

# Technical Data for M-Series Mass Flow Meters

0.5 sccm full scale through 5 sccm full scale

Standard specifications. Consult Analyt-MTC for available options.



07631 5545

info@analyt-mtc.com

SENSOR PERFORMANCE	
Mass Flow Accuracy at calibration conditions <sup>1</sup>	±0.8% of reading and ±0.2% of full scale
High Accuracy Option <sup>1</sup>	±0.4% of reading and ±0.2% of full scale Available for ≥5 SCCM models
Bidirectional Option <sup>1</sup>	±0.2% of full scale in addition to base accuracy (above)
Repeatability (2σ)	±(0.2% of reading + 0.02% of full scale)
Flow Measurement Range	0.01–100% of full scale
Temperature Sensitivity	Mass flow zero shift and span shift: 0.02% of full scale per °C from 25°C
Pressure Sensitivity	Mass flow zero shift and span shift: ±(0.08% of reading + 0.02% of full scale) per atmosphere from calibration conditions
Operating Temperature Range	–10–60°C (expanded range available)
Temperature Accuracy	±0.75°C
Operating Pressure Full Scale	160 PSIA (additional options available)
Pressure Accuracy above 1 atm	±0.5% of reading
Pressure Accuracy below 1 atm	±0.07 PSIA
Totalizer Volume Uncertainty	±0.5% of reading additional uncertainty
Sensor Response Time	<1 ms
Typical Indication Response Time <sup>2</sup>	100–1000 ms (flow rate dependent)
Typical Warm-Up Time	<1 s

**1** Stated accuracy is after tare under equilibrium conditions.  
Extreme gas behavior (especially near state boundaries) can introduce additional flow uncertainties.

**2** Indication response time includes user adjustable averaging up to 255 ms.

MECHANICAL	
Minimum Operating Pressure	11.5 PSIA common mode pressure (lower operating pressures available) Differential pressure must exceed 1 PSID
Maximum Operating Pressure	Damage possible above 175 PSIA common mode pressure Damage possible above 75 PSID differential pressure
Ingress Protection	IP40 (consult Analyt-MTC for weatherproofing options)
Humidity Range	0–95%, non-condensing
Wetted Materials	302 / 303 stainless steel, Viton®, polyamide, alumina, glass, gold, silicon, heat-cured epoxy, heat-cured silicone rubber

COMMUNICATIONS	
Analog I/O Options	4–20 mA, 0–5 VDC, 1–5 VDC, 0–10 VDC
Digital I/O Options	RS-232 Serial by default RS-485 Serial, Modbus RTU (over RS-232 or RS-485), Modbus TCP/IP, DeviceNet, EtherCAT, EtherNet/IP, Profibus
Electrical Connection Options	6 pin locking, 8 pin mini-DIN, 8 pin M12, DB-9, DB-15
Power Requirements <sup>3</sup>	9–24 VDC, 40 mA (12–24 VDC, 80 mA if equipped with 4–20 mA or 0–10 VDC output)
Digital Data Update Rate <sup>3</sup>	40 Hz at 19200 baud
Analog Data Update Rate	1 kHz
Display Update Rate	10 Hz
Analog Signal Accuracy	±0.1% of full scale additional uncertainty

**3** Consult the individual operating bulletins for specific industrial protocol power requirements and data transmission specifications.

# Technical Data for M-Series Mass Flow Meters

0.5 sccm full scale through 5 sccm full scale

Standard specifications. Consult Analyt-MTC for available options.

FEATURES	
STP Reference Conditions	25°C and 1 atm (default), user configurable
NTP Reference Conditions	0°C and 1 atm (default), user configurable
Monochrome LCD or Color TFT Display with integrated touchpad	Simultaneously displays mass flow, volumetric flow, temperature, and pressure
Gas Select™	98 user selectable gases stored internally. Each gas optimized to match NIST's REFPROP 10 gas property calculations across the operating temperature and pressure ranges for highest accuracy.
COMPOSER™	20 user definable gas mixes. Each mix may have up to 5 gases with 0.01% precision.

