

## XP88 & XP89 Series Quick Start



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## WELCOME TO THE ECHOSAFE® QUICK START

The EchoSafe® Quick Start provides basic mounting, setup and use instructions for getting the EchoSafe® up and running quickly. If you have a non-standard installation or setup requirement that is not addressed here, please refer to the EchoSafe® Manual or other support documentation located at [flowline.com](http://flowline.com).

## WE DO YOUR LEVEL BEST

Thank you for purchasing EchoSafe®. The sensor provides integrated LCD and three push-button configuration. This quick start includes everything you'll need to get the sensor up and running.

## COMPONENTS

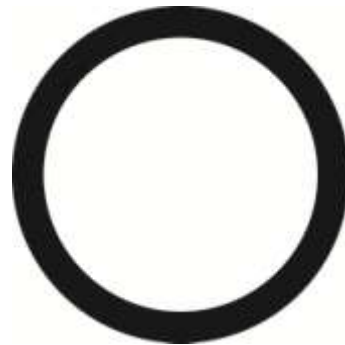
Depending on how the sensor part number that was shipped, EchoSafe® comes with a Viton® gasket for installation and the Quick Start.



EchoSafe®  
XP88-0 & XP89-0

### Proper Installation & Handling

Only properly trained staff should install and/or repair this product. Never over tighten the transmitter within the fitting. Always check for leaks prior to system start-up.



Viton® gasket (2")  
P/N: 200129



### Opening the Enclosure:

The EchoSafe® is designed to be installed in hazardous areas and should never be opened while power is applied. Always disconnect the EchoSafe's power source prior to opening, programming, installing, or removing. Additionally, ensure that electrical wiring, fittings and mechanical connections conform to all applicable electrical codes.



### Handling Static-Sensitive Surfaces/Devices

Follow the guidelines below to reduce any possible electrostatic charge build-up when handling the EchoSafe®:

1. Always touch a reliable ground source before handling the EchoSafe®. This should be repeated while handling the EchoSafe® and more frequently after sitting down from a standing position, sliding across the seat or walking a distance.
2. Avoid touching the EchoSafe's electrical terminals except when making connections.

### MOUNTING THE ECHOSAFE®

The sensor 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 acoustic signal.

For further mounting information, please refer to the EchoSafe® manual at [flowline.com](http://flowline.com).

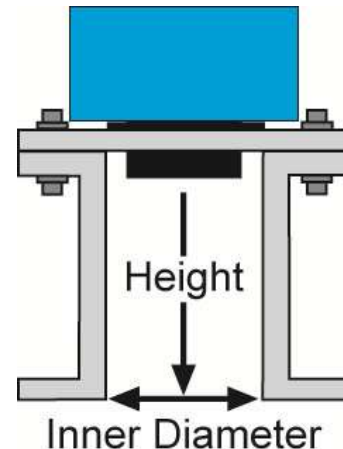
### MOUNTING WITH A TANK ADAPTER

Select a tank adapter fitting, such as the LM52-2890.



### MOUNTING IN 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". For best results, follow a 2:1 Height to Inner Diameter ratio (example: 8" High to 4" Inner Diameter).

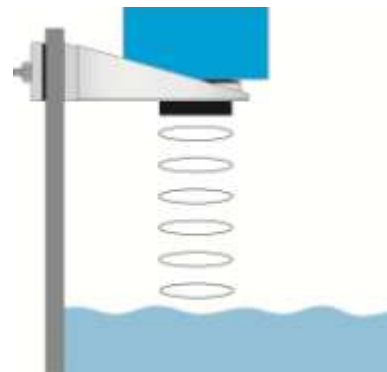


### MOUNTING IN SIDE MOUNT BRACKET

Use Flowline's LM50-1001 side mount bracket.



