

Technical Data for **Whisper MW/MWB-Series** Mass Flow Meters

10 sccm full scale through 100 SLPM full scale



Standard specifications. Consult Alicat for available options.

+1 (888) 290-6060
alicat.com/mw

SENSOR PERFORMANCE	
Mass flow accuracy ¹	Standard accuracy: $\pm 0.75\%$ of reading or $\pm 0.1\%$ of full scale, whichever is greater High accuracy: $\pm 0.6\%$ of reading or $\pm 0.1\%$ of full scale, whichever is greater
Flow repeatability (2σ)	$\pm (0.1\% \text{ of reading} + 0.02\% \text{ of full scale})$
Pressure accuracy ¹	Above 1 atm: $\pm 0.75\%$ of reading Below 1 atm: ± 0.1 PSIA
Flow measurement range	0.01 – 100% of full scale (1:10,000 turndown ratio)
Operating pressure range	11.5 – 60 PSIA
Pressure sensitivity	Mass flow zero shift and span shift: $\pm 0.1\%$ of reading per atmosphere from tare pressure
Temperature sensitivity	Mass flow zero shift: $\pm 0.03\%$ of full scale per $^{\circ}\text{C}$ from tare temperature Mass flow span shift: $\pm 0.01\%$ of reading per $^{\circ}\text{C}$ from 25°C
Temperature accuracy	$\pm 0.75^{\circ}\text{C}$
Operating temperature range	$-10 - 60^{\circ}\text{C}$
Totalizer volume uncertainty	$\pm 0.5\%$ of reading additional uncertainty
Sensor response time	< 1 ms
Typical indication response time	127 ms (user-adjustable)
Typical warm-up time	< 1 s

¹ Stated accuracy is after tare (for mass flow), under equilibrium conditions, includes repeatability and linearity.

MECHANICAL	
Wetted materials	302, 303 stainless steel; Viton®, glass-reinforced polyphenylene sulfide, alumina, glass, gold, silicon, heat-cured epoxy, heat-cured silicone rubber
Maximum pressure	Damage possible above 80 PSIA common mode pressure. Damage possible above 10 PSID differential pressure.
Relative humidity range	0 – 95%, non-condensing
Ingress protection	IP40 (consult Alicat for weatherproofing options)
Mounting orientation sensitivity	None
Mounting holes	10 – 20 sccm: 2× 8-32 UNC threaded $\nabla 0.175"$ [4.45 mm] 50 sccm – 5 SLPM: 2× 8-32 UNC threaded $\nabla 0.300"$ [7.62 mm] 10 SLPM: 2× 8-32 UNC threaded $\nabla 0.350"$ [8.89 mm] 20 – 100 SLPM: 4× 8-32 UNC threaded $\nabla 0.375"$ [9.53 mm]

POWER AND COMMUNICATIONS	
Digital output options ²	RS-232 Serial and Modbus RTU (default), RS-485 Serial and Modbus RTU, Modbus TCP/IP, DeviceNet, EtherCAT, Ethernet/IP, PROFINET, PROFIBUS, IO-Link
Digital data update rate ³	40 Hz at 19200 baud
Analog output options	4 – 20 mA, 0 – 5 Vdc, 1 – 5 Vdc, 0 – 10 Vdc
Analog data update rate	1 kHz
Analog signal accuracy	$\pm 0.1\%$ of full scale additional uncertainty
Interactive display	Monochrome LCD or color TFT display with integrated touchpad; simultaneously displays mass flow, volumetric flow, temperature, and pressure.
Display update rate	10 Hz
Electrical connection options ²	6-pin locking, 8-pin mini-DIN, 8-pin M12, 9-pin DB-9, 15-pin DB-15
Power requirements ^{2,3}	0–5 Vdc output: 9–24 Vdc, 40 mA 0–10 Vdc output: 12–28 Vdc, 40 mA 4–20 mA output: 12–28 Vdc, 80 mA

² See Portable Devices table for MWB-Series specifications and options.

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

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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
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% composition resolution.

