FLOWLINE® We Do Your Level Best — EchoPod® & EchoSonic® II Ultrasonic Liquid Level Sensors

The EchoPod and EchoSonic II 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 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 four 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. PC configuration is simple with WebCal™ software.

Made in the USA

EchoPod & EchoSonic II Ultrasonic Liquid Level Sensors General Specifications

Model	DL34-00	DL24-00	DL14-00	DS14-00	DX10-00	DL10-00	LU27-00	LU23-00	LU28-00	LU29-00
Price	<--->	<--->	<--->	<--->	<--->	<--->	<--->	<--->	<--->	<--->
Type	Ultrasonic									
Class	General Purpose (non-hazardous)									
Range	8 in to 18.0 ft (20 cm to 5.5m)	4 in to 9.8 ft (10 cm to 3m)	2 in to 4.1 ft (5 cm to 1.25m)				4 in to 9.8 ft (10 cm to 3m)	8 in to 18.0 ft (20 cm to 5.5m)	8 in to 26.2 ft (20 cm to 8m)	8 in to 32.8 ft (20 cm to 10m)
Output Types	4-20 mA and (4) SPST relays			(4) SPST relays	0-5V, 0-10V, 976-2000 Hz	4-20 mA				
Install	Top Wall									
Mounting	2" NPT	1" NPT						2" NPT		
Relays	(4) SPST				No Relay					
Configuration	WebCal Software (free download) and LI99-1001 Fob USB Adapter (purchased separately)									
Ambient Temperature	-31° to 140°F (-35° to 60°C)									
Process Temperature	20° to 140°F (-7° to 60°C)						-4° to 140°F (-20° to 60°C)			
Pressure	30 PSI (2 bar) max.									
Material	PVDF transducer / NEMA Type 6P polycarbonate enclosure IP67									
Weight (lbs)	1.8	0.9	0.5	0.5	0.5	0.5	1.4	1.8	1.8	1.8

WebCal

LI99-1001

WebCal Software

WebCal PC software is a utility program that allows users to easily configure their EchoSonic II and EchoPod level transmitters, switches, and controllers. Download your free copy of WebCal at www.AutomationDirect.com, and connect your sensor through our Fob USB adapter (LI99-1001). Develop your configuration using pre-programmed function menus as the tank graphic and set point fields automatically change to match your configuration. Then, input your level set point values and click the Write to Unit button. Your configuration will be downloaded into the sensor and verified in less than a second. Last, click the Wiring Diagram button to open a wiring schematic of your configuration in PDF format. Print the document, disconnect the sensor and wire it per the schematic. It's that simple.

Configuration files can be named, saved, emailed, printed, opened and used again under revision control. The advanced feature page enables you to change the measurement signal, output filtering and invert relay states from NO to NC. As new software or firmware becomes available, they can be downloaded and updated through WebCal. Take control of your level process with WebCal software, and experience the future of level automation today.

EchoPod DS14 Ultrasonic Liquid Level Switch & Controller

DS14-00
<--->

Overview

The EchoPod DS14 ultrasonic liquid level switch provides continuous level detection up to 4.1 ft (1.25m), with 4 programmable relays for level switch or level control functions, and is configured via WebCal software. The embedded level controller can lower cost by replacing external control hardware. This non-contact liquid level sensor is ideally suited for corrosive, sticky or dirty liquids, and is broadly selected for small day tank, skid, intermediate bulk tanks, sump and process tank level applications.

Features

- Continuous level detection up to 4.1 ft (1.25m)
- Configuration is fast and easy via WebCal software and USB adapter
- Narrow 2" beam width and short 2" dead band optimized for small tanks
- Four programmable relays for switch, pump or valve control and fail-safety
  - 1 pump or valve with 3 alarms
  - 2 pumps (lead-lag) with 2 alarms
  - 2 pumps (duplexing) with 2 alarms
  - 4 independent outputs
- PVDF transducer and NEMA Type 6P polycarbonate enclosure for corrosive liquids, UV stable for outdoor use
- Automatic temperature compensation for accurate measurement
- Made in the USA

