

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

0.5 SCCM full scale through 5 SCCM of full scale



Tel: 888-290-6060

www.alicat.com/mb

Standard Specifications (Consult Alicat for available options.)

SENSOR PERFORMANCE	
Mass Flow Accuracy at calibration conditions ¹	±0.8% of reading and ±0.2% of full scale
High Accuracy Option ¹	±0.4% of reading and ±0.2% of full scale Available for ≥5 SCCM models
Bidirectional option ¹	±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 ²	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 Alicat for weatherproofing options)
Humidity Range	0–95%, non-condensing
Wetted Materials	303 / 304 stainless steel, Viton®, heat-cured silicone rubber, glass-reinforced polyamide, heat-cured epoxy, aluminum, gold, silicon, glass

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

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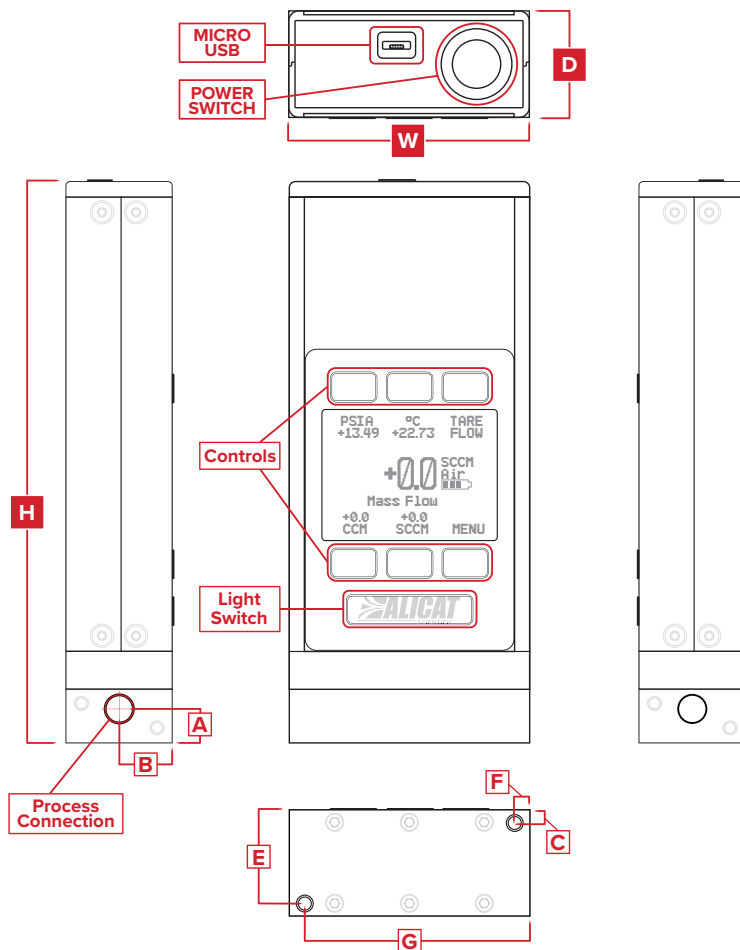
FEATURES	
STP Reference Conditions	25°C and 1 atm (default), user configurable
NTP Reference Conditions	0°C and 1 atm (default), user configurable
Monochrome LCD or Color TFT Display with integrated touchpad	Simultaneously displays mass flow, volumetric flow, pressure and temperature
Gas Select™	98 user 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 ³	Process connections ⁴	Mount tap size
0.5–5 SCCM	1.0 PSID	M5 female thread (10-32 compatible) ⁵	2× 8-32 UNC 0.175 in [4.45 mm]

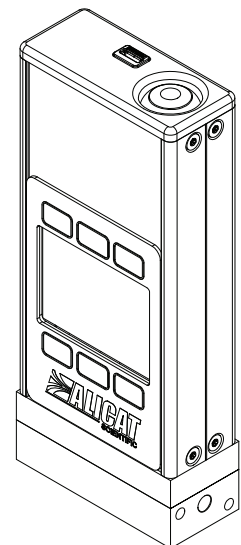
³ Default valve venting air to atmosphere. Lower pressure drops available, please see our WHISPER-Series mass flow meters at www.alicat.com/mwb.

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



0.5 SCCM

DIMENSIONS										
Full scale flow	Weight	Height	Width	Depth	A	B	C	E	F	G
0.5–5 SCCM	≈ 1.2 lb	5.543 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	140.79 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