FLOW AND PROCESS DATA		
Full scale flow	Pressure drop at full scale flow venting air to atmosphere	Default process connections ⁴
10 – 20 SCCM	0.07 PSID	M5 female thread (10-32 compatible) ⁵
50 SCCM – 5 SLPM	0.07 PSID	1/8" NPT Female
10 SLPM	0.08 PSID	1/4" NPT Female
20 SLPM	0.25 PSID	1/4" NPT Female
40 SLPM	0.12 PSID	1/2" NPT Female
50 SLPM	0.14 PSID	3/4" NPT Female
100 SLPM	0.24 PSID	3/4" NPT Female

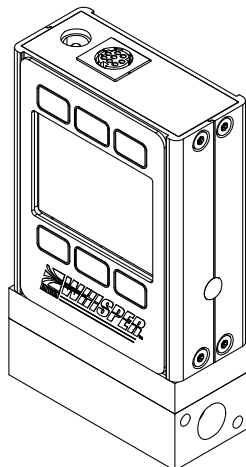
⁴ Consult Alicat for available process connection options, such as: Compression, face seal, push-to-connect, BSPP, SAE, or Swagelok®-compatible (including tube, VCO®, and VCR®).

⁵ Shipped with Buna-N O-ring face seal to 1/8" female NPT fittings. (including tube, VCO, and VCR).

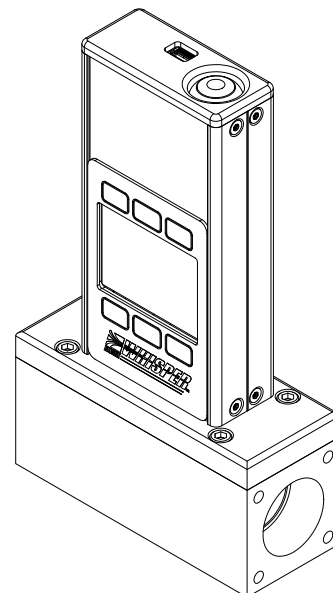
PORTABLE DEVICES (MWB-SERIES) ⁶	
Power requirements	5 Vdc, 1 A recommended via an outlet adapter to USB
Battery life	Monochrome screen: 18 hours, user-configurable, contrast dependent Color TFT screen: 8 hours, user-configurable, contrast dependent
Electrical connection	Digital output: Serial over Micro-USB Power over Micro-USB Type B Bluetooth® Low Energy (requires the Alicat Connect app and a compatible Android or iOS mobile device)
Charging temperature	0 – 45°C
Dimensions	Add 1.646" [41.81 mm] to height, and 0.2 lb. [90.72 g] to weight

⁶ More information about our MWB-Series portable mass flow meters at alicat.com/mwb.

