

Echotouch™, EchoSpan® & EchoSwitch® Ultrasonic Liquid Level Sensors



The Echotouch, EchoSpan and EchoSwitch are innovative ultrasonic liquid level sensor families that replace float, conductance and pressure sensors that fail due to contact with dirty, sticky and scaling media in small, medium and large capacity tanks. Applied in chemical, water and wastewater applications, these general purpose non-contact sensors are available with single and multi-function capabilities including continuous level measurement, switching and control.

For input to a PLC or other controller, measurement outputs include current, voltage and frequency. Models with three relays can be configured for level alarms and/or stand-alone level control such as automatic fill or empty functions using the embedded level controller. **Units are easily configured using built-in pushbuttons.**

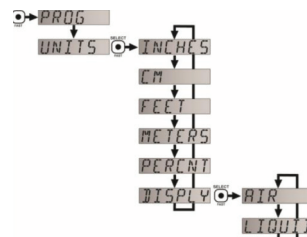
Made in the USA

Echotouch, EchoSpan & EchoSwitch Ultrasonic Liquid Level Sensors General Specifications								
Model	LU20-5001-IS	LU80-5101	LU81-5101	LU83-5101	LU84-5101	LU77-5004	LU74-5004	LU78-5004
Price	<--->	<--->	<--->	<--->	<--->	<--->	<--->	<--->
Type	Echotouch	EchoSpan			EchoSwitch			
Class	Intrinsically safe	General Purpose (non-hazardous)						
Range	6 in to 18 ft (15 cm to 5.5m)	4 in to 9.8 ft (10 cm to 3m)	8 in to 18 ft (20 cm to 5.5m)	8 in to 26.2 ft (20 cm to 8m)	12 in to 32.8 ft (30 cm to 10m)	4 in to 9.8 ft (10 cm to 3m)	8 in to 18 ft (20 cm to 5.5m)	8 in to 26.2 ft (20 cm to 8m)
Output Types	4-20 mA, two-wire					(1) SPDT relay, (2) SPST relays 4-20 mA, two-wire		
Install	Vertical, top of tank							
Mounting	2 in MNPT	1 in MNPT	2 in MNPT			1 in MNPT	2 in MNPT	
Relays	No relay					(1) SPDT relay, (2) SPST relays		
Configuration	Pushbutton / LCD							
Ambient Temperature	-4° to 140°F (-20° to 60°C)			-40° to 160°F (-40° to 71°C)				
Process Temperature	-40° to 140°F (-40° to 60°C)			-4° to 140°F (-20° to 60°C)				
Pressure	30 PSI (2 bar) @ 25°C, derated @ 1.667 psi (0.113 bar) per °C above 25°C (77°F)			30 PSI (2 bar) MAX				

Pushbutton Configuration

With no software or PC required, the Echotouch, EchoSpan, and EchoSwitch ultrasonic level sensors are easily configured using integral pushbuttons and LCD digital display. Configuration parameters are organized in a simple menu structure so that parameter values are easily accessed and set or changed as needed. Parameters are stored in non-volatile memory so the setting values are not lost when the sensor is powered down, allowing configuration before installation in the field.

Example - EchoSpan Display and Menu



- Company Information
- Systems Overview
- Programmable Controllers
- Field I/O
- Software
- C-more & other HMI
- Drives
- Soft Starters
- Motors & Gearbox
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
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- Level Sensors
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EchoSwitch[®] LU Series Ultrasonic Level Sensors



Overview

The EchoSwitch LU series of ultrasonic level sensors are configured via the integral pushbutton display module, provides continuous level detection up to 26.2 ft (8m) with 3 programmable relays for level switch or level control functions and a 4-20 mA output. Each relay can be configured on a single setpoint (high level alarm or low level alarm) or latched on two setpoints for automatic fill or empty in simplex (one pump or valve), duplex (two pumps) or triplex (three pumps) level control modes with selectable time delay and fail-safe logic. The embedded level controller can lower cost by replacing external control hardware. These non-contact level sensors are ideally suited for corrosive, sticky or dirty liquids, and are broadly selected for pump lift station, sump and day tank level applications.

