# Eldridge Products, Inc.

## Manufacturer of Master-Touch™ Thermal Gas Mass Flowmeters

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***Eldridge Products, Inc. has pursued innovation and excellence in thermal dispersion gas mass flow measurement for 25 years. With all of the major industry approvals and a variety of configuration and installation choices, our Master-Touch™ flowmeters could be solving your measurement challenges, too.***

## Master-Touch™ Series 9800MP Flowmeters

***MP Series flowmeters are approved for use in hazardous locations (see specifications)***

***Insertion style thermal mass flowmeters*** include a sensor & probe assembly that is inserted into the process gas flow conduit to allow the process gas to flow across the flow inlet tube. Our insertion style flowmeters are available with 1/2", 3/4", or 1" OD probes. Tube fittings and ball valve retractor assemblies, with or without a mounting flange, are also available from the factory as options. The tube length is determined by the size of the process pipe. Large ducts or stacks may require multiple averaging tubes to achieve the very best accuracy. For problematic or unique installations, please consult the factory.

***Integral style thermal mass flowmeters*** have all of the electrical components and connections located within one enclosure. This enclosure may be rated for either hazardous environments (MP Series) or for ordinary, non-hazardous environments (MPNH Series), as necessary. The enclosure is mounted directly to the inline flow section or to the insertion probe assembly at the point of measurement. The enclosure includes the all of the electrical connections as well as the linearizing electronics and the display/keypad assembly.

Our patented **Flow Averaging Tubes**™ (FAT™) use the principle of convective heat transfer to directly measure mass flow, and are well suited to most applications with limited available straight run. In many installations, the up-stream straight run can be reduced to three diameters. The probe has a number of large diameter inlet ports along the length of the upstream impact surface. The pressure at each inlet port is averaged inside the tube to create the axial flow through the tube and across our flow sensor. The gas returns to the main flow stream through the ports located near the sensing elements. Anomalies in the actual flow profile or installations in non-circular ducts may still some require minor adjustment to achieve the best accuracy.

**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!

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## Specifications

| | |
|---|---|
| Linear signal output | 0–5 VDC & 4–20 mA |
| Signal Interface | RS232 & RS485 Modbus RTU embedded<br>HART, Profibus DP (optional) |
| Accuracy, including linearity (Ref.: 21°C)* | ±[1% of Reading + (.5% + .05%/°C of Full Scale)] |
| Repeatability | ±0.2% of Full Scale |
| Sensor response time | 1 second |
| Turn down ratio | 100:1 (1500 SFPM/7.6 NMPS minimum) |
| Electronics temperature range | -40°–85°C (-40°–185°F) |
| Gas temperature range | -40°–65°C (-40°–150°F) |
| Gas pressure effect | Negligible over ± 20% of absolute calibration pressure |
| Pressure rating maximum | 500 PSI Std., > 500 PSI special |
| Input power requirement | 24VDC @ 250mA<br>115 VAC 50/60 Hz optional<br>230 VAC 50/60 Hz optional |
| Flow Transmitter power requirements | 5 watts maximum |
| RAM Back-up | Lithium Battery |
| Wetted materials | 316 Stainless Steel (Hastelloy optional) |
| Standard temperature & pressure (STP) | 70°F & 29.92" Hg (Air .075 lb./cubic foot) |
| NIST traceable calibration | Standard |

* The accuracy specification applies to the instrument only. EPI is not responsible for measurement errors due to flow profile irregularities caused by installation piping configurations, corrosion on inner pipe surfaces, valve placement, etc.

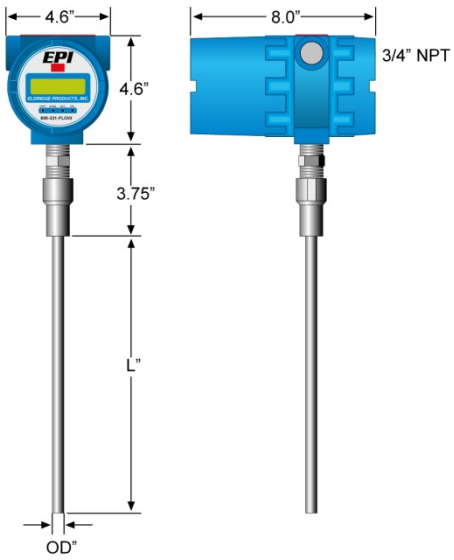
## Approval Choices

MP Series Flow Transmitter — CSA/CUS, ATEX, IECEx, KOSHA (customer to specify)

| Model Number | OD" | Length |
|---|---|---|
| 9840MP | 1/2" | to 36" |
| 9860MP | 3/4" | to 60" |
| 9880MP | 1" | to 84" |

⚠ **Not available for Oxygen service.**

Flow Transmitter Assembly




### 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+$H_2$ IP66; Ex d IIB+$H_2$ 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+$H_2$ T4 Gb/ Ex t IIIC T135°C Db or Ex d IIB+$H_2$ T3 Gb/EX t IIIC T200°C Db or Ex d IIB+$H_2$ 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