  - ATEX 2GD Ex mb IIC T4 Gb, Ex tb IIC T135 °C Db
  - IECEx Sir 13.0009X Ex mb IIC T4 Gb, Ex tb IIC T135 °C Db
  - FM Class I, Div. 2, Groups A, B, C, D
  - CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III

1. Not available with flanged versions
2. Available with flanged versions only
3. Valid with mounting thread and facing options 0 ... 2 only

---

**Selection and Ordering data**

- **Mounting thread and facing**
  - 1" NPT [(Taper), ANSI/ASME B1.20.1] with foam facing 
  - 1" NPT [(Taper), ANSI/ASME B1.20.1] with PTFE facing
  - R 1" [BSPT], EN 10226 with foam facing
  - R 1" [BSPT], EN 10226 with foam facing
  - R 1" [BSPT], EN 10226 with PTFE facing

---

**Operating Instructions**

- Quick Start guide, multi-language
- Applications Guidelines, multi-language

---

**Accessories**

- Tag, stainless steel with hole, 12 x 45 mm (0.47 x 1.77 inch), one text line for fastening on sensors
- Submergence shield kit
- Easy Aimer II, aluminum, NPT with ¾" x 1" PVC coupling
- Easy Aimer II, aluminum with M20 adapter and 1" and 1½" BSPT aluminum couplings
- Easy Aimer 304, NPT with 1" stainless steel coupling
- Easy Aimer 304, with M20 adapter and 1" and 1½" BSPT 304 stainless steel couplings
- Universal box bracket, mounting kit
- Channel bracket, wall mount
- Extended channel bracket, wall mount
- Channel bracket, floor mount
- Extended channel bracket, floor mount
- Bridge channel bracket, floor mount (see Mounting Brackets on page 4/190 for more information)

---

© Siemens AG 2016
## Continuous level measurement - Ultrasonic transducers

### EchoMax XPS

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML1118-0</td>
<td>EchoMax XPS-15 ultrasonic transducer for a wide variety of liquid and solid applications, includes integral temperature sensor. Measuring range: min. 0.3 m, max. 15 m.</td>
</tr>
</tbody>
</table>

#### Mounting thread and facing

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML1118-1</td>
<td>1&quot; NPT [Taper], ANSI/ASME B1.20.1 with foam facing.</td>
</tr>
<tr>
<td>7ML1118-2</td>
<td>1&quot; NPT [Taper], ANSI/ASME B1.20.1 with PTFE facing.</td>
</tr>
<tr>
<td>7ML1118-3</td>
<td>R 1&quot; [BSPT], EN 10226</td>
</tr>
<tr>
<td>7ML1118-4</td>
<td>R 1&quot; [BSPT], EN 10226 with foam facing.</td>
</tr>
<tr>
<td>7ML1118-5</td>
<td>R 1&quot; [BSPT], EN 10226 with PTFE facing.</td>
</tr>
</tbody>
</table>

#### Cable length

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML1118-6</td>
<td>5 m (16.40 ft)</td>
</tr>
<tr>
<td>7ML1118-7</td>
<td>10 m (32.81 ft)</td>
</tr>
<tr>
<td>7ML1118-8</td>
<td>30 m (98.43 ft)</td>
</tr>
<tr>
<td>7ML1118-9</td>
<td>50 m (164.04 ft)</td>
</tr>
<tr>
<td>7ML1118-10</td>
<td>100 m (328.08 ft)</td>
</tr>
</tbody>
</table>

#### Mounting flange

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML1118-11</td>
<td>6&quot; ASME, 150 lb, flat faced</td>
</tr>
<tr>
<td>7ML1118-12</td>
<td>8&quot; ASME, 150 lb, flat faced</td>
</tr>
<tr>
<td>7ML1118-13</td>
<td>DN 150, PN 10/16, Type A, flat faced</td>
</tr>
<tr>
<td>7ML1118-14</td>
<td>DN 200, PN 10, Type A, flat faced</td>
</tr>
<tr>
<td>7ML1118-15</td>
<td>JIS10K 6B</td>
</tr>
<tr>
<td>7ML1118-16</td>
<td>JIS10K 8B</td>
</tr>
</tbody>
</table>

#### Approvals

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML1118-17</td>
<td>ATEX 2GD Ex mb IEC T4 Gb, Ex tb IIIC T135 °C Db.</td>
</tr>
<tr>
<td>7ML1118-18</td>
<td>IECEx Sr I3.0000 X Ex mb IEC T4 Gb, Ex tb IIIC T135 °C Db.</td>
</tr>
<tr>
<td>7ML1118-19</td>
<td>CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III</td>
</tr>
</tbody>
</table>

#### Further designs

- Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)], one text line for fastening on sensors.
- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol.