Features

- Offered in 3 level detection ranges: 9.8 ft (3m), 18.0 ft (5.5m) and 26.2 ft (8m)
- Configuration is simple via integral pushbutton display module
- Three programmable relays for switch, pump control and fail-safety
 - 1 pump or valve with 2 alarms
 - 2 pumps (lead-lag) with 1 alarm
 - 2 pumps (duplexing) with 1 alarm
 - 3 independent outputs
- 4-20 mA output can be used to provide local or remote level detection
- LCD display indicates level height in engineering units and relay status
- Narrow 2 inch or 3 inch beam width for applications with limited measurement space
- Short 4 inch or 8 inch dead band maximizes the measureable filling capacity of the tank
- PVDF transducer and NEMA 4X / IP65 polycarbonate enclosure for corrosive liquids
- Automatic temperature compensation
- Made in the USA



Part No. LU77-5004



Part No. LU74-5004



Part No. LU78-5004

LU70 Series Technical Specifications			
Model	LU77-5004	LU74-5004	LU78-5004
Price	<--->	<--->	<--->
Range	4 in to 9.8 ft (10 cm to 3m)	8 in to 18 ft (20 cm to 5.5m)	8 in to 26.2 ft (20 cm to 8m)
Repeatability	0.25 in (6.35 mm)		
Loop Output	4-20 mA isolated, sinking 12 to 28 VDC**		
Loop Resistance	500Ω max @ 24 VDC		
Sensing Dead Band*	4 in (10 cm)	8 in (20 cm)	
Beam Width	2 in (5.1 cm)	3 in (7.6 cm)	
Configuration	Pushbutton / LCD		
Memory	Non-volatile		
Display Type	Level and relay status, 6 character		
Display Units	Inch, cm, percent, feet or meter		
LCD Indication	Level and relay status		
Supply Voltage	95 to 250 VAC (separate 12-28 VDC power supply required for 4-20 mA loop output)		
Power	20W @ 120 VAC		
Contact Type	Relay 1, SPDT relay; Relay 2 & 3, SPST, N.O., all commons connected together		
Contact Rating	2A @ 30 VDC max / 2A @ VAC max		
Terminal Block	22-14 AWG (tighten torque, 0.5 Nm)		
Contact Fail-Safe	Programmable / selectable		
Process Temperature	-4° to 140°F (-20° to 60°C)		
Temp. Compensation	Automatic		
Ambient Temperature	-40° to 160°F (-40° to 71°C)		
Pressure	30 PSI (2 bar) MAX		
Enclosure Rating	NEMA Type 4X (IP65)		
Enclosure Material	Polycarbonate		
Transducer Material	Polyvinylidene Fluoride		
Enclosure Hardware	Brass & stainless steel		
Enclosure Vent	Water tight membrane		
Conduit Entrance	Dual, 1/2" FNPT		
Process Mount	1 in MNPT (See accessories for installation fittings)	2 in MNPT (See accessories for installation fittings)	
Mount Gasket	Viton (included, replacement part number 200128)	Viton (included, replacement part number 200129)	
Weight (lbs)	1.5	2.0	
Classification	General purpose		
Compliance	CE, RoHS		

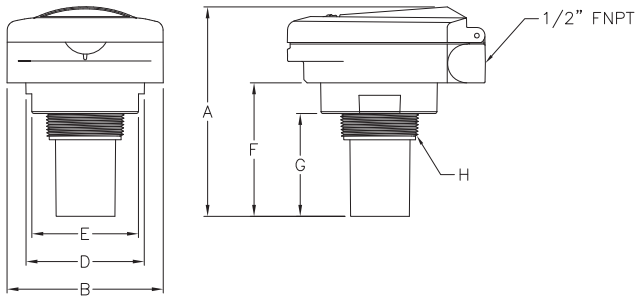
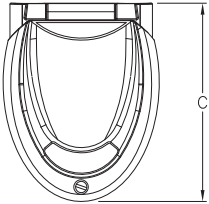
* Dead band is the minimum distance the sensor must be mounted above the max liquid level.

** If supply exceeds 28 VDC damage to the transmitter may occur (separate 12-28 VDC power supply required for 4-20 mA loop output).

EchoSwitch[®] LU Series Ultrasonic Level Sensors

Dimensions inches [mm]

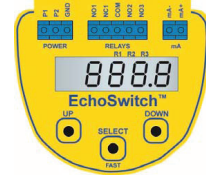
LU70 Series



Configuration

The transmitter is configured using the three buttons (UP, DOWN and SELECT) and the transmitter's LCD on the transmitters face.

More information about configuring the LU series sensors can be found at www.AutomationDirect.com

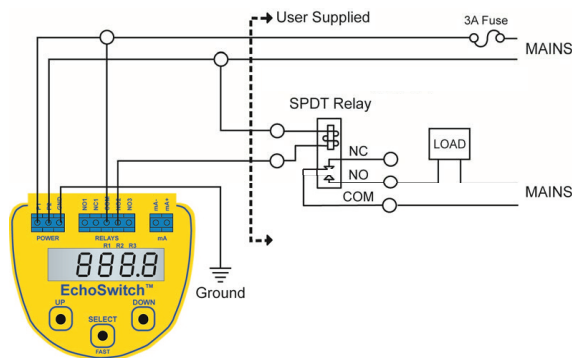


Dimensions	A	B	C	D	E	F	G	H
LU74 & LU78	5.50 [139.6]	4.10 [104.1]	5.20 [132.1]	3.10 [78.8]	2.80 [71.1]	3.50 [89.0]	2.70 [89.0]	2" MNPT
LU77	3.90 [99.1]	4.10 [104.1]	5.20 [132.1]	3.10 [78.8]	2.80 [71.1]	1.90 [48.3]	1.25 [31.8]	1" MNPT

When installing the 1" NPT level sensors care should be used to mechanically isolate the sensor housing from the tank. This can easily be done by using any of the Flowline mounting accessories which are designed to provide the isolation needed.

