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>Input</th>
<th>XPS-10</th>
<th>XPS-15 (standard and F models)</th>
<th>XPS-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring range</td>
<td>0.3 ... 10 m (1 ... 33 ft)</td>
<td>Standard: 0.3 ... 15 m (1 ... 50 ft) XPS-15F: 0.45 ... 15 m (1.5 ... 50 ft)</td>
<td>0.6 ... 30 m (2 ... 100 ft)</td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Frequency</td>
<td>44 kHz</td>
<td>44 kHz</td>
<td>30 kHz</td>
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<tr>
<td>Beam angle</td>
<td>12°</td>
<td>6°</td>
<td>6°</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Location</td>
<td>Indoors/outdoors</td>
<td></td>
<td></td>
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<tr>
<td>Ambient temperature</td>
<td>-40 ... +95 °C (-40 ... +203 °F)</td>
<td>Standard: -40 ... +95 °C (-40 ... +203 °F) XPS-15F: -20 ... +95 °C (-4 ... +203 °F)</td>
<td></td>
</tr>
<tr>
<td>Pollution degree</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure</td>
<td>8 bar g (120 psi g)</td>
<td>Standard: 8 bar g (120 psi g) XPS-15F: 0.5 bar g (7.25 psi g)</td>
<td>Flanged: 0.5 bar g (7.25 psi g)</td>
</tr>
<tr>
<td>Design</td>
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<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>
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<tr>
<td>Color</td>
<td>Blue</td>
<td>Standard: Blue XPS-15F: Gray</td>
<td>Blue</td>
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<tr>
<td>Process connection</td>
<td>1&quot; NPT or 1&quot; BSPT</td>
<td>Standard: 1&quot; NPT or 1&quot; BSPT XPS-15F: 1&quot; NPT</td>
<td>1.5&quot; universal thread (NPT or BSPT)</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>
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<tr>
<td>Certificates and approvals</td>
<td>Standard: CE, CSA, FM, ATEX, IECEx</td>
<td>Standard: CE, CSA, FM, ATEX, IECEx</td>
<td>CE, CSA, FM, ATEX, IECEx</td>
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</table>

1) Max range is rated for measurement of liquids, recommended range for solids is 50 % of maximum. Application conditions such as extreme dust or angle of repose may reduce the usable maximum range. Consult a local sales person for more details.
Selection and Ordering data

EchoMax XPS-10 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. 10 m

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

Mounting thread and facing

1" NPT [(Taper), ANSI/ASME B1.20.1]
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]
R 1" [(BSPT), EN 10226] with foam facing
R 1" [(BSPT), EN 10226] with 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
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
(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 2GD Ex mb IIC T4 Gb, Ex tb IIIC T135 °C Db;
IECEx SIR 13.0009X Ex mb IIC T4 Gb, Ex tb IIIC
T135 °C Db; FM Class I, Div. 2, Groups A, B, C, D,
Class II, Div. 1, Groups E, F, G, Class III
CSA Class I, Div. 1, Groups A, B, C, D, Class II,
Div. 1, Groups E, F, G, Class III

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

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

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 2, aluminum, NPT with ¾" x 1" PVC coupling

Easy Aimer 2, 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 4/186 for more information)

1" NPT locknut, plastic

1" BSP locknut, plastic

1" BSP locknut, flanged, plastic

Plastic adapter 1" BSP - 20 mm

Plastic adapter 1" NPT/M20

Selection and Ordering data

Order code

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<th>Article No.</th>
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<td>Y15</td>
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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

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

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 2, aluminum, NPT with ¾" x 1" PVC coupling

Easy Aimer 2, 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 4/186 for more information)

1" NPT locknut, plastic

1" BSP locknut, plastic

1" BSP locknut, flanged, plastic

Plastic adapter 1" BSP - 20 mm

Plastic adapter 1" NPT/M20

Selection and Ordering data

Order code

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Selection and Ordering data

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<td>Y15</td>
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</table>
Continuous level measurement

Ultrasonic transducers

EchoMax XPS

Selection and Ordering data

EchoMax XPS-15 ultrasonic transducer
High-frequency ultrasonic transducer designed for a wide variety of liquid and solid applications. 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] 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 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

Approvals
ATEX 2013 Ex mb IIC T4 Gb, Ex tb II2C T135 °C Db; IECEx SIR 13.0009X Ex mb IIC T4 Gb, Ex tb II2C T135 °C Db; FM Class I, Div. 2, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III

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
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

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

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

1" NPT locknut, plastic
1" BSP locknut, plastic
1" BSP locknut, flanged, plastic
Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling
Easy Aimer 2, 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
Plastic adapter 1" BSP - 20 mm
Plastic adapter 1" NPT
Plastic adapter 1" NPT/M20

Selection and Ordering data

Order code

7ML1118-

Y15

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Continuous level measurement

Ultrasonic transducers

EchoMax XPS

Selection and Ordering data

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. 0.45 m, max. 15 m

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

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

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” [(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 facing¹
1½” universal thread, PTFE facing²

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

¹ Not available with flanged versions
² Available with flanged versions only

Selection and Ordering data

EchoMax XPS-15F ultrasonic transducer
Article No.
EchoMax XPS-15F ultrasonic transducer
7ML1171-0

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. 0.45 m, max. 15 m

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

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

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

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 4/186 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

Selection and Ordering data

EchoMax XPS-30 ultrasonic transducer
Article No.
EchoMax XPS-30 ultrasonic transducer
7ML1123-0

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 facing¹
1½” universal thread, PTFE facing²

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

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>
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<tbody>
<tr>
<td>Please add &quot;-Z&quot; 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

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

Accessories

Tag, stainless steel with hole, 12 x 45 mm (0.47 x 1.77 inch), one text line for fastening on sensors

1½" BSPT locknut, plastic

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

Adapter 1½" BSP

Selection and Ordering data

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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)

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

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

Selection and Ordering data

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Level Measurement
Continuous level measurement
Ultrasonic transducers

EchoMax XPS

### Dimensional drawings

<table>
<thead>
<tr>
<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 (3.464 inch)</td>
<td>121 mm (4.764 inch)</td>
<td>175 mm (6.890 inch)</td>
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<tr>
<td>B</td>
<td>122 mm (4.803 inch)</td>
<td>132 mm (5.197 inch)</td>
<td>196 mm (7.795 inch)</td>
</tr>
<tr>
<td>C</td>
<td>According to ASME, DIN, and JIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>124 mm (4.882 inch)</td>
<td>158 mm (6.220 inch)</td>
<td>n/a</td>
</tr>
<tr>
<td>F</td>
<td>152 mm (5.984 inch)</td>
<td>198 mm (7.795 inch)</td>
<td>n/a</td>
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<tr>
<td>J</td>
<td>28 mm (1.1 inch)</td>
<td>28 mm (1.1 inch)</td>
<td>28 mm (1.1 inch)</td>
</tr>
</tbody>
</table>

XPS ultrasonic transducer

**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.

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