



# ALIAMASS

## Thermal Mass Flowmeter ATMF8000 Inline Series


### GENERAL

The ATMF8000 inline mass flowmeter comes standard with flow and temperature sensing elements, bridge amplifier & signal conditioning circuit, transmitter enclosure, and flow section. Both integral and remote electronics configurations are available (see drawings below). The flow section is installed directly in the flow line and is user-specified to match the final piping configuration. The flow & temperature sensing elements are mounted in the flow section for direct exposure to the process gas. Available line sizes range from ¼" through 4" nominal pipe diameter with standard with male NPT process connections. Optional process connections include tube end-style, butt-weld ends, ANSI and DIN style flanges, BSPP threads, and SAE style threads. For line sizes in excess of 4" (100 mm), SMC offers an insertion style mass flow sensor.

### FEATURES

- ❑ Direct mass flow measurement of any gas with actual gas calibration
- ❑ Up to four independent, switchable flow curves
- ❑ Tracking of overall gas consumption over a turndown ratio of at least 100:1
- ❑ Selectable engineering units, dynamically converts the flow rate and total flow
- ❑ A 2 line, 16 character display for rate, total, and relay status
- ❑ Data logger capable of storing flow, velocity, temperature, and total
- ❑ Available with infrared communicator for remote access of data
- ❑ Standard software available with multi-curve fit programs
- ❑ Up to 20 instant flow adjustments

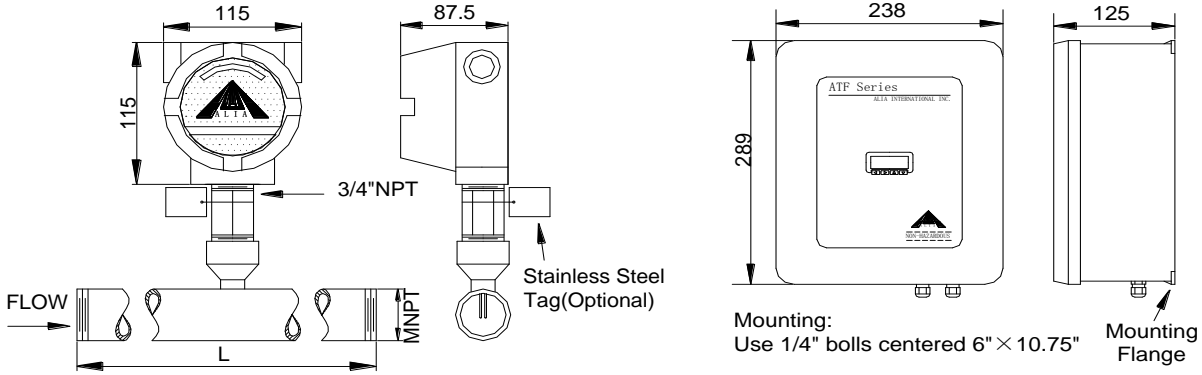
### SPECIFICATIONS

- Process connections: Threaded, Flanged
- Process temperature: 32 - 392 °F (0 - 200°C)
- Operating pressure: 580 psi (40 bar)
- Mass flow rate: See model selection guide section
- 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
- Gas temperature effect: 0.01% /° C
- Accuracy (and linearity):  $\pm 1\%$  of Reading + (.5% FS+ .02%/°C)]  
 $\pm 0.2\%$  of Full Scale
- Repeatability:  $\pm 0.25\%$  of Full Scale
- Turndown ratio: > 100:1
- Response time: < one second
- Material: 316SS as per DIN 1.4571 (AISI 316 Ti)
- Data logger: Flow rate, Total, Relays, etc.  
5800 data
- Linear signal output: 0-5 V<sub>DC</sub> & 4-20 mA
- Pulse output: scalable
- Relays: Two 1-amp, SPDT (Form C)  
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
- Self diagnostics functions: ADC, DAC,  
Alarm relay for EMI impulse noise
- Signal interface: RS232 & RS485, HART, 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 or T4  

- Cable (remote version): 985' (300 meters)
- Wetted materials: 316 SSS and Hastelloy (optional)
- weight (approximate):
- Integral type:
  - 8636MP to 8659MP: 2-9 lbs (1-4 Kg)
  - 8669MP to 8689MP: 4½-6½ lbs (2-3 Kg)
  - 8710MP and 8712MP: 9-11 lbs (4-5 Kg)
  - 8716MP and 8720MP: 13-15½ lbs (6-7 Kg)
  - 8724MP (flanges include): 22 lbs (10 Kg)
  - 8732MP (flanges included): 24 lbs (11 KG)
  - MPNH style: Reduce weight by 1 lb (½ kg) for each above
- Remote type:
  - 8036MP to 8059MP: 6½-13 lbs (3-6 Kg)
  - 8069MP to 8089MP: 13-17½ lbs (6-8 Kg)
  - 8110MP and 8112MP: 17½-22 lbs (8-10 Kg)
  - 8116MP and 8120MP: 26½-31 lbs (12-14 KG)
  - 8124MP (flanges include): 35 lbs (16 Kg)
  - 8132MP (flanges included): 40 lbs (18 Kg)
  - MPNH style: Reduce weight by 2 lbs (1 kg) for each above
  - Notes: weight +1 lb (0.5 kg) for 150# flanges +2 lbs (1kg) for 300#
- Power requirements: 115 V<sub>AC</sub> @, ¼ A 230 V<sub>AC</sub> @ ¼ A  
24 V<sub>DC</sub> @ ¼ A
- Power consumption: 5 Watts or less
- NIST traceability: Standard for all calibrations

