Research at Delta M has led to the development of a new Thermal Mass Flowmeter specifically designed to operate in gases. The new Delta M TrendMassTer® thermal mass flowmeter is based on the brand new patented RATIO-THERMIC® technology developed exclusively by the Delta M research group.

**Theory of Operation**

Our unique sensor uses the mass flowing through a process line much like an electrical circuit uses a resistor. Changes in fluid velocity, thermal conductivity, density, temperature, and pressure affect the value of this thermal resistor. Our microprocessor based electronics constantly monitor this thermal resistance and adjust the outputs based on these changes and report the actual mass flow in the process line in real time. This allows the output of direct mass flow without the need for a flow computer to assume mass flow rate from separately measured process variables, making it more accurate, and its installation and maintenance much simpler and more cost effective.
**Specifications**

**Instrument**
- **Accuracy:** 1% of rate to +0.5% of Full Scale
- **Repeatability:** ±1% of reading
- **Time Response:** 0.5 to 30 seconds
- **Temperature Effect:** 0.1% per degree C within ±20°C
- **Instrumental Enclosure:** Double sided non explosion proof (STD)
  - Double sided NEMA 4X (optional)

**Electronics**
- **Input Power:**
  - AC 100 to 240 VAC; 47 to 63 Hz @ 15 watts.
  - DC 18 to 30 VDC @ 24 watts
- **Operating Temperature Range:**
  - Standard 32° to 122° F (0° to 50° C)
  - Blind Display -20° to 185° F (-29° to 85° C)
- **Outputs:**
  - Analog: dual 4-20 mA, isolated with external loop power
  - Digital: RS485
  - Switched: Dual open drain
- **Communications:**
  - Simple 4 button (DS - Option)
  - RS485 configuration via control system or laptop

**Air Mass Flow Rate Range**

<table>
<thead>
<tr>
<th>Pipe Size (in)</th>
<th>SCFM</th>
<th>Nm³/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>300</td>
<td>500</td>
</tr>
<tr>
<td>6</td>
<td>2,500</td>
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</tr>
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<td>12</td>
<td>10,050</td>
<td>17,100</td>
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</tr>
<tr>
<td>24</td>
<td>35,700</td>
<td>60,700</td>
</tr>
</tbody>
</table>

**Features & Benefits**
- No moving parts - no mechanical failures
- Direct mass flow - no secondary measurements
- Low pressure drop - no restrictions
- Wide flow range - includes low flow
- All welded sensor construction - rugged and durable

**Display Features**
- 32 character LCD display (16 x 2 LED backlit)
- 4 button internal keypad for field configuration
- Selectable Variables - mass, volume, totalizer & temperature
- Constant data update

**Sensor**

**Physical Design:**
- Shrouded for ruggedness
- Fully Penetrated welds for long life
- Wide variety of alloys & materials

**Temperature Rating:**
- Standard: -58 to 300 °F (-50 to 150 °C)
- Medium: to 480 °F (250 °C)
- High: to 650 °F (350 °C)

**Operating Pressure Range:**
- to 3000 PSIG