

## Warranty, Service & Repair

To register your product with the manufacturer, fill out the enclosed warranty card and return it immediately to:

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

If for some reason your product must be returned for factory service, contact Flowline Inc. to receive a Material Return Authorization number (MRA) first, 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.

# FLOWLINE®

## Veritcal Mini-FLOAT Level Switch LV20 Series Owner's Manual



Version 3.1A

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Manual # LV900002 - LV20-0510-M3\_1A

## 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 are 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.

# SPECIFICATIONS

## Step One

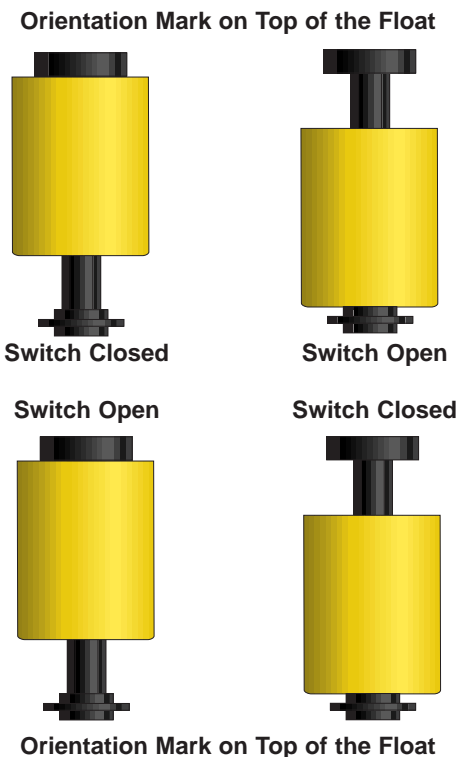
### Specifications:

Accuracy:	± 5 mm in water
Repeatability:	± 2 mm in water
Extreme orientation:	±20° from vertical
Specific Gravity Range:	0.8 - 1.2
Reed type:	Dry contact, SPST
Reed rating:	120 VAC, 120 VDC @ 50 VA (CE: 30 Vrms and 42.2 Vpeak or 60 Vdc)
Reed output:	NO or NC
Temperature range:	F: -40° to 176° C: -40° to 80°
Sensor material:	Polypropylene (PP) or Polyvinylidene Fluoride (PVDF)
Mounting threads:	1/8" NPT (1/8" BSP)
Cable type:	2 ft. (61 cm), 2-wire
CE compliance:	EN 50082-2 immunity EN 55011 emission

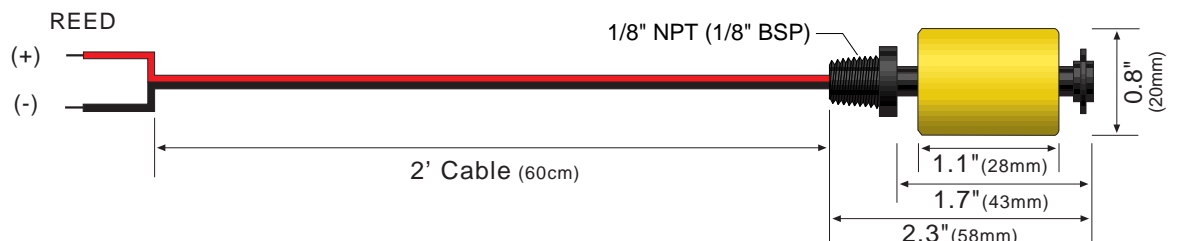
### Part Number Information:

Part #	Material	Thread
LV20-1201	PP	1/8" NPT
LV20-1251	PP	1/8" BSP
LV20- 5201	PVDF	1/8" NPT
LV20-5251	PVDF	1/8" BSP

### Float Orientation:



### Dimensions:



### ⚠ About This Manual:

PLEASE READ THE ENTIRE INSTRUCTION SHEET PRIOR TO INSTALLING OR USING THIS PRODUCT. This Instruction sheet includes information on all models of Vertical Mini-Floats from Flowline: LV20-\_2\_1. Please refer to the part number located on the sensor label to verify the exact model which you have purchased.

### ⚠ User's Responsibility for Safety:

Flowline manufactures a wide range of liquid level sensors and 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:

Because this is an electrically operated device, only properly trained staff should install and/or repair this product. Use a proper sealant with all installations. Never overtighten the sensor within the fitting, beyond being hand tight. Always check for leaks prior to system startup.

### ⚠ Material Compatibility:

The LV20 series is available in two different wetted materials. Models LV20-12\_1 are made of Polypropylene (PP, a polyolefin). Models LV20-52\_1 are made of Polyvinylidene Fluoride (PVDF). A Nylon C-ring is also used to secure the float. Make sure that the model which you have selected 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 (phone 619-589-9636).

### ⚠ Wiring and Electrical:

The Vertical Mini-Float features a two-wire design with a SPST dry contact closure. Electrical wiring of the sensor should be performed in accordance with all applicable national, state, and local codes.

### ⚠ Normally Open/Normally Closed:

The orientation position of the float determines whether the switch is Open or Closed. The top of the float has two concentric circles on each edge of the cylinder. When the float is orientated up, the switch is open when the float is away from the threads and is closed when the float is next to the threads. When the float is orientated down, the switch is closed when the float is away from the threads and is open when the float is next to the threads.

### ⚠ Flammable, Explosive and Hazardous Applications:

The LV20 series should not be used within flammable or explosive applications. In hazardous applications, use redundant measurement and control points, each having a different sensing technology. Refer to the National Electric Code (NEC) for all applicable installation requirements in hazardous locations.

### ⚠ About Single Station Sensing

Flowline's LV20 series use a magnetic float which rides up and down a stem containing the reed switch. The only moving part is the float. No bearings, packing glands, bellows or electronic gadgets are used. The Vertical Mini-Floats are built rugged to resist shock and vibration. The LV20 series utilize a low cost, flexible design which allows for vertical mounting at the top or bottom of a tank. The Vertical Mini-Floats can be mounted up, down or up to 20 degrees off vertical.