

# SPECIFICATIONS

## Step One

Length: 4" to 72"(10 cm to 1.8m)  
 Switch points: 1 to 4 (set by factory)  
 Accuracy: ± 3 mm in water  
 Repeatability: ± 1 mm in water  
 Specific gravity: 0.75 minimum  
 Orientation: ± 30° vertical  
 Contact type: (1-4) SPDT reed  
 Contact rating: 240 VAC/VDC @ 20 VA  
 Process temp.: F: -40° to 300°  
 C: -40° to 148.9°  
 Pressure: 750 psi max.  
 51.7 bar max.  
 Guide/float mat.: 316 ss  
 Process mount: 2" NPT  
 Enclosure rating: S443: NEMA 4X (IP65)  
 S453: NEMA 7 (IP65)  
 Installed height: S443: 5.2" (13.2 cm)  
 S453: 6.2" (15.7 cm)  
 Encl. material: S443: PP, UL94VO  
 S453: Aluminum  
 Conduit entrance: Single, 1/2" NPT  
 Wire type: 3 - 12 wires, #18 AWG  
 Termination: 3-12 poles, terminal strip  
 Classification: S443: General purpose  
 S453: Explosion proof  
 Approvals: S453: FM, CSA:  
 (S453 only) Class I, Division I, Groups B, C & D;  
 Class II, Groups E, F and G  
 CE compliance: EN 50082-2 immunity  
 EN 55011 emission  
 EN 61010-1 safety

## Technology

The Float-Point with Compact Junction Box consists of 1 to 4 floats with internal magnets and reed switches installed within the shaft. When the level is below the float, it rest on a grip ring such that the magnet does not influence the reed switch. As the float becomes immersed in liquid, the float becomes buoyant and the magnet elevates causing the reed switch to change its state. Each reed switch is rated for 20 VA applications. Please review the chart above for the maximum resistive load on the 20 VA reed switch.

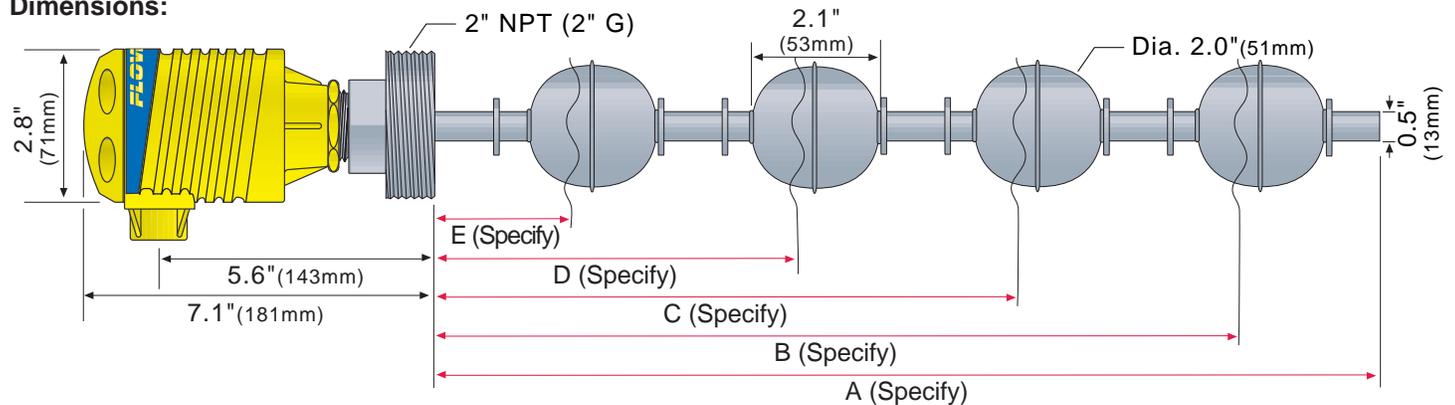
Reed Switch Rating		Max. Resistive Load	
VA	Volts	Amps AC	Amps DC
20	0-30	0.4	0.3
	120	0.17	0.13
	240	0.08	0.06

## Wiring Color Chart

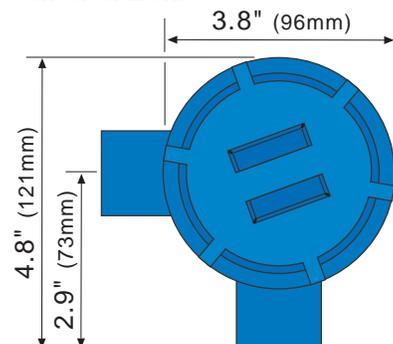
Each level switch features a base color to distinguish itself from the other switch points. The base color also indicates the Common Wire for the reed switch. The Normally Open Wire for the reed switch is designated with a White wire and a stripe of the base color. The Normally Closed Wire for the reed switch is designated with a White wire with a Black stripe and a stripe of the base color. Use the chart below to identify the correct wiring for the switch points.

