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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.

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Selection and ordering data

EchoMax XPS-10 Ultrasonic level transducer Continuous, non-contact, 10 m (32.80 ft), for liquids and solids.	Article No. 7ML1115-	●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Mounting thread and facing						
1" NPT [(Taper), ASME B1.20.1]		0				
1" NPT [(Taper), ASME B1.20.1] with foam facing[1]		1				
1" NPT [(Taper), ASME B1.20.1] with PTFE facing[2]		2				
R 1" [(BSPT), EN 10226]		3				
R 1" [(BSPT), EN 10226] with foam facing[1]		4				
R 1" [(BSPT), EN 10226] with PTFE facing[2]		5				
Cable length						
5 m (16.40 ft)			B			
10 m (32.81 ft)			C			
30 m (98.43 ft)			E			
50 m (164.04 ft)			F			
100 m (328.08 ft)			K			
Mounting flange						
None				A		
3" ASME, 150 lb, flat faced				C		
4" ASME, 150 lb, flat faced				D		
6" ASME, 150 lb, flat faced				E		
8" ASME, 150 lb, flat faced				F		
DN 80, PN 10/16, Type A, flat faced				G		
DN 100, PN 10/16, Type A, flat faced				J		
DN 150, PN 10/16, Type A, flat faced				L		
JIS10K3B Style				M		
JIS10K4B Style				P		
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.)				R		
Approvals						
ATEX II 2GD Ex mb IIC T4 Gb, ATEX II 2GD Ex tb IIIC T135°C Db, Ta = -40°C to +95°C; UKEX II 2GD Ex mb IIC T4 Gb, UKEX II 2GD Ex tb IIIC T135°C Db, Ta = -40°C to +95°C; IECEx SIR 13.0009X Ex mb IIC T4 Gb, IECEx SIR 13.0009X Ex tb IIIC T135°C Db, Ta = -40°C to +95°C; FM Class I, Div. 2, Groups A, B, C, D; FM Class II, Div. 1, Groups E, F, G; FM Class III					3	
CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III [3]					4	

[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	Order code
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	**Y15**

Selection and ordering data	Article No.
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	**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**

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Selection and ordering data (continued)

Selection and ordering data	Article No.
Easy Aimer 304, with M20 adapter and 1" and 1½" BSPT 304 stainless steel couplings	7ML1830-1GN
Universal box bracket, mounting kit	7ML1830-1BK
Channel bracket, wall mount	7ML1830-1BL
Extended channel bracket, wall mount	7ML1830-1BM
Channel bracket, floor mount	7ML1830-1BN
Extended channel bracket, floor mount	7ML1830-1BP

Selection and ordering data	Article No.
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

EchoMax XPS-15 Ultrasonic level transducer Continuous, non-contact, 15 m (49.21 ft), for liquids and solids.	Article No. 7ML1118- ●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Mounting thread and facing					
1" NPT [(Taper), ASME B1.20.1]	0				
1" NPT [(Taper), ASME B1.20.1] with foam facing[1]	1				
1" NPT [(Taper), ASME B1.20.1] with PTFE facing[2]	2				
R 1" [(BSPT), EN 10226]	3				
R 1" [(BSPT), EN 10226] with foam facing[1]	4				
R 1" [(BSPT), EN 10226] with PTFE facing[2]	5				
Cable length					
5 m (16.40 ft)		B			
10 m (32.81 ft)		C			
30 m (98.43 ft)		E			
50 m (164.04 ft)		F			
100 m (328.08 ft)		K			
Mounting flange					
None			A		
6" ASME, 150 lb, flat faced			D		
8" ASME, 150 lb, flat faced			E		
DN 150, PN 10/16, Type A, flat faced			J		
DN 200, PN 10, Type A, flat faced			K		
JIS10K 6B			N		
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.)			P		
Approvals					
ATEX II 2GD Ex mb IIC T4 Gb, ATEX II 2GD Ex tb IIIC T135°C Db, Ta = -40°C to +95°C; UKEX II 2GD Ex mb IIC T4 Gb, UKEX II 2GD Ex tb IIIC T135°C Db, Ta = -40°C to +95°C; IECEx SIR 13.0009X Ex mb IIC T4 Gb IECEx SIR 13.0009X Ex tb IIIC T135°C Db, Ta = -40°C to +95°C; FM Class I, Div. 2, Groups A, B, C, D; FM Class II, Div. 1, Groups E, F, G; FM Class III					3
CSA Class I, Div. 1, Groups A, B, C, D, Class II, Div. 1, Groups E, F, G, Class III [3]					4

