

FloaTek™

Float Level Transmitter

LV55 Series Manual



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The general-purpose float level transmitter provides continuous level measurement up to 6.5' (2m) with a 4-20 mA signal output, and is factory configured to your selected dimension. This stainless steel liquid level sensor is well suited for high temperature or pressure tank level applications with relatively clean liquids such as water, diluted chemicals and light weight oils. Application examples include boilers and process vessels.

Features

- High pressure or temperature level measurement up to 6.5' (2m)
- Rugged 316 Stainless Steel float guide and process mounting plug
- Assembled to your guide length and measurement span dimensions
- Polypropylene junction box rated NEMA 4X with ½" conduit port and terminal strip

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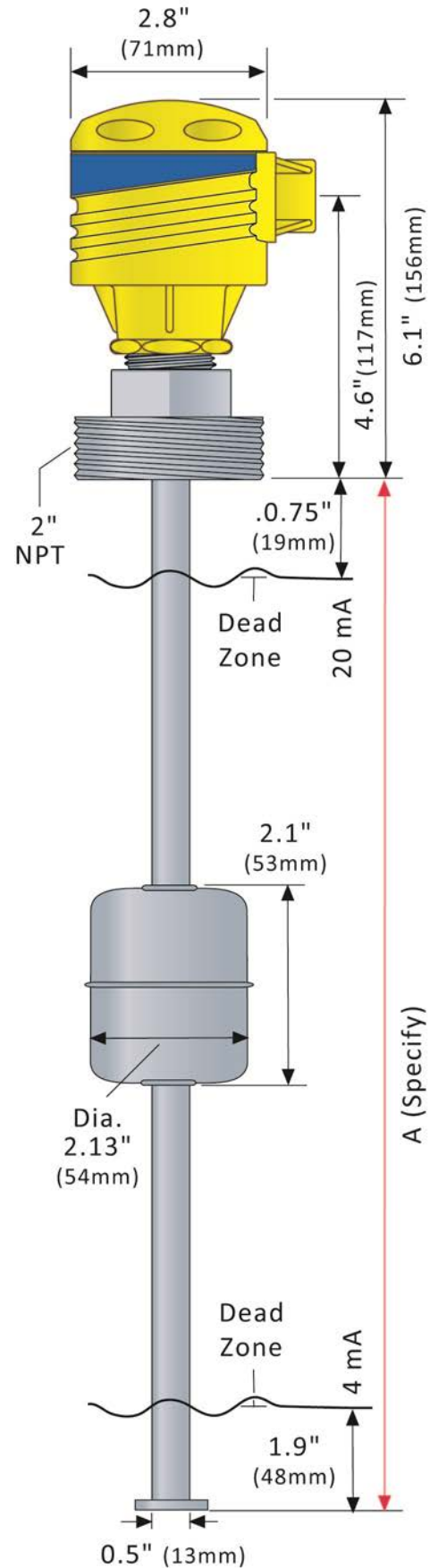
SPECIFICATIONS / DIMENSIONS

Step Two

- Range: 12" to 6.5' (30cm to 2m)
- Preset stem lengths: 16" (0.406m), 24" (0.610m), 32" (0.813m), 36" (0.914m), 42" (1.067m) or 48" (1.219m)
- Resolution: ¼"
- Configuration: None, fixed span
- Orientation: ± 30° from vertical
- Specific gravity: 0.55 minimum
- Supply voltage: 10 to 30 VDC
- Loop resistance: 600 Ohms @ 24 VDC
- Signal Output: 4-20 mA, two-wire
- Process Temp.: -40°C to 85°C
-40°F to 185°F
- Ambient Temp.: -40°C to 140°C
-40°F to 60°F
- Pressure: 200 psi (13.8 bar)
- Enclosure rating: NEMA 4X (IP65)
- Encl. material: PP, UL94VO
- Conduit entrance: Single, ½" NPT
- Process mount: 2" NPT
- Guide-float material: 316 SS
- Classification: General purpose
- Compliance: CE

