# Eldridge Products, Inc.

*a leading manufacturer of thermal gas flow meters since 1988*

***Eldridge Products, Inc. has pursued innovation and excellence in thermal dispersion gas mass flow measurement since 1988. Thermal flow meters offer simple, low cost operation for accurate, economical and reliable gas flow measurement for various applications - Compressed Air, Biogas, Natural gas, Aeration, Digesters, Landfills, HVAC systems — virtually any gas flow application. Master-Touch™ flow meters can solve your gas measurement challenges.***

***Master-Touch™ Series 8600MP & 8700MP Flow Meters are for use in hazardous area locations (Flame poof locations), Certified to* CSA/CUS, ATEX, IECEx, KOSHA standards.**

***Inline style thermal mass flow meters*** include a flow section that is usually specified to match the user's process line. This design has the sensing elements mounted directly in the flow section for exposure to the process gas. Our inline style thermal mass flow meters are available in sizes from 1/4" pipe through 4" pipe or tube, and are provided with a variety of mounting conventions, such as MNPT ends, tube end fittings, butt weld ends, flanged end configurations, etc. as required. Pipe sizes in excess of 4" typically require insertion style thermal mass flow meters.

***Integral style thermal mass flow meters*** all of the components and connections are located within the enclosure. The enclosure is Explosion proof (Flame proof) rated for use in hazardous area locations. The enclosure is mounted directly to the insertion probe assembly. The enclosure contains the electrical connections, signal processing electronics and the LCD display, with programming keypad.

Thermal mass flow meters generally follow King's Law, and use the principle of convective heat transfer to directly measure mass flow. EPI's proprietary thermal mass flow sensors use two ***precisely matched***, reference-grade platinum Resistance Temperature Detectors (RTDs). The sensor elements are ***hermetically sealed*** in 316L Stainless Steel (or optional Hastelloy C276) thin wall sheaths. Our microcontroller operated smart sensor technology preferentially heats one RTD; the other RTD acts as the temperature reference. The process gas flow dissipates heat from the first RTD, causing an increase in the power required to maintain a balance between the RTDs. This increase is directly related to the molecular gas flow rate. Our sensors are temperature compensated for a wide process gas temperature range and insensitive to pressure changes, therefore the flow meter output is a direct mass flow rate value.

**THERMAL GAS MASS FLOW MEASUREMENT APPLICATIONS —**

- Compressed Air Monitoring
- Natural Gas Consumption
- Ventilation Hood Alarms
- Water & Wastes Aeration
- Bio / Digester Gas Production
- Landfill Gas Recovery
- Boiler Combustion Efficiency
- Stack / Flue Gases
- Pharmaceutical Clean Rooms
- Semiconductor Fabrication
- Food Processing
- Nitrogen Purging
- Pulp & Paper Mills

and many more!

## Specifications

| | |
|---|---|
| Linear signal output | 0–5 VDC & 4–20 mA (Flow and Temperature) |
| Event Relays (Two) | 1 Amp @ 30 Vdc<br>Event selectable functions (see Manual) |
| Communication Protocols | RS232 & RS485 Modbus RTU or BACnet<br>Optional HART or Profibus DP |
| Display LCD 2-line 16-character | Rate, Total, milliwatts, Temperature, Event |
| Accuracy including linearity (Ref.: 21°C)* | ±(1% of Reading + 0.5% of Full Scale + GTC) |
| Repeatability | ±0.2% of Full Scale |
| Sensor response time | 1 second to 63% of final value |
| Turn down ratio | 100:1; 10 SFPM (0.05 NMPS) Minimum |
| Withstands Ambient temperature (electronics) | -40° to 158°F (-40° to 70°C) |
| Suitable Process Gas temperature range** | -40° to 392°F (-40° to 200°C) |
| Gas temperature coefficient (GTC) | 0.02% Full Scale/°C |
| Gas pressure effect | Negligible over ± 20% of absolute calibration pressure |
| Pressure rating maximum | 500 PSI Std. |
| Input power requirement | 6 Watts<br>24VDC @ 250mA<br>120 VAC 50/60 Hz optional<br>240 VAC 50/60 Hz optional |
| Flow Meter power requirements | 5 watts maximum |
| Date/Time RAM Back-up | Lithium Button Cell, ten-year life, Quantity 1 |
| Wetted materials | 316L Stainless Steel (Optional Hastelloy C276) |
| Standard temperature & pressure (STP) | 70°F & 29.92" Hg (Air 0.075 lb./cubic foot)<br>Optional 0°C & 1.0132 BarA (Air 0.081 lb./cubic foot)<br>Or user specified STP at time of order |
| NIST traceable calibration | Yes |

