Panametrics
a Baker Hughes business

Panametrics' experience and solutions in water and wastewater

Overview

Water and wastewater are critical to human life. From processing raw water that renders it potable, to water treatment plants that release wastewater safely into our environment, these processes require several flow measurements throughout the value chain.

The water industry currently endures significant challenges caused by rapid urbanization, climate change and rising customer demands. Operators must ensure a sufficient water supply while managing resources by tracking and maintaining network efficiency, identifying leaks, and improving network segmentation while maintaining availability.

In wastewater treatment, aerobic digestion enables plants to increase their capacity cost-effectively by injecting oxygen into the wastewater head space, resulting in up to five times the treatment capacity.

Accurate measurement of oxygen concentration is vital throughout the waste processing stages. Aerobic digestion uses microorganisms which thrive in the presence of oxygen to break down the wastewater during treatment. A high oxygen concentration in an aerobic digester indicates a reduction in the microorganism population which may require replenishment.

Similarly, a low oxygen concentration can lead to a loss of microorganisms and efficiency of biodegredation. This can be remedied by increased oxygen flow to the tank aerators or a decrease in the flow of waste water. Maintaining the correct balance for maximum efficiency involves accurate flow control partnered with reliable oxygen analysis.

Flow Meter applications

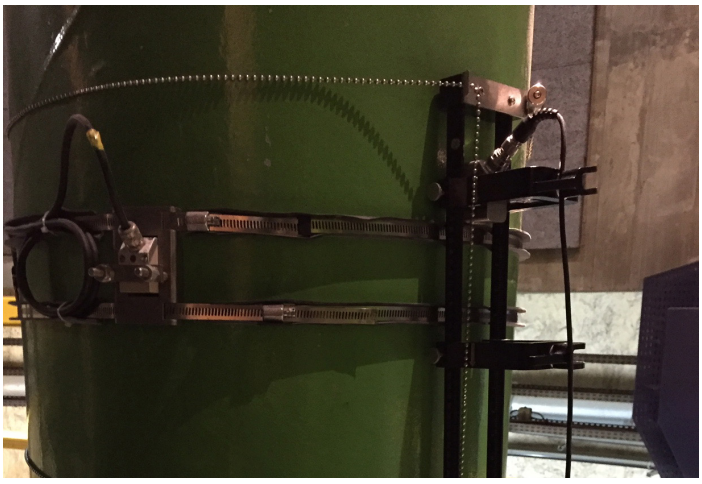
The path of water and wastewater defines when and where to establish flow measurement points. To maintain existing infrastructure, operators strongly recommend that users allow a continuous flow and install flow meters from outside the pipes. Pipe sizes vary, ranging from DN50 (2in) or less and up to DN2500 (100in) or more. Flow rates vary as well, particularly during the transition from day to night.

Panametrics' highly reliable clamp-on flow meters perfectly suit many applications and can:

- Install within minutes on the outside of the pipe
- Are able to work on a dual traverse set-up, even on large pipes (2m or 80")

- Have no interruption of process
- Able to measure both low and large flow rangeability with a single meter
- Able to work on cement, lined and GRP/FRP pipes
- No drift over time
- Energy efficient with no pressure drop
- Low CAPEX and OPEX
- Increases process availability with no downtime
- Assess the 'health' of smart meters with embedded diagnostics

Panametrics has successfully installed many AT600 and PT900 permanent and portable clamp-on flow meters, also installing supplied digester flow meters at the lowest allowable pressure, based on 35 years of experience learned from in-depth knowledge of flare meters.



Oxygen Analyzer applications

Panametrics' XMO2 thermoparamagnetic oxygen transmitter

The field proven XMO2 offers many advantages over alternate measurement technologies:

Electrochemical or fuel cell sensors: Although affordable, these sensors deplete over time and must be replaced. Exposure to high levels of oxygen can significantly shorten the lifetime of the sensor and increase calibration intervals. The XMO2 in comparison requires infrequent calibration.

Dumbbell-type paramagnetic sensors: These units contain a rotating dumbbell which may be sensitive to liquid carryover. This typically results in a costly full cell replacement without the possibility for recovery. In addition, these units are sensitive to vibration which can adversely affect their performance and lifespan.

The XMO2 in comparison adopts Panametrics no moving parts design philosophy to guarantee reliability in the toughest of applications. The thermoparamagnetic sensor can also recover from liquid carryover without permanent damage to the measurement cell.

For efficient wastewater treatment, it is critical to monitor the oxygen concentration to ensure theŁsurvival of the microorganisms that are a key component in decomposing the waste.

Panametrics XMO2 thermoparamagnetic oxygen transmitter is ideal for this application. The transmitter is assembled with a turnkey sample conditioning system and provides a 4-20mA signal to a plant's data acquisition and control system.

The XMO2 is reliable and time-proven. It has no moving parts and its cost effectiveness makes it the oxygen transmitter of choice:

- Years of reliable service
- No moving parts
- Non-Depleting sensor
- Turnkey analyzer + sampling system

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