

Be sure to pick a location for your meter according to the installation requirements as described in the Instruction Manual, Quick Start Guide and/or installation video on the Seametrics website, under the Support & Resources tab (select Support Videos, and look for "How to Install the AG90 Battery Powered Saddle Flow Meter.")

Be sure to accurately enter the pipe ID, HOLE size, and straight PIPE parameters in the SETUP tab of the second menu screen or the meter will not operate properly.

Your meter was primarily designed to be a battery powered meter with pulse output and a standard 5-year battery life as configured from the factory. Modbus output is optional as is external DC power on 4-20mA optional output.

If the meter pulse output is not connected, be sure the meter and/or the pipe is well grounded. This may require an 8-foot ½ inch diameter ground rod driven near the meter and connected to the ground lug of the meter with a solid core 10 gauge or better wire. Improper grounding will likely cause the meter to report an incorrect or erratic reading or can force the meter into various error states.

Electrical noise caused by induced signals, electrical transients in the pipe, water, or cables, and unbalanced voltages in other pieces of equipment will cause the same issues as poor grounding and can commonly be corrected with proper grounding.

If an output is connected, these incorrect or erratic readings may be more apparent. You may also need to drive a ground rod for the device reading the pulses. In some cases the electrical potential between the meter and the recording device may be severe enough that both ends of the shield drain wire in the pulse output cable will need to be connected to ground, although this is unusual and in most cases is only necessary to connect one end.

If the meter is connected to an external power source, that power source may also need an independent ground.

The cabling supplied from Seametrics for your meter is shielded, twisted pair with a drain wire. If using other cables, be certain they are shielded, twisted pair.

In NO CASE should anything on site be tied to the ground of the VFD. Be certain to verify that the ground for any VFD is always kept independent from all other equipment. VFDs are a tremendous source of electrical noise and will commonly be the cause of a meter performing improperly. Be sure to also verify the grounds of any other motor starters in the area.

All AC power must be kept physically separate from the meter and separate from meter wiring to reduce the possibility of induced signals.

These multiple grounds may cause ground loops, although the interference from other equipment will cause more issues than most ground loops.

Note that grounding for electronic performance is far different than grounding for safety. Be sure to follow all electrical grounding rules for power and then address the added grounding concerns for your electronic equipment (a site certified 'well grounded' by an electrician is not necessarily well grounded for electronic equipment.)

If there are any performance issues with the meter, disconnect any outputs and the power (if wired) and verify the independent ground of the meter, then watch the meter performance while running the meter from the battery alone, while not connected to any output. Remember, the meter does not need an external power source to be fully functional.

If you continue to have issues, look for sources of electrical noise:

- On the pipe
- In the water
- In any equipment
- Static from water flow
- Induced from overhead lines
- Induced from other nearby equipment

After installation, be sure to leave your meter well sealed at the lid, plugs, and cord grips, or it will leak and fail over time.