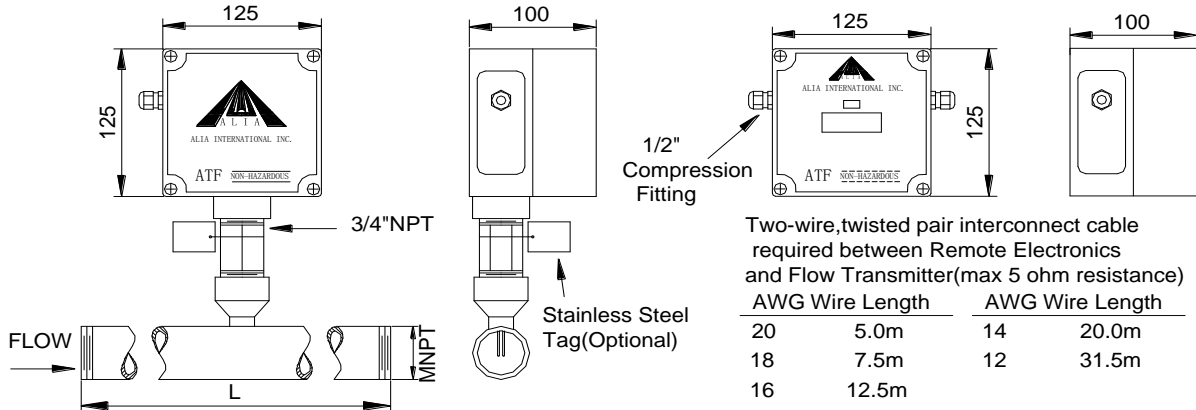


ATMF 8000 Inline Flowmeter - Remote Version

Hazardous Version



Non-hazardous Version



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

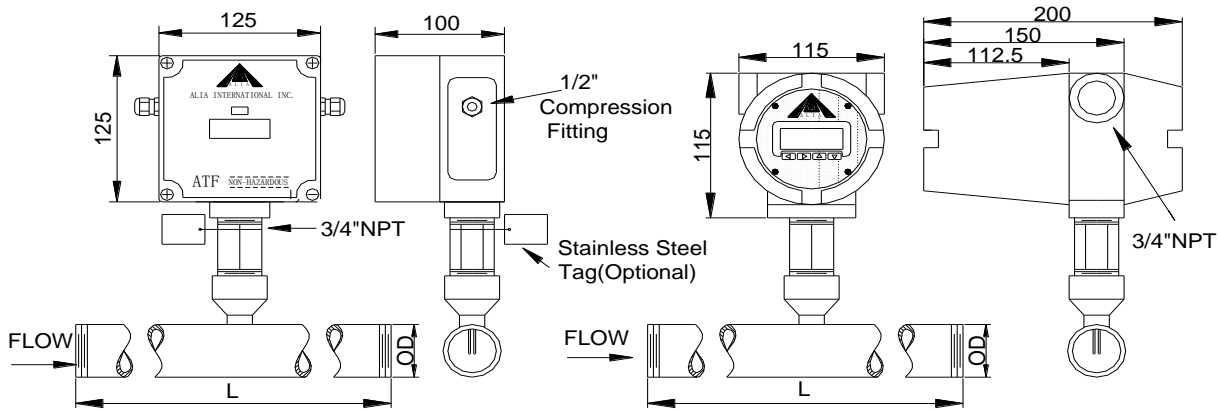
AWG Wire Length		AWG Wire Length	
20	5.0m	14	20.0m
18	7.5m	12	31.5m
16	12.5m		

Model Number	MNPT	Length
ATMF8036	1/4"(6.3mm)	6"(150mm)
ATMF8049	3/8"(9.5mm)	6"(150mm)
ATMF8059	1/2"(12.5mm)	7"(175mm)
ATMF8069	3/4"(19.0mm)	7"(175mm)
ATMF8089	1"(25.0mm)	8"(200mm)
ATMF8110	1 1/4"(32.0mm)	10"(250mm)

