

LU80 Series Quick Start



©2016 Flowline, Inc.
All Rights Reserved
Made in USA

WELCOME TO THE ECHOSPAN® QUICK START

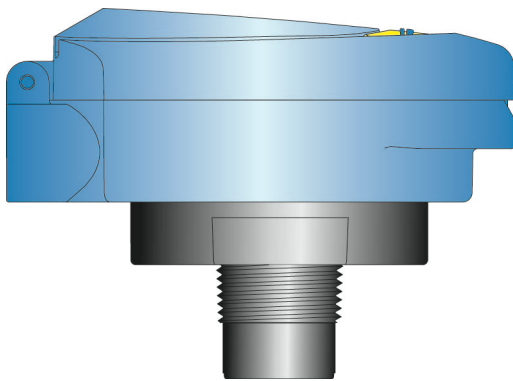
The EchoSpan® Quick Start provides basic setup and mounting instructions for getting EchoSpan® up and running quickly. If you have a non-standard installation or setup requirement that is not addressed here, please refer to the EchoSpan® Manual or support documentation at flowline.com.

WE DO YOUR LEVEL BEST™

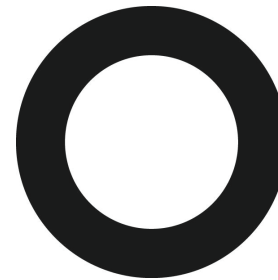
Thank you for purchasing EchoSpan®. The general purpose ultrasonic level sensor provides non-contact measurement up to 9.8' (3m) with an integral LCD display and push-button menu configuration. This Quick Start includes everything you'll need to get the sensor up and running.

COMPONENTS

EchoSpan® comes with a Viton® gasket for installation and the Quick Start.



EchoSpan®
LU80-5101 & LU80-5161



Viton® gasket (1")
P/N: 200128

Enclosure

While the enclosure is liquid-resistant, EchoSpan® is not designed to be submersed, and should be mounted in such a way that the enclosure and transducer do not come into contact with the application media under normal operational conditions. The enclosure has a flip cover with dual 1/2" NPT female conduit ports and an internal terminal strip for wiring. Before closing the enclosure, make sure that the enclosure gasket is properly seated and that any conduit fittings, cable connectors or plugs are installed and sealed correctly.

Note: If using the Flowline LM90-1001 liquid tight fitting on the 1/2" conduit, the cable O.D. minimum is 0.170" (4.3mm) and the maximum is 0.450" (11.4mm).

MOUNTING ECHOSPAN®

The sensor should always be mounted perpendicular to the liquid surface using the provided Viton® mounting gasket. Make sure that there are no restrictions or obstacles in the path of the acoustic signal. For further mounting information, please refer to the EchoPod® Manual at flowline.com.

EchoSpan® has 1" NPT or G threads and requires care in fitting selection and mounting to reduce any coupling of the ultrasonic signal to the mounting structure. The below fittings are recommended.

- **Installation in Existing 2" Fittings:** Use a LM52-1400 2" thread x 1" thread adapter or a LM52-1410 2" slip x 1" thread adapter. **Note:** Adapters with air gaps around the 1-inch threads are recommended.
- **Installation in Plastic Tanks:** Use the LM52-1890 1" bulkhead fitting; or a larger bulkhead fitting such as the LM52-2890 with a reducer bushing such as the LM52-1400; or weld a plastic 1" half coupling to the tank top.
- **Installation in Metal Tanks:** Use the LM52-1890 bulkhead fitting; or a flange with a 1" riser such as the LM52-1850 (where the threads are above the plane of the flange); or a larger flange and add a reducer bushing such as the LM52-1400. **Note:** Do not use a blind flange with a tapped 1" thread. While installations directly into a 1" metal fitting are not recommended, acceptable results may be obtained if the fitting is a half coupling and the outer diameter of the coupling is tightly wrapped with vinyl tape.
- **Installation in Open Tanks or Sumps:** Use Flowline's LM50-1001-1 side mount bracket. **Note:** The bracket is not designed for use with stand-pipes.



