

FLOWLINE

**Float-Tek
Vertical Continuous
Float Transmitter
LV55 Series
17 SEPT 08
Rev A**



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**Preface**

This manual explains how to use the Switch-Tek series of horizontal and vertical floats.

Warranty, Service & Repair

To register your product with the manufacturer, go to the Flowline website for on-line registration. The website address is as follows:

www.flowline.com

On-line Warranty Registration can be found under Contact Us in the Navigation Bar along the side of the home page. If for some reason your product must be returned for factory service, contact Flowline Inc. at (562) 598-3015 to receive a Material Return Authorization number (MRA), providing the following information:

1. Part Number, Serial Number
2. Name and telephone number of someone who can answer technical questions related to the product and its application.
3. Return Shipping Address
4. Brief Description of the Symptom
5. Brief Description of the Application

Once you have received a Material Return Authorization number, ship the product prepaid in its original packing to:

Flowline Factory Service
MRA_____

10500 Humbolt Street
Los Alamitos, CA 90720

To avoid delays in processing your repair, write the MRA on the shipping label. Please include the information about the malfunction with your product. This information enables our service technicians to process your repair order as quickly as possible.

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 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.

This warranty covers only those components of the products which have non-moving and not subject to normal wear. Moreover, products which are modified or altered, and electrical cables which are cut to length during installation are not covered by this warranty.

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 thereof) which Flowline's examination proves to its satisfaction to be defective. FLOWLINE SHALL HAVE NO OBLIGATION FOR CONSEQUENTIAL DAMAGES TO PERSONAL OR REAL PROPERTY, OR FOR INJURY TO ANY PERSON.

This warranty does not apply to products which have been subject to electrical or chemical damage due to improper use, accident, negligence, abuse or misuse. Abuse shall be assumed when indicated by electrical damage to relays, reed switches or other components. The warranty does not apply to products which are damaged during shipment back to Flowline's factory or designated service center or are returned without the original casing on the products. Moreover, this warranty becomes immediately null and void if anyone other than service personnel authorized by Flowline attempts to repair the defective products.

Products which are thought to be defective must be shipped prepaid and insured to Flowline's factory or a designated service center (the identity and address of which will be provided upon request) within 30 days of the discovery of the defect. Such defective products must be accompanied by proof of the date of purchase.

Flowline further reserves the right to unilaterally waive this warranty and to dispose of any product returned to Flowline where:

- a. There is evidence of a potentially hazardous material present with product.
- b. The product has remained unclaimed at Flowline for longer than 30 days after dutifully requesting disposition of the product.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. This warranty and the obligations and liabilities of Flowline under it are exclusive and instead of, and the original purchaser hereby waives, all other remedies, warranties, guarantees or liabilities, express or implied. EXCLUDED FROM THIS WARRANTY IS THE IMPLIED WARRANTY OF FITNESS OF THE PRODUCTS FOR A PARTICULAR PURPOSE OR USE AND THE IMPLIED WARRANTY OF MERCHANTABILITY OF THE PRODUCTS.

This warranty may not be extended, altered or varied except by a written instrument signed by a duly-authorized officer of Flowline, Inc.



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Introduction

1. Continuous Float Transmitters should be installed rigidly so the float is free to move as the liquid level changes.
2. Continuous Float Transmitters should be mounted in a tank area free of severe turbulence or protected from such turbulence by appropriate and adequate slosh shields.
3. Continuous Float Transmitters stems should be vertical for best results, but satisfactory operation is possible in most liquids with the stem at up to a 30° angle from vertical.
4. Care should be taken that Continuous Float Transmitters are always operated within electrical ratings.

Technology

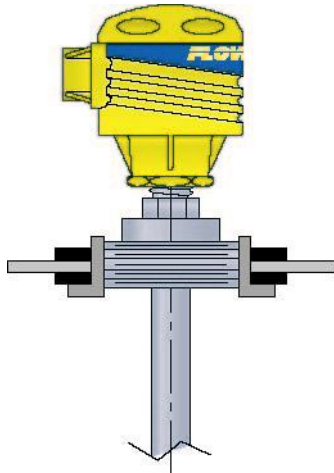
Flowline's continuous float transmitter is designed for vertical mounting in a tank. Reed switches are evenly spaced over the operation range to achieve the desired resolution. A single magnet-containing float travels the length of the sensing range. The reed switches are magnetically actuated as the float moves with the liquid level. DC power is applied to the switch, and the output signal can then be routed to programmable controllers, microprocessors or other readout devices.