Switch	COM	NO	NC
B	Red	Wh/Red	Wh/Blk/Red
C	Yellow	Wh/Yellow	Wh/Blk/Yellow
D	Blue	Wh/Blue	Wh/Blk/Blue
E	Brown	Wh/Brown	Wh/Blk/Brown

## Dimensions:



## Junction Box:



## SAFETY PRECAUTIONS

### Step Two

#### ⚠ About this Manual:

PLEASE READ THE ENTIRE MANUAL PRIOR TO INSTALLING OR USING THIS PRODUCT. This manual includes information on the Float-Point Vertical Level Switches, models AV16-S4\_3, AV26-S4\_3, AV36-S4\_3 & AV46-S4\_3. 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 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.

#### ⚠ 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 over-tighten the sensor within the fitting, beyond a maximum of 80 inch-pounds torque. Always check for leaks prior to system start-up.

#### ⚠ Material Compatibility:

The wetted portion of the Float-Point is available in 316 Stainless Steel. The junction box is made of either Polypropylene (PP) for the AV\_6-S443 or Aluminum for the AV\_6-S453. 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).

#### ⚠ Temperature and Pressure:

The AV\_6 series is designed for use in application temperatures up to 300 °F (148.9 °C), and for use at pressures up to 750 psi (51.7 bar).

#### ⚠ Wiring and Electrical:

The supply voltage used for the AV\_6 series switch should never exceed 240 VAC/VDC @ 20 VA. Electrical wiring of the switch should be performed in accordance with all applicable national, state, and local codes.

#### ⚠ Flammable, Explosive and Hazardous Applications:

The AV\_6-S443 series switch should not be used within flammable or explosive applications. Only use the AV\_6-S453 series in hazardous locations when properly connected to an approved control device. In hazardous applications, use redundant measurement and control points, each having a different sensing technology. Refer to the National Electrical Code (NEC) for all applicable installation requirements in hazardous locations.

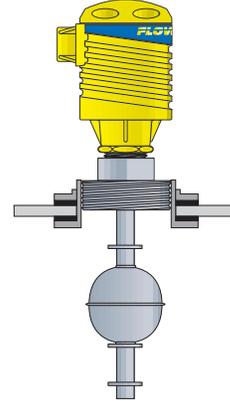
## INSTALLATION

### Step Three

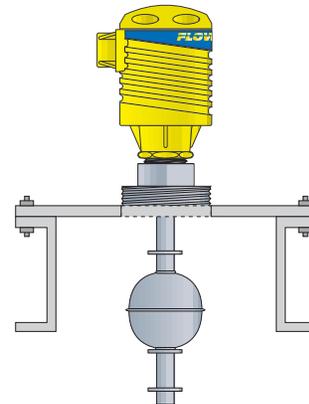
#### Float-Point Installation:

FLOWLINE's Float-Point level switch is an in tank system. Float-Point 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-Point to be installed directly to the side wall or lip of the tank.

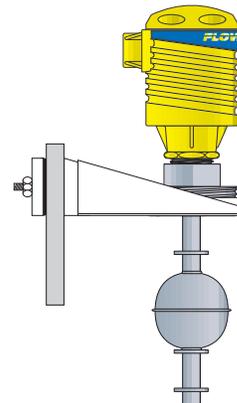
#### Tank Adapter:



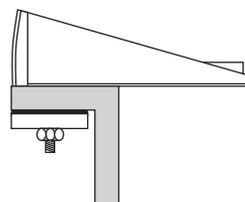
#### Flange Mounting:



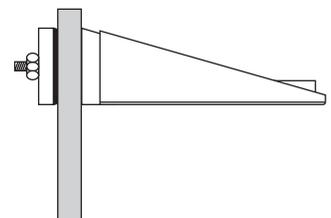
#### Side Mount Bracket:



