GENERAL

SMC inline mass Flowmeters are thermal dispersion type, utilizing the 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 include 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 and 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 are available ranging from the low cost blind meters to the more advanced SP models. Calibration Self Check: Each meter has built in diagnostics - a display of the calibration mill watts (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 field diagnostic procedure verifies that the original factory calibration hasn’t drifted, shifted, or changed. This “Sensor Functionalit...y 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 independent, switchable flow curves
- High contrast photo-emissive OLED display with rate, total, temperature and graphic display
- User-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 mill watt (mw) for ongoing diagnostics
- Standard software available with multi-curve fit programs
- Low power dissipation; under 2W
- Flow conditioners included with all meters

SPECIFICATION

- Process Connection : Threaded, Flanged
- Process temperature : 149°C (300°F)
- Operating pressure : 69 Barg (1000 PSIG)
- Mass Flow rate : See model selection guide section
- Flow units : Kg/hr., Kg/mm, Kg/s Lb./hr., Lb./m Lb./s NCMH, SCFM, NLPM, SLPM M/s, F/mn, BTU/Hr., BTU/min
- Gas temperature effect : ± 0.01% /°C
- Accuracy (and linearity) : ±[1% of Reading + (.5% FS)] ± 0.2% of Full Scale
- Repeatability : ± 0.25% of Full Scale
- Turn down ratio : Over 100:1
- Response time : Less than one second
- Material : 316SS as per DIN 1.4571 (AISI 316 Ti)
- Linear signal output : 0-5 VDC & 4-20 mA
- Pulse output : scalable
- Relays : Two 1-amp, SPDT
- User-selectable alarm functions
- Display units : Flow, Total flow, Switch settings
- Temperature, Elapsed time
- RAM Back-up : Lithium Battery
- Data storage : EPROM storage up to 10 years
- Signal Interface : RS232 & RS485, MODBUS, etc..
- Housing protection : NEMA 4,Class 1, Div 1, Groups B, C, & D
- Ex-protection : II 2 GD EEx d IIC T2 or T3
- Cable (remote version) : 300 meters
- Wetted materials : 316 SSS (Hastelloy, etc.)
- weight (approximate) :
  - ¼” to 1” : 3 and 4”
  - 1¼” to 2½” : 4.5 KG (8.81 - 22Lb)
  - 1¼” to 1” : 1 to 4 Kg (2.2 - 8.8Lb)
  - 1¼” to 2½” : 2-3 Kg (4.4 - 6.6Lb)
- Integral Type :
  - Remote Type :
  - ¼” to 1” : 3 to 6 Kg (6.6 - 13.2 Lb.)
  - 1¼” to 2½” : 6-8 Kg (13.2 - 17.6 Lb.)
  - 3” and 4” : 8-10 KG (17.6-22Lb)
- Notes:-weight +0.5 kg (1 Lb.) for 150# flanges + 1kg (2.2Lb) for 300#
- Power requirements : 115VAC @ 1/8 A 230VAC @ 1/16 A 24 VDC @ 1/4A
- Power Consumption : 2 Watts or less
- NIST traceable : Standard for all calibration

Smartmeasurement™
10437 Innovation Drive, Suite 315, Milwaukee, WI 53226, USA
URL : http://www.smartmeasurement.com
E-mail : sales@smartmeasurement.com
ATMF8000IL-SIX

Heavy Industrial Windowed Explosion Proof Dual Compartment enclosure
Remote Explosion Proof Junction Box for remote mount option
ATEX Zone I,II 2 G Ex d IIB+H2 T6 Gb
Available in 12VDC, 24VDC, 115-230VAC (under 6W)
Accuracy (and linearity) : ±[1% of Reading +(.5% FS)]
4-20 mA isolated output (optionally HART)
One dry contact relay (Pulsed Output, or Trip High or Trip Low)
RS232 communication and menuing software
Zero Calibration Self Check Diagnostics
Optional programmable USB dongle to adjust electronics
Displays rate, total, temperature and graphical flowrate,
Calibration mill watt (mw) displayed for ongoing diagnostics

ATMF8000IL-SP

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 separate terminal access, and explosion proof junction box
Accuracy (and linearity) : ±[1% of Reading +(.5% FS)]
CE, UL, CSA 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 barrier powered version available
Calibration mill watt (mw) displayed for ongoing diagnostics

ATMF8000IL-SC

Any Non-hazardous gases
Temperature -40° to 200°F (93°C), Optional to 300°F (149°C)
Accuracy (and linearity) : ±[1% of Reading +(.5% FS)]
Integral and remote styles
Digital system allows raw signal validation (milli-watts)
24 VDC or 115VAC/230 VAC
Photo-emissive OLED graphical display (Flow Rate, Totalizer, Temperature)
4 to 20 mA for Rate; 24VDC pulse for Totalized value
RS232 Communication
Modbus® compliant RS485 RTU communications (optional)
Field re-configurability via optional Addresser software

ATMF8000IL-SA

Low cost Air, O2 and N2 ONLY (0.3Nm/s~60Nm/s)
Temperature Range ~-40++100°C (212°F)
Accuracy (and linearity) : ±[1% of Reading +(.5% FS)]
Integral windowed Nema 4X Enclosure
Remote Windowed Nema 4X with explosion proof junction box
AC85~265V or DC13.5~42V
2-Line Backlit Touch Screen Display & 4 Button Menuing Keypad
4~20mA@HART or RS~485
Maximum pressure 40 barg (580 PSIG)
Display - Mass , volumetric flow (normalized)
Total flow, Velocity and temperature
Procedures to specify our inline mass meters

