



MONITOR LANDFILL GAS, DIGESTER GAS & BIOGAS

LANDFILL GAS FLOW MONITORING

Measuring the Landfill Gas Directly From The Ground

There are over 1000 waste disposal landfill sites throughout the country. The owners or lessees of these sites must know what quantity of gas is coming out of the well heads. Typically, the landfill gas is a mix of 50% CH₄ and 50% CO₂, although this percentage will vary from site to site, and may even vary seasonally within a site. The gas flow is at a very low pressure and the associated velocity is extremely low – well below the threshold of most flow meter technologies. However, with Sage, our Thermal Mass Flow Meter Technology has extraordinary low-end sensitivity and will detect even the slightest flow of the landfill gas. In addition Sage mass flow meters have negligible pressure drop, are resistant to contamination, can tolerate wide gas temperature fluctuations and are easy to install - all features that have direct benefit in the landfill gas application. The meter will report mass flow (no temperature or pressure devices are needed), and will also totalize the ongoing gas consumption. Convenient remote enclosures are available that eliminate any electronics at the sensor location.

Measuring the Landfill Gas to Engines That Generate Electricity

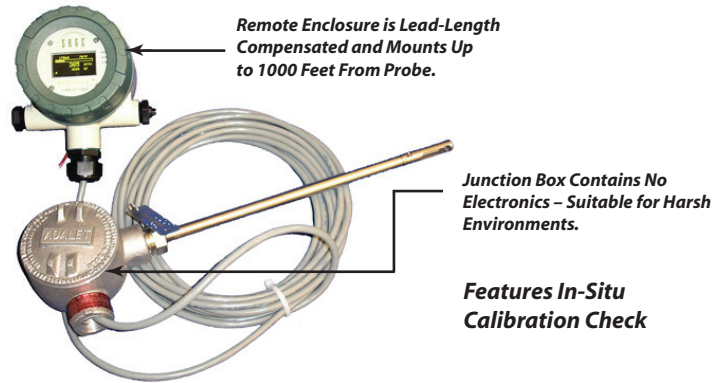
More and more landfills are using landfill gas for co-generation to generate electricity. The landfill gas runs the engines that generate electricity, the excess of which is sold and added to the power grid. Many of these landfills are also involved in Carbon Offset projects to help reduce greenhouse gas emissions and to accrue credits to meet EPA reporting standards or to comply with Kyoto or protocols.

DIGESTER GAS AND BIOGAS

Digester gas and Biogas from farming and other agricultural operations is generated from the breakdown of livestock waste when the gas is captured within a large plastic cover, known as a digester. The manure or food waste decomposes in the absence of oxygen. Normally, the decomposition of livestock waste on farming operations or dairies, results in vast sums of methane naturally venting to the atmosphere. However, by capturing this methane with an anaerobic digester, the biochemical reaction converts the methane into a mix of 65% methane and 35% carbon dioxide. A digester system can provide a source of fuel for heating or generating electricity. It also reduces greenhouse gas emissions since methane is a greenhouse gas that is 21 times more potent than carbon dioxide. There are hundreds of farming operations which reduce greenhouse gas emissions and accrue emissions credits to meet the Environmental Protection Agency's (EPA) reporting standards the US Livestock Project Protocol or to comply with Kyoto protocols.

Sage Thermal Mass Flow Meters help quantify the emissions that are saved by measuring the mass flow rate, even at very low flows, and by providing a very easy way to conduct the required periodic calibration field checks with its unique In-Situ Calibration procedure. In addition, Sage provides flare gas Flow Meters, engine Flow Meters, and a variety of other Thermal Mass Flow Meters that are involved in digester gas monitoring and reporting.

See Sage Metering product brochure for additional information and product benefits or contact us at 866-677-7243 for application assistance.



HOW DOES THERMAL MASS FLOW MEASUREMENT BENEFIT YOU?

- Direct Mass Flow – No need for separate temperature or pressure transmitters
- High Accuracy and Repeatability – Precision measurement and extraordinary repeatability
- Rangeable over 100:1 and resolution as much as 1000 to 1
- Low-End Sensitivity – Detects leaks, and measures flow, even on start-up
- Negligible Pressure Drop – Will not impede the flow nor waste energy
- No Moving Parts – Eliminates costly bearing replacements, and prevents undetected accuracy shifts
- Dirt Insensitive – Provides sustained performance
- Ease of installation and convenient mounting hardware

WHAT ARE THE BENEFITS THAT SAGE THERMAL MASS FLOW METERS OFFER YOU?

- Calibration milliwatts (mw) is continuously displayed, providing for ongoing diagnostics, and in-situ calibration check
- Rugged, user-friendly packaging with easy terminal access
- Low power dissipation, under 2.5 Watts (e.g. under 100 ma at 24 VDC)
- Powerful state-of-the-art microprocessor technology for high performance mass flow measurement and low cost-of-ownership
- Proprietary digital sensor drive circuit provides enhanced signal stability and unaffected by process temperature and pressure changes
- Remote Style has Lead-Length Compensation. Allows Remote Electronics up to 1000 feet from probe; Explosion Proof Junction Box has no circuitry, just terminals (suitable for harsh environments)
- Field reconfigurability via Addresser software
- Captive Flow Conditioners for Insertion Meter applications, optional