

Flow

Engineering and Design

Aqua Sierra Controls has been designing and installing flow systems since 1979. Our experience comes from the many years of training and experience that Mr. Watson, the president and senior applications engineer has brought to the company. We have accumulated a large amount of experience in both open channel flow and closed pipe flow systems. Many of the closed pipe flow systems we have provided have been for water measurement, steam flow, Mass flow, gas flow and wastewater measurement.

Aqua Sierra Controls has designed and built specialty test equipment utilizing the Pitot Annubar principal for determining and verifying flow in a large closed pipe. This test equipment is currently being used for calibrating flow sites for San Francisco Water District on pipe sizes 15" to 96".



All of our calibrating equipment can be traced back to NIST and are recertified each year.

Installation

We have been able to provide turnkey mechanical and electrical flow meter installations because we hold both an A engineering design build contractor's license and a C-10 general electrical contractor's license. We have installed both standard concrete manholes and fiberglass prefabricated metering manholes with integral flumes. Some of the manholes we have installed have been as deep as 22 feet and as shallow as 3 feet deep. We have installed closed pipe meters in stainless, PVC, Ductile Iron and steel piping. We have provided retrofit work to remove an old flow meter and retrofit for a newer larger meter.



We are qualified to perform below grade installations, excavations, complete manholes and confined space entry.

Calibration and Certification



We provide a variety of flow meter calibration methods, using NIST traceable test devices such as: Signal generators, Frequency transceivers, Clamp-on Transitime meters, pressure simulators, digital manometers, Calibrated test stands and water tubes for bubbler systems, certified depth measuring instruments, Specialty flow meter calibrators furnished by individual flow meter manufactures.. Our test method utilizes NIST calibration standards using a 5 point calibration where possible and three a point for some analytical instruments. We provide in our certification reports as found

accuracy and as left accuracy after adjustment. We utilize an upper fail limit of 2% of span to determine if an individual meter passes calibration.

Calibration and Certification

We carry a variety of secondary calibrators for manufacturers such as:

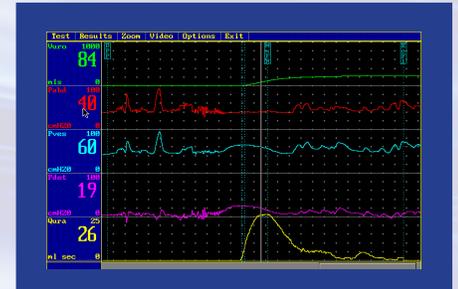
- Rosemount
- Endress & Hauser
- Siemens
- Fischer & Porter
- ABB
- Yokogawa
- Danfoss

We also utilize ultrasonic test stands, water columns, pressure chambers, portable velocity probes, deadweight pressure calibrator, clamp-on meters, RTD and thermocouple temperature calibrators.



Flow Studies

Aqua Sierra Controls has provided short term and long term flow tests for both open channel sewage flow systems and closed pipe flow systems. We have used a combination of testing instruments to verify the flow in a sewage flow stream. Technology includes: Submerged area velocity measurement, Flo-Dar non-contact ultrasonic measurement, temporary flumes and weirs, ultrasonic level and flow measurement using the Manning formula.



We have contracted with other contractors, public agencies, flow meter manufactures and engineers to provide flow studies at multiple locations for long term periods of time. We have provided service to remove the temporary flow study meters after the test date and time has been met and moved those meters to a different manhole or pipe. Our services included down loading the data logged flow data and provide a hard copy of the flow report as well as down load to a disc for future reference. Our services include programming and configuring each test instrument used for the testing process. We have contracted with other contractors, engineers, public agencies...

Below are some examples of the flow studies that we have provided

- Municipal Water Treatment
- Municipal Waste Water
- Surface Water Collection
- Groundwater Remediation
- Storm Water
- Industrial Water & Waste Water
- Well Sites

Flow Applications

We at Aqua Sierra Controls, Inc. are experienced in the design and installation of a wide variety of flowmeters, including but not limited to:

- Open Channel Flowmeters
 - Flumes
 - Weirs
 - Area Velocity Probes
 - Radar
 - Bubblers
 - Ultrasonics
 - Submerged Pressure Transducers
- Magnetic Flowmeters
- Magnetic Probe Flowmeters
- Annubars
- V-Cones
- Venturis
- Orifice Plates
- Compound Orifice Plates
- Impellers
- Turbines
- Displacement Meters
- Mass Flowmeters
- Multi-Variable Flowmeters
- Clamp-On Meters – Transit Time, Doppler



Volumetric Test Bench

We have a volumetric test bench at our facility to calibrate and certify flow meters up to 4".