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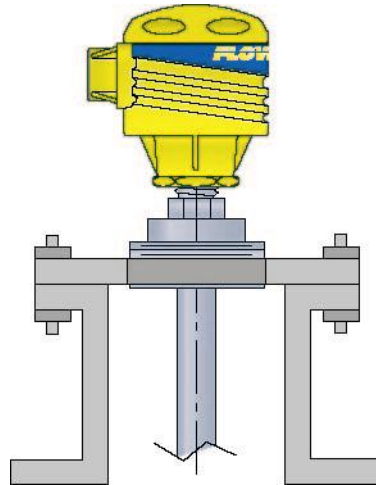
Installation

FLOWLINE's Float-Tek level switch is an in tank system. Float-Tek may be installed through the top wall of any tank or flange, using a standard 2" NPT tank adapter or blind flange. If the top is not available, Flowline's side mount bracket, LM50-1001, enables Float-Tek to be installed directly to the side wall or lip of the tank.

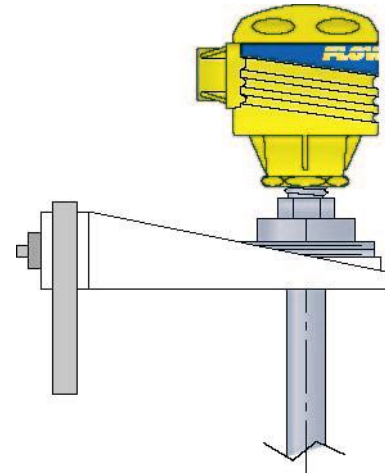
Tank Adapter:



Flange Mounting:



Side Mount Bracket:

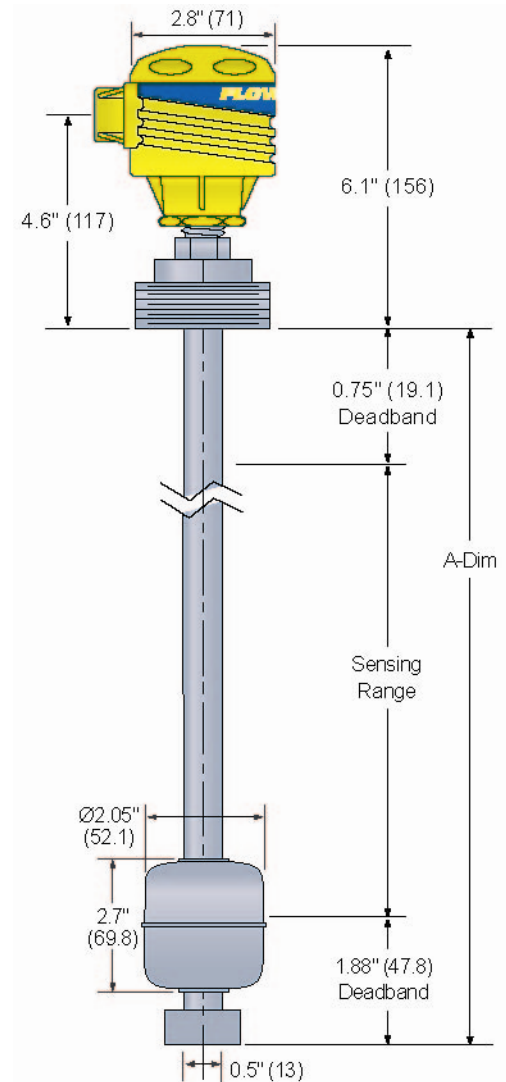


side wall installation shown

Thread Treatment (Sealing):

When threading metal threads into a metal coupling, pipe sealant or Teflon tape is recommended. When threading a metal sensor into a metal coupling, the installer should use a suitable wrench and tighten the threads 1-1/2 turns past hand tight.

Dimensions



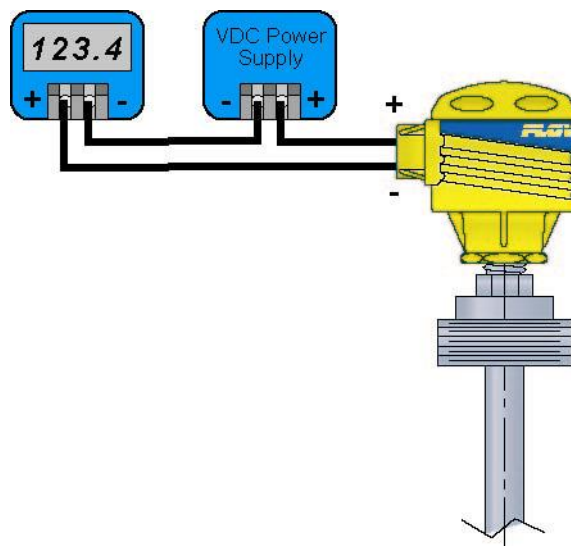
Material Compatibility:

- The LV55 series is made of 316 Stainless Steel (316 SS) with a top housing made of Polypropylene (PP).
- Make sure that the switch is compatible with the application liquids. To determine the chemical compatibility between the sensor and its application liquids, refer to the Compass Corrosion Guide, available from Compass Publications (858-589-9636).