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Article No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7ML1998-5</td>
<td>Quick Start guide, multi-language</td>
</tr>
<tr>
<td>7ML1998-6</td>
<td>Applications Guidelines, multi-language</td>
</tr>
</tbody>
</table>

#### Accessories

- Tag, stainless steel with hole, 12 x 45 mm (0.47 x 1.77 inch), one text line for fastening on sensors.
- Submergence shield kit.
- Universal box bracket, mounting kit.
- Channel bracket, wall mount.
- Extended channel bracket, wall mount.
- Channel bracket, floor mount.
- Extended channel bracket, floor mount.
- Bridge channel bracket, floor mount.

#### Approvals

- ATEX 2GD Ex mb IEC T4 Gb, Ex tb IIIC T135 °C Db.
- CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III.
### EchoMax XPS-15F Ultrasonic Transducer

**High-frequency ultrasonic transducer designed for a wide variety of liquid and solid applications, for use with approved controllers. Includes integral temperature sensor.**

- **Measuring range:** min. 0.3 m, max. 15 m

**Mounting thread and facing**

- 1" NPT ([Taper], ANSI/ASME B1.20.1)

**Cable length**

- 5 m (16.40 ft)
- 10 m (32.81 ft)
- 30 m (98.43 ft)
- 50 m (164.04 ft)
- 100 m (328.08 ft)

**Mounting flange, flush mount**

- None
- 6" ASME, 150 lb, flat faced
- 8" 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.)

**Approvals**

- FM Class I, Div. 1, Groups A, B, C, and D, Class II
- Div. 1, Groups E, F, and G, Class III

### Selection and Ordering Data

**Order code**

- Y15

**Further designs**

- Please add "Z" to Article No. and specify Order code(s).

**Stainless steel tag** [69 x 50 mm (2.71 x 1.97 inch)]:

- Measuring point number/identification (max. 27 characters) specify in plain text

**Operating Instructions**

- **English**
- Applications Guidelines, multi-language

**Note:** The Operating Instructions should be ordered as a separate line item on the order.

**All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.

### Accessories

- Tag, stainless steel with hole, 12 x 45 mm (0.47 x 1.77 inch), one text line for fastening on sensors
- Submergence shield kit
- Universal box bracket, mounting kit
- Channel bracket, wall mount
- Extended channel bracket, wall mount
- Channel bracket, floor mount
- Extended channel bracket, floor mount
- Bridge channel bracket, floor mount
  
  (see Mounting Brackets on page 4/190 for more information)
- 1" NPT locknut, plastic
- Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling
- Easy Aimer 304, NPT with 1" stainless steel coupling

---

### EchoMax XPS-30 Ultrasonic Transducer

**High-frequency ultrasonic transducer designed for a wide variety of liquid and solid applications, for use with approved controllers. Includes integral temperature sensor.**

- **1½" universal thread compatible with 1½" NPT and R 1½" ([BSP], EN 10226)**
- **Measuring range:** min. 0.6 m (1.97 ft), max. 30 m (98.43 ft)

**Mounting thread and facing**

- 1½" universal thread
- 1½" universal thread, foam facing
- 1½" universal thread, PTFE facing

**Cable length**

- 5 m (16.40 ft)
- 10 m (32.81 ft)
- 30 m (98.43 ft)
- 50 m (164.04 ft)
- 100 m (328.08 ft)

**Mounting flange**

- None
- 6" ASME, 150 lb, flat faced
- 8" ASME, 150 lb, flat faced
- DN 150, PN 10/16, Type A, flat faced
- DN 200, PN 10, Type A, flat faced
- JIS10K 6B
- JIS10K 8B
  
  (Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1, or JIS B 2220 standard.)

**Approvals**

- ATEX 2G 1D Ex mb IIC T4 Gb, Ex ta IIIC T135 °C Da; IECEx SIR 13.0009X Ex mb IIC T4 Gb, Ex ta IIIC T135 °C Da

**Order code**

- Y15

---

1) Not available with flanged versions
2) Available with flanged versions only
## Level Measurement
### Continuous level measurement - Ultrasonic transducers

#### EchoMax XPS

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please add “Z” to Article No. and specify Order code(s).</td>
<td>Y15</td>
</tr>
</tbody>
</table>

**Stainless steel tag [69 x 50 mm (2.71 x 1.97 inch)]: measuring-point number/identification (max. 27 characters) specify in plain text**

**Operating Instructions**

- Quick Start guide, multi-language
- Applications Guidelines, multi-language

Note: The Operating Instructions should be ordered as a separate line item on the order.