LM50-1001 Shown



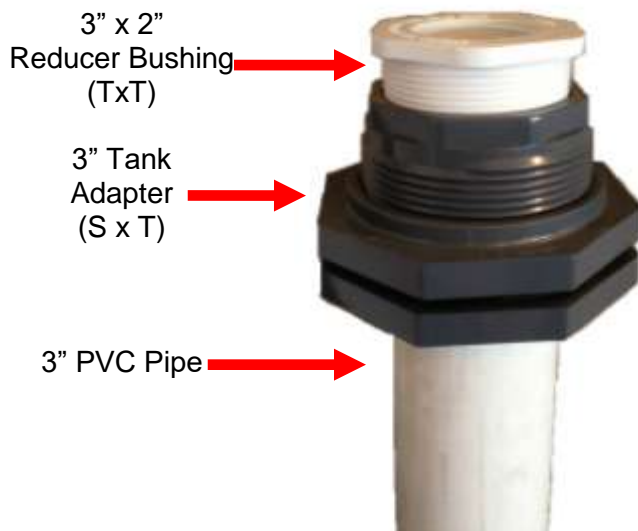
## IMPORTANT MOUNTING GUIDELINES

- 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 the sensor in a vacuum.
- 5) Do not obstruct the sensor's beam width.

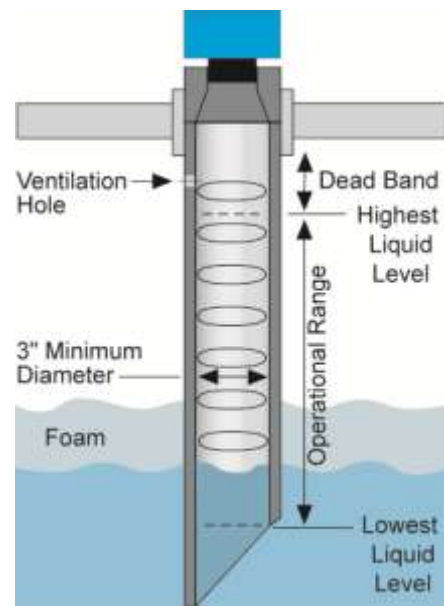
## MOUNTING WITH A STAND-PIPE

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 3". Larger diameter pipes can be used. The pipe should be attached with a coupling or tank adapter and reducer bushing. Avoid the use of multiple pipe fittings when possible. An ideal mount would be to select a 3" tank adapter (Slip x Thread or Slip x Slip) and connect the pipe to the inside slip and use a reducer bushing to attach the sensor (see example below).

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 within 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.



