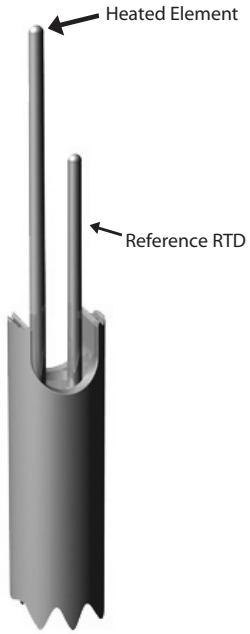
Fox Thermal Mass Gas Flowmeters Theory of Operation

- Direct mass flow measurement of air and gases in standard volumetric units (i.e. SCFM or NM3/H) or mass units (i.e. lbs/m or kg/h)
- No additional pressure or temperature compensation required
- Exceptionally broad measurement range, (100 to 1 typical) including very low velocity flow rates
- Linear 4—20 mA output proportional to mass flow rate
- Linear 4—20 mA output for process temperature (Model FT2 only)
- Low pressure drop
- No moving parts
- Insertion and inline configurations
- Microprocessor based, field rangeable electronics
- Proprietary Power Pro™ Sensor
- Measures flow rate and flow total

FOX THERMAL INSTRUMENTS, INC.
399 Reservation Road
Marina, CA 93933
Phone: (831) 384-4300
Fax: (831) 384-4312
sales@foxthermalinstruments.com
www.foxthermalinstruments.com

Repeatable Gas Mass Flow Measurement

Fox Thermal Flowmeters use a constant temperature differential (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.

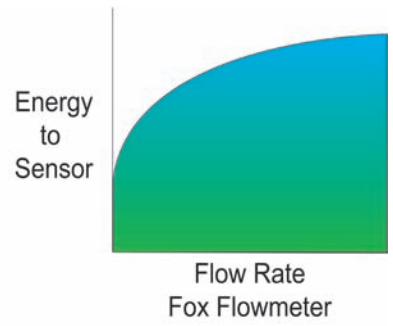


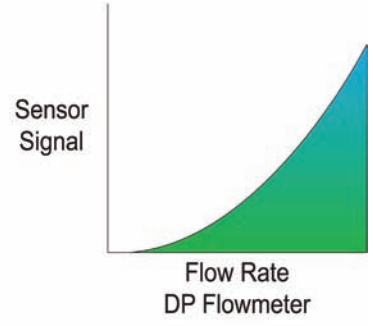
The Reference RTD measures the gas temperature. The instrument electronics heat the mass flow sensor, or heated element, to a constant temperature differential (ΔT) above the gas temperature and measures the cooling effect of the gas flow. The electrical power required to maintain a constant temperature differential is directly proportional to the gas mass flow rate.

The microprocessor then linearizes this signal to deliver a linear 4—20 mA signal.

Power Pro™ Sensor

The FOX Power Pro™ Sensor operates at a higher power level than other competitive thermal technologies, providing better response time and wider turndown. Compared to a typical Different Pressure type flowmeter, as shown below, the Power Pro sensor offers better low flow or low end sensitivity. The Power Pro sensor also provides exceptional accuracy at high velocities — up to 50,000 SFPM air.





Common Gases: Air, ammonia, argon, biogas, butane, chlorine, compressed air, carbon monoxide, carbon dioxide, digester gas, ethane, ethylene, helium, hydrogen, methane, mixed gases, natural gas, nitrogen, oxygen, propane, and many more.