

## Technical Support

For complete product documentation, video training, and technical support, go to [www.flowline.com](http://www.flowline.com).

For phone support, call 562-598-3015 from 8am to 5pm PST, Mon - Fri.  
(Please make sure you have the Part and Serial number available.)

Flowline Inc. 10500 Humbolt St, Los Alamitos, CA 90720

# FLOWLINE®

### Warranty

Flowline warrants to the original purchaser of its products that such products will be free from defects in material and workmanship under normal use and service in accordance with instructions furnished by Flowline for a period, which is equal to the shorter of one year from the date of purchase of such products or two years from the date of manufacture of such products. Flowline's obligation under this warranty is solely and exclusively limited to the repair or replacement, at Flowline's option, of the products or components, which Flowline's examination determines to its satisfaction to be defective in material or workmanship within the warranty period. Flowline must be notified pursuant to the instructions below of any claim under this warranty within thirty (30) days of any claimed lack of conformity of the product. Any product repaired or replaced under this warranty will be warranted only for the remainder of the original warranty period.

### Returns

Products cannot be returned to Flowline without Flowline's prior authorization. To return a product that is thought to be defective, go to [www.flowline.com](http://www.flowline.com), and submit a customer return (MRA) request form and follow the instructions therein. All warranty and non-warranty product returns to Flowline must be shipped prepaid and insured. Flowline will not be responsible for any products lost or damaged in shipment.

### Limitations

This warranty does not apply to products which: 1) are beyond the warranty period or are products for which the original purchaser does not follow the warranty procedures outlined above; 2) have been subjected to electrical, mechanical or chemical damage due to improper, accidental or negligent use; 3) have been modified or altered; 4) anyone other than service personnel authorized by Flowline have attempted to repair; 5) have been involved in accidents or natural disasters; or 6) are damaged during return shipment to Flowline. Flowline reserves the right to unilaterally waive this warranty and dispose of any product returned to Flowline where: 1) there is evidence of a potentially hazardous material present with the product; or 2) the product has remained unclaimed at Flowline for more than 30 days after Flowline has dutifully requested disposition. This warranty contains the sole express warranty made by Flowline in connection with its products. ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED. The remedies of repair or replacement as stated above are the exclusive remedies for the breach of this warranty. IN NO EVENT SHALL FLOWLINE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND INCLUDING PERSONAL OR REAL PROPERTY OR FOR INJURY TO ANY PERSON. THIS WARRANTY CONSTITUTES THE FINAL, COMPLETE AND EXCLUSIVE STATEMENT OF WARRANTY TERMS AND NO PERSON IS AUTHORIZED TO MAKE ANY OTHER WARRANTIES OR REPRESENTATIONS ON BEHALF OF FLOWLINE. This warranty will be interpreted pursuant to the laws of the State of California. If any portion of this warranty is held to be invalid or unenforceable for any reason, such finding will not invalidate any other provision of this warranty.



**Model: LU81/83/84-51\_1**

**EchoSpan®**

**Quick Start**

QS301550 Rev. C  
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## Welcome to the EchoSpan® Quick Start

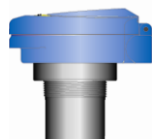
The EchoSpan® Quick Start is meant to show some of the more common setup solutions to getting the EchoSpan® up and running quickly. If you run into an issue that is not addressed here or wish to install or set up with a non-standard configuration, please address the EchoSpan® Manual or refer to the Flowline website at [www.flowline.com](http://www.flowline.com).

## We Do Your Level Best

Thank you for purchasing Flowline's EchoSpan®. The EchoSpan® provides a 4-20 mA analog output with integrated LCD and three push-button configuration. This Quick Start includes everything you'll need to get the transmitter up and running. For complete information, please refer to EchoSpan® documentation located at [www.flowline.com](http://www.flowline.com).

## Components

Depending on the model shipped to you, you should have the components shown below. Both components – the EchoSpan® and Viton® gasket – are required to install the EchoSpan®.



EchoSpan®  
LU81-5101  
LU81-5161  
LU83-5101  
LU83-5101  
LU84-5101  
LU84-5161

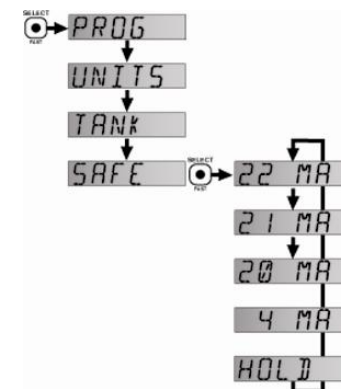


Viton® gasket  
Part#: 200129 (2")

## Select Fail Safety Output

In the event the transmitter does not receive an echo, the Select Fail Safety Output setting can be set either to 22mA, 21mA, 20mA or HOLD the last value to achieve the desired fail-safe condition. During fail-safe, the display will read LOST.