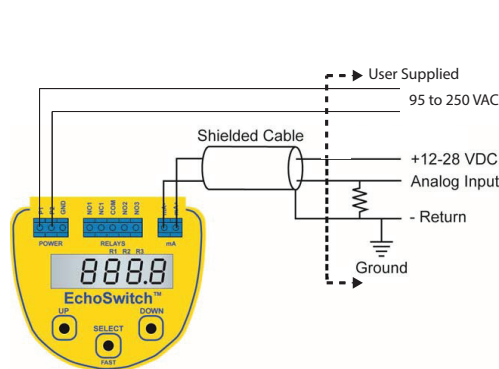
Wiring

Relay Application



Note: Isolate power to instrument from power to load (pumps, etc.) as much as possible by running power to the sensor directly from main power source. All relay commons are internally connected.

Loop Application



Note: Separate 12-28 VDC power supply is required for loop output.

Ultrasonic Liquid Level Sensor Accessories

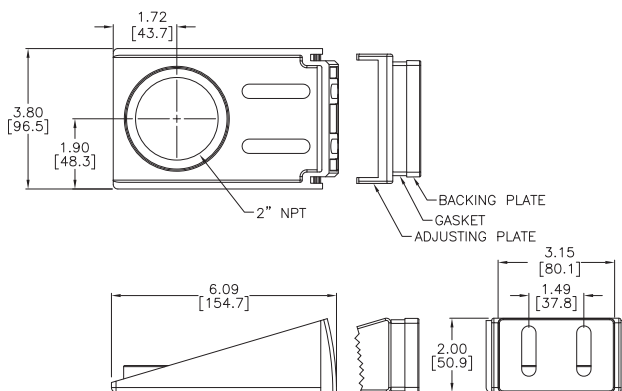
Ultrasonic Liquid Level Sensor Accessories					
Part No.	Item Photo	Description	Quantity	Weight	Price
LI40-1001		Flowline PodView general purpose digital indicator, displays tank level or volume and sensor relay status, 6-digit LCD display with four relay status indicators, 3-button user interface, polycarbonate panel mount enclosure with NEMA 4 (IP65) faceplate, 6-foot (1.8-meter) 22AWG 4-conductor cable, compatible with any Flowline EchoPod series ultrasonic level sensor with firmware V50 or later	1	0.6	<--->
LM50-1001		Flowline side mount bracket, 2 inch NPT female threads, polypropylene (PP), for use with Flowline DL34, LU20, LU23, LU28, LU29, LU74, LU78, LU81, LU83, and LU84 series ultrasonic level sensors	1	0.4	<--->
LM50-1001-1		Flowline side mount bracket, 2 inch NPT female threads, polypropylene (PP), and 2 inch NPT male x 1 inch NPT female reducer bushing (PVC), for use with Flowline DL14, DL24, DS14, DL10, DX10, LU27, LU77, and LU80 series ultrasonic level sensors	1	0.6	<--->
LM52-1400		Flowline reducer bushing, 2 inch NPT male x 1 inch NPT female threads, PVC, for use with Flowline DL14, DL24, DS14, DL10, DX10, LU27, LU77, and LU80 series ultrasonic level sensors	1	0.2	<--->
LM52-2400		Flowline reducer bushing, 3 inch NPT male x 2 inch NPT female threads, PVC, for use with Flowline DL34, LU20, LU23, LU28, LU29, LU74, LU78, LU81, LU83, and LU84 series ultrasonic level sensors	1	0.6	<--->
LM52-1890		Flowline low-profile bulkhead fitting, 1 inch NPT female x slip socket, with mounting nut, PVC, for use with Flowline DL14, DL24, DS14, DL10, DX10, LU27, LU77 and LU80 series ultrasonic level sensors	1	0.5	<--->
LM52-2890		Flowline low-profile bulkhead fitting, 2 inch NPT female x slip socket, with mounting nut, PVC, for use with Flowline DL34, LU20, LU23, LU28, LU29, LU74, LU78, LU81, LU83, and LU84 series ultrasonic level sensors	1	1.2	<--->
LM52-1850		Flowline mounting flange, 1 inch NPT female threads, PVC, for use with Flowline DL14, DL24, DS14, DL10, DX10, LU27, LU77, and LU80 series ultrasonic level sensors	1	0.5	<--->
LM52-2850		Flowline mounting flange, 2 inch NPT female threads, PVC, for use with Flowline DL34, LU20, LU23, LU28, LU29, LU74, LU78, LU81, LU83, and LU84 series ultrasonic level sensors	1	1.0	<--->
204038		Replacement mounting gasket, for use with Flowline DL14, DL10, DX10, and DS14 series ultrasonic level sensors	1	0.1	<--->
200128		Replacement mounting gasket, for use with Flowline DL24, LU27, LU77, and LU80 series ultrasonic level sensors	1	0.1	<--->
200129		Replacement mounting gasket, for use with Flowline DL34, LU23, LU28, LU29, LU74, LU78, LU81, LU83, and LU84 series ultrasonic level sensors	1	0.1	<--->