Model Number	MNPT	Length
ATMF8112	1 1/2"(37.5mm)	15"(375mm)
ATMF8116	2"(50.0mm)	20"(500mm)
ATMF8120	2 1/2"(62.5mm)	25"(625mm)
ATMF8124	3"(75.0mm)	30"(750mm)
ATMF8132	4"(100mm)	40"(1000mm)

Note:all dimensions are mm unless stated

ATMF 8000 Inline Flowmeter - Remote Version

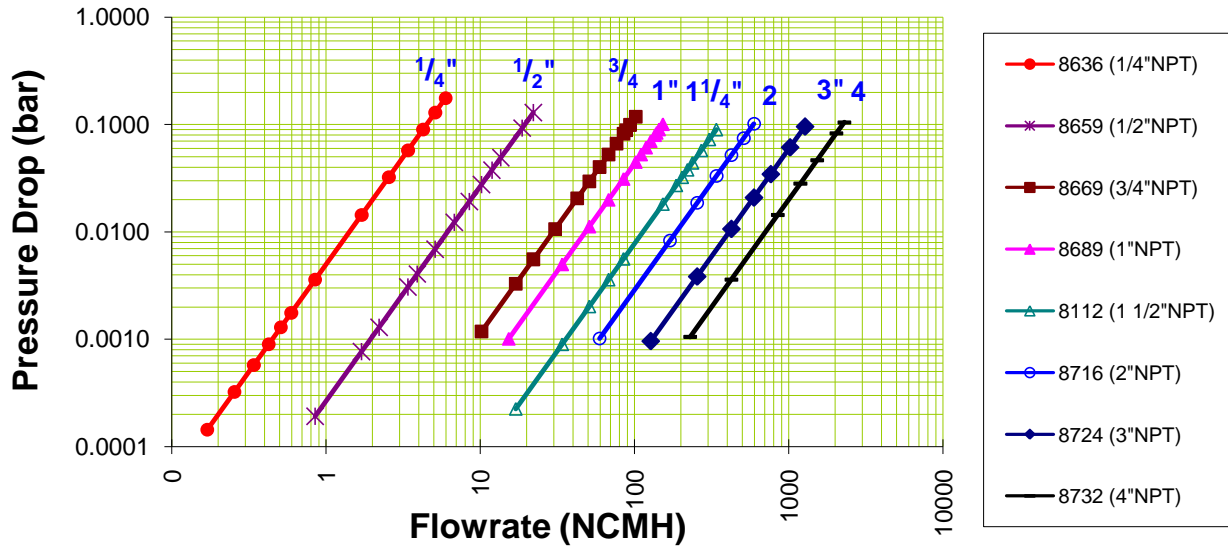


Model Number	O.D	Length
ATMF8636	1/4"(6.3mm)	6"(150mm)
ATMF8649	3/8"(9.5mm)	6"(150mm)
ATMF8659	1/2"(12.5mm)	7"(175mm)
ATMF8669	3/4"(19.0mm)	7"(175mm)
ATMF8689	1"(25.0mm)	8"(200mm)
ATMF8710	1 1/4"(32.0mm)	10"(250mm)

Model Number	O.D	Length
ATMF8712	1 1/2"(37.5mm)	15"(375mm)
ATMF8716	2"(50.0mm)	20"(500mm)
ATMF8720	2 1/2"(62.5mm)	25"(625mm)
ATMF8724	3"(75.0mm)	30"(750mm)
ATMF8732	4"(100mm)	40"(1000mm)

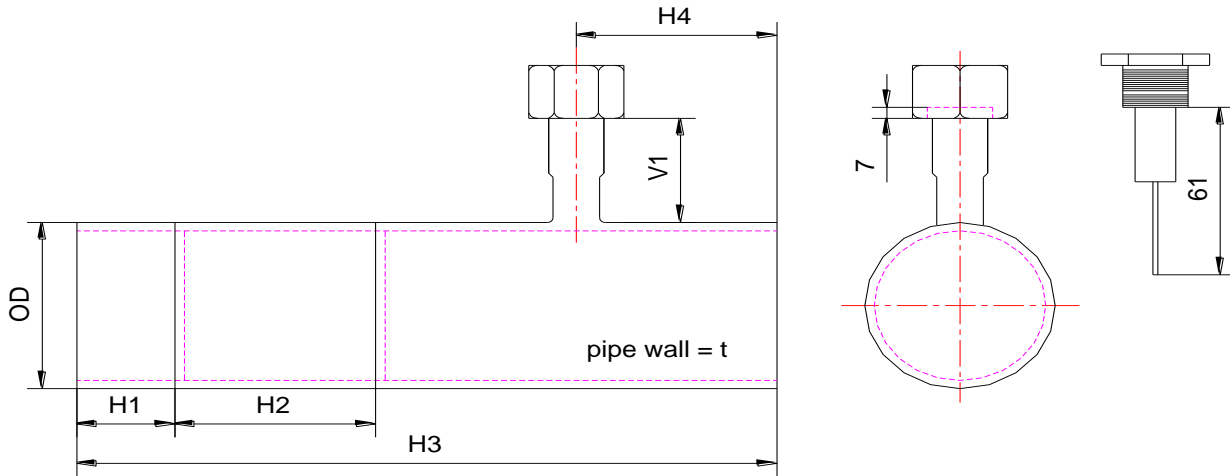
Note:all dimensions are mm unless stated