* EPI is not responsible for measurement errors due to flow profile irregularities caused by installation, piping configurations surface corrosion or scale, valve placement, etc.
** Specify average process operating temperature, with high & low limits.

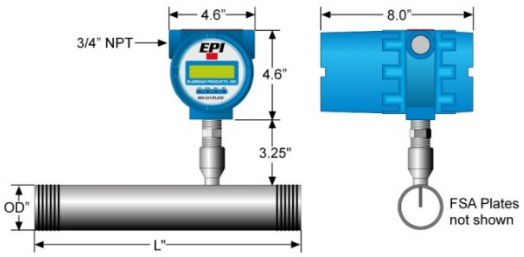
**NOTE: Specifications subject to change without notice. Consult our web site, www.epiflow.com, at time of order.**

**NOTE: Eldridge Terms & Conditions for sales available on our web site, www.epiflow.com.**

## Certification Choices

CSA/CUS, ATEX, IECEx, KOSHA (specify preference at time of order)

Flow Transmitter Assembly




| Model Number | MNPT | Length | Model Number | MNPT | Length |
|---|---|---|---|---|---|
| 8636MP | 1/4" | 6" | 8710MP | 1 1/4" | 10" |
| 8649MP | 3/8" | 6" | 8712MP | 1 1/2" | 14" |
| 8659MP | 1/2" | 7" | 8716MP | 2" | 14" |
| 8669MP | 3/4" | 7" | 8720MP | 2 1/2" | 14" |
| 8689MP | 1" | 8" | 8724MP | 3" Flanged | 14" |
| | | | 8732MP | 4" Flanged | 14" |

### APPROVAL CHOICES

**CSA/CUS**
APPROVED INSTRUMENT
For use in hazardous area locations; Class I Group B, C, D; Class II Group E, F, G; Class III: Encl Type 4X; Class I Zone I; AEx d IIB+H2 IP66; Ex d IIB+H2 IP66; T2 or T3 or T4 as marked; Ta = 0°C to 50°C

**ATEX**
APPROVED INSTRUMENT
For use in hazardous area locations; Ta = 0°C TO 50°C; IP66; Ex d IIB+H2 T4 Gb/ Ex t IIIC T135°C Db or Ex d IIB+H2 T3 Gb/EX t IIIC T200°C Db or Ex d IIB+H2 T2 Gb/EX t IIIC T300°C Db; SIRA 12ATEX1302

**IECEx**
APPROVED INSTRUMENT
For use in hazardous area locations; T2 or T3 or T4 as marked; Ta = 0°C to 50°C; Ex d IIB+H2 T2...T4 Gb IP66; Ex tD A21 IP66 T135°C...T300°C
IECEx CSA 11.0014

**KOSHA**
APPROVED INSTRUMENT
For use in hazardous area locations; Class I Group B, C, D; Class II Group E, F, G; Class III; Encl Type 4X; Class I Zone I;
AEx d IIB+H2 IP66
Ex d IIB+H2 T2...T4 Gb IP66; Ex tD A21 IP66 T135°C...T300°C

Eldridge Products, Inc. • 465 Reservation Road • Marina, CA 93933 USA
T: 1.831.648.7777 • F: 1.831.648.7780 • E: sales@epiflow.com • www.epiflow.com