# FLOWLINE™
## LEVEL BEST

**SOFTWARE CONFIGURED**

# 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 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 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.

**2 YEAR WARRANTY**

## 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 | $800.00 | $600.00 | $450.00 | $485.00 | $400.00 | $400.00 | $750.00 | $800.00 | $995.00 | $1,145.00 |
| Type | EchoPod | | | | | | EchoSonic II | | | |
| Class | General Purpose (non-hazardous) | | | | | | | | | |
| Media* | Liquids | | | | | | | | | |
| Range | 8in to 18 ft (20cm to 5.5 m) | 4in to 9.8 ft (10cm to 3m) | 2in to 4.1 ft (5cm to 1.25 m) | | | | 4in to 9.8 ft (10cm to 3m) | 8in to 18 ft (20cm to 5.5 m) | 8in to 26.2 ft (20cm to 8m) | 8in to 32.8 ft (20cm 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 | Vertical, top of tank | | | | | | | | | |
| Mounting | 2in MNPT | 1in MNPT | | | | | | 2in MNPT | | |
| Relays | (4) SPST | | | | | | No Relay | | | |
| Configuration | WEBCAL Software (free download) and LI99-2001 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. | | | | | | | | | |

*\* Any factor that negatively affect sound's ability to travel such as, vapor, condensation, foam, turbulence, vacuum, etc., will have a negative effect on the ultrasonic sensor signal and should be avoided. For condensing environments the Flowline UG/US series of Reflective Ultrasonic Level Sensors are recommended.*

## WEBCAL Software

**FLOWLINE**
**WEBCAL**

**WEBCAL**

**LI99-2001**

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 (LI99-2001). 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. As new software or firmware becomes available, they can be downloaded and updated through WEBCAL.

*Click on the thumbnail or go to https://www.automationdirect.com/VID-LE-0003 for a short video introduction to Flowline Ultrasonic Level Switches.*

## PodView®

**LI40-1001**

The PodView digital level indicator is a low cost general purpose level indicator that displays engineering units for level or volume and shares power with an EchoPod ultrasonic sensor, including loop powered devices. The LI40 can be field mounted for local indication as well as be used to make simple setting changes to the sensor. The display can be easily attached to any EchoPod sensor that has been configured with WEBCAL 6.0 / firmware 50.0 or higher. PodView displays sensor output and can reconfigure sensor setpoints on the fly. PodView shares power with the sensor and does not require any additional outside power supply.

*Click on the thumbnail or go to https://www.automationdirect.com/VID-LE-0002 for a short video introduction to Flowline EchoTouch, EchoSpan, EchoSwitch and PodView product lines.*

# FLOWLINE™
## LEVEL BEST

**SOFTWARE CONFIGURED**

# EchoSonic II LU Series Ultrasonic Liquid Level Transmitters

## Overview

The EchoSonic II LU Series ultrasonic liquid level transmitters provide continuous level measurement up to 9.8 ft (3m), 18ft (5.5 m), 26.2 ft (8m) or 32.8 ft (10m), with a 4-20mA signal output, and are configured via WebCal software. This non-contact liquid level sensor is ideally suited for corrosive, ultrapure, sticky or dirty liquids, and is broadly selected for bulk storage, dry tank, lift station and process tank level applications.

*Part No. LU27*

*Part No. LU23/28/29*

## Features

- Continuous level measurement up to 9.8 ft (3m), 18 ft (5.5m), 26.2 ft (8m) or 32.8 ft (10m)
- DSP auto adaptive filters enable plug and play operation optimizing signal output filtering and obstacle recognition
- Configuration is fast and easy via WebCal software and USB adapter
- Narrow 2 inch or 3 inch beam width for applications with limited measurement space
- Short 4 inch or 8 inch dead band maximizes the measurable filling capacity of the tank
- PVDF transducer and NEMA Type 6P polycarbonate enclosure for corrosive liquids, UV stable for outdoor use
- Automatic temperature compensation for accurate measurement
- 2-year warranty
- **Agency Approvals**
- cFMus