LM52-1400



LM52-1410



LM52-2890



LM52-1850



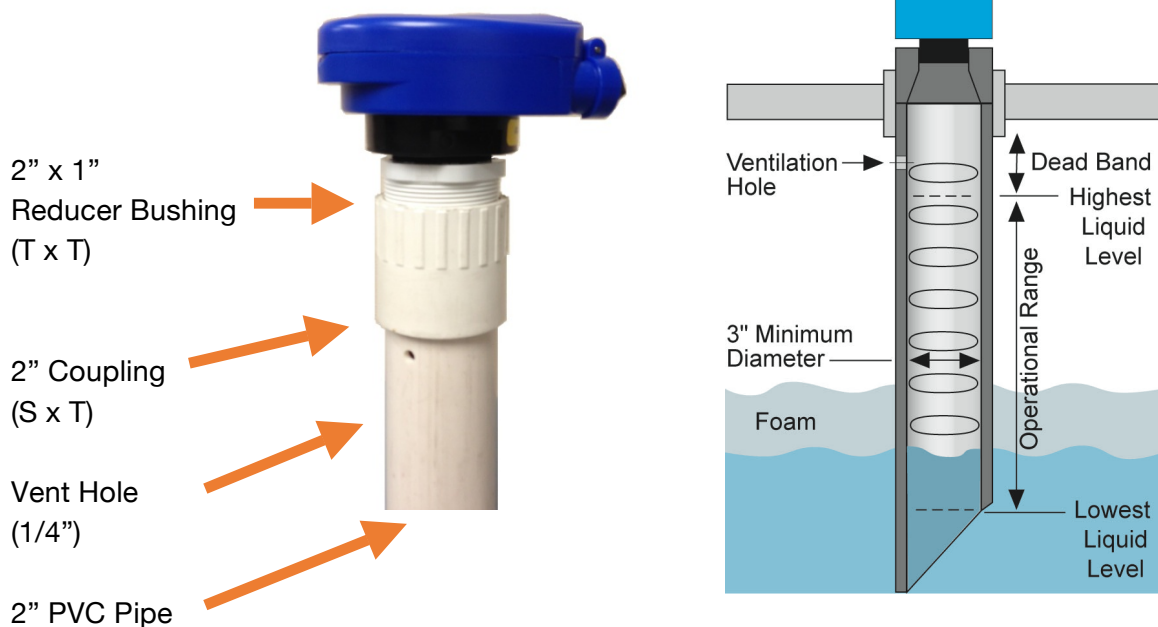
LM50-1001

Mounting Guidelines

1. Never mount the sensor at an angle.
2. Liquid should never enter the sensor dead band.
3. Mount the sensor at least 2" from the side wall.
4. Never mount the sensor in a vacuum.
5. Do not obstruct the sensor beam width.

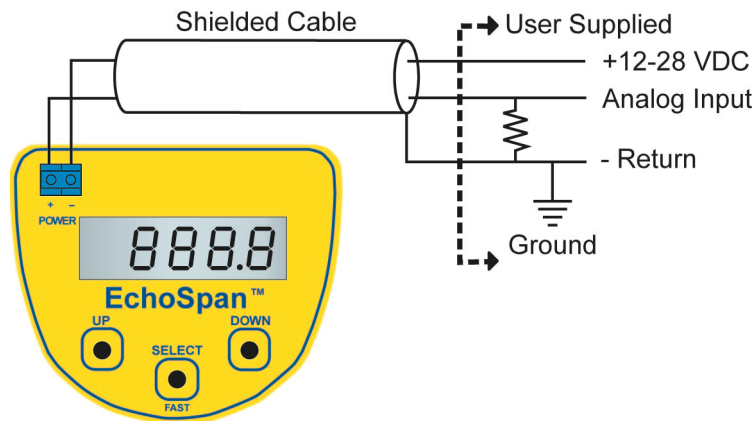
Stand-Pipe Installation

A stand-pipe may be used to dampen turbulence, separate surface foam from the point of measurement or increase performance in heavy vapor. When mounting the sensor in a stand-pipe, the minimum diameter of the pipe is 2". Larger diameter pipes can be used. The pipe should be attached 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 sensor's dead band. Locate the stand-pipe away from pump outlets and/or other sources of substantial turbulence which might cause the liquid in the pipe to oscillate.