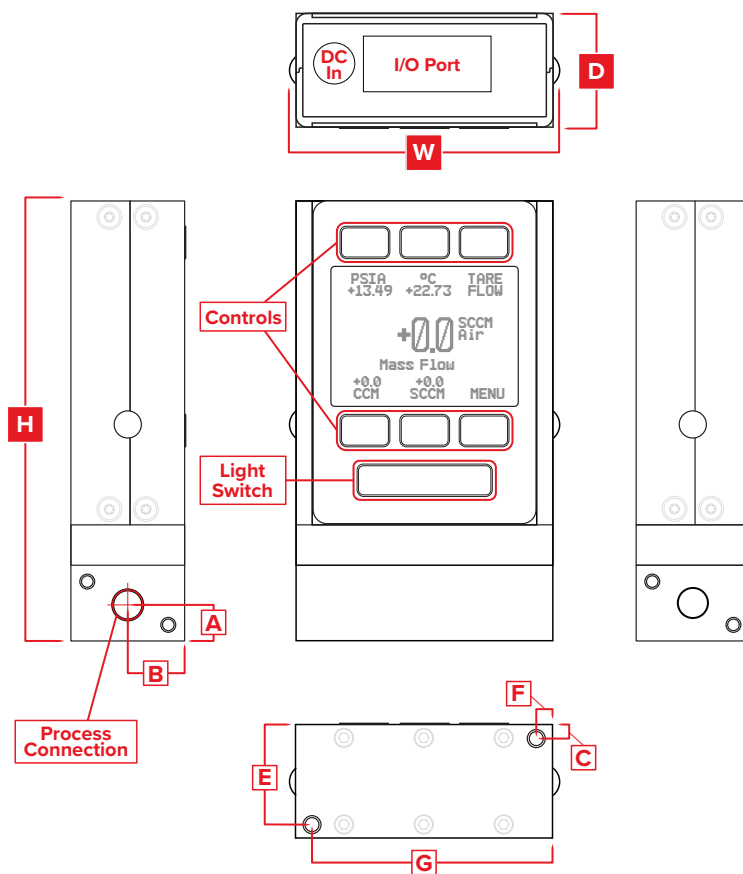
RANGE-SPECIFIC TECHNICAL DATA			
Full scale flow	Pressure drop at full scale flow venting to atmosphere <sup>4</sup>	Process connections <sup>5</sup>	Mount tap size
0.5–5 sccm	1.0 PSID	M5 female thread (10-32 compatible) <sup>6</sup>	2× 8-32 UNC 0.175 in [4.45 mm]

<sup>4</sup> Lower pressure drops available, please see our MLW-Series mass flow controllers.

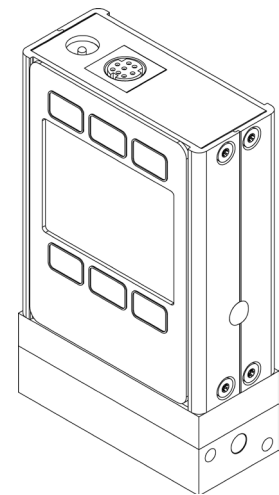
<sup>5</sup> Consult Analyt-MTC for available process connection options, such as:

Compression, face seal, push-to-connect, BSPP, SAE, or Swagelok (including tube, VCO, and VCR).

<sup>6</sup> Shipped with Buna-N O-Ring face seal to 1/8" female NPT fittings.



Representative Example



0.5 sccm

DIMENSIONS										
Full scale flow	Weight	Height	Width	Depth	A	B	C	E	F	G
0.5–5 sccm	≈ 0.8 lb	3.897 in	2.375 in	1.050 in	0.336 in	0.525 in	0.125 in	0.925 in	0.150 in	2.225 in
	≈ 0.4 kg	98.98 mm	60.33 mm	26.67 mm	8.53 mm	13.34 mm	3.18 mm	23.50 mm	3.81 mm	56.52 mm