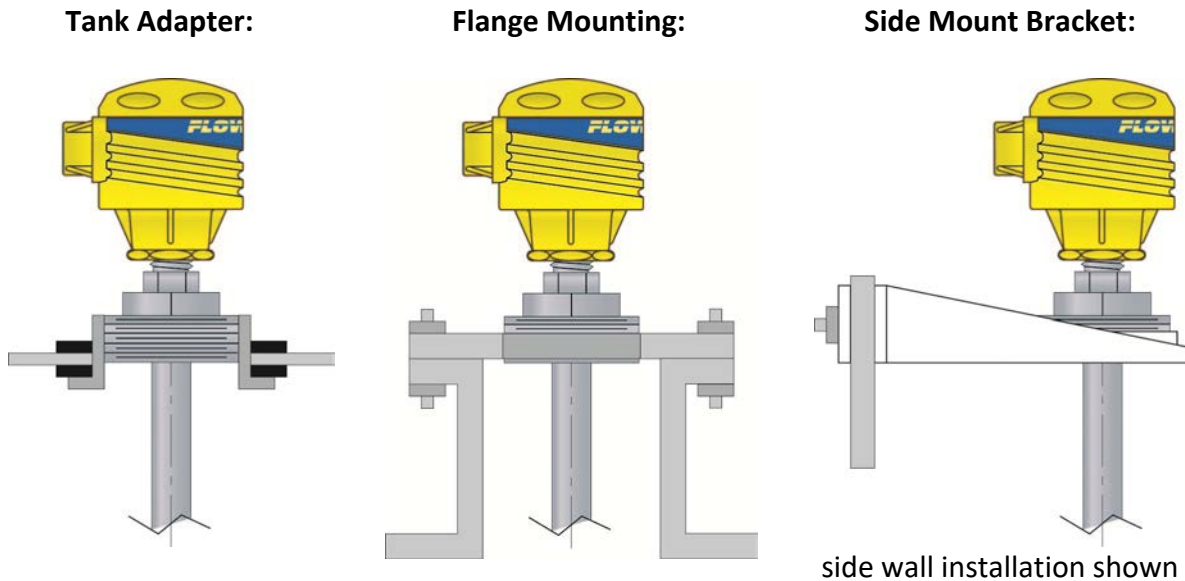
Actual sensing lengths: Sensing length will be shorter than the stem length by 2.63" (66.8mm). This is the top dead zone and the bottom dead zone added together (see dimension drawing).

Part Number	Preset Length	Actual sensing length
LV55-S001-16"	16"	13.37" (0.340m)
LV55-S001-24"	24"	21.37" (0.543m)
LV55-S001-32"	32"	29.37" (0.746m)
LV55-S001-36"	36"	33.37" (0.848m)
LV55-S001-42"	42"	39.37" (1.000m)
LV55-S001-48"	48"	45.37" (1.152m)



- ⚠ **About this Manual:** PLEASE READ THE ENTIRE QUICK START PRIOR TO INSTALLING OR USING THIS PRODUCT. This manual includes information on the LV55 Series Float Level Transmitter from FLOWLINE, Inc. Please refer to the part number located on the switch label to verify the exact model configuration, which you have purchased.
- ⚠ **User's Responsibility for Safety:** FLOWLINE, Inc. manufactures a broad range of level sensing technologies. While each of these sensors is designed to operate in a wide variety of applications, it is the user's responsibility to select a sensor 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.
- ⚠ **Proper Installation and Handling:** Only professional staff should install and/or repair this product. Always check for leaks prior to system start-up.
- ⚠ **Wiring and Electrical:** A supply voltage of 10 to 30 VDC is used to power the LV55 series. Electrical wiring of the transmitter should be performed in accordance with all applicable national, state, and local codes.
- ⚠ **Material Compatibility:** The enclosure is made of Polypropylene (PP). The float, mounting fitting and float guide are made of 316 Stainless Steel. Make sure that the model, which you have selected, is chemically compatible with the application media.
- ⚠ **Enclosure:** While the sensor's housing is liquid-resistant the LV55 Series is not designed to be operational when fully immersed. It should be mounted in such a way that the enclosure does not come into contact with the application media under normal operational conditions.
- ⚠ **Safety**
 - ⚠ **Installation should be done by properly trained staff**
 - ⚠ **Supply voltage should never exceed a maximum of 30 VDC**
 - ⚠ **Make sure the sensor is chemically compatible with your application**
 - ⚠ **Design a fail-safe system that accommodates the possibility of sensor and/or power failure.**
 - ⚠ **This sensor should not be used in classified hazardous environments**
- ⚠ **Make a Fail-Safe System:** Design a fail-safe system that accommodates the possibility of transmitter and/or power failure. FLOWLINE, Inc. recommends the use of redundant backup systems and alarms in addition to the primary system.
- ⚠ **Flammable, Explosive or Hazardous Applications:** *FloaTek™ LV55 series should not be used within classified hazardous environments.*

FloaTek™ level transmitter is an in-tank system. LV55 series 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, enables LV55 series to be installed directly to the side wall or lip of the tank.



Installation Tip

1. Float level transmitter should be installed rigidly so the float is free to move as the liquid level changes.
2. Float level transmitter should be mounted in a tank area free of severe turbulence or protected from such turbulence by appropriate and adequate slosh shields.
3. Float level transmitter's 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 Float level transmitter is always operated within electrical ratings.

Thread Treatment (Sealing)

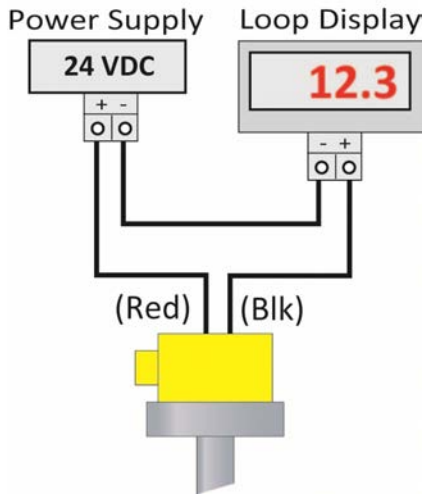
When threading metal threads into a metal coupling, pipe sealant or Teflon tape is recommended. When threading a metal sensor into a metal coupling, the installer should use a suitable wrench and tighten the threads 1/2 turn past hand tight.

