

Series 9100MP (FAT)

A leading manufacturer of Thermal Mass Flow Meters Since 1988.

Eldridge Products, Inc. has pursued innovation and excellence in thermal dispersion mass flow measurements since 1988. Thermal Mass Flow Meters offer simple, low cost operating for accurate, economical and reliable gas flow measurements for various applications - Compressed Air, Biogas, Natural Gas, Aeration, Digesters, Landfill, Wet Gas, HVAC systems - virtually any gas flow application. Master-Touch flow meters can solve your gas measurement challenges.

Master-Touch Series 9100MP Flow Meters are for use in hazardous area locations (flame proof locations) Certified to CSA/CUS, ATEX, IECEx, KOSHA standard. (see specifications)

Inline Style Thermal Mass Flow Meters 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 in the flow section for exposure to the process gas. Our inline style flow averaging thermal flowmeters are available in sizes from 2" pipe through 6" pipe and are provided with flanged end configurations, as required. Pipe sizes in excess of 6" typically require insertion style thermal mass flow meters.

Remote Style Thermal Mass Flow Meters utilize two enclosures. The probe 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. The remote enclosure has a Type 4X rating and is usually placed in a readily accessible non-hazardous area (Ordinary location). Optionally available, is an Explosion-proof remote enclosure. Only a four-wire, twisted pair cable is required to carry the input power and flow signal between the two enclosures.



2" X 14" Length
Shown here

**SERIES
9100MP FAT**

THERMAL GAS MASS FLOW MEASUREMENT APPLICATIONS-

Compressed Air Monitoring
Ventilation Hood Alarms
Bio / Digester Gas production
Boiler Combustion Efficiency
Pharmaceutical Clean Rooms
Food Processing
Pulp & Paper Mills
and many more.....

Natural Gas Consumption
Water & Waste Aeration
Landfill Gas Recovery
Stack / Flue Gases
Semiconductor Fabrication
Nitrogen Purging

Master-Touch™

Flow Averaging Tube (FAT)



Series 9100MP (FAT)

Our patented Flow Averaging Tubes™ (FAT™) 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 signal is a true direct mass flow rate value. Well suited for application with limited straight run. Up-stream straight run can be reduced to three diameters. Probe has a number of large diameters 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 require some minor adjustments to achieve the best accuracy.

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. Optional HART, BACnet or Profibus DP
Display LCD 2-line 16-character	Flow Rate, Flow 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 / .05 NMPS Minimum Reading
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) Extended range available
Gas temperature coefficient (GTC)	0.02% Full Scale/°C
Gas pressure effect	Negligible over ± 20% of factory calibration pressure
Pressure rating maximum	500 PSI Std.
Input power requirement	24 Vdc @ 250mA 120 Vac 50/60 Hz optiona 240 Vac 50/60 Hz optiona
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.

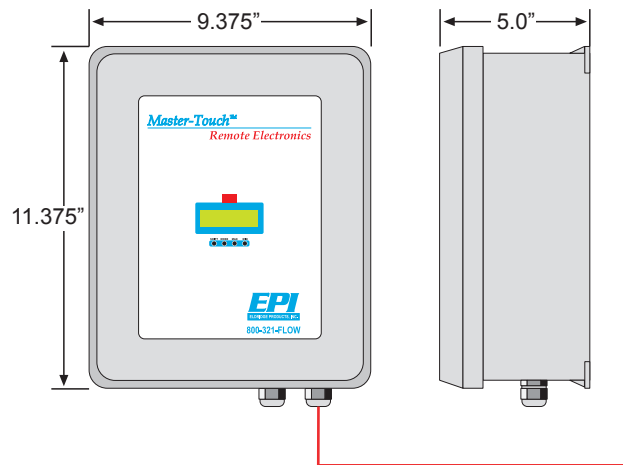
NOTE: Eldridge Terms & Conditions for sales available on our web site, www.epiflow.com.

Master-Touch™

Series 9100MP (FAT)

Dimensional Specifications

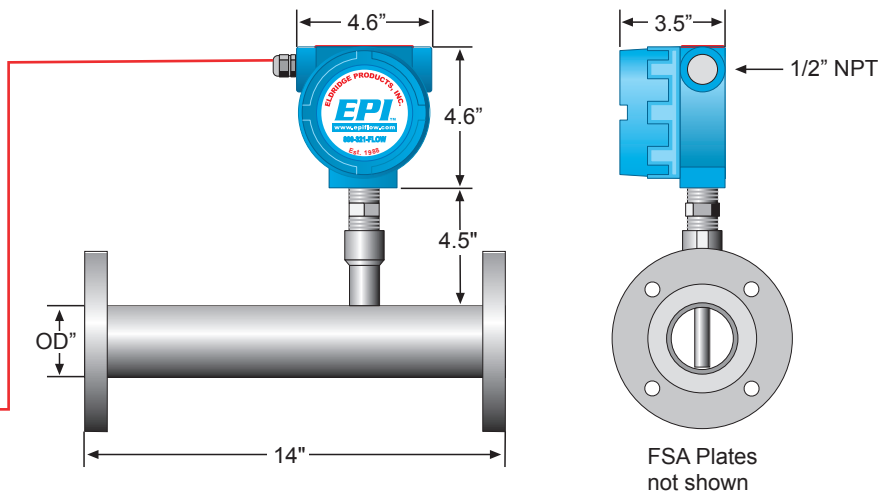
Remote Electronics Enclosure



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

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

Flow Transmitter Assembly



Model Number	MNPT"	Length
9116MP	2"	14"
9120MP	2 1/2"	14"
9124MP	3"	14"
9132MP	4"	14"

Certification Choices

Flow Transmitter - CSA/CUS, ATEX, IECEx, KOSHA (Specify preference at time of order)

Remote Enclosure - CSA/CUS Non-Hazardous area location (Ordinary Locations)

Optional CSA/CUS, ATEX, IECEx, KOSHA (Specify preference at the time of order)



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
Consult Factory for T3 or T4



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
Consult Factory for T3 or T4



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
Consult Factory for T3 or T4



ATEX
APPROVED INSTRUMENT
For use in hazardous area locations; Ta = 0°C to 50°C; IP66; Ex d IIB + H2 T4 Gb / Ex t IIC T135°C Db or EX d IIB + H2 T3 Gb/ Ex t IIC T2000°C Db or Ex d IIB + H2 T2 Gb/Ex t IIC T3000°C Db; SIRA 12ATEX1302
Consult Factory for T3 or T4



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YOUR
TODAY

Series 9100 (FAT)

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Engineering &
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