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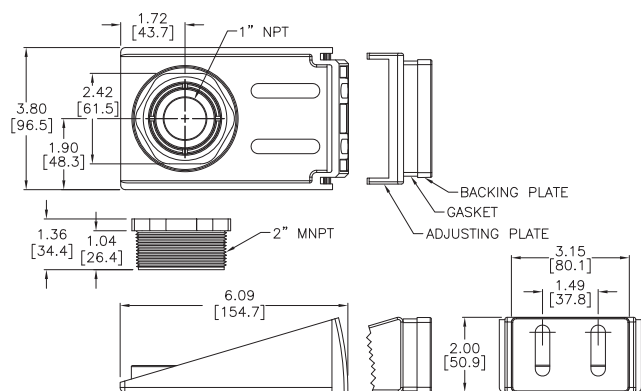
Dimensions

inches [mm]

LM50-1001



LM50-1001-1

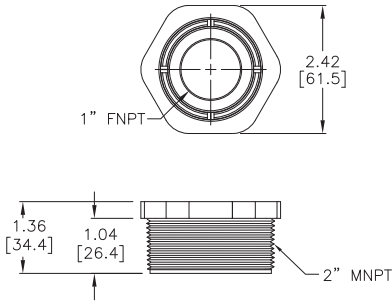


Ultrasonic Liquid Level Sensor Accessories

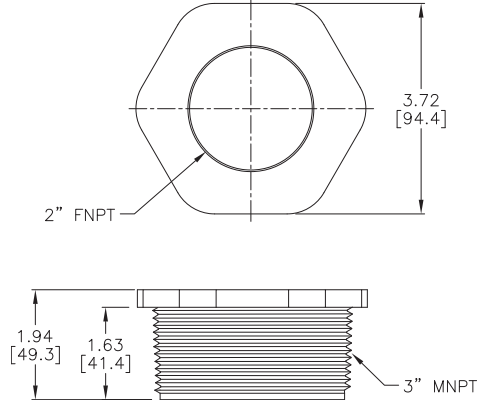
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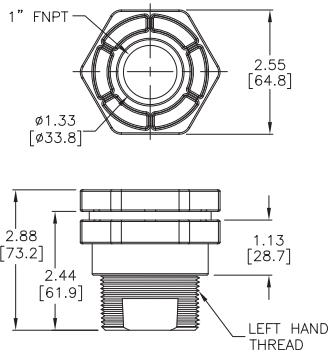
LM52-1400



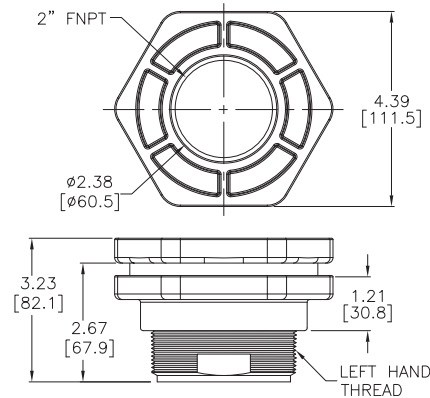
LM52-2400



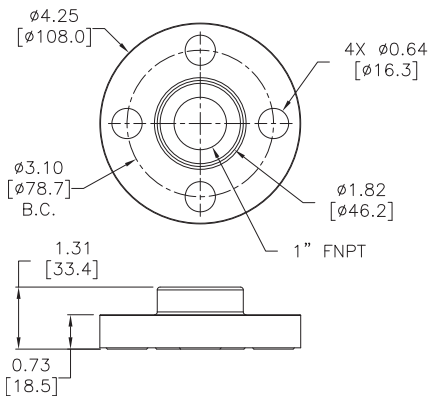
LM52-1890



LM52-2890



LM52-1850



LM52-2850

