

Level measurement

Continuous level measurement – Ultrasonic transducers

EchoMax XLT

Overview



EchoMax XLT transducers use ultrasonic technology to measure level in a wide range of bulk solids.

Benefits

- Sealed aluminum face
- Integral temperature sensor
- Self-cleaning and low maintenance
- Connect using only two wires
- Easy to install

Application

XLT transducers operate with Siemens SITRANS LU transceivers in measuring ranges from 0.9 ... 60 m (1.8 ... 200 ft) and temperatures up to 150 °C (300 °F). A beam angle of just 5° provides accurate readings in deep, narrow tanks.

With increased signal sensitivity, the XLT transducers from Siemens can operate in difficult applications such as limestone, cement clinker and hot stone. All models have a sealed aluminum face to withstand very harsh environments.

During operation, EchoMax transducers emit acoustic pulses in a narrow beam. The level transceiver measures the propagation time between pulse emission and reception of the echo to calculate the distance from the transducer to the material. Temperature variations are automatically compensated by the integral temperature sensor.

- Key Applications: bulk solids including limestone, cement clinker, hot stone and coal bunkers

Technical specifications

Mode of operation	
Measuring principle	Ultrasonic transducer
Input	
Measuring range	
• XLT-30	0.9 ... 30 m (3.0 ... 100 ft)
• XLT-60	1.8 ... 60 m (6.0 ... 200 ft)
Output	
Frequency	
• XLT-30	22 kHz
• XLT-60	13 kHz
• Beam angle ¹⁾	5°
Accuracy	
Temperature error	Compensated by transducers internal temperature sensor
Rated operating conditions	
Ambient conditions	
• Ambient temperature	
- XLT-30 and XLT-60	-40 ... +150 °C (-40 ... +300 °F)
Design	
Weight	
• XLT-30	4.3 kg (9.5 lb)
• XLT-60	6.6 kg (14.5 lb)
Material (enclosure)	Aluminum, 304 stainless steel, polyester and silicone
Degree of protection	IP68
Color	
• XLT-30 and XLT-60	Red
Mounting	
Cable connection	1" NPT [(Taper), ANSI/ASME B1.20.1]
Cable (max. length)	2-core shielded/twisted, 0.5 mm ² (20 AWG), silicone sheath
Certificates and approvals	365 m (1 200 ft) with RG 62 AU coaxial cable
	CE (EMC certificate available on request), CSA _{US/} C, FM, ATEX II 2G 1D T5

¹⁾ Definition of beam width: twice the angle at which the off-axis transmission is 3 dB less than the acoustic pressure level of the transmission axis (as measured equidistant from the sensor face).

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Selection and Ordering data

Order No.

EchoMax XLT-30, XLT-60, 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. 0.9 m, max. 30 m

Process connection:

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

XLT-30

7ML1141-

XLT-60

7ML1145-

E 0

Facing

XLT-30

0

XLT-60

1

XLT-30, nylon

2

XLT-60, nylon

3

Cable length

1 m (3.28 ft)

A

5 m (16.40 ft)

B

10 m (32.81 ft)

C

20 m (65.62 ft)

D

30 m (98.43 ft)

E

50 m (164.04 ft)

F

70 m (229.66 ft)

G

80 m (262.47 ft)

H

90 m (295.28 ft)

J

100 m (328.08 ft)

K

Approvals

ATEX II 2G 1D, CSA Class I Div. 1, FM Class I Div. 2, CE

3

Selection and Ordering data

Order code

Further designs

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

Acrylic coated, stainless steel tag [13 x 45 mm

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

Operating Instructions

Order No.

Quick start manual, multi-language

7ML1998-5QS81

Applications Guidelines, multi-language

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 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

