

## Series 9100MPNH (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. With all of the major industry approvals and a variety of configurations and installations choices, our Master-Touch flow meters can solve your gas measurement challenges.*

**Master-Touch Series 9100MPNH Flow Meters are approved for use in ordinary locations (See specifications)**

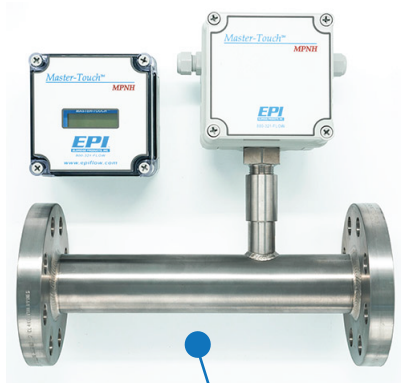
**Inline Style Thermal Mass Flow Meters** include a flow section that is usually specified to match the user's flow conduit and is then plumbed directly into the process line. This design has the sensing elements mounted directly in the flow section for exposure to the process gas. Our inline style flow averaging thermal flowmeters are available in sizes from 2" pipe through 4" pipe and are provided with flanged end configurations, as required. Pipe sizes in excess of 4" typically require insertion style thermal mass flow meters.

**Remote Style Thermal Mass Flow Meters** 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, 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 all of the electrical connections as well as the linearizing electronics and the display/keypad assembly.

### 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



2" X 14" Length  
Shown here

**SERIES  
9100MPNH**

# Master-Touch™

Flow Averaging Tube (FAT)



## Series 9100MPNH (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-characte	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 @15,000 SFPM / 76 NMPS Minimum FS
Withstands Ambient temperature (electronics)	-40° to 120°F (5° to 65°C)
Suitable Process Gas temperature range**	-40° to 150°F (-40° to 200°C) Extended range available
Gas temperature coefficient (GTC)	0.05% Full Scale /°C @ 40°-100° F (5°-40°C) 0.10% Full Scale /°C @ 100°- 150°F (40°- 65° 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.

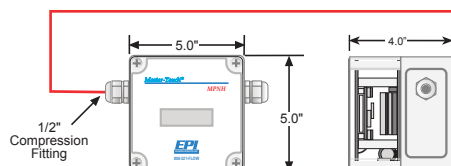
\*\* Specify average process operating temperature, with high & low limits.

NOTE: Specifications subject to change without notice. Consult our web site, [www.epiflow.com](http://www.epiflow.com), at time of order.

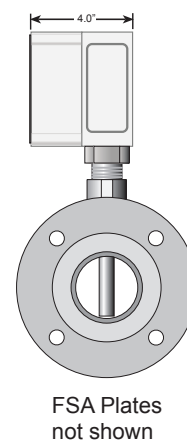
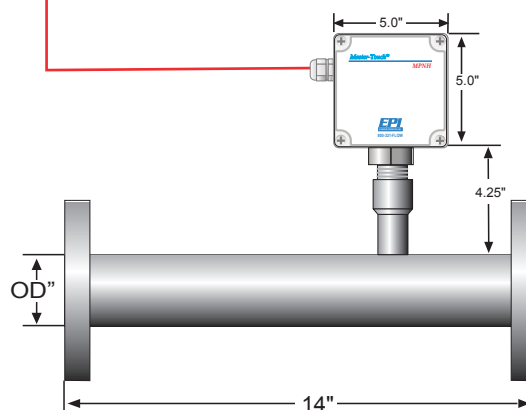
NOTE: Eldridge Terms & Conditions for sales available on our web site, [www.epiflow.com](http://www.epiflow.com).

### Dimensional Specifications

Remote Electronics Enclosure



Flow Transmitter Assembly



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

**!** Not available for Oxygen service.

### Certification Choices

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

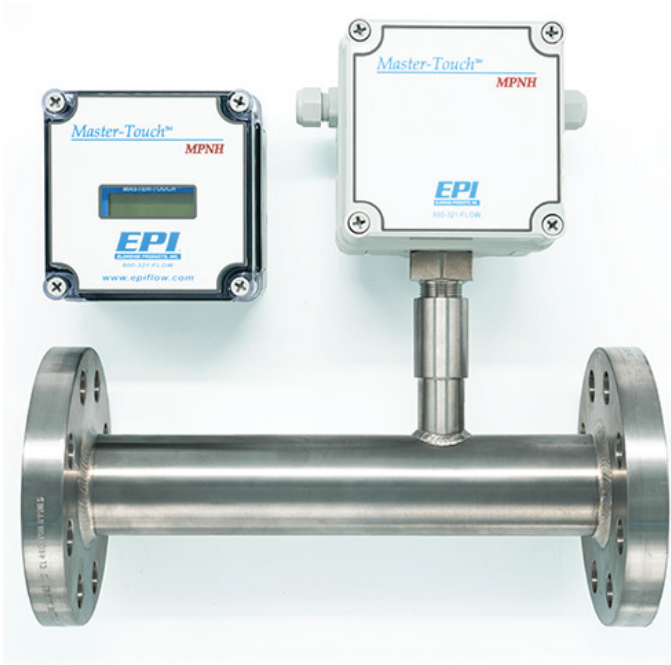


CSA/CUS



CE  
APPROVED INSTRUMENT

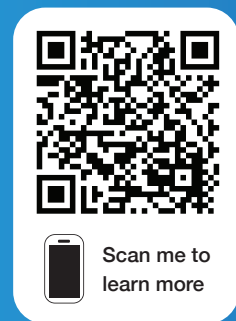
APPROVED INSTRUMENT  
 Class 2252-03 Process Control  
 Equipment for Ordinary Locations;  
 Class 2252-80 Process Control  
 Equipment for Ordinary Locations.



ORDER  
YOURS  
TODAY

# Series 9100MPNH (FAT)

WANT TO LEARN MORE...



Visit:  
[www.epiflow.com](http://www.epiflow.com)



Call us at:  
800.321.FLOW



To place an order, email:  
[sales@epiflow.com](mailto:sales@epiflow.com)