



## Typical Applications Include:

- University campuses and industrial parks use totalizing flowmeters to allocate fuel costs to various buildings and/or tenants.
- Natural gas check meters are often used to document usage, negotiate rates and resolve billing disputes.
- Fox flowmeters may be used to monitor and bill for fuel consumption on skid-mounted generators and compressors.
- Sub-metering by department or process helps manufacturers assess inefficiencies, assign costs and implement conservation measures.



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## Thermal Flow Meters Facilitate Energy Accounting and Custody Transfer

Rising energy prices have made daily accounting of natural gas usage a priority for large industrial facilities with multiple processes and/or buildings. Fuel gas flow meters are used to analyze demand, improve operating efficiency, reduce waste and adjust for peak usage.

In the past, conventional flowmeters, such as orifice plates, venturis, vortex and turbine meters were often used to measure natural gas consumption. However, these volumetric devices offer limited rangeability and require pressure and temperature transmitters to compensate for density changes.

Today, the thermal mass flowmeter has become the preferred device for many energy accounting and custody transfer applications. The thermal flowmeter measures gas mass flow directly, with no need for additional hardware. It also provides better rangeability and a lower pressure drop than volumetric flowmeters.

In addition to energy accounting, thermal flowmeters help plant managers provide accurate usage reports for environmental compliance, and compare measured usage to billing reports from gas providers.

Fox insertion-type meters are easily mounted in suitable installation points throughout the facility, and provide an accurate, repeatable reading of natural gas consumption by plant, process, or tenant. In constrained areas, Fox inline meters reduce the traditional requirements for straight, unobstructed upstream piping and simplify installation.

In addition to the primary benefits of direct measurement of mass flow rate, low-flow sensitivity, and fast response, the thermal flowmeter's no-moving parts design also helps reduce maintenance costs.

One manufacturer replaced a fuel measurement system that consisted of turbine meters with ancillary pressure and temperature transducers with thermal flowmeters. Not only did they reduce the time and expense associated with servicing the turbine meters, they also found that the thermal flowmeters wide turndown provided a more accurate measurement at low and varied loads, ensuring accurate cost-allocation and improved combustion control capability.

The FOX Model FT2 flowmeter provides isolated 4-20 mA and pulse outputs for flow rate, as well as a 4-20 mA output for process gas temperature. For ease of integration, it supports a wide range of communication protocols, including RS422/RS485-Modbus, ProfibusDP, DeviceNet and Ethernet. The instrument is FM and FMc approved for Class I, II, III, Division 2, Groups A, B, C, D, E, F, G, T4A hazardous locations, NEMA 4X and CE approved.