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Electrical Interface

Use the Red wire as the (+) and the Black wire as the (-).



Specifications

Range:	6" to 96" (15.2 cm to 2.4 m)
Standard lengths:	16", 24", 32", 36", 42" or 48"
	Note: sensing length will be shorter than the stem length by 2.63". This is the top dead band and the bottom dead band added together
Accuracy:	0.25" over span in water
Resolution:	5 mm
Specific gravity:	0.55 minimum
Orientation:	+/- 30° from vertical
Supply voltage:	10 to 30 VDC
Loop resistance:	600 Ohms @ 24 VDC
Signal Output:	2-wire: 4-20 mA output
Calibration:	None, fixed
Process Temp.:	-40°C to 85°C -40°F to 185°F
Pressure:	200 psi (13.8 bar)
Enclosure rating:	NEMA 4X (IP65)
Encl. material:	PP, UL94VO
Guide & float mat'l.:	316 SS Float dia. = 2.1" Stem diameters = 0.5"OD
Process mount:	2" NPT
Conduit entrance:	Single, ½" NPT
Classification:	General purpose
Compliance:	CE

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Maintenance

Maintenance should consist of inspection to see that the float is free to move and not coated with any substance, which would change its weight or volume significantly. If this occurs, the float should be cleaned. This is easily accomplished without disturbing the installation. In addition, the stem may be wiped down to remove any build-up. The only repair possible in the field is replacement of either the float or stem. Dents or nicks on the float are usually of no consequence to operation.

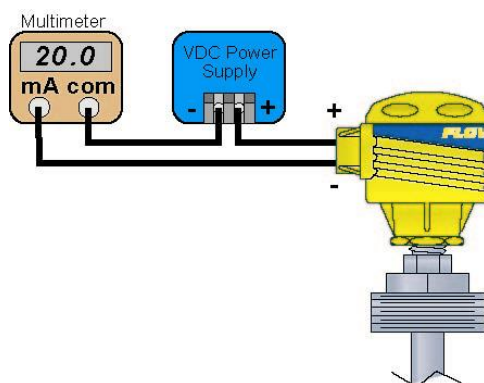
Cautions

FLOWLINE manufactures a wide range of liquid level switches and technologies. While each of these switches are designed to operate in a wide variety of applications, it is the user's responsibility to select a switch model that is appropriate for the application, install it properly, perform tests of the installed system, and maintain all components. The failure to do so could result in property damage or serious injury.

1. The pressure, temperature and electrical limitations shown for the specified level sensor must not be exceeded.
2. The pressures and temperatures must take into consideration possible surges in the temperature and pressure of the system.
3. The liquids used must be compatible with the materials of construction. Specifications of materials will be given upon request.
4. Life expectancy of the sensor varies with applications. Contact the factory if life cycle testing is required.
5. Ambient temperature changes can affect sensor set points, since specific gravities of liquids vary with temperature. Consult factory for assistance.
6. Level sensors have been designed to be shock and vibration resistant. For maximum life, both should be minimized. Consult factory for assistance.
7. Excessive contaminants in fluid may inhibit float operation and occasional wipe down may be necessary.
8. Physical damage to product may render product unserviceable.
9. Installation in a vessel made from magnetic materials may affect operation.

Testing the installation:

Verify proper wiring, power supply and loop resistance. If transmitter is not functioning properly, isolate the transmitter from the system and wire as shown below. Multimeter should read 4 mA with float at the bottom and 20 mA with float at the top of the transmitter.



Cleaning procedure:

1. Power: Make sure that all power to the transmitter, controller and/or power supply is completely disconnected.
2. Transmitter removal: If necessary, make sure that the tank is drained well below the switch prior to removal. Carefully, remove the transmitter from the installation.
3. Cleaning the switch: Using a soft bristle brush and mild detergent, carefully wash the switch. Do not use harsh abrasives such as steel wool or sandpaper, which might damage the surface of the sensor. Do not use incompatible solvents, which may damage the sensor's 316 SS body. Take particular care to remove any scaling from the float body and make sure that it moves freely.
4. Transmitter installation: Follow the appropriate steps of installation as outlined in the Installation section of this manual.