

# Technical Data for **MB-Series** Mass Flow Meters

**10 sccm** full scale through **20 SLPM** full scale

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060  
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SENSOR PERFORMANCE	
Mass Flow Accuracy at calibration conditions <sup>1</sup>	±0.6% of reading or ±0.1% of full scale, whichever is greater
High Accuracy Option <sup>1</sup>	±0.5% of reading or ±0.1% of full scale, whichever is greater
Bidirectional Option <sup>1</sup>	No additional uncertainties
Repeatability (2σ)	±(0.1% of reading + 0.02% of full scale)
Flow Measurement Range	0.01–100% of full scale
Temperature Sensitivity	Mass flow zero shift: ±0.01% of full scale per °C from tare temperature Mass flow span shift: ±0.01% of reading per °C from 25°C
Pressure Sensitivity	Mass flow zero shift: ±0.01% of full scale per atm from tare pressure Mass flow span shift: ±0.1% of reading 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>	<10 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 Alicat 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	
Digital I/O Options	Serial over Micro-USB B
Digital Data Update Rate	40 Hz at 19200 baud
Display Update Rate	10 Hz
Battery Life (contrast dependent)	Monochrome screen: 18 hours, 14 hours backlit Color TFT: 8 hours

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.

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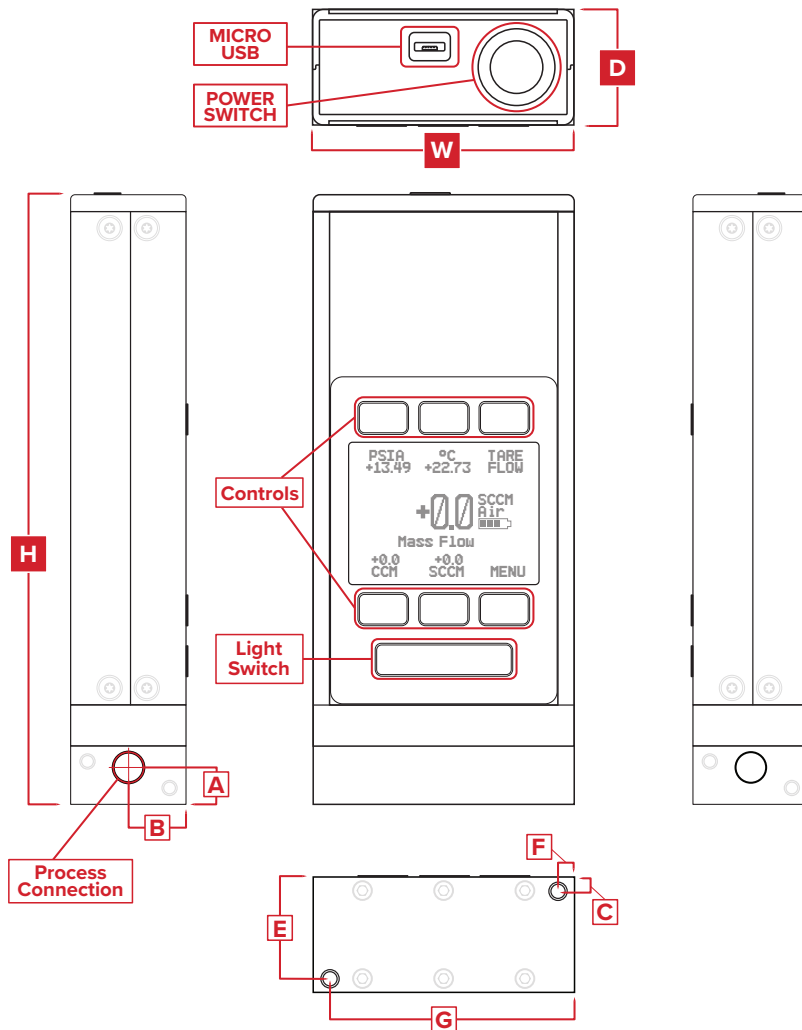
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RANGE-SPECIFIC TECHNICAL DATA			
Full scale flow	Pressure drop at full scale flow <sup>3</sup>	Process connections <sup>4</sup>	Mount tap size
10–50 sccm	1.0 PSID	M5 female thread (10-32 compatible) <sup>5</sup>	2× 8-32 UNC 0.175 in [4.45 mm]
100 sccm–20 SLPM	1.0 PSID	1/8" NPT female	2× 8-32 UNC 0.350 in [8.89 mm]

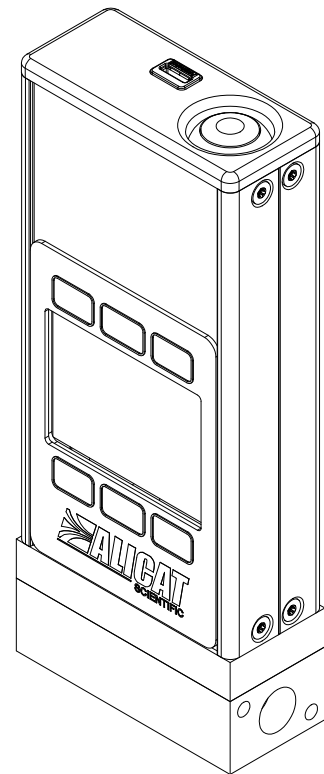
**3** Lower pressure drops available, please see our WHISPER-Series mass flow meters at [www.alicat.com/mwb](http://www.alicat.com/mwb).

**4** Consult Alicat for available process connection options, such as: compression, face seal, push-to-connect, BSPP, SAE, or Swagelok (including tube, VCO, and VCR).

**5** Shipped with Buna-N O-Ring face seal to 1/8" female NPT fittings.



Representative Example



20 SLPM

DIMENSIONS										
Full scale flow	Weight	Height	Width	Depth	A	B	C	E	F	G
10–50 sccm	≈ 1.1 lb	5.713 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
	≈ 0.5 kg	145.11 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
100 sccm–20 SLPM	≈ 1.1 lb	5.713 in	2.375 in	1.050 in	0.350 in	0.525 in	0.125 in	0.925 in	0.150 in	2.225 in
	≈ 0.5 kg	145.11 mm	60.33 mm	26.67 mm	8.89 mm	13.34 mm	3.18 mm	23.50 mm	3.81 mm	56.52 mm