Eldridge Products, Inc.

Manufacturer of Master-Touch™ Thermal Gas Mass Flowmeters

Eldridge Products, Inc. has pursued innovation and excellence in thermal dispersion gas mass flow measurement for 25 years. Our Master-Touch™ flowmeters are installed across the US and around world. 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 8200MP 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 sensing elements. 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 must be specified upon ordering. Standard lengths range from a minimum of 6" to a maximum of 36". For other probe diameters and lengths, please consult the factory.

Remote style thermal mass flowmeters utilize two enclosures. One enclosure is mounted at the point of measurement on the flow section or on the probe assembly. This enclosure may be rated for either hazardous environments or for ordinary, non-hazardous environments, as necessary. The second (remote) enclosure is usually placed in a readily accessible location rated for non-hazardous conditions. (Contact the factory for information concerning remote explosion-proof enclosure). The remote enclosure includes the all of the electrical connections as well as the linearizing electronics and the display/keypad assembly. Only a two-wire, twisted-pair cable is required to carry the input power and flow signal between the two enclosures.

Thermal mass flowmeters use the principle of convective heat transfer to directly measure mass flow. EPI's proprietary thermal mass flow sensors use two ratiometrically-matched, reference-grade platinum Resistance Temperature Detectors (RTDs). The platinum sensing element wire is encapsulated in a 316 Stainless Steel sheath or, if specified, a Hastelloy C sheath. A forced null, Wheatstone bridge, 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 gas molecular rate of flow. Our sensors are temperature compensated and insensitive to pressure changes, so the output signal is a true mass flow rate signal.

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

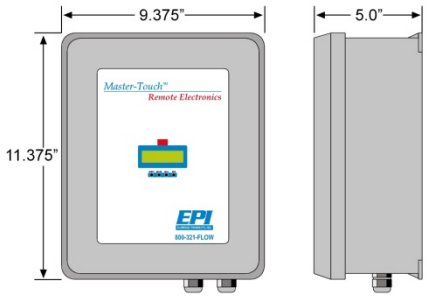
Linear signal output	0–5 VDC & 4–20 mA
Signal Interface	RS232 & RS485 Modbus RTU embedded HART, Profibus DP (optional)
Accuracy, including linearity (Ref.: 21°C)*	±[1% of Reading + (.5% + .02%/°C of Full Scale)]
Repeatability	±0.2% of Full Scale
Sensor response time	1 second
Turn down ratio	100:1 (1500 SFPM/7.6 NMPS minimum)
Electronics temperature range	-40°–85°C (-40°–185°F)
Gas temperature range**	-40°–200°C (-40°–392°F) extended range available
Gas pressure effect	Negligible over ± 20% of absolute calibration pressure
Pressure rating maximum	500 PSI Std., > 500 PSI special
Input power requirement	24VDC @ 250mA 115 VAC 50/60 Hz optional 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.
** Consult factory for options required for 66°–200°C (150°–392°F)

Approval Choices

MP Series Flow Transmitter —	CSA/CUS, ATEX, IECEx, KOSHA (customer to specify)
MP Series Remote Enclosure —	Ordinary (Non-Hazardous) area locations (standard)
	CSA/CUS, ATEX, IECEx, KOSHA (optional; customer to specify)

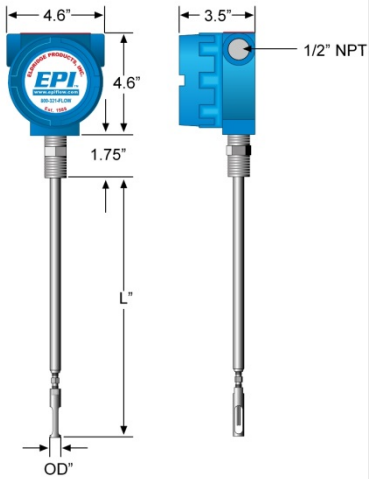
Remote Electronics Enclosure



Two-wire, twisted pair interconnect cable required between Remote Electronics and Flow Transmitter (max. 5 ohm resistance).

AWG	Wire Length
20	200'
18	300'
16	500'
14	800'
12	1250'

Flow Transmitter Assembly



Model Number	OD"	Length
8240MP	1/2"	to 36"
8260MP	3/4"	to 60"
8280MP	1"	to 84"

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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