Thermal mass gas flow meter controller

FTM09

Suitable for high temperature and high pressure environments Corrosive or compressed gas measurement

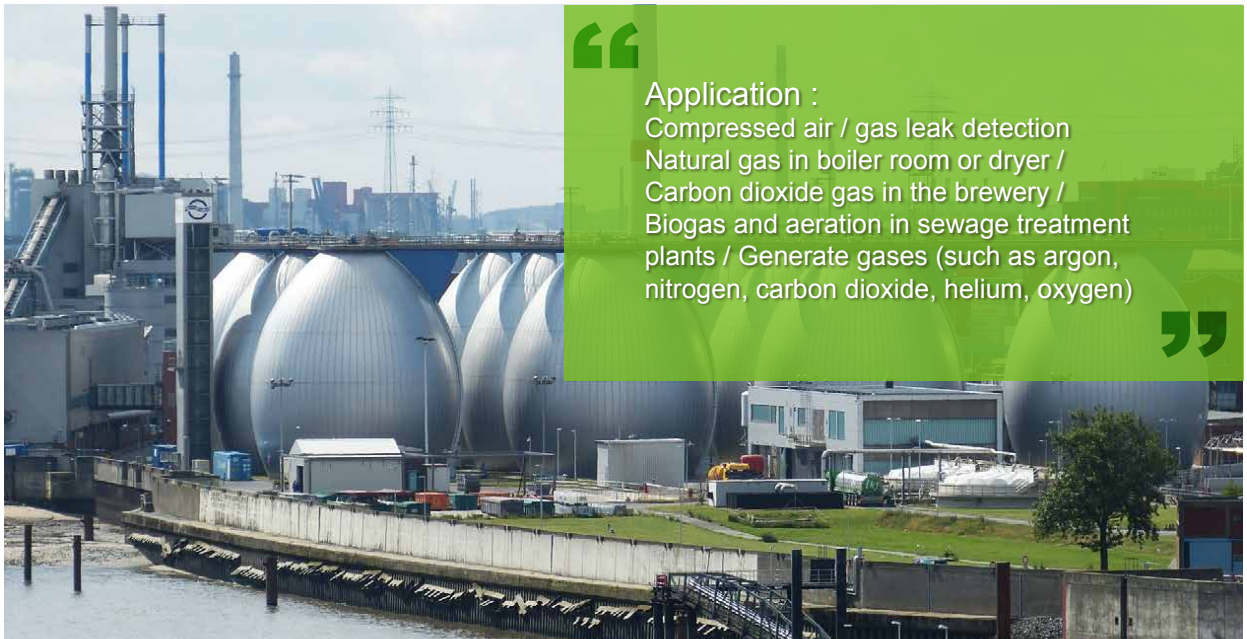
PRELIMINARY

| Features |

- LED ; RS-485 interface · HART
- Can measure natural gas or dust, high humidity, various corrosive gases
- Multiple mode switching : temperature, wind speed, air volume, cumulant, physical output, RS-485 digital, analog output
- Self-test function for maintenance and commissioning

| Introduction |

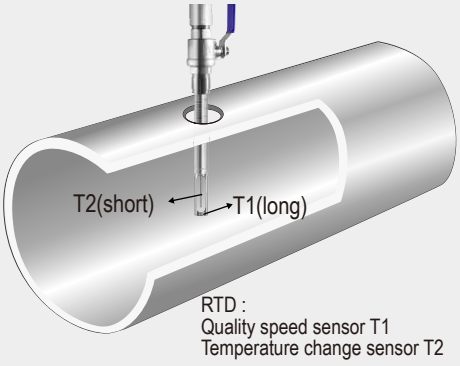
FTM09 Thermal Gas Mass Flow converter is designed on the basis of thermal dispersion, and adopts the method of constant differential temperature to measuring gas flow. It has advantages of small size, easy installation, high reliability and high accuracy, etc. Excellent nonlinearity correction function, greatly improve the appearance of linearity. Improve the ability of anti-interference and vibration resistance. Strong versatility, can be matched with the vortex sensor, vortex precession, turbine output frequency signal using, the rich self-checking information makes easy maintenance and debugging.



Application :
Compressed air / gas leak detection
Natural gas in boiler room or dryer /
Carbon dioxide gas in the brewery /
Biogas and aeration in sewage treatment plants / Generate gases (such as argon, nitrogen, carbon dioxide, helium, oxygen)

| Product Application |

| Working Principle |



Kim's law according to thermal effects:
Heating power P, Temp. difference △T (T_1 - T_2) and quality flow Q relationship:

$$\frac{P}{\triangle T} = K_1 + K_2 \times f(Qm)K^3$$

K_1、K_2、K_3: constants related to gas physical properties
△T：Temperature difference (=T_2 T_1), K
P：Input heating power, W
Qm：Mass flow, kg/s

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 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.

| Specification |

Item	Function & Parameter
Sensor	PT20 / PT1000 ; PT20 / PT300
Medium	Applicable to various gases such as natural gas, including dust, sand, moisture and other corrosive gases (except acetylene gas)
Accuracy	1.0% ; 1.5% ; 2.0%
Turndown ratio	100 : 1
Pipe diameter range	Plug-in type : DN15 ... DN4000mm ; Pipe type : DN15 ... DN2000mm
Flow range	10,000m3/h (Ø200 air)
Pressure range	Plug-in type: medium pressure ≦ 2.5Mpa ; Pipeline type: medium pressure ≦ 4.0Mpa
Temperature range	0 ... 200℃
Transmitter housing material	316L Stainless steel
Output	4 ... 20mA, RS-485, Pulse ; HART
	Reaction time 1sec.
Live display	LED 16 characters x 4 lines
Electrical	Operating voltage：DC24V/1.5A；Operating current：<750 mA
Protection level	IP67
Cable hole	M20x1.5