ATMF 8000 INLINE SERIES PRESSURE DROP



VCR Option

Flow Section Dimensions for Tube flow section and VCR Sensor



OD	H1	H2	H3	H4	V1	t
1.5"	13	39	140	50		
80A	45	90	310	85	74	2.1
100A	45	112	380	104	80	2.1
150A	65	165	540	147	55	2.8
200A	85	215	710	204.9	14	
6"	73	165	550	85	63	2.8

Please contact your local SMC application engineer

**\*\*You also need to provide the following information:**

<b>Gas Composition</b>	We will calibrate your flowmeters to NIST standards with actual gas or a gas mixture that reflects the operating conditions. Please list each gas as a percent of the total, with the sum equaling 100%.
<b>Full Scale Flow</b>	Please provide the maximum and minimum flow rates ; units must be Kg/hr, Lb/hr, NCMH or SCFM.
<b>Line Size</b>	Please indicate pipe size as well connection type (flange, threaded, etc..)
<b>Gas Pressure and Temperature</b>	We will calibrate as close to your operating conditions as possible
<b>Electronics Temperature</b>	Ambient temperature of the environment surrounding the flowmeters' electronics.
<b>Power Requirements</b>	Please specify your power requirements such as 24 V <sub>DC</sub> or 115 V <sub>AC</sub> or 230 V <sub>AC</sub>
<b>Configuration</b>	We have various configurations such as Ex proof, Non-Ex proof, remote, integral. See below:

➔ Model Selection Guide

ATMF8000 Inline Series										
Example : ATMF8716-SSS-133--AC220-JIS-BTW-VCR-10Ra-O2CLN-CR1-CONF-O2 (600 NCMH, 70C,7 Barg)										
AMF-		XXXX	XXX	133	XXXX	XXXXXXXX	XXX	XXXX	Gas type, Flow rate,P,T	Description
Remote Style										
½"	8059	0-18 SCFM (0-30 NCMH)								Flowbody size and Flow Ranges
¾"	8069	0-74 SCFM (0-125 NCMH)								
1"	8089	0-118 SCFM (0-200 NCMH)								
1¼"	8110	0-175 SCFM (0-300 NCMH)								
1½"	8112	0-235 SCFM (0-400 NCMH)								
2"	8116	0-380 SCFM (0-650 NCMH)								
2½"	8120	0-530 SCFM (0-900 NCMH)								
3"	8124	0-880 SCFM (0-1500 NCMH)								
4"	8132	0-1470 SCFM (0-2500 NCMH)								
Integral Style										
½"	8659	0-18 SCFM (0-30 NCMH)								Flowbody size and Flow Ranges
¾"	8669	0-74 SCFM (0-125 NCMH)								
1"	8689	0-118 SCFM (0-200 NCMH)								
1¼"	8710	0-175 SCFM (0-300 NCMH)								
1½"	8712	0-235 SCFM (0-400 NCMH)								
2"	8716	0-380 SCFM (0-650 NCMH)								
2½"	8720	0-530 SCFM (0-900 NCMH)								
3"	8724	0-880 SCFM (0-1500 NCMH)								
4"	8732	0-1470 SCFM (0-2500 NCMH)								
Explosion Proof	MP									Environment
Non Hazardous	MPNH									
316 SS < 158 °F (70 °C)	SSS									Operating temperature
316 SS 158-392°F (70-200°C)	SSM									
115 V <sub>AC</sub>	AC115									Power Supply
230 V <sub>AC</sub>	AC230									
24 V <sub>DC</sub>	DC24									
NPT	NPT									Process connections
DIN	DNFL									
JIS	JIS									
ANSI 150#	FSW15XX									
ANSI 300#	FSW30XX									
ANSI 600#	FSW60XX									
One calibration curve	C1R									No. of output curves
Multi-calibration curves	C*R									
Oxygen Cleaning	O2CLN									Options
Butt Weld	BTW									
Ra Finish (7-10Ra)	Ra10									
VCR Sensors	VCR									
Extended temperature electronics (-40C to 85C)	ETEMP									
Calibration and test point report	CONF									
Process Gas (Please indicate, gas type, flow rate, line size, pressure and temperature)										
Process information										
Note: Options such bus outputs, HART, monel and hasteloy C material are available; please contact SMC.										