Agency Approvals

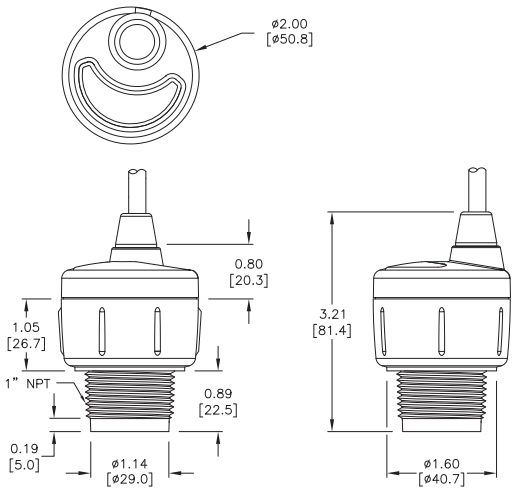
- cFMus

DS14-00 Technical Specifications	
Range	2 in to 4.1 ft (5 cm to 1.25m)
Accuracy	0.125 in (3 mm)
Resolution	0.019 in (0.5 mm)
Sensing Dead Band*	2 in (5 cm)
Beam Width	2 in (5 cm)
Configuration	WebCal Free Software and LI99-1001 USB Fob Adapter
Memory	Non-volatile
Supply Voltage	12 to 24 VAC/VDC
Consumption	0.5W
Output Type	(4) SPST relays
Contact Voltage Ratings	120 VAC/DC @ 0.5A; 30 VAC/DC @ 1A
Contact Fail-Safe	Power loss: Hold last Echo loss: Open, close or hold last
Hysteresis	Selectable
Process Temperature	20° to 140°F (-7° to 60°C)
Temp. Compensation	Automatic
Ambient Temperature	-31° to 140°F (-35° to 60°C)
Pressure	30 PSI (2 bar) MAX
Enclosure Rating	NEMA Type 6P, IP67, encapsulated, corrosion resistant & submersible, UV stable
Enclosure Material	Polycarbonate
Strain Relief Material	Santoprene
Transducer Material	PVDF
Cable Jacket Material	Polyurethane
Cable Type	9-conductor, shielded
Cable Length	48 in (1.2m)
Process Mount	1" NPT (See accessories for installation fittings)
Mount Gasket	Viton® (included, replacement part number 204038)
Weight (lbs)	0.5
Classification	General purpose
Compliance	CE, RoHS
Agency Approvals	cFMus

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

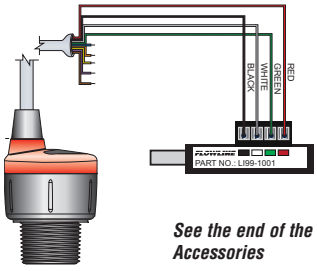
Dimensions

inches [mm]

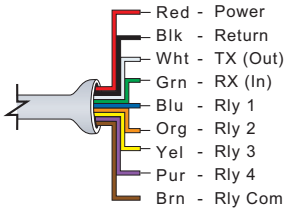


Configuration

The settings for the the DS14 are configured with free WebCal software (downloadable from AutomationDirect Web site), and an LI99-1001 Fob USB adapter (purchased separately).



Wiring



See the end of the Ultrasonic Level Sensor Section for further details and Accessories

FLOWLINE® WebCal Ultrasonic Level Sensor Software and USB Fob Adapter

We Do Your Level Best

Overview

WebCal PC software is a utility program that allows users to easily configure their EchoSonic II and EchoPod level transmitters, switches, and controllers. Download your free copy of WebCal at www.AutomationDirect.com, and connect your sensor through the Fob USB adapter (LI99-1001). Develop your configuration using pre-programmed function menus as the tank graphic and set point fields automatically change to match your configuration. Then, input your level set point values and click the Write to Unit button. Your configuration will be downloaded into the sensor and verified in less than a second. Last, click the Wiring Diagram button to open a wiring schematic of your configuration in PDF format. Print the document, disconnect the sensor and wire it per the schematic. It's that simple.

Configuration files can be named, saved, emailed, printed, opened and used again under revision control. The advanced feature page enables you to change the measurement signal, output filtering and invert relay states from NO to NC. As new software or firmware becomes available, they can be downloaded and updated through WebCal.