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.

**Accessories**

- Easy Aimer 2, aluminum, NPT with 1½” galvanized coupling
- Easy Aimer 304, NPT with 1½” stainless steel coupling
- Easy Aimer 2, aluminum with M20 adapter and 1” and 1½” BSPT aluminum couplings
- Easy Aimer 304, with M20 adapter and 1” and 1½” BSPT 304 stainless steel couplings

**Selection and Ordering data**

**EchoMax XPS-30C ultrasonic transducer**

- High-frequency ultrasonic transducer designed for a wide variety of liquid and solid applications, for use with approved controllers. Includes integral temperature sensor.
- 1½” universal thread compatible with 1½” NPT and R 1½” ([BSPT], EN 10226)
- Measuring range: min. 0.6 m (1.97 ft), max. 30 m (98.43 ft)

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

**Mounting thread and facing**

- 1½” universal thread
- 1½” universal thread, foam facing³¹
- 1½” universal thread, PTFE facing²²

**Cable length**

- 5 m (16.40 ft)
- 10 m (32.81 ft)
- 30 m (98.43 ft)
- 50 m (164.04 ft)
- 100 m (328.08 ft)

**Mounting flange**

- None
- 6” ASME, 150 lb, flat faced
- 8” ASME, 150 lb, flat faced
- DN 150, PN 10/16, Type A, flat faced
- DN 200, PN 10, Type A, flat faced
- JIS10K 6B
- JIS10K 8B

(Note: Flange bolting patterns and facings dimensionally correspond to the applicable ASME B16.5 or EN 1092-1, or JIS B 2220 standard.)

**Approvals**

- CSA, Class I, Div. 2, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G, Class III

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y15</td>
</tr>
</tbody>
</table>

**Stainless steel tag [69 mm x 50 mm (2.71 x 1.97 inch)]: Measuring-point number / identification (max. 27 characters) specify in plain text**

- Y15

**Operating Instructions**

- Quick Start guide, multi-language
- Applications Guidelines, multi-language

Note: The Operating Instructions should be ordered as a separate line item on the order.

All literature is available to download for free, in a range of languages, at [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

This device is shipped with the Siemens Level and Weighing manual DVD containing the ATEX Quick Start and Operating Instructions library.

**Accessories**

- Easy Aimer 2, aluminum, NPT with 1½” galvanized coupling
- Easy Aimer 304, NPT with 1½” stainless steel coupling
- 1½” BSPT locknut, plastic

¹ Not available with flanged version
² Available for flanged versions only
³¹
**Dimensional drawings**

![XPS ultrasonic transducer](image)

- **Standard**
- **Submergence shield**
- **Bonded flange**

**Schematics**

- **Direct connection**
- **Coaxial connection**
- **3 terminal direct**
- **3 terminal extension**

* For SITRANS LUT400, MultiRanger 100/200, HydroRanger 200

**Mounting**

Make particularly sure that the radiating face of the transducer is protected from damage. Mount the transducer so that it is above the maximum material level by at least the blanking value. On liquid applications, the transducer must be mounted so that the axis of transmission is perpendicular to the liquid surface. On solids applications, an Easy Aimer should be used to facilitate aiming the transducer. Consider the optional temperature sensor when mounting the transducer.

**Interconnection**

Do not route cable openly or near high voltage or current runs, contactors and SCR control drives. For optimum isolation against electrical noise, run cable separately in a grounded metal conduit. Seal all thread connections to prevent ingress of moisture.

---

**Table: XPS ultrasonic transducer dimensions**

<table>
<thead>
<tr>
<th>Version</th>
<th>Dimension</th>
<th>XPS-10</th>
<th>XPS-15</th>
<th>XPS-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>88 mm</td>
<td>121 mm</td>
<td>175 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.464 inch)</td>
<td>(4.764 inch)</td>
<td>(6.890 inch)</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>122 mm</td>
<td>132 mm</td>
<td>198 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4.803 inch)</td>
<td>(5.197 inch)</td>
<td>(7.795 inch)</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>According to ASME, DIN, and JIS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>124 mm</td>
<td>158 mm</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4.882 inch)</td>
<td>(6.220 inch)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>152 mm</td>
<td>198 mm</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.984 inch)</td>
<td>(7.795 inch)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>28 mm</td>
<td>28 mm</td>
<td>28 mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.1 inch)</td>
<td>(1.1 inch)</td>
<td>(1.1 inch)</td>
<td></td>
</tr>
</tbody>
</table>