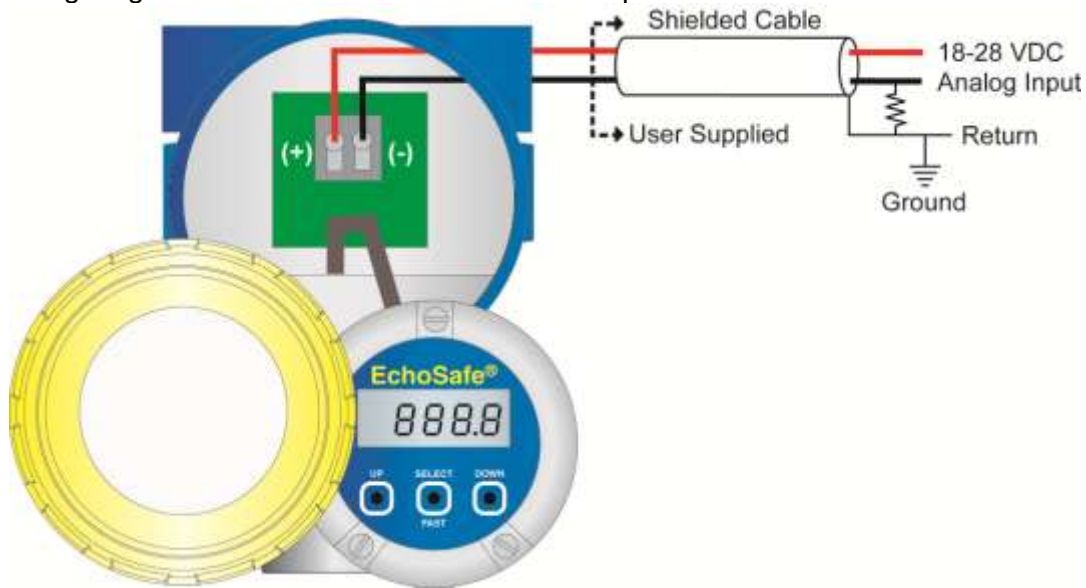
Stand-Pipe Example



Stand-Pipe Mounting

## WIRING THE ECHOSAFE®

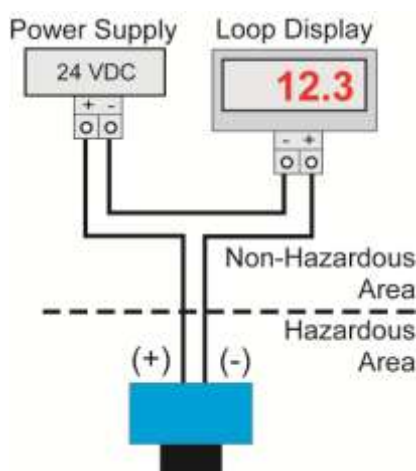
The following wiring diagram can be used for the 4-20 mA output of the EchoSafe®.



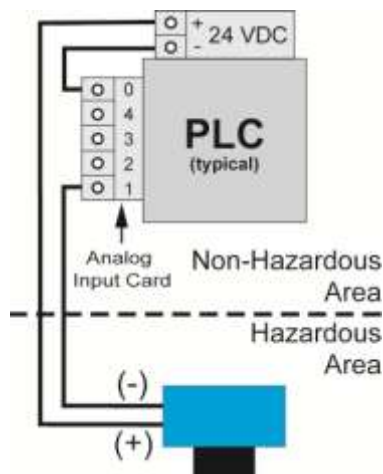
## NOTES ON SAFETY

- Where personal safety or significant property damage can occur due to a spill, the installation must have a redundant backup safety system installed.
- 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.
- Supply voltage should never exceed 28 VDC.
- When installed in hazardous locations, follow all established safety precautions.

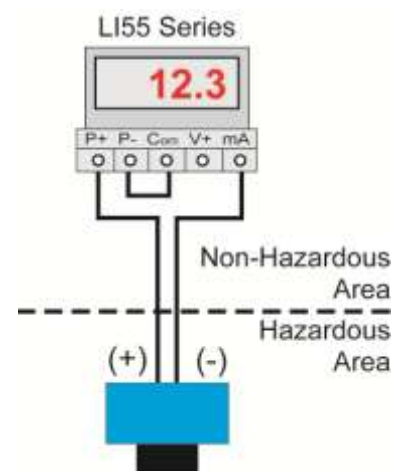
## WIRING TO COMMON DEVICES



Wiring to Loop Display



Wiring to Generic PLC



Wiring to DataView™  
LI55 series

## TOP-LEVEL MENU

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



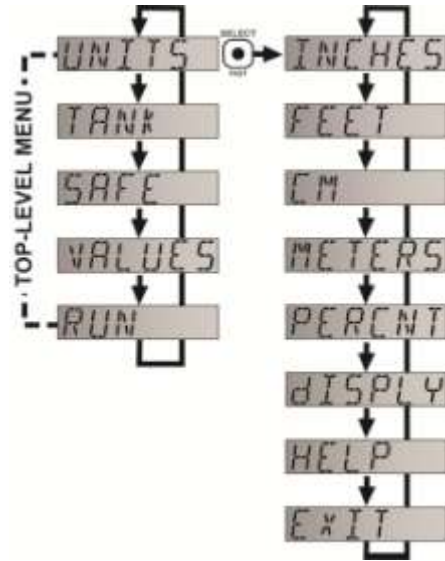
When the menu scrolls to an item you wish to configure, simply press the SELECT button to choose that item. The TOP-LEVEL MENU will continue to scroll through the following (**UNITS – TANK – SAFE – VALUES – RUN**), so if you miss your selection, it will appear again shortly.

- To return to the TOP-LEVEL MENU, press SELECT when **EXIT** appears.
- To return to Operational Mode of the sensor, 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.

## SET UNITS

The EchoSafe® displays information in the following units: inches, feet, centimeters, meters or percentage. The value shown on the display represents the amount of liquid in the tank.

