

## Technical Details for Thermal Mass Flow Meter:

### Thermal Mass Flow Sensor



### Working Principle:

The thermal mass meter measures Gas/Air flow based upon the concept of convective Heat Transfer. Either in-line flow bodies or insertion-style probes of the meter support two sensors that interface with the gas being measured.

The sensors are RTD's , consisting of extremely durable reference-grade platinum Windings clad in a protective 316 SS or Hastelloy C enclosure. One of the RTD is heated by an integrated circuit and functions as the flow sensor, while a Second RTD acts as the reference sensor, and determines the Gas/Air temp.

As media flows by the heated sensor, flowing gas molecules transport heat away from the sensor and as a result, the sensor cools and the energy is lost. The circuit balance is disrupted, and the temperature difference  $\Delta T$  between the heated RTD and the reference sensor has been altered. Within a second, the circuit restores the lost energy by heating the flow sensor, to adjust the overheat temperature. The electrical power required to sustain this overheat denotes the flow signal.

### Technical Specification:

Description	Specification
<b>Measuring Media</b>	Various type of Gases (except acetylene)/Air / Compressed Air
<b>Line Size</b>	Insertion type: 15- 150 mm
<b>Velocity</b>	0.5 to 100 Nm/s
<b>Accuracy</b>	±2.0%
<b>Working Temperature</b>	-10°C to +80°C / -10°C to +250°C(Optional)
<b>Working Pressure</b>	16 bar (Consult Factory for High Pressure)
<b>Power Supply</b>	24 VDC from Display unit
<b>Output</b>	Retransmission to display unit
<b>Sensor Type</b>	Standard Insertion
<b>Construction</b>	Compact and Remote
<b>Protection</b>	Split wall-mounted type IP65; Panel-mounted IP52
<b>Sensor Enclosure</b>	Flameproof – Aluminium Die Cast – Ex Proof
<b>Process Connection</b>	SS304 Threaded End / SS304 Flange End

## Digital Flow Rate Indicator – Totaliser – Transmitter Unit:



### **Technical Specification:**

Description	Specification
<b>Function</b>	Digital Flow Rate Indicator- Totaliser
<b>Supply</b>	24 VDC / 230 VAC
<b>Display</b>	7 Segment Bright LED Display – 2 lines for Flow rate & Totaliser
<b>Programming</b>	Through Front Keys
<b>Output</b>	4-20mA – retransmission
<b>Communication</b>	RS485 Modbus
<b>Alarm Output</b>	NO/NC, High / Low
<b>Size</b>	IP 65 – ABS Enclosure – 150 X 150 X 100 mm (For Remote Mount) IP 52 – ABS Enclosure – 96 X 96 X 50 mm (For Panel Mount)
<b>Cut Out</b>	90 X 90 (For Panel Mount)
<b>Input</b>	From Thermal Mass Flow Sensor
<b>Features</b>	Mass flow, Volume flow (normal condition), Integrated flow, Standard
<b>Accuracy</b>	+/- 1% of Full Range
<b>Repeatability</b>	+/- 0.5% of Full Range

### **Features:**

- Measuring the mass flow or volume flow of gas/air
- Do not need to do temperature and pressure compensation.
- Wide range: 0.5Nm/s~100Nm/s for gas.
- Good Vibration Resistance.
- Easy installation can realize hot-tap installation and maintenance.
- Dual power (AC220V+DC24V) available.
- Modularization PCB, easily repairable
- Insertion with anti-flush-out design for high pressure, more safety