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 9700MP Flow Meters are for use in hazardous area locations (Flame poof locations), Certified to* CSA/CUS, ATEX, IECEx, KOSHA standards.**

Inline style thermal mass flowmeters include a flow section that is usually specified to match the user's flow conduit and is then plumbed directly into the process line. This design has the sensing elements mounted directly on the flow section for exposure to the process gas. Our inline style flow averaging thermal mass flowmeters are available in sizes from 2" pipe through 6" pipe and are provided with flanged end configurations. Pipe sizes in excess of 6" typically require insertion style thermal mass flow meters.

Integral style thermal mass flowmeters 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.

Our patented **Flow Averaging Tubes**™ (FAT™) 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. Well suited for applications with limited straight run. Up-stream straight run can be reduced to three diameters. Probe has a number of large diameter inlet ports along the length. The pressure at each inlet port is averaged to create the axial flow across our flow sensor. The gas returns to the main flow stream through the return port. The actual flow profile 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!

Specifications

Linear signal output	0–5 VDC & 4–20 mA (Flow and Temperature)
Event Relays (Two)	1 Amp @ 30 Vdc Event selectable functions (see Manual)
Communication Protocols	RS232 & RS485 Modbus RTU or BACnet 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 24VDC @ 250mA 120 VAC 50/60 Hz optional 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) Optional 0°C & 1.0132 BarA (Air 0.081 lb./cubic foot) Or user specified STP at time of order
NIST traceable calibration	Yes

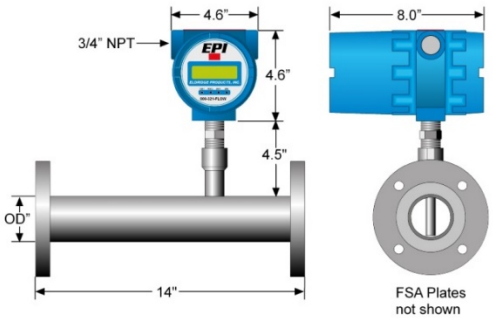
* EPI is not responsible for measurement errors due to flow profile irregularities caused by installation, piping configurations surface corrosion or scale, valve placement, etc.
** Specify average process operating temperature, with high & low limits.

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)



Model Number	OD	Length
9716MP	2"	14"
9720MP	2 1/2"	14"
9724MP	3"	14"
9732MP	4"	14"

Not available for Oxygen service.

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

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