[1] Not available with flanged versions.
[2] Available with flanged versions only.
[3] Available with mounting options 0 ... 2 only.

Selection and Ordering data	Order code
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	Y15

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Selection and ordering data (continued)

Selection and ordering data	Article No.
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	7ML1930-1BJ
Submergence shield kit	7ML1830-1BJ
Universal box bracket, mounting kit	7ML1830-1BK
Channel bracket, wall mount	7ML1830-1BL
Extended channel bracket, wall mount	7ML1830-1BM

Selection and ordering data	Article No.
Channel bracket, floor mount	7ML1830-1BN
Extended channel bracket, floor mount	7ML1830-1BP
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
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
Plastic adapter 1" BSP - 20 mm	7ML1830-1EA
Plastic adapter 1" NPT	7ML1930-1FX
Plastic adapter 1" NPT/M20	7ML1830-1EF

EchoMax XPS-15F Ultrasonic level transducer Continuous, non-contact, 15 m (49.21 ft), for liquids and solids.	Article No. 7ML1171- ●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
Mounting thread and facing					
1" NPT [(Taper), ASME B1.20.1]		1			
Cable length					
5 m (16.40 ft)			B		
10 m (32.81 ft)			C		
30 m (98.43 ft)			D		
50 m (164.04 ft)			E		
100 m (328.08 ft)			F		
Mounting flange, flush mount					
None				A	
6" ASME, 150 lb, flat faced				B	
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.)				C	
Approvals					
FM Class I, Div. 1, Groups A, B, C, and D, Class II Div. 1, Groups E, F, and G, Class III					1

Selection and Ordering data	Order code
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	Y15

Selection and ordering data	Article No.
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	7ML1930-1BJ
Submergence shield kit	7ML1830-1BJ
Universal box bracket, mounting kit	7ML1830-1BK
Channel bracket, wall mount	7ML1830-1BL
Extended channel bracket, wall mount	7ML1830-1BM
Channel bracket, floor mount	7ML1830-1BN
Extended channel bracket, floor mount	7ML1830-1BP
Bridge channel bracket, floor mount (see Mounting Brackets catalog page for more information)	7ML1830-1BQ

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Selection and ordering data (continued)

Selection and ordering data	Article No.
1" NPT locknut, plastic	7ML1830-1DS
Easy Aimer 2, aluminum, NPT with ¾" x 1" PVC coupling	7ML1830-1AQ
Easy Aimer 304, NPT with 1" stainless steel coupling	7ML1830-1AU

EchoMax XPS-30 Ultrasonic level transducer Continuous, non-contact, 30 m (98.42 ft) for liquids and solids.	Article No. 7ML1123-	●	●	●	●	0
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Mounting thread and facing						
1½" universal thread		0				
1½" universal thread, foam facing[1]		1				
1½" universal thread, PTFE facing[2]		2				
Cable length						
5 m (16.40 ft)			B			
10 m (32.81 ft)			C			
30 m (98.43 ft)			E			
50 m (164.04 ft)			F			
100 m (328.08 ft)			K			
Mounting flange						
None				A		
6" ASME, 150 lb, flat faced				D		
8" ASME, 150 lb, flat faced				E		
DN 150, PN 10/16, Type A, flat faced				J		
DN 200, PN 10, Type A, flat faced				K		
JIS10K 6B				N		
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.)				P		
Approvals						
ATEX II 1D, 2G Ex mb IIC T4 Gb, ATEX II 1D, 2G Ex tb IIIC T135°C Da, Ta = -40°C to +95°C; UKEX II 1D, 2G Ex mb IIC T4 Gb, UKEX II 1D, 2G Ex tb IIIC T135°C Da, Ta = -40°C to +95°C; IECEx SIR 13.0009X Ex mb IIC T4 Gb, IECEx SIR 13.0009X Ex tb IIIC T135°C Da, Ta = -40°C to +95°C					5	

[1] Not available with flanged versions.
[2] Available with flanged versions only.