You also need to provide the following information:

| Gas Composition | NIST certified calibration is done with actual or equivalent gas - gas type or mixture MUST be given |
| Full Scale Flow  | Maximum and minimum flow rates and units MUST be provided |
| Line Size        | Line size and connection MUST be provided (see selection guide below for options) |
| Gas Pressure and Temperature | Calibration is done at operating or maximum pressure and temperature |
| Electronics Temperature | Temperature of the environment surrounding the Flowmeters electronics. |
| Power Requirements | Specify requirements such as 12, 24 VDC or 115 VAC or 230 VAC |
| Configuration    | See below transmitter styles |

### Model Selection Guide

#### ATMF Series Inline meters

Example: ATMF-8000IL-SP-I-05-15'-TFC05-DC24-O2 (40 nmps, 40°C and 12 Barg)

<table>
<thead>
<tr>
<th>Style</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIX</td>
<td>INTEGRAL INDUSTRIAL MASS FLOW METER (includes graphical display) (ATEX/CSA Exd)</td>
</tr>
<tr>
<td>SA</td>
<td>LOW COST MASS FLOW METER (Air, O2 and N2 ONLY) ((0.3Nm/s ~ 60Nm/s))</td>
</tr>
<tr>
<td>SC</td>
<td>Non-Hazardous MASS FLOW METER (includes graphical display)</td>
</tr>
<tr>
<td>SP</td>
<td>INTEGRAL INDUSTRIAL MASS FLOW METER (includes graphical display) (CSA Exd)</td>
</tr>
<tr>
<td>I</td>
<td>Integral</td>
</tr>
<tr>
<td>R</td>
<td>Remote</td>
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#### Connection

<table>
<thead>
<tr>
<th>Connection</th>
<th>AMF 8000 IL- 025</th>
<th>AMF 8000 IL- 030</th>
<th>AMF 8000 IL- 050</th>
<th>AMF 8000 IL- 075</th>
<th>AMF 8000 IL- 100</th>
<th>AMF 8000 IL- 125</th>
<th>AMF 8000 IL- 150</th>
<th>AMF 8000 IL- 200</th>
<th>AMF 8000 IL- 250</th>
<th>AMF 8000 IL- 300</th>
<th>AMF 8000 IL- 400</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼” X 6’ L IN-LINE FLOWBODY**</td>
<td>1/8” X 6’ L IN-LINE FLOWBODY</td>
<td>⅜” X 7’ L IN-LINE FLOW BODY</td>
<td>⅛” X 7’ L IN-LINE FLOW BODY w/ Flow Conditioners</td>
<td>1” X 8’ L IN-LINE FLOW BODY w/ Flow Conditioners</td>
<td>1¼” X 10’ L IN-LINE FLOWBODY w/ Flow</td>
<td>1½” X 12’ L IN-LINE FLOW BODY w/ Flow</td>
<td>2” X 12’ L IN-LINE FLOW BODY w/ Flow</td>
<td>2½” X 12’ L IN-LINE FLOWBODY w/ Flow</td>
<td>3” X 12’ L IN-LINE FLOW BODY w/ Flow Conditioners (Requires Flanges)</td>
<td>4” X 12’ L IN-LINE FLOW BODY w/ Flow Conditioners (Requires Flanges)</td>
<td>150LB ANSI RAISED FLANGED ENDS S150FLG</td>
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</table>

#### Power Supply

<table>
<thead>
<tr>
<th>Power Supply</th>
<th>Gas?</th>
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<tbody>
<tr>
<td>12VDC</td>
<td>Gas?</td>
</tr>
<tr>
<td>24VDC</td>
<td>Gas?</td>
</tr>
<tr>
<td>110-115VAC</td>
<td>Gas?</td>
</tr>
<tr>
<td>220-240VAC</td>
<td>Gas?</td>
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</table>

#### Options (please contact SMC for others not included here)

<table>
<thead>
<tr>
<th>Options</th>
<th>Gas</th>
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</thead>
<tbody>
<tr>
<td>BASIC ADDRESSER SOFTWARE AND ULINX (RS485 TO USB) FOR SP models ADDRESSER</td>
<td>ADDRESSER</td>
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<tr>
<td>ADVANCED RECONFIGURATION SOFTWARE FOR SP models (DOWNLOAD) ADDRESSER PLU</td>
<td>ADDRESSER PLU</td>
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<tr>
<td>DONGLE ASSEMBLY W/ CABLE FOR SP model DONGLEWCBL</td>
<td>DONGLEWCBL</td>
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<tr>
<td>NON-STD CABLE LENGTH FOR REMOTE METERS - CBL xxx</td>
<td>CBL xxx</td>
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<td>AFTER-CAL DATA AND CERTIFICATE CACERT</td>
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<tr>
<td>HASTELLOY SENSOR HSILS</td>
<td>HSILS</td>
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<tr>
<td>HIGH TEMP OPERATION (GAS FROM 200 - 350° F- 93°C to 177°C) HTO1</td>
<td>HTO1</td>
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<tr>
<td>VERY HIGH TEMPERATURE OPERATION (GAS FROM 350 - 450°F 177°C to 232°C ) HTO2</td>
<td>HTO2</td>
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<tr>
<td>EXTREME HIGH TEMPERATURE OPERATION (GAS TO 750°F or 400 °C HTO3</td>
<td>HTO3</td>
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<tr>
<td>Extra RANGEs (up to four)only for SE and SG models RG2</td>
<td>RG2</td>
</tr>
<tr>
<td>OXYGEN FINAL CLEAN (with Certificate) OFC</td>
<td>OFC</td>
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