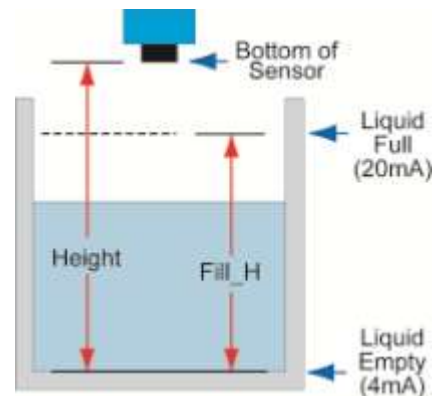
- 1) In TOP-LEVEL MENU mode, select **UNITS**.
- 2) Select **INCHES**, **FEET**, **CM**, **METERS** or **PERCENT**. **SAVED** will display.
- 3) Select **EXIT** to return to the TOP-LEVEL MENU.



## MEASURING SENSOR HEIGHT AND FILL-HEIGHT

- **HEIGHT** – Distance from the transducer face to the bottom of the tank.
- **FILL-H** – Maximum fill height of the liquid from the bottom of the tank.

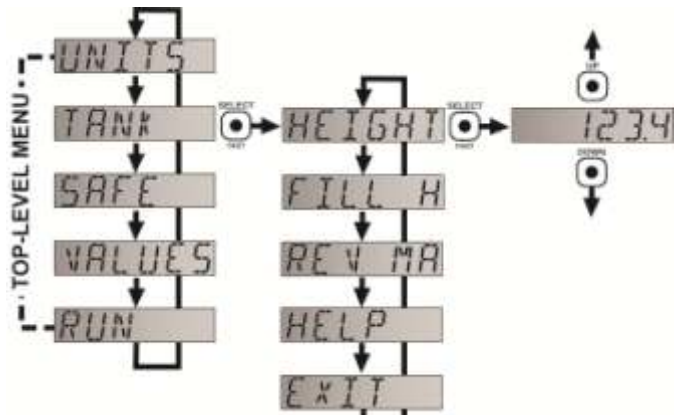
**Note:** The Height and Fill Height settings also determine the 4 to 20 mA current span. The Height setting determines the 4mA position and the Fill-H setting determines the 20 mA position.



## 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) In TOP-LEVEL MENU, select **TANK**.
- 2) Select **HEIGHT**.
- 3) Use the UP and DOWN buttons, 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, set the HEIGHT of your tank.



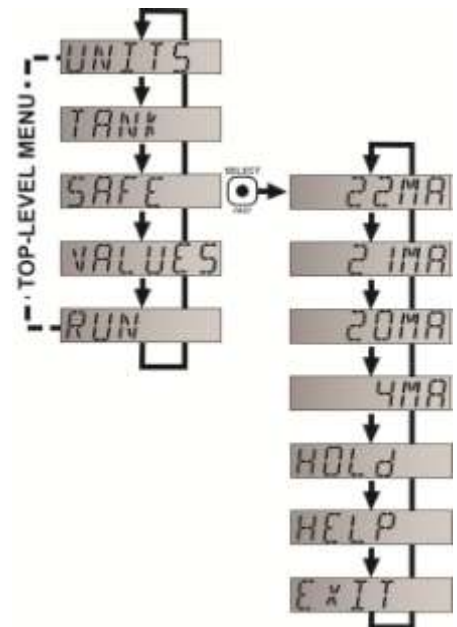
- 7) To enter the value, press and hold SELECT for 2 seconds and release. **SAVED** will display. FILL-H is now set.
- 8) Select **EXIT** to return to the TOP-LEVEL MENU.
- 9) Select **RUN** to return to Operational Mode.

**Note:** The Height and Fill Height settings also determine the 4 to 20 mA current span. The Height setting determines the 4mA position and the Fill-H setting determines the 20 mA position.

## SELECT FAIL-SAFE OUTPUT / LOST

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

- 1) In TOP-LEVEL MENU, 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 any issues not addressed in this Quick Start, please refer to the EchoSafe® Manual located on Flowline's website at [flowline.com](http://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](http://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, video training, and technical support, go to [flowline.com](http://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.)