



Insertion Thermal Mass Flowmeter Series ATMF 8000 IS

➤ GENERAL

The SMC insertion mass Flowmeters are thermal dispersion type, utilizing constant temperature difference method of measuring Gas Mass Flow Rate. It contains two reference grade platinum RTD sensors clad in a protective 316 SS sheath. Features direct Mass Flow for gases ,wide rangeability, low pressure drop, very low end sensitivity, and no moving parts. The SMC ATMF series is microprocessor based, does not have any potentiometers. Electronics can be Integral Style, or remote mount with rugged windowed dual compartment enclosure with local or remote display. Four models available from the low cost blind meters to the more exotic featured SP models.

Calibration Self Check: Flow Meter has built in diagnostics - a display of the calibration milliwatts (mw) can be used to check the sensor's operation by being compared to the original reported "zero flow" value noted on meter's Certificate of Conformance (last few lines) and metallic tag. This convenient in-situ field diagnostic procedure verifies that the original factory calibration hasn't drifted, shifted, or changed. This "Sensor Functionality and Zero Self Check" also verifies that the sensor is free from contamination, even without inspection.

➤ FEATURES

- ❑ Direct mass flow measurement of any gas with actual gas calibration
- ❑ Opto-isolated outputs, with graphic display
- ❑ Tracking of overall gas consumption over a turndown ratio of at least 100:1
- ❑ Up to four in-dependent switch able flow curves
- ❑ high contrast photo-emissive OLED display with rate,total, temperature and graphic display
- ❑ Selectable engineering units, dynamically converts the flow rate and total flow
- ❑ Can measure higher velocity than any other thermal mass meter - up to 203 m/s
- ❑ Display calibration milliwatt (mw) for ongoing diagonostics
- ❑ Standard software available multi-curve fit programs
- ❑ Low power dissipation under 2W
- ❑ Captive flow conditioners for insertion meters



➤ SPECIFICATION

- | | | | |
|------------------------------|--|--------------------------------|--|
| ● Process Connection : | Threaded, Flanged, Ball valve | ● Housing protection : | NEMA 4,Class 1, Div 1, Groups B, C, & D |
| ● Process temperature : | 0 to +455°C | ● Ex-protection : | II 2 GD EEx d IIC T2 or T3 or T4 |
| ● Operating pressure : | 69 barg (1000 PSIG) | | |
| ● Mass Velocity : | Up to 203 normal meters per second | ● Cable (remote version) : | 300 meters |
| ● Flow units : | Kg/hr, Kg/mn, Kg/s Lb\hr, Lb/m Lb/s
NCMH, SCFM, NLPM, SLPM
Mt/s, F/mn, BTU/Hr, BTU/min | ● Wetted materials : | 316 SSS (Hastelloy and Monel optional) |
| ● Gas pressure effect : | Minor < ±20% of calibration pressure | ● weight : | |
| ● Gas temperature effect : | 0.01%/°C | Integral Ex proof : | 4.0 kg |
| ● Accuracy (and linearity) : | ±[1% of Reading +(.5% FS)] | Remote Ex proof : | 7.0 kg |
| | ± 0.2% of Full Scale | Integral Non-Ex proof : | 1.5 kg |
| Repeatability : | ± 0.25% of Full Scale | Remote Non Ex proof : | 3.0 kg |
| ● Turn down ratio : | Over 100:1 | ● Linear signal output : | 0-5 VDC & 4-20 mA |
| ● Response time : | Less than one seconds | ● Pulse output : | scalable |
| ● Material : | 316SS as per DIN 1.4571 (AISI 316 Ti) | ● Relays : | Two 1-amp, SPDT
User-selectable alarm functions |
| | | ● Signal Interface : | RS232 & RS485, HART, MODBUS,etc.. |
| ● Display units : | Flow, Total flow, Switch settings
Temperature, Elapsed time | ● Power requirements : | 115VAC @, 1/8 A 230VAC @ 1/16 A
24 VDC @ 1/4A, 12 VDC |
| ● RAM Back-up : | Lithium Battery | ● Power Consumption : | 2.5 Watts (SP), or less 6W other models |
| ● Data storage : | EPROM storage up to 10 years | ● NIST traceable calibration : | Standard |
| | | ● Self diagnostics functions : | ADC, DAC,
Alarm relay for EMI impulse noise |

SmartMeasurement

10437 Innovation Drive, Suite 315, Milwaukee, WI 53226, USA
TEL : +1-866-404-5415 FAX : +1-414 -433-1606

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URL : <http://www.smartmeasurement.com>
E-mail : sales@smartmeasurement.com

ATMF8000IS-SE

2-Line Backlit LCD Display and 4 Button Menuing Keypad
 Explosion Proof Dual Compartment enclosure
 Remote Explosion Proof Junction Box for remote mount option
 CSA, ATEX Class I, Div 1, Groups B, C, & D. T3 DC power, T2 AC
 Available in 12VDC, 24VDC, 115-230VAC (under 6W)
 Accuracy (and linearity) : $\pm[1\% \text{ of Reading } + (.5\% \text{ FS})]$
 4-20 ma isolated output (optionally configurable for Temperature)
 One dry contact Relay (Pulsed Output, or Trip High or Trip Low)
 RS232 Communication and Menuing Software
 Zero Calibration Self Check Diagnostics
 4 different applications , 4 different configurations)

ATMF8000IS-SL

Opto-isolated outputs
 Accuracy (and linearity) : $\pm[1\% \text{ of Reading } + (.5\% \text{ FS})]$
 Blind Nema 4X Enclosure
 Blind Remote Nema 4X Enclosure with Explosion Proof Junction Box
 24 VDC or 115VAC/230 VAC
 LOW COST No Display
 4-20 ma, pulse, and 0 - 5 VDC output of Temperature
 RS232 Communication and Software (upon request)
 Single Channel Operation
 Optional Diagnostics

ATMF8000IS-SP

Calibration milliwatt (mw) displayed for ongoing diagnostics
 Available in 12VDC, 24VDC, 115-230VAC (2.5W)
 Calibration self-check (built in diagnostics)
 Available with MODBUS (IEEE 32 Bit floating point) and RS485
 Remote Windowed Enclosure - Dual compartment
 with terminal access, and Explosion Proof Junction Box
 Accuracy (and linearity) : $\pm[1\% \text{ of Reading } + (.5\% \text{ FS})]$
 CE, UL, CSA and ATEX Ex proof Class1, Div1, Group B,C,D
 Separate power and output terminals
 Optional programmable USB dongle to adjust electronics
 Displays rate, total, temperature and graphical Flowrate,
 Portable rechargeable battery powered version available

ATMF8000IS-SG

Opto-isolated outputs
 Accuracy (and linearity) : $\pm[1\% \text{ of Reading } + (.5\% \text{ FS})]$
 Integral windowed Nema 4X Enclosure
 Remote Windowed Nema 4X with Explosion Proof Junction Box
 24 VDC or 115VAC/230 VAC
 2-Line Backlit Touch Screen Display & 4 Button Menuing Keypad
 2 Dry contact Relay (Pulsed, or Trip High or Trip Low)
 RS232 Communication and Menuing Software
 Four channels (4 different gases, 4 different configurations)
 Zero Calibration Self Check Diagnostics