WIRING ECHOSPAN®

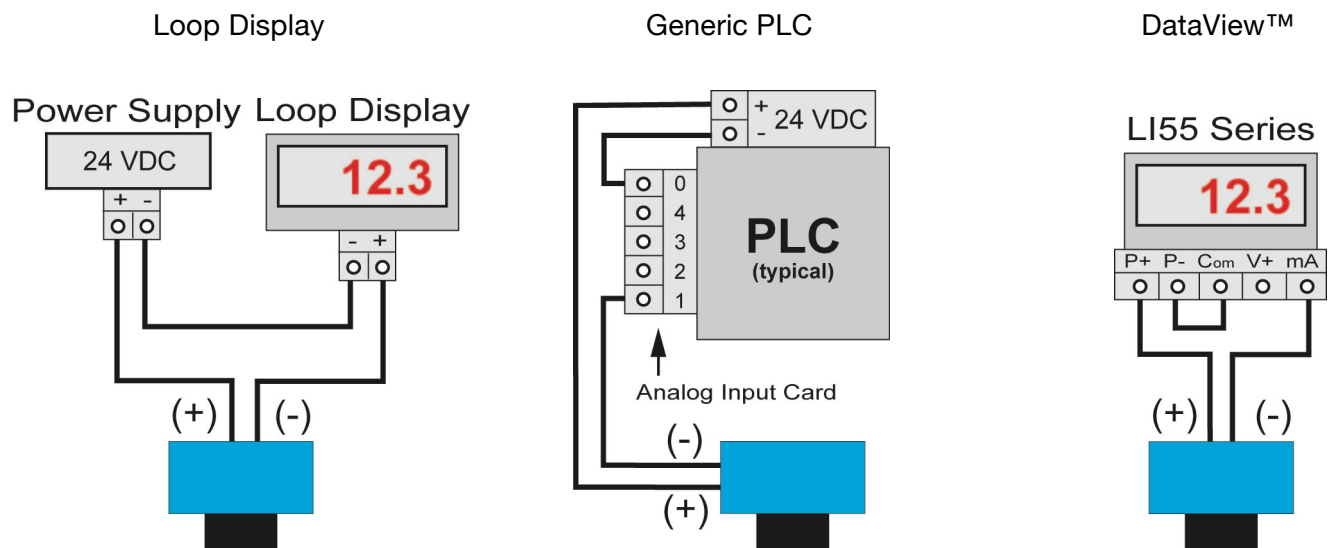
The following wiring diagram can be used to wire the 4-20 mA output of the EchoSpan®.



Electrical Connections, Usage and Safety

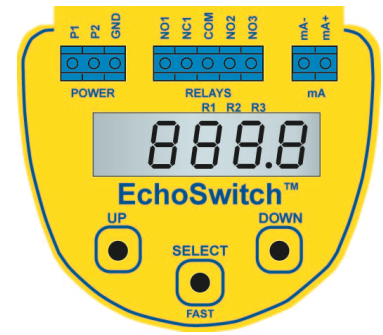
- Where personal safety or significant property damage can occur due to a spill, the installation must have a redundant backup safety system.
- Wiring should always be completed by a licensed electrician.
- The sensor must be chemically compatible with the application.
- Design a fail-safe system for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

Wiring to Common Devices



CONFIGURING ECHOSPAN®

EchoSpan® is configured using the three buttons on the sensor faceplate (**UP**, **DOWN** and **SELECT**) and the LCD. To access the sensor's TOP-LEVEL MENU, hold down the **SELECT** button for five seconds. The display menu will automatically begin to scroll through the TOP-LEVEL MENU.



