Installation Note

AVTECH's Fuel Tank Level Sensor monitors the rise and fall of fuel or other harsh liquids in a container, while **AVTECH's Water Tank Level Sensor** monitors the rise and fall of water in a container. The float switches and control weights are composed of chemically-resistant polypropylene; the 16' cables are coated with rugged PVC. Because these sensors have a dual-point switch and differential height between switch states, you can use just one sensor to monitor two levels (high and low).

Fuel Tank Level Sensor

Control Weight · Float Switch · Face

Water Tank Level Sensor

Control Weight · Float Switch · Face

Tank Level Sensor Package Contents

- One (1) Fuel Tank Level Sensor or Water Tank Level Sensor
- One (1) 25' speaker cable
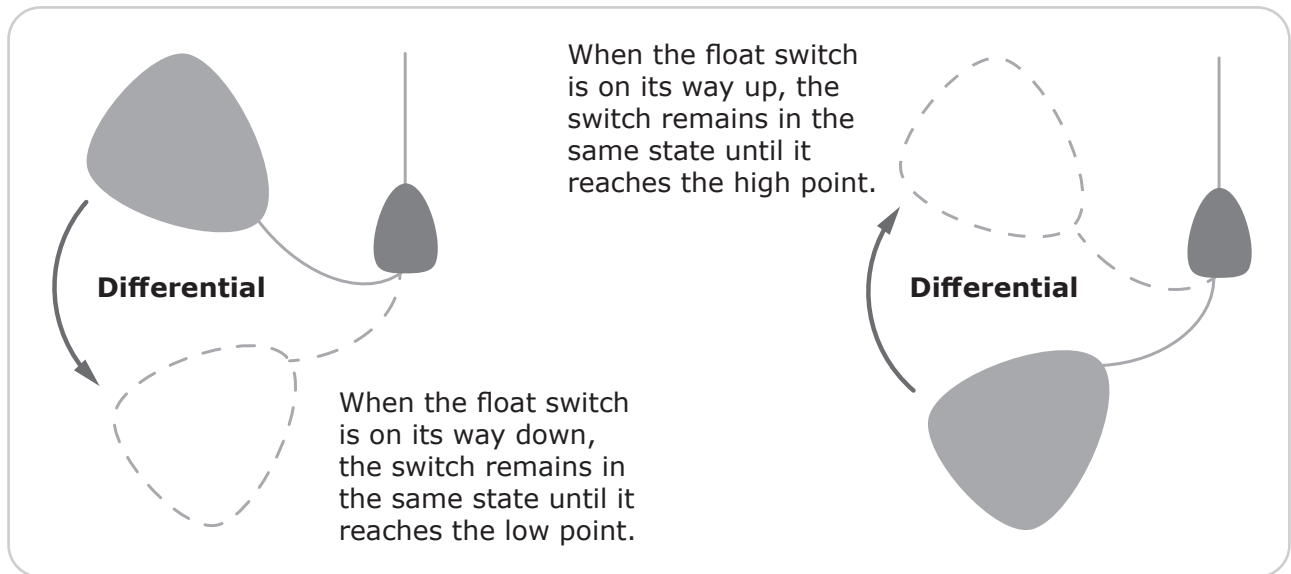
Tank Level Sensor Features

Switch States

AVTECH offers normally closed (NC) and normally open (NO) versions of the Water Tank and Fuel Tank Level Sensors.

The "normal" state for these sensors is the float switch face in the downward position, meaning low or no liquid in the tank. In the NO type, down = open. In the NC type, down = closed.

Tank Level Sensor Type	CLOSED means...	OPEN means...
Normally Closed (NC) RMA-FTL1-SEN (Fuel) RMA-WTL1-SEN (Water)	the float switch face is DOWN	the float switch face is UP
Normally Open (NO) RMA-FTL2-SEN (Fuel) RMA-WTL2-SEN (Water)	the float switch face is UP	the float switch face is DOWN

Dual Switch Point

The Tank Level Sensors have a high and low switch point with a differential in between. While the float moves through the differential, its switch state remains unchanged until it hits the high or low point, as shown below. You may adjust the height of this differential by moving the weight closer to or further away from the float.

When the float switch is on its way up, the switch remains in the same state until it reaches the high point.