RoHS  CE  FM APPROVED  2 YEAR WARRANTY

| LU20 Series Technical Specifications | | | | |
|---|---|---|---|---|
| **Model** | **LU27-00** | **LU23-00** | **LU28-00** | **LU29-00** |
| **Price** | $750.00 | $800.00 | $995.00 | $1,145.00 |
| **Range** | 4in to 9.8 ft (10cm to 3m) | 8in to 18.0 ft (20cm to 5.5 m) | 8in to 26.2 ft (20cm to 8m) | 8in to 32.8 ft (20cm to 10m) |
| **Accuracy** | ± 0.2% of range | | | |
| **Resolution** | 0.019 in (0.5 mm) | 0.039 in (1mm) | 0.079 in (2mm) | |
| **Sensing Dead Band*** | 4in (10.2 cm) | 8in (20.3 cm) | | |
| **Beam Width** | 2in (5.1 cm) | 3in (7.6 cm) | | |
| **Configuration** | WebCal Free Software and LI99-2001 Fob USB Adapter | | | |
| **Memory** | Non-volatile | | | |
| **Loop Supply Voltage** | 14 - 28 VDC1 | | | |
| **Consumption** | 0.5 W | | | |
| **Loop Resist** | 500Ω @ 24 VDC | | | |
| **Signal Output** | 4-20 mA, two-wire | | | |
| **Signal Invert** | 4-20 mA or 20-4 mA | | | |
| **Signal Fail-Safe** | 4mA, 20mA, 21mA, 22mA or hold last | | | |
| **Process Temperature** | -4° to 140°F (-20° to 60°C) | | | |
| **Temp. Compensation** | Automatic | | | |
| **Ambient Temperature** | -31° to 140°F (-35° to 60°C) | | | |
| **Pressure** | MWP = 30 PSI (2 bar) | | | |
| **Enclosure Rating** | NEMA Type 6P, IP67, encapsulated, corrosion resistant & submersible, UV stable | | | |
| **Enclosure Material** | Polycarbonate | | | |
| **Transducer Material** | Polyvinylidene Flouride | | | |
| **Cable Jacket Material** | Polyurethane | | | |
| **Cable Type** | 4-conductor, shielded | | | |
| **Cable Length** | 10ft (3m) | | | |
| **Process Mount** | 1in MNPT (See accessories for installation fittings) | 2in MNPT (See accessories for installation fittings) | | |
| **Mount Gasket** | Viton (included, replacement part number 200128) | Viton (included, replacement part number 200129) | | |
| **Weight (lbs)** | 1.4 | 1.8 | 1.8 | 1.8 |
| **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.*

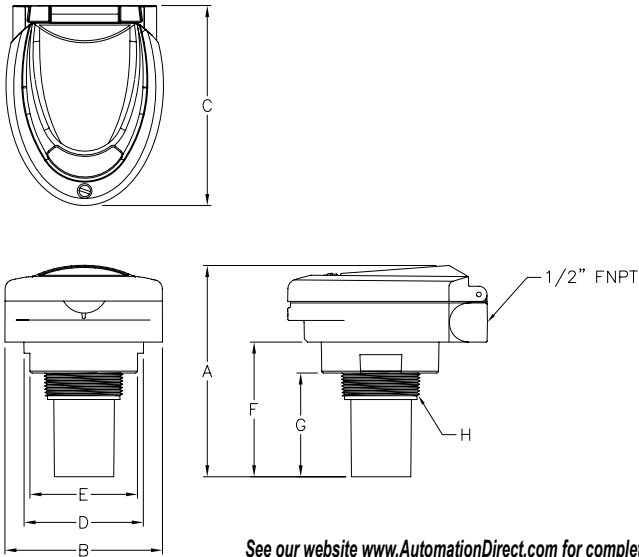*1 If supply exceeds 28 VDC damage to the transmitter may occur.*

**FLOWLINE™** LEVEL BEST

# EchoSonic II LU Series Ultrasonic Liquid Level Transmitters

## Dimensions

**inches [mm]**

### LU20 Series

*See our website www.AutomationDirect.com for complete Engineering drawings.*

| Dimensions | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| LU27 | 2.71 [68.9] | 4.00 [101.7] | 4.10 [104.1] | 3.10 [78.8] | 2.75 [69.7] | 1.70 [43.1] | 1.10 [28.0] | 1" MNPT |
| LU23, 28, & 29 | 4.31 [109.6] | 4.00 [101.7] | 4.10 [104.1] | 3.10 [78.8] | 2.75 [69.7] | 3.30 [83.8] | 2.70 [68.7] | 2" 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

### LU27

Power - Red
Return (4-20 mA loop output) - Black
Tx (out) - Green
Rx (in) - White
Shield

### LU23, LU28, LU29

Power - Red
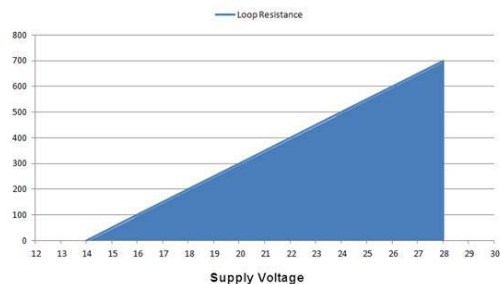Return (4-20 mA loop output) - Black
Rx (in) - White
Tx (out) - Green
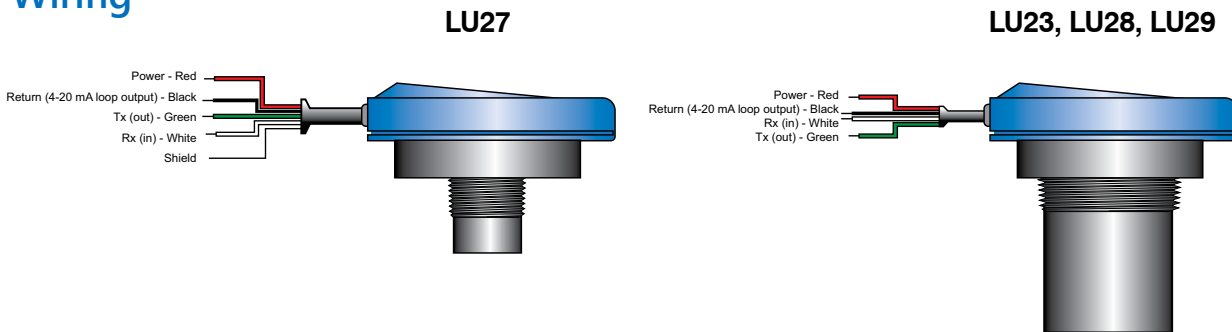
## Configuration

