EchoTouch® US01 & US03

Reflective Ultrasonic Liquid Level Transmitter

FLOWLINE™
LEVEL BEST

Application

The intrinsically safe reflective ultrasonic level transmitter provides continuous level measurement up to 9.8' (3m) with a 4-20 mA analog signal output, and is configured via our WebCal software. The non-contact liquid level sensor features our proprietary Reflective Technology™ that delivers reliable level measurement in condensing environments. Select this sensor for small tanks with non-foaming or highly vaporous media such as chemicals, water, wastewater and oil. Typical applications include day tank, IBC or drum, cooling tower, skid or machine, process tank and waste sumps.


Features

- Offered in 1.5m (4.9') and 3m (9.8') measurement ranges
- Reflective Technology™ measures reliably with condensation
- Narrow 2" (5cm) beam width for applications with limited space
- Configuration is easy with WebCal software and USB adapter
- Short 1.5" (3.8cm) dead band maximizes tank filling capacity
- PVDF transducer and PP enclosure for corrosive environments
- Fail-safe diagnostics with selectable fail-safe signal outputs
- Type 6P (IP68) compact enclosure for small tank applications
- Automatic temperature compensation from -40° to 80° C.

Reflective Technology™

Condensation is the most common variable in liquid level applications. Condensation attenuates the acoustic signal of ultrasonic sensors with horizontal transducers, weakening their signal strength and signal to noise ratio by up to 50%, and substantially reducing their measurement reliability. At the core of Reflective Technology™ is a simple fact. Unlike flat horizontal surfaces, significant water droplets cannot adhere to smooth vertical surfaces. By orienting the transducer vertically, condensation runs off the transducer and does not affect sensor performance. The unimpeded transmit and receive signals are redirected to and from the liquid off a 45° reflector, delivering reliable level measurement. Thanks gravity.
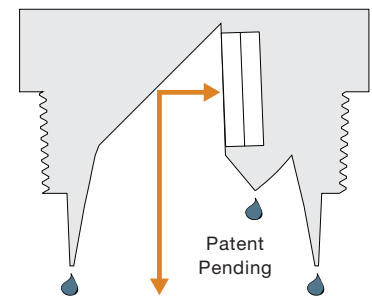
Horizontal Transducer
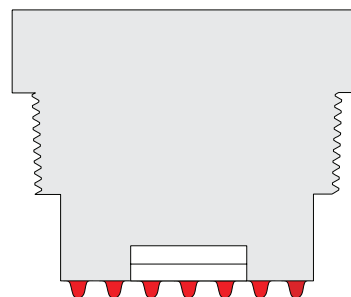
Signal Attenuation

Reflective Transducer

Patent Pending

Reliable Measurement

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Reflective Ultrasonic Liquid Level Transmitter

Specifications

Range:	US01: 1.5" to 4.9' (3.8cm to 1.5m)
	US03: 4" to 9.8' (10.1cm to 3m)
Accuracy:	US01: 0.125" (3mm)
	US03: ± 0.2% of range
Resolution:	US01: 0.019" (0.5mm)
	US03: 0.039" (1mm)
Dead band:	US01: 1.5" (3.8cm)
	US03: 4" (10.1cm)
Beam width:	2" (5cm)
Configuration:	WebCal® PC Windows® USB® 2.0
Memory:	Non-volatile
Supply voltage:	14-28 VDC
Loop resistance:	500 ohms @ 24 VDC
Signal output:	4-20mA, two-wire
Signal invert:	4-20mA or 20-4mA
Signal fail-safe:	4mA, 20mA, 21mA, 22mA, hold last
Process temp.:	F: -40° to 176°
	C: -40° to 80°
Temp. comp.:	Automatic
Ambient temp.:	F: -31° to 140°
	C: -35° to 60°
Pressure:	30 psi (2 bar)
Enclosure rating:	Type 6P (IP68)
Encl. material:	Polypropylene
Transducer type:	Reflective
Transducer mat.:	Polyvinylidene fluoride
Cable jacket mat.:	Polyurethane
Cable type:	4-conductor, shielded
Cable length:	48" (1.2m)
Process mount:	-0001: 2" NPT
	-0011: 2" G
Mount gasket:	-0001: N/a
	-0011: Viton®
Classification:	Intrinsically safe
Approvals (pending):	Haz Loc: Class I, Div 1, Groups A, B, C & D; Class II, Groups E, F & G; Class III; Class I, Zone 0, Group IIC, Zone 20, Group IIC
	IECEx: II 1G, EEx ia IIC Gc
Entity parameters:	See control drawing #610125
Compliance:	CE, RoHS

Dimensions

2.9" (73.7 mm)
1.75" (44.5 mm)
0.75" (19.1 mm)
1.5" (38.1 mm)
1.875" (47.6 mm)

2.75" (69.9 mm)
4.0" (101.6 mm)
0.8" (20.3 mm)
1.96" (49.8 mm)
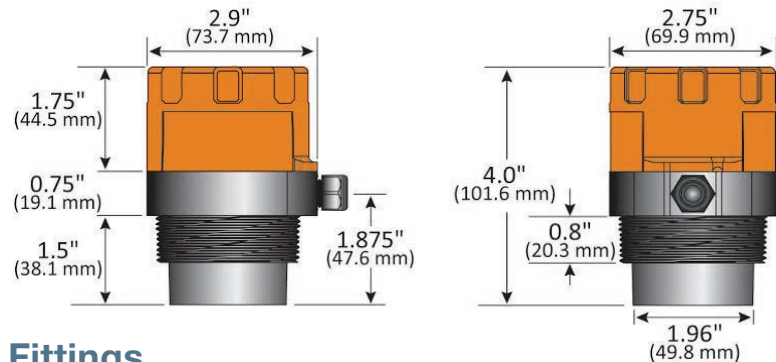
Fittings

TANK ADAPTERS

LM52-2890	2" NPT bulkhead fitting, PVC
LM52-3890	3" NPT bulkhead fitting, PVC

REDUCER BUSHINGS

LM52-2400	3" thread x 2" thread, NPT, PVC, schedule 40
LM52-2410	3" socket x 2" thread, NPT, PVC, schedule 40
LM52-2800	3" thread x 2" thread, NPT, PVC, schedule 80
LM52-2810	3" socket x 2" thread, NPT, PVC, schedule 80
LM52-3800	4" thread x 2" thread, NPT, PVC, schedule 80
LM52-3810	4" socket x 2" thread, NPT, PVC, schedule 80

BRACKETS

LM50-1001	2" NPT side mount bracket, PP
LM50-1061	2" G side mount bracket, PP

Configuration

The sensor is configured via our WebCal software and one Fob USB adapter. WebCal is a PC utility program that allows users to easily configure their sensors, update firmware, save configurations and print wiring schematics prior to installation. WebCal is a free download from our website.

Ordering

US0 ☐ -00 ☐ 1-0 ☐

SENSOR RANGE (1)

1	1.5m (4.9')
3	3m (9.8')

PROCESS MOUNT (2)

0	2" NPT
1	2" G

FOB USB ADAPTER (3)

0	Without Fob
1	With Fob

LI99-2001

NOTES

1) If you want help in selecting a sensor for your application, please go to our website and submit a Level Questionnaire. An engineer will review your requirements and suggest a product solution via email.

2) Install the sensor using Flowline installation fittings or equivalents.

3) The sensor is configured via our WebCal software and one LI99-2001 Fob USB adapter. Sensors are offered with or without a Fob. Fobs are universal and can be used to configure any WebCal compatible ultrasonic or guided wave sensor. WebCal is a free download from our website.