#### Lip of Tank:



#### Side Wall:

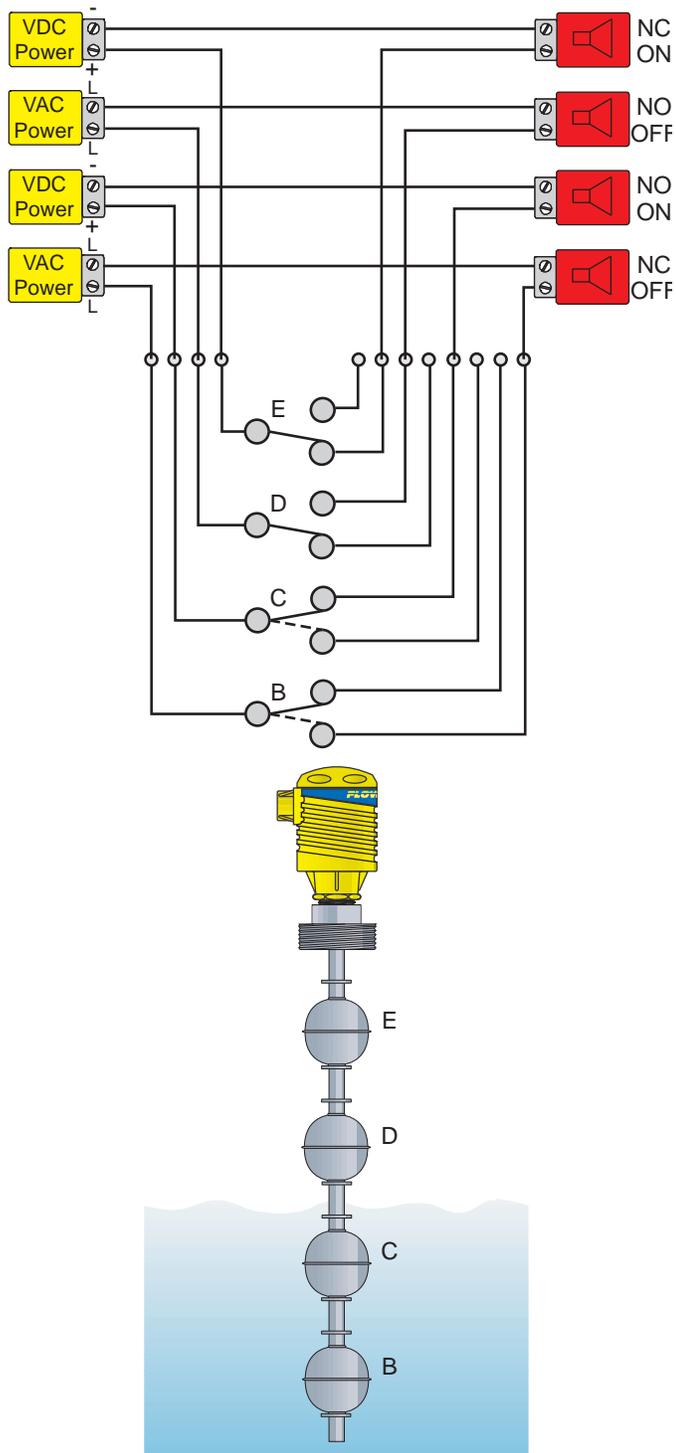


## WIRING

### Step Four

#### Wiring:

Each level has a SPDT reed switch rated at 20 VA. The SPDT reed switch enables the switch to be wired either Normally Open or Normally Closed. The normal position for each switch point is typically when the switch is resting on the grip ring. In the illustration below, switch points B and C are in the active or energized position. Switch points D and E are in the normal position. The alarms indicate activity.



## MAINTENANCE

### Step Five

#### General:

The Float-Point level switch has no scheduled maintenance requirement, except to clean off any deposits or scaling from the switch as necessary. It is the responsibility of the user to determine the appropriate maintenance schedule, based on the specific characteristics of the application liquid.

#### Cleaning procedure:

- 1. Power:** Make sure that all power to the switch, controller and/or power supply is completely disconnected.
- 2. Switch removal:** If necessary, make sure that the tank is drained to a safe level and that the pressure is sufficient for removal of the Float-Point. Carefully, remove the sensor from the installation.
- 3. Cleaning the switch:** Using a soft bristle brush and mild detergent, carefully wash the switch. Do not use harsh abrasives, 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.