Material Compatibility

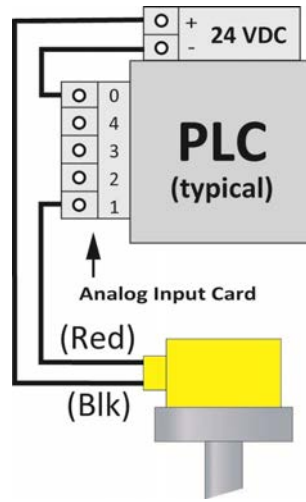
- The LV55 series is made of 316 Stainless Steel (316 SS) with a top housing made of Polypropylene (PP).
- Make sure that the switch is compatible with the application liquids. To determine the chemical compatibility between the sensor and its application liquids, refer to a chemical compatibility guide or consult a chemist.

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

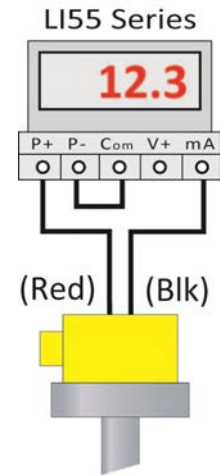
**Generic Loop
Powered Display**



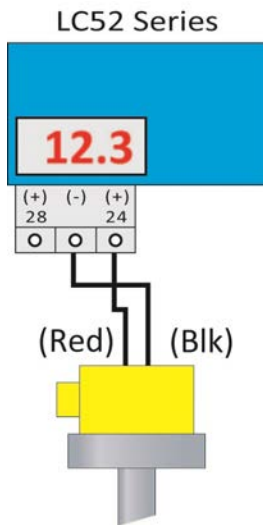
Generic PLC



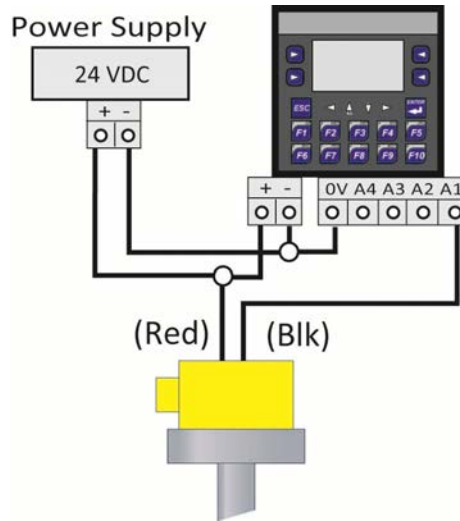
**DataView™ LI55 Series
Level Controller**



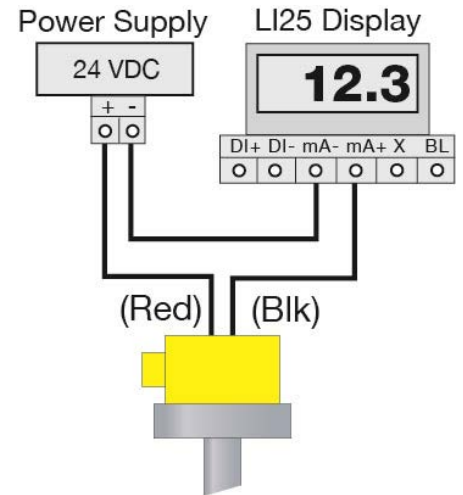
**DataPoint™ Series
Level Controller**



**Commander™ Multi-Tank
Level Controller**

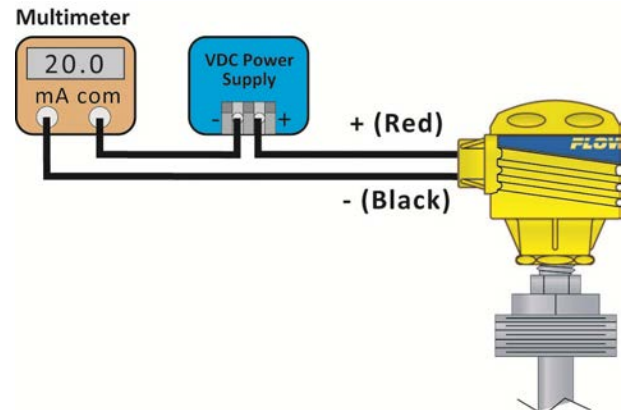


**DataLoop™ LI23 Series
Level Indicator**



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.



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, Inc. 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.
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.

Cleaning procedure

1. **Power:** Make sure that all power to the sensor, controller and/or power supply is completely disconnected.
2. **Sensor 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 sensor:** 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. **Sensor installation:** Follow the appropriate steps of installation as outlined in the Installation section of this manual.

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 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.

For complete product documentation, video training, and technical support, go to 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.)