7ML1930-1BJ

Easy Aimer 2, 1" NPT galvanized

7ML1830-1AP

Easy Aimer 304 with stainless steel coupling

7ML1830-1AU

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 SS couplings

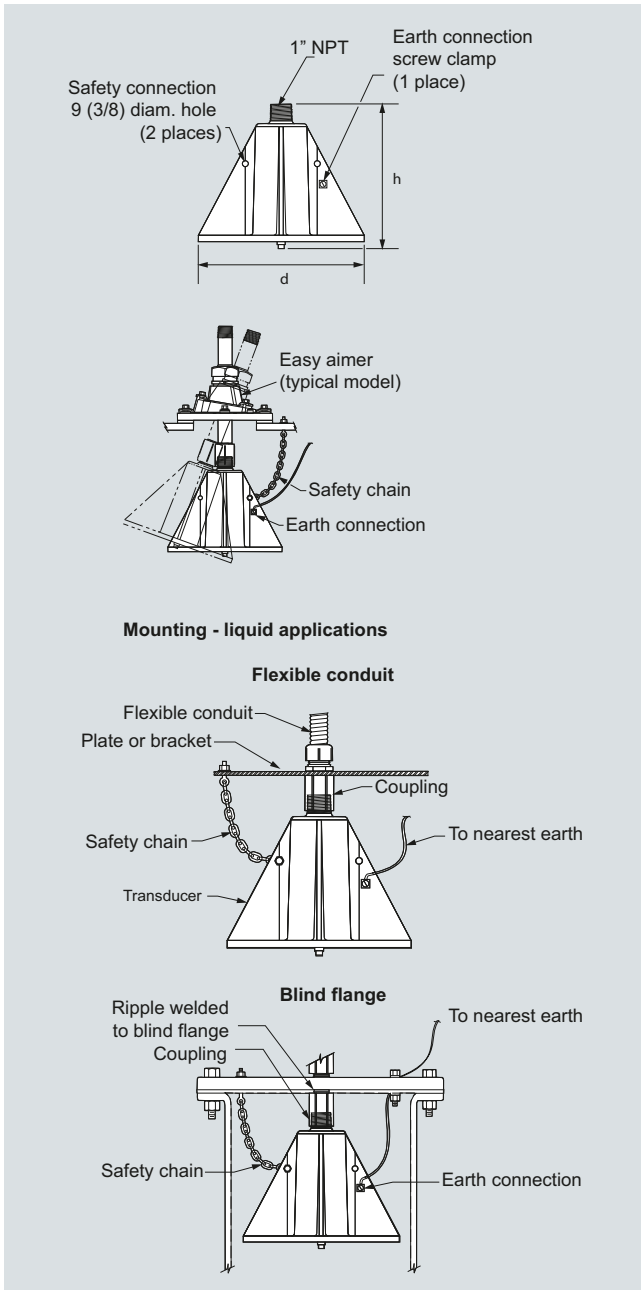
7ML1830-1GN

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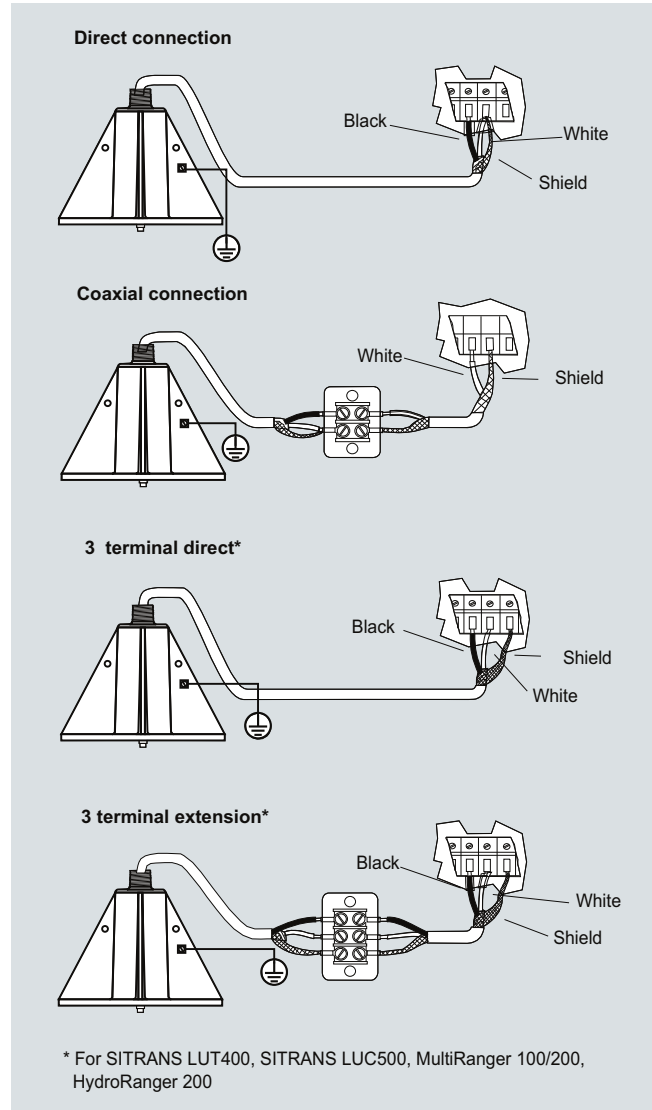
Dimensional drawings



XLT ultrasonic transducer, dimensions in mm (inch)

	XLT-30	XLT-60
d	264 mm (10.4 inch)	335 mm (13.2 inch)
h	249 mm (9.8 inch)	324 mm (12.75 inch)

Schematics



XLT ultrasonic transducer connections