Differential

Differential

When the float switch is on its way down, the switch remains in the same state until it reaches the low point.

Install Your Tank Level Sensor

Do not use this sensor in hazardous (classified) locations or life safety applications.

Step 1: Mount your Tank Level Sensor.

You may use the attached polypropylene hanging clamp to hang your Tank Level Sensor. The PVC-coated cable may be hung down a wall or in a corner of the tank—it does not have to be suspended from the center. Allow a swing radius for the float that is equal to the distance between the control weight and the face of the float.

Note that the height and depth (in feet and inches) at which the float switch changes state depends on two factors:

- the height at which the float is suspended in the tank by the hanging clamp

- the distance between the float face and the control weight (which creates the differential)

You may wish to experiment with different combinations to get the results you desire.

When considering the layout of your components, remember that the speaker wire cannot withstand the same conditions as the PCV-coated cable attached to the float. Do not run the speaker wire inside the tank or immerse it.

### Step 2: Connect your Tank Level Sensor to Room Alert.

Do not connect the switch sensor inputs (dry contacts) on AVTECH products to any live circuit.

Use only low-voltage 2-wire cable to connect switch sensor inputs.

Your Tank Level Sensor comes with a 25' speaker cable. Follow these steps to attach one end of the speaker cable to the Tank Level Sensor's leads, which are non-polarized, and the other end to a switch port on your Room Alert:
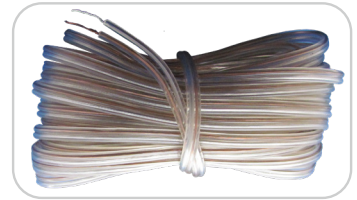
1. Separate and strip the leads on one end of the included speaker cable, exposing about ¼" of wire.

2. Separate and strip the leads on the other end of the included speaker cable, exposing about ½" of wire.

3. Strip the leads on the Tank Level Sensor cable, exposing about ½" of wire.

4. Twist the speaker cable leads with ½" exposed wire to the Tank Level Sensor leads. The sensor's leads are non-polarized, so you may connect either side of the speaker cable to either side of the Tank Level Sensor cable.

5. Cap or tape the connected leads to avoid a short.

6. Run the speaker cable back to your Room Alert. Try to avoid running it near large electromagnetic devices or fluorescent lights, which produce EMI and can interfere with sensor readings.

7. Connect the free ends (the ¼" leads) of the speaker cable to an open switch port on your Room Alert. Be sure the bare wire, not the insulation, connects to the port. Again, the leads are non-polarized, so you may connect either lead to either side of the open port.
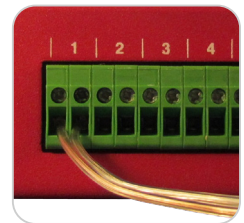
Sensor Features & Specifications

Environment Condition Monitored	
Water Tank Level Sensor	High/low fluid level (water)
Fuel Tank Level Sensor	High/low fluid level (fuel or other harsh liquids)
Type Of Sensor	Switch
Normal State	Float Switch face in downward position
RMA-FTL1-SEN & RMA-WTL1-SEN (NC)	Closed
RMA-FTL2-SEN & RMA-WTL2-SEN (NO)	Open
Alarm State	Float Switch face in upward position
RMA-FTL1-SEN & RMA-WTL1-SEN (NC)	Open
RMA-FTL2-SEN & RMA-WTL2-SEN (NO)	Closed
Sensor Cable Type	Low-voltage two-wire PVC-coated cable
Included	Yes
Length	16'
Extension Cable Type	Low-voltage two-wire speaker cable
Included	Yes
Length	25'
Maximum Extendible Length	900'
Dimensions	
Water Tank Level Sensor	Float Switch: 5.0" h x 3.0" w Control Weight: 4.25" h x 2.13" w
Fuel Tank Level Sensor	Float Switch: 6.1" h x 6.70" w Control Weight: 4.25" h x 2.13" w
Switch State Differential	
Water Tank Level Sensor	Minimum = 10" / Maximum = 40"
Fuel Tank Level Sensor	Minimum = 10" / Maximum = 50"
Maximum Liquid Temperature	140º F (60º C)
Maximum Pressure	28 psi (pounds per square inch)
Minimum Fluid Specific Gravity	
Water Tank Level Sensor	0.95
Fuel Tank Level Sensor	0.7
Protection Rating	IP67, NEMA 6
Compatible Products	Any Room Alert model or Wireless Sensor Hub