- 1) Enter the configuration menu (as discussed previously),
- 2) Select **SAFE** from the menu,
- 3) Select an output option, such as **22mA**, **21mA**, **20mA**, **4mA**, or **HOLD**, and
- 4) Select **EXIT** to return to the Configuration menu.

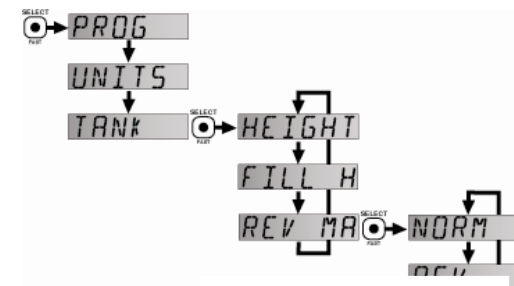


Select Fail Safety Output

## Reverse 4-20 mA Signal

The transmitter allows you to switch the 4-20 mA value at the top and bottom of the application. By default, 4mA is configured as the bottom and 20mA is configured as the top. The transmitter displays this as NORM. Follow these instructions to reverse this setting:

- 1) Enter the configuration menu (as discussed previously),
- 2) Select **TANK** from the menu,
- 3) Select **Rev MA** from the menu,
- 4) Then, select **Rev** from the menu, and
- 5) Select **EXIT** to return to the Configuration menu.



Reverse 4-20 mA Signal

## Troubleshooting

If you face any issues not addressed in this quick start, please refer to the EchoSpan® Manual located on Flowline website at [www.flowline.com](http://www.flowline.com).

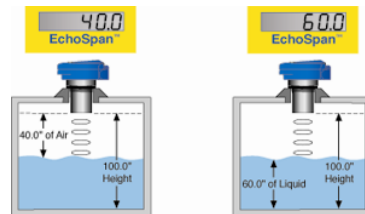
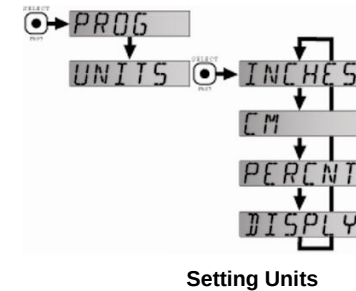
## Set Units

The transmitter displays information in inches, feet, centimeters, meters, or percentages. This can be displayed to represent the amount of air or the amount of liquid in a tank.

Air Display Mode shows the distance from the bottom of the sensor to the liquid surface. Liquid Display mode show the distance from the liquid surface to the bottom of the tank.

Follow these instructions to set how units are displayed:

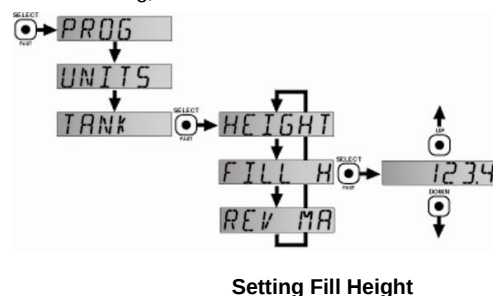
- 1) Enter the configuration menu (as discussed previously),
- 2) Select **UNITS** from the menu,
- 3) Select the type of unit or the type of **DISPLAY** you desire, and
- 4) Select **EXIT** to return to the Configuration menu.



## Set Height and Fill Height

This setting customizes the reading for your installation. Follow these instructions to set the height and fill height for your tank:

- 1) Enter the configuration menu (as discussed previously),
- 2) Select **TANK** from the menu,
- 3) Select **HEIGHT**. Use the UP and DOWN buttons to set the height of your tank. Then, hold down the **SELECT** button to save this setting,
- 4) Select **FILL-H** for the fill height. Use the UP and DOWN buttons to set the fill height of your tank. Then, hold down the **SELECT** button to save this setting, and
- 5) Select **EXIT** to return to the Configuration menu.



## Mounting the Transmitter

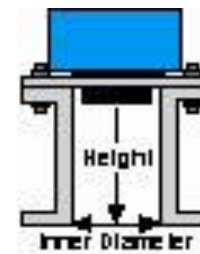
The transmitter should always be mounted perpendicular to the liquid surface using the provided Viton® mounting gasket. Insure that there are no restrictions or obstacles in the path of the ultrasonic signal. Further mounting information can be found on the Flowline website at [www.flowline.com](http://www.flowline.com).

The LU81, 83, & 84 has a 2" NPT or G fitting that can be installed in standard 2" tank adapters. It is best to keep the height of any adapter to a minimum with 6" being the absolute maximum for a 2" riser. The LM-1001 is a good choice for sidewall mount applications.

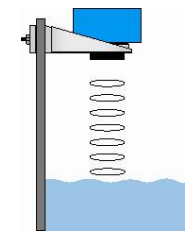
**Mounting with a Tank Adapter:** Select a tank adapter fitting, such as the LM52-2890.