The settings for the the LU series are configured with free WebCal software (downloadable from AutomationDirect Web site) and an LI99-2001 Fob USB adapter (purchased separately).

**FLOWLINE**
PART NO.: LI99-1001

BLACK
WHITE
GREEN
RED
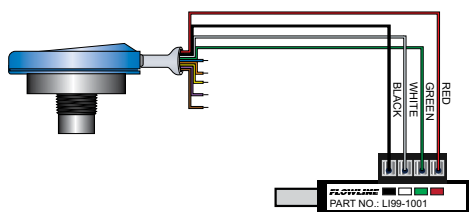
Maximum Loop Resistance in Ω
— Loop Resistance

Supply Voltage

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

**FLOWLINE** ™
LEVEL BEST

# WebCal Ultrasonic Level Sensor Software and USB Fob Adapter

## Overview

WEBCAL PC software is a utility program that allows users to easily configure their EchoPod, EchoTouch and EchoSonic II level transmitters, switches, and controllers. Download your free copy of WEBCAL at www.AutomationDirect.com, and connect your sensor through the Fob USB adapter (LI99-2001). 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 N.O. to N.C. As new software or firmware becomes available, they can be downloaded and updated through WEBCAL.

## 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
- Please check www.automationdirect.com for the most recent system requirments.

| WebCal Ultrasonic Level Sensor Software and USB Adapter | | | | | | |
|---|---|---|---|---|---|---|
| Part No. | Item Photo | Description | Quantity | Weight (lbs) | Price |
| LI99-2001 | | Flowline Fob USB adapter, required for use with WebCal software to configure Flowline EchoPod, EchoTouch and EchoSonic II ultrasonic level sensors. | 1 | 0.1 | $65.00 |
| WEBCAL | FLOWLINE WEBCAL | Configuration software for Flowline EchoPod, EchoTouch and EchoSonic II ultrasonic level sensors. Requires an LI99-2001 Fob USB adapter (purchased separately). | 1 | 0.1 | Free Download |

### EchoPod Configuration
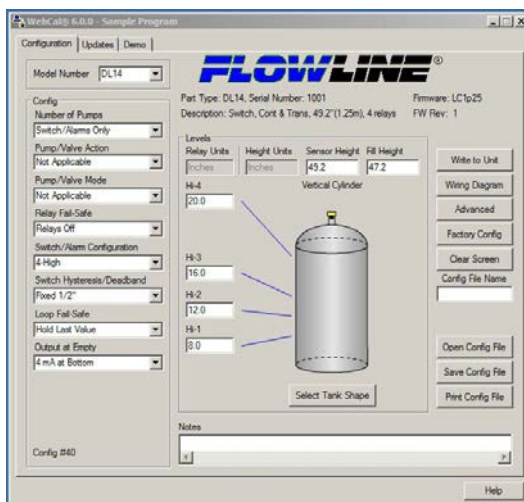


### EchoSonic II Configuration
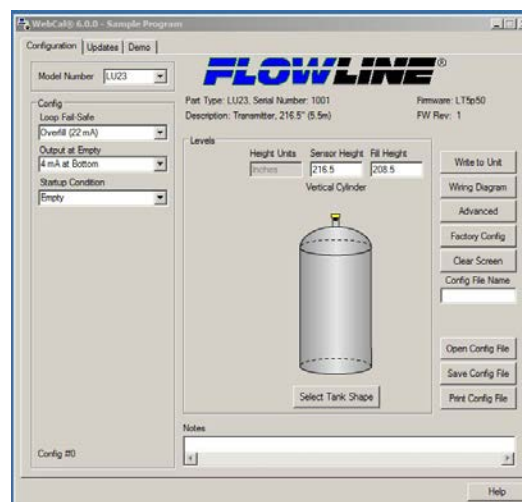




*Click on the thumbnail or go to https://www.automationdirect.com/VID-LE-0004 for Part 1 of our How To video on the use of the Flowline Ultrasonic Level Sensors*



*Click on the thumbnail or go to https://www.automationdirect.com/VID-LE-0005 for Part 2 of our How To video on the use of the Flowline Ultrasonic Level Sensors*