Selection and Ordering data	Order code
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	Y15

Selection and ordering data	Article No.
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	7ML1930-1BJ
1½" BSPT locknut, plastic	7ML1830-1DP
Easy Aimer 2, aluminum, NPT with 1½" galvanized coupling	7ML1830-1AN
Easy Aimer 304, NPT with 1½" stainless steel coupling	7ML1830-1AT
Easy Aimer 2, aluminum with M20 adapter and 1" and 1½" BSPT aluminum couplings	7ML1830-1AX
Easy Aimer 304, with M20 adapter and 1" and 1½" BSPT 304 stainless steel couplings	7ML1830-1GN
Adapter 1½" BSP	7ML1830-1EB

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Selection and ordering data (continued)

EchoMax XPS-30C Ultrasonic level transducer Continuous, non-contact, 30 m (98.42 ft) for liquids and solids.	Article No. 7ML1155-	●	●	●	●	1
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.						
Mounting thread and facing						
1½" universal thread		0				
1½" universal thread, foam facing[1]		1				
1½" universal thread, PTFE facing[2]		2				
Cable length						
5 m (16.40 ft)			B			
10 m (32.81 ft)			C			
30 m (98.43 ft)			E			
50 m (164.04 ft)			F			
100 m (328.08 ft)			K			
Mounting flange						
None				A		
6" ASME, 150 lb, flat faced				D		
8" ASME, 150 lb, flat faced				E		
DN 150, PN 10/16, Type A, flat faced				J		
DN 200, PN 10, Type A, flat faced				K		
JIS10K 6B				N		
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.)				P		
Approvals						
CSA, Class I, Div. 2, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III					4	

[1] Not available with flanged version.
[2] Available for flanged versions only.

Selection and Ordering data	Order code
Further designs	
Please add "-Z" to Article No. and specify Order code(s).	
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

Selection and ordering data	Article No.
Operating Instructions	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/processinstrumentation/documentation	
Accessories	
Easy Aimer 2, aluminum, NPT with 1½" galvanized coupling	7ML1830-1AN
Easy Aimer 304, NPT with 1½" stainless steel coupling	7ML1830-1AT
1½" BSPT locknut, plastic	7ML1830-1DP
Adapter 1½" BSP	7ML1830-1EB

