



# Troubleshooting Guide- Flowmeters

Occasionally flowmeters may deliver rate values that are erratic, unusually high or unusually low or decreasing over time with no apparent corresponding cause. Here are some simple steps to take when troubleshooting your flowmeters. If they don't solve your problem, give us a call.

## Open Channel Ultrasonic Flowmeters

Open channel Ultrasonic flowmeters typically measure flow through a primary flow element. Flow is calculated by measuring water levels with an ultrasonic transducer. Improper mounting and debris are the primary causes of inaccurate readings.



1. Check for and remove any debris under or around the sensor. Debris will interfere with sensor signal
2. Check that the sensor is level in all dimensions. Sometimes sensors can be bumped during maintenance operations. The sensor must be absolutely level to provide accurate reading.
3. Confirm that meter readings have returned to normal.

## Electromagnetic Flowmeters

Electromagnetic flowmeters depend on the principle that motion between a conductor (the flowing liquid) and a magnetic field develops a voltage in the conductor that is proportional to the velocity of the liquid.



1. Check flow tube for buildup especially in thickened sludge applications.
2. Clean tube as necessary.
3. Confirm that meter readings have returned to normal

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## Differential Pressure Flowmeters

Differential pressure flow meters rely upon the Bernoulli principle. An obstruction to the flow of liquid is created within a pipe and we measure the pressure of the liquid before and after the obstruction. The square root of the pressure drop across the obstruction is proportional to the flow rate. Air or debris in the pipe will interfere with the accuracy of this measurement technique. Follow this procedure to remove air and debris from the pipe.



1. Open first the **high** pressure bleed fitting and then the **low** pressure bleed fitting. Let them flow until all air and debris are cleared from the stream. If there is no water flowing from either the high or low side, the port is clogged and you will need to remove the line set from the flow element and clean out the debris with a rod or stiff wire brush.
2. Once you are certain that all air and debris are removed, first close the low pressure bleed fitting and then the high pressure bleed fitting.
3. Confirm that your meter readings have returned to normal.

## Clamp On Flowmeters

“Clamp on” AKA “Transit time” flowmeters are ultrasonic devices that compare the transit time of ultrasonic pulses through liquid up and down stream. The difference between the upstream and downstream measurement is proportion to flow rate. The ultrasonic transducers may occasionally need cleaning. The procedure below also applies to doppler clamp on technology



1. Note the original location of each transducer.
2. Remove and clean each transducer
3. Clean the pipe.
4. Apply new dielectric silicone to each transducer.
5. Reinstall each transducer in their original location
6. Confirm that readings have returned to normal.