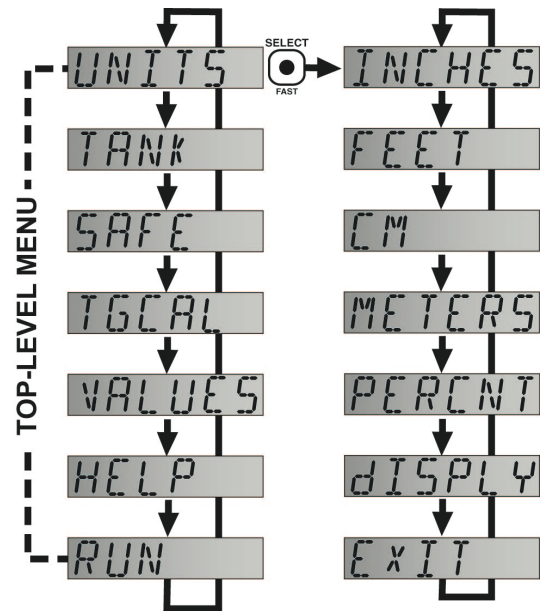
When the menu scrolls to an item you wish to configure, press the SELECT button to choose that item. The TOP-LEVEL MENU will continue to scroll through **UNITS – TANK – SAFE – TGCAL – VALUES – HELP – RUN**. If you miss your selection, it will appear again shortly.

- To return to the TOP-LEVEL MENU, press SELECT when **EXIT** appears.
- To return to the Operational Mode, press SELECT when **RUN** appears in the TOP-LEVEL MENU.
- **Note:** To speed up the scrolling of the values on the display, hold down the SELECT button while holding down the **UP** or **DOWN** buttons.

Units Configuration

EchoSpan® displays information in inches, feet, centimeters, meters or percentage of span. The value shown on the display represents the amount of liquid in the tank.

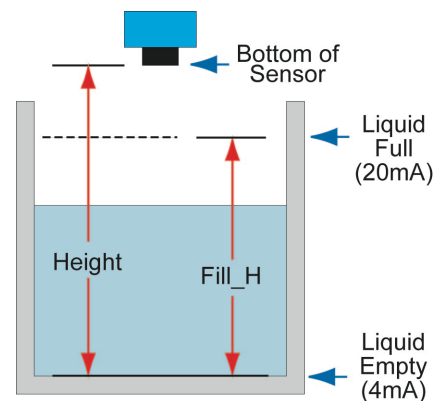
- 1) In TOP-LEVEL MENU mode, select **UNITS**.
- 2) Select the desired unit of measurement in **INCHES**, **FEET**, **CM**, **METERS** or **PERCNT**.
- 3) Select **EXIT** to return to the TOP-LEVEL MENU.



Sensor Height and Fill Height Definition

The HEIGHT and FILL H settings determine the 4 to 20 mA current span. As shown to the right, the Height setting reflects the typical 4mA **empty** position and the Fill H setting reflects the typical 20 mA **full** position.