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Technical specifications

Input	XPS-10	XPS-15 (standard and F models)	XPS-30
Measuring range[1)]	0.3 ... 10 m (1 ... 33 ft)	***Standard:*** 0.3 ... 15 m (1 ... 50 ft) XPS-15F: 0.45 ... 15 m (1.5 ... 50 ft)	0.6 ... 30 m (2 ... 100 ft)
Output			
Frequency	44 kHz	44 kHz	30 kHz
Beam angle	12°	6°	6°
Environmental			
Location	Indoors/outdoors	Indoors/outdoors	Indoors/outdoors
Ambient temperature	-40 ... +95 °C (-40 ... +203 °F)	***Standard:*** -40 ... +95 °C (-40 ... +203 °F) ***XPS-15F:*** -20 ... +95 °C (-4 ... +203 °F)	-40 ... +95 °C (-40 ... +203 °F)
Storage temperature	-40 ... +95 °C (-40 ... +203 °F)	***Standard:*** -40 ... +95 °C (-40 ... +203 °F) ***XPS-15F:*** -20 ... +95 °C (-4 ... +203 °F)	-40 ... +95 °C (-40 ... +203 °F)
Pollution degree	4	4	4
Pressure	8 bar g (120 psi g) Flanged: 0.5 bar g (7.25 psi g)	8 bar g (120 psi g) Flanged: 0.5 bar g (7.25 psi g)	0.5 bar g (7.25 psi g) Flanged: 0.5 bar g (7.25 psi g)
Design			
Weight	0.8 kg (1.8 lb)	1.3 kg (2.8 lb) Flanged: 2 kg (4.4 lb)	4.3 kg (9.5 lb)
Power supply	Operation of transducer only with approved Siemens controllers	Operation of transducer only with approved Siemens controllers	Operation of transducer only with approved Siemens controllers
Material	Standard: PVDF Flanged: PVDF with CPVC flange Option: PTFE face with CPVC flange	Standard: PVDF Flanged: PVDF with CPVC flange Option: PTFE face with CPVC flange	Standard: PVDF Flanged: PVDF with CPVC flange Option: PTFE face with CPVC flange
Color	Blue	Standard: Blue XPS-15F: Gray	Blue
Process connection	1" NPT or 1" BSPT	Standard: 1" NPT or 1" BSPT XPS-15F: 1" NPT	1.5" universal thread (NPT or BSPT)
Degree of protection	IP66/68	IP66/68	IP66/68
Cable	2-wire twisted pair/braided and foil shielded 0.5 mm² (20 AWG) PVC jacket	2-wire twisted pair/braided and foil shielded 0.5 mm² (20 AWG) PVC jacket	2-wire twisted pair/braided and foil shielded 0.5 mm² (20 AWG) PVC jacket
Separation	Max. 365 m (1 200 ft)	Max. 365 m (1 200 ft)	Max. 365 m (1 200 ft)
Certificates and approvals	Standard: CE, UKCA, CSA, FM, ATEX, UKEX, IECEx	Standard: CE, UKCA, CSA, FM, ATEX, UKEX, IECEx XPS-15F: FM Class I, Div. 1, Groups A, B, C, and D, Class II Div. 1, Groups E, F, and G, Class III	CE, UKCA, CSA, FM, ATEX, UKEX, IECEx

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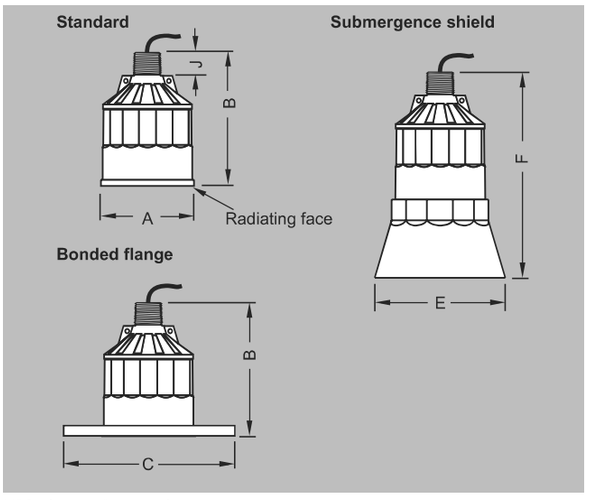
Dimensional drawings



XPS ultrasonic transducer

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

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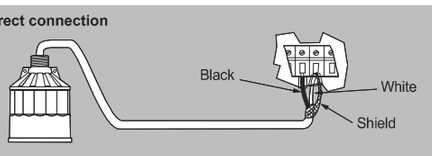
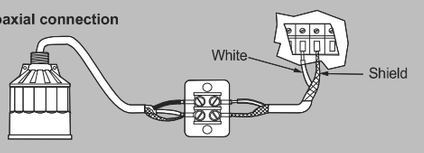
Circuit diagrams

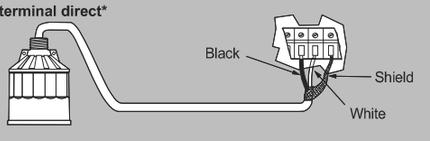
Direct connection



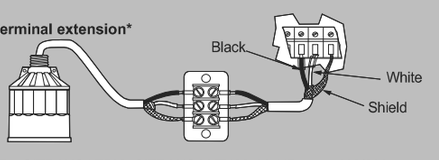
Coaxial connection



3 terminal direct*



3 terminal extension*



* For SITRANS LT500, 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.

XPS ultrasonic transducer connections