System Requirements

- Windows®7 - 32 or 64 bit, Vista, or XP
- 1 USB® 2.0 Port
- 10 Mb hard disk space
- 256 Mb RAM

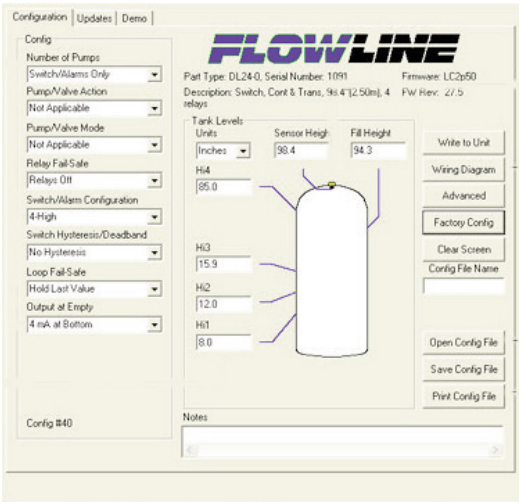
Features

- 169 configurations with pull-down menu selections
- Graphical interface lets you visualize your configuration
- Applicable level set point fields appear automatically
- Installs and tests configuration in less than a second
- Available PDF wiring diagram for each configuration
- Technical help menu with FAQs, tips and glossary
- Rapidly program sensors to the same configuration
- Save configuration files for future use or reference
- Print wiring diagrams and configuration text files
- Email configuration files to other remote users
- Made in the USA

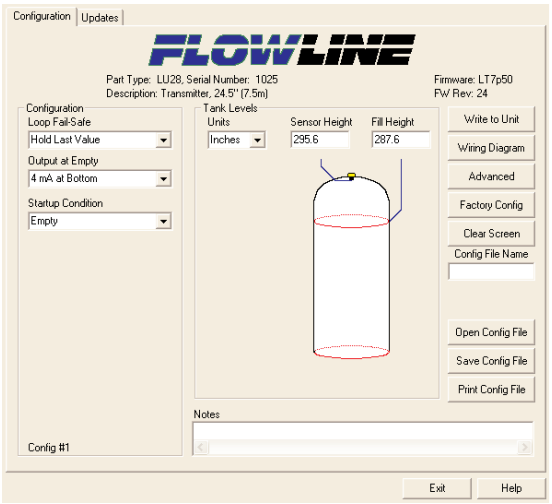
WebCal Ultrasonic Level Sensor Software and USB Adapter

Part No.	Item Photo	Description	Quantity	Weight (lbs)	Price
LI99-1001		Flowline Fob USB adapter, required for use with WebCal software to configure Flowline EchoPod and EchoSonic II ultrasonic level sensors.	1	0.1	<--->
WebCal		Configuration software CD for Flowline EchoPod and EchoSonic II ultrasonic level sensors (also available as a free download from the AutomationDirect Web site). Requires an LI99-1001 Fob USB adapter (purchased separately).	1	0.1	<--->

EchoPod Configuration



EchoSonic II Configuration



Ultrasonic Liquid Level Sensor Accessories

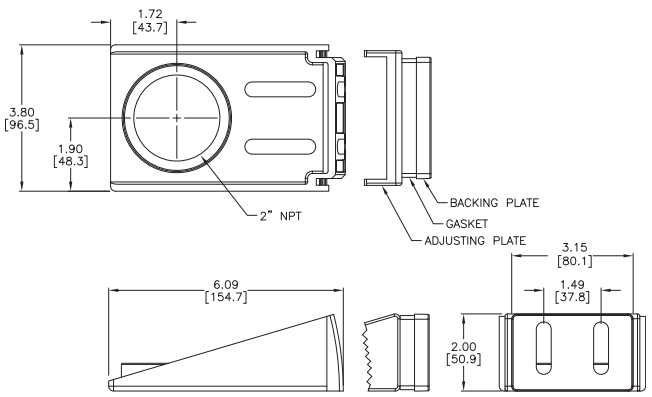
Ultrasonic Liquid Level Sensor Accessories					
Part No.	**Item Photo**	**Description**	**Quantity**	**Weight**	**Price**
LM50-1001		Flowline side mount bracket, 2 inch NPT female threads, polypropylene (PP), for use with Flowline DL34, LU23, LU28, and LU29 series ultrasonic level sensors	1	0.4	<--->
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, and LU27 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, and LU27 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, LU23, LU28, and LU29 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, and LU27 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, LU23, LU28, and LU29 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, and LU27 series ultrasonic level sensors	1	0.5	<--->
LM52-2850		Flowline mounting flange, 2 inch NPT female threads, PVC, for use with Flowline DL34, LU23, LU28, and LU29 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 and LU27 series ultrasonic level sensors	1	0.1	<--->
200129		Replacement mounting gasket, for use with Flowline DL34, LU23, LU28, and LU29 series ultrasonic level sensors	1	0.1	<--->

When installing the 1" NPT Level Sensors care should be used to 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.

