

FOX APPLICATION GUIDE

Thermal Flow Meters for Mixed Gas Applications

TYPICAL APPLICATIONS INCLUDE:

- Biogas Flow Measurement
- Digester Gas Flow Measurement
- Flare Gas Flow Measurement
- Vent Gas Flow Measurement
- Landfill Gas Flow Measurement
- Natural Gas Flow Measurement
- Liquefied Petroleum Gas (LPG) Flow Measurement

Thermal Mass Flow Measurement

Fox Thermal flow meters use a constant temperature differential (constant ΔT) technology to measure mass flow rate of air and gases. The thermal mass flow sensor consists of two Resistance Temperature Detectors (RTD's). The sensor elements are constructed of a reference grade platinum wire wound around ceramic mandrels that are inserted into stainless steel or Hastelloy tubes.

The Reference RTD measures the gas temperature. The instrument electronics heat the mass flow sensor, or heated element, to a constant temperature differential (constant ΔT) above the gas temperature and measures the cooling effect of the gas flow. The electrical power required to maintain a constant temperature differential is directly proportional to the gas mass flow rate. The microprocessor then linearizes this signal to deliver a linear 4-20mA signal.

Fox Thermal Flow Meters Provide These Advantages

- Exceptional low-flow sensitivity provides accurate measurement over a wide range of venting, flaring and combustion applications
- Stainless steel sensor is suitable for corrosive, particulate-laden gas streams
- No temperature and pressure compensation required
- Built-in alarms, totalizer and a wide variety of communications protocols available for easy interfacing with emissions management systems

Real time responsiveness for a variety of mixed gas flow measurement applications

Mixed gas mass flow meters from Fox Thermal deliver the highest level of accuracy for a wide range of applications. The Gas-SelectX® gas selection feature - available on the FT1, FT4A, and FTX products - allows the user to create a custom gas mix ideal for these mixed gas applications:



There are a large number of industrial and oil & gas processes requiring mixed gas flow measurement.



Biogas is a common mixed gas application for thermal mass flow meters.

- **Mixed Gas Mass Flow Meter**

Fox Thermal mixed gas mass flow meters are used to measure a variety of mixed gases including digester gas and biogas.

- **Biogas Mass Flow Meter**

Fox Thermal flow meters' wide turndown provides an accurate measurement of the fuel gas.

- **Digester Gas Mass Flow Meter**

Fox Thermal flow meters are widely used to monitor gases from anaerobic digesters.

- **Flare Gas Mass Flow Meter**

Flares are subject to regulations requiring operators to measure, record and report the amount of flared gases. Fox Thermal insertion meters are easily installed in pipes, ducts and stacks.

- **Vent (Flash) Gas Mass Flow Meter**

Volatile Organic Compound (VOC) concentrations as well as VOC flow rates must be measured to evaluate mass emission rate. Fox Thermal flow meters are widely used in these applications.

- **Landfill Gas Mass Flow Meter**

The EPA requires landfill operators to collect the methane produced on site. Fox Thermal flow meters' excellent low-velocity measurement capability makes them suitable for these operations.

- **Natural Gas Mass Flow Meter**

Fox Thermal meters provide accurate, repeatable performance in natural gas monitoring and sub-metering applications.

- **Liquefied Petroleum Gas (LPG) Mass Flow Meter**

Propane, Butane, and Propane/Butane mixtures can be measured.



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