**Mounting with a Riser:** As installations with tall, narrow risers can impede the acoustic signal. 2" diameter risers should be no taller than 5". Larger diameter risers should be no taller than 12".

**Mounting with a Side Mount Bracket:** Use Flowline's LM50-1001 side mount bracket.

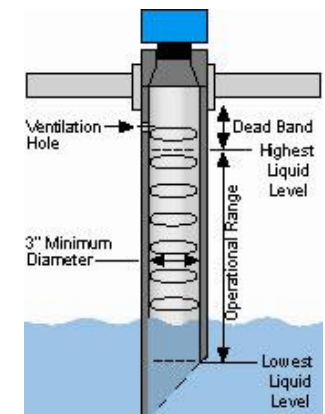


**Riser Mounting**



**Side Mounting**

**Mounting with a Stand Pipe:** A standpipe may be used to dampen turbulence, separate surface foam from the point of measurement or increase performance in heavy vapor. Select a 2" pipe and attach the transmitter with a coupling and reducer bushing. The pipe length should run the measurement span and the bottom of the pipe should remain submerged at all times to prevent foam from entering the pipe. Cut the bottom end of the pipe at 45° and drill a 1/4" pressure equalization hole high in the dead band. The pumps should not drive liquid past the open end of the standpipe which causes the liquid in the pipe to oscillate.



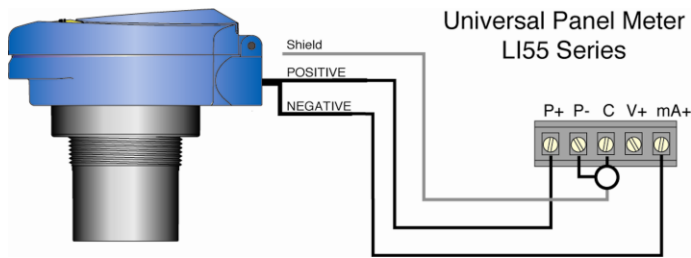
## Mounting with a Standpipe

### IMPORTANT MOUNTING GUIDELINES:

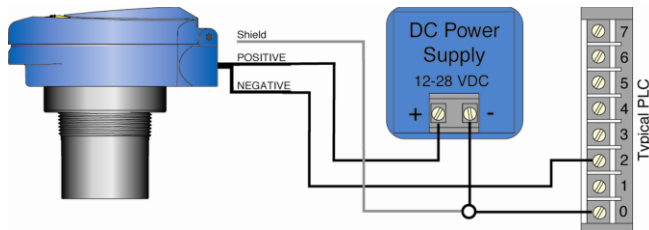
- 1) Never mount the sensor at an angle.
- 2) Liquid should never enter the dead band.
- 3) Mount at least 3" from the side wall.
- 4) Never mount in a vacuum.
- 5) Do not obstruct the sensor's 3" beam width.
- 6) Isolate air gaps between inner and outer threads for best performance.

### Wiring the Transmitter

The following wiring diagrams can be used when wiring the transmitter.



Wiring Schematic for Flowline DataView L155



Wiring Schematic for Typical PLC

### Some final notes on safety:

- Where personal safety or significant property damage can occur due to a spill, the installation must have a redundant backup safety system.
- Wiring should always be completed by a licensed electrician.
- Supply voltage should never exceed 28 VDC.
- The sensor must be chemically compatible with the application.
- Design a fail-safe system for possible sensor and/or power failure.
- Never use the sensor in classified hazardous environments.

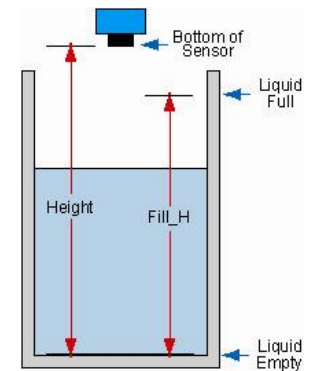
### Configuring the Transmitter

The transmitter features a non-volatile memory, and can be configured prior to installation. Your configuration will not be lost when the transmitter is powered down.

Before configuring, be sure to have the following information:

**Height.** This is the distance from the transducer face to the bottom of the tank.

**Fill Height (Fill-H).** This is the distance from the highest level of liquid to the bottom of the tank



Height and Fill Height

### Configuration Menu

The transmitter is configured with the three buttons on the transmitter's face (**UP**, **DOWN** and **SELECT**) and the transmitter's LCD. To access the transmitter's configuration menu, simply hold down the SELECT button for five seconds or until the menu is displayed. When the SELECT button is released, the display menu will begin to scroll through the uppermost level of the configuration menu.

When the menu scrolls to an item you wish to configure, simply press the SELECT button again when that item appears. Once you've made your configuration changes, press SELECT again when "Exit" appears to scroll through the options and once more while RUN appears in the display. This will return the transmitter to its operational mode.



Transmitter Interface