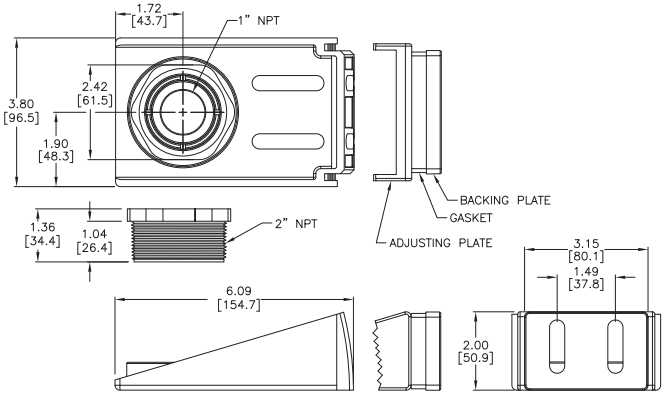
Dimensions

inches [mm]

LM50-1001



LM50-1001-1



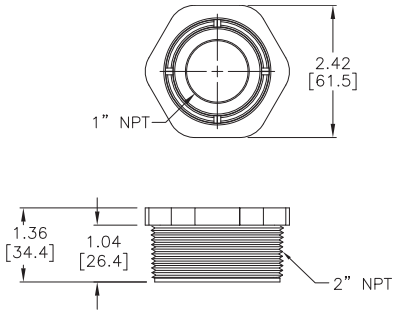
FLOWLINE® Ultrasonic Liquid Level Sensor Accessories

We Do Your Level Best

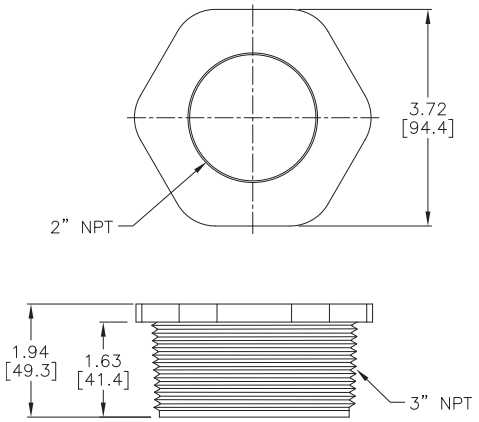
Dimensions

inches [mm]

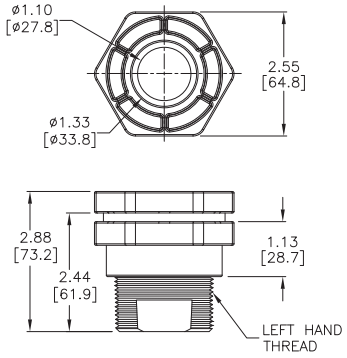
LM52-1400



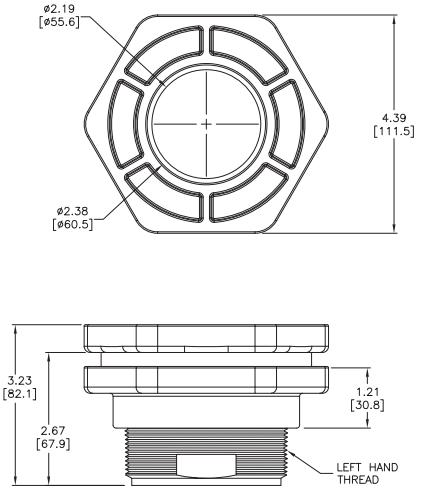
LM52-2400



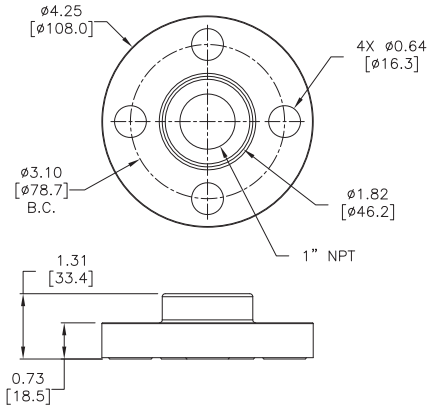
LM52-1890



LM52-2890



LM52-1850



LM52-2850