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Configure Your Switch Sensor

Use Room Alert Monitor's Built-In Web Interface

Navigate to **Settings** → **Sensors** in your Room Alert Monitor's web interface. The options you see below will vary depending on your Room Alert model.
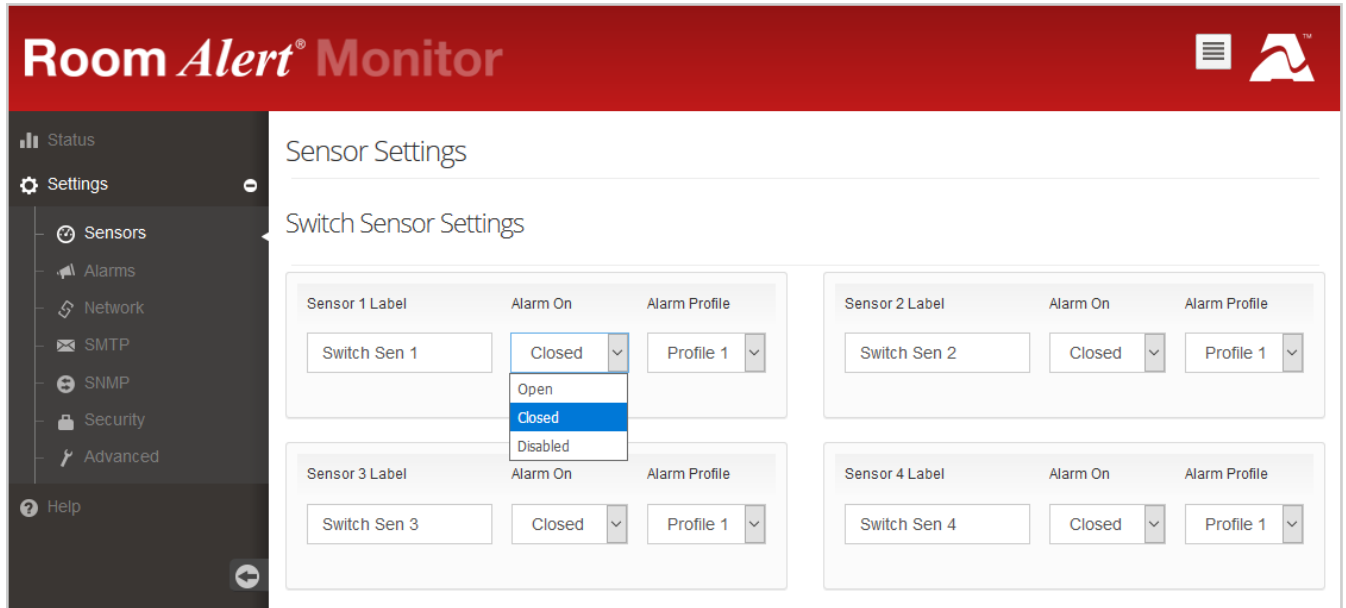
1. Scroll down to *Switch Sensor Settings*.

2. Find the switch sensor label that matches the port you connected your switch sensor to. For example, if you used the first switch sensor port on your Room Alert Monitor, look for *Sensor 1 Label*; if you used the second, look for *Sensor 2 Label*, and so on.

3. In *Sensor X Label*, you may leave the default, "Switch Sen X," or enter something more descriptive. Room Alert "E" models accept up to 15 characters, including only letters, numbers, spaces, hyphens (-), underscores (_) or periods (.). Room Alert "S" models accept up to 30 characters, including the above and special characters, like ampersand (&).

4. In *Alarm On*, select the alarm state (**Open** or **Closed**) for your switch sensor. You may find the alarm state of your switch sensor under the *Features & Specifications* section of this Installation Note.

5. In *Alarm Profile*, which controls light towers and relays on your Room Alert Monitor, you may leave the default, **Profile 1**, or choose another profile from the drop-down menu.

6. Select **Save Settings** at the top or bottom of the page. Your Room Alert Monitor will automatically reboot and commit your changes.