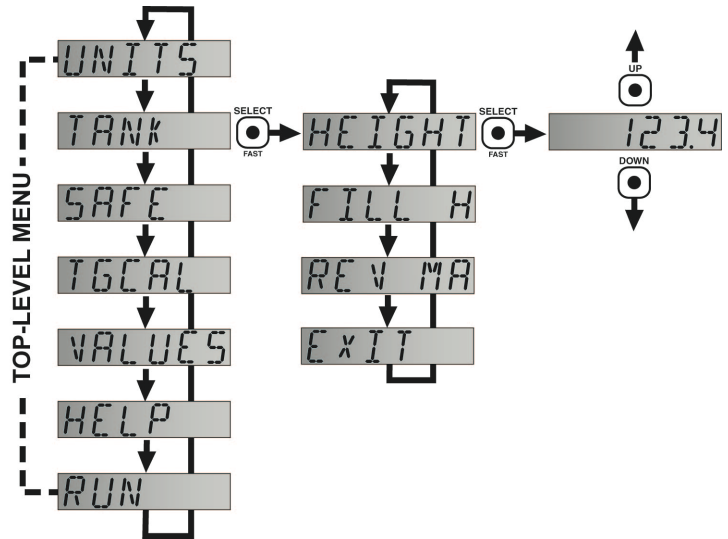
- HEIGHT - Defined as the distance from the transducer face to the bottom of the tank.
- FILL H – Defined as the maximum fill height of the liquid from the bottom of the tank.



Sensor Height and Fill Height Configuration

The HEIGHT and FILL H settings determine the 4 to 20 mA current span. Follow these instructions to set the HEIGHT and FILL H for your tank:

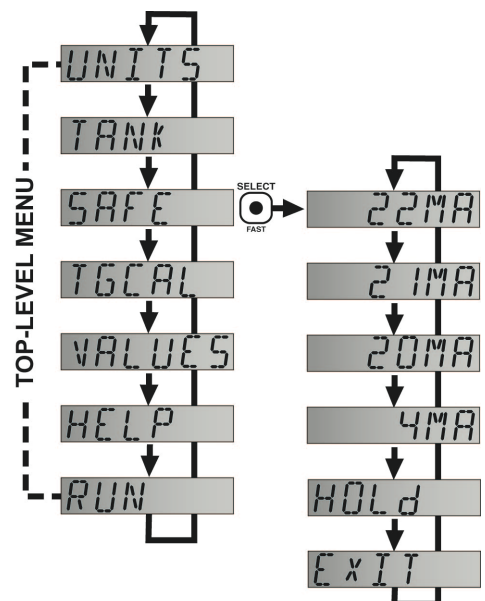
- 1) In the TOP-LEVEL MENU mode, select **TANK**.
- 2) Select **HEIGHT**.
- 3) Use the **UP** and **DOWN** buttons to set the HEIGHT of your tank.
- 4) To enter the value, press and hold **SELECT** for 2 seconds and release. **SAVED** will display. HEIGHT is now set.
- 5) Select **FILL H**.
- 6) Use the **UP** and **DOWN** buttons to set the FILL H of your tank.
- 7) To enter the value, press and hold **SELECT** for 2 seconds and release. **SAVED** will display. FILL H is now set.
- 8) Select **EXIT** to return to the TOP-LEVEL MENU.
- 9) Select **RUN** to return to the Operational Mode.



Fail-Safe Output / LOST Configuration

If the sensor does not receive a valid echo return, the Fail-Safe Current Output or **LOST** setting can be set to output a current of **4mA**, **20mA**, **21mA**, **22mA** or **HOLD** (on the last known value). During the fail-safe condition, the display will read **LOST**.

- 1) In TOP-LEVEL MENU mode, select **SAFE**.
- 2) Select **4mA**, **20mA**, **21mA**, **22mA** or **HOLD**. **SAVED** will display.
- 3) Select **EXIT** to return to the TOP-LEVEL MENU.



TROUBLESHOOTING

If you face issues not addressed in this Quick Start, please refer to the EchoSpan® Manual located at flowline.com.

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 of 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 under this warranty will be warranted only for the remainder of the original warranty period. Any product provided as a replacement under this warranty will be warranted for the full two years from the date of manufacture.

RETURNS

Products cannot be returned to Flowline without Flowline's prior authorization. To return a product that is thought to be defective, go to 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.

For complete product documentation and technical support, go to flowline.com. For phone support, call 562-598-3015 from 8am to 5pm PST, Monday-Friday. Please have the Part and Serial number available.