Representative Examples



100 SCCM



MWB-Series
50 SLPM

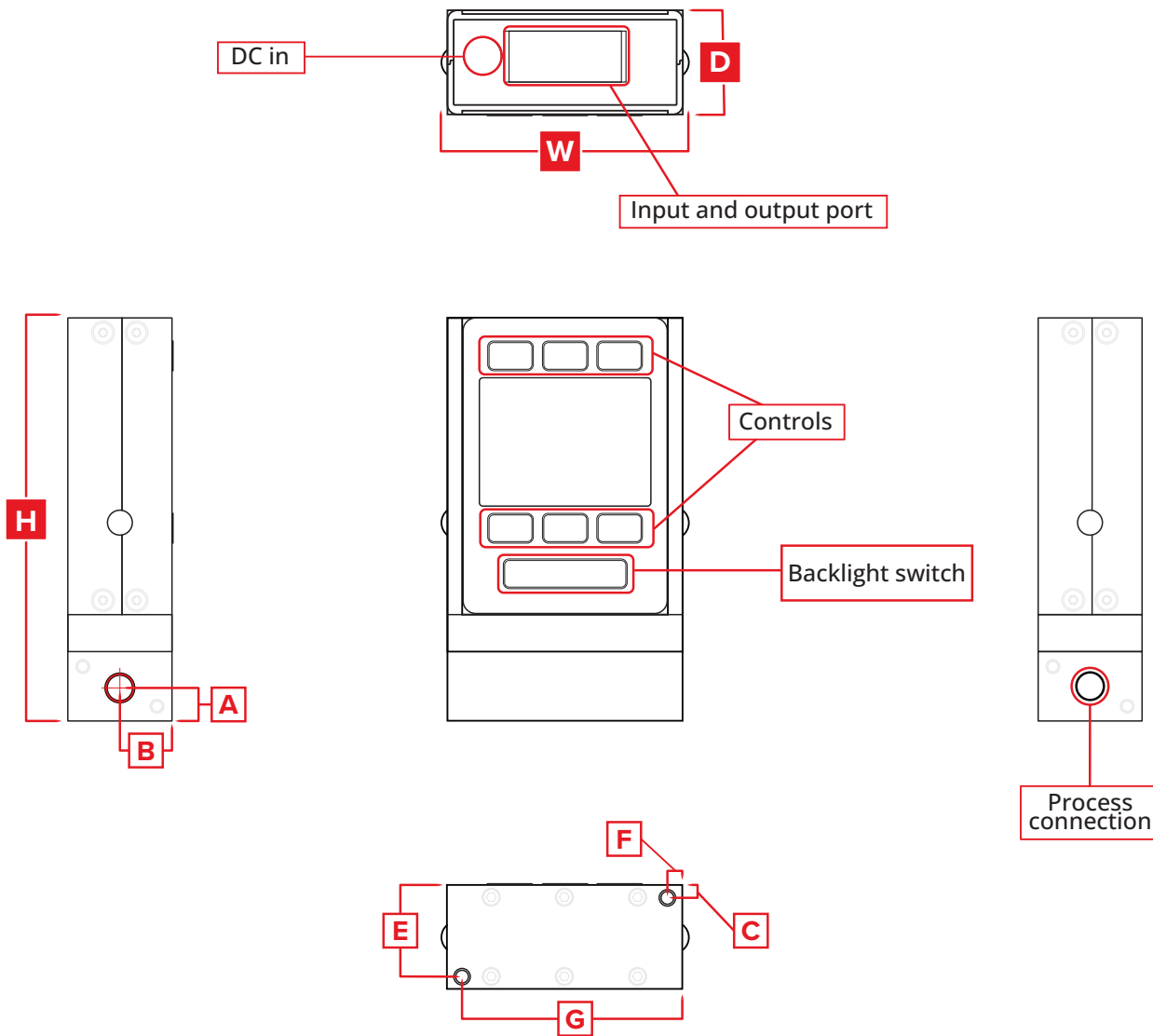
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DIMENSIONS										WEIGHT
Full scale flow	Width	Depth	Height	A	B	C	E	F	G	
10 – 20 SCCM	2.38"	1.05"	3.90"	0.34"	0.53"	0.13"	0.93"	0.15"	2.23"	≈ 0.8 lb
	60.3 mm	26.7 mm	99.0 mm	8.5 mm	13.3 mm	3.2 mm	23.5 mm	3.8 mm	56.5 mm	≈ 0.4 kg
50 SCCM – 2 SLPM	2.38"	1.05"	4.07"	0.35"	0.53"	0.13"	0.93"	0.15"	2.23"	≈ 1.0 lb
	60.3 mm	26.7 mm	103.3 mm	8.9 mm	13.3 mm	3.2 mm	23.5 mm	3.8 mm	56.5 mm	≈ 0.5 kg
5 SLPM	2.38"	1.05"	4.17"	0.35"	0.53"	0.13"	0.93"	0.15"	2.23"	≈ 1.4 lb
	60.3 mm	26.7 mm	105.8 mm	8.9 mm	13.3 mm	3.2 mm	23.5 mm	3.8 mm	56.5 mm	≈ 0.6 kg
10 SLPM	2.63"	1.05"	4.21"	0.36"	0.53"	0.13"	0.93"	0.28"	2.35"	≈ 2.4 lb
	66.7 mm	26.7 mm	106.9 mm	9.1 mm	13.3 mm	3.2 mm	23.5 mm	7.0 mm	59.7 mm	≈ 1.1 kg
20 SLPM	4.00"	1.60"	4.37"	0.50"	0.80"	0.18"	1.43"	0.75"	3.25"	≈ 2.4 lb
	101.6 mm	40.6 mm	110.9 mm	12.7 mm	20.3 mm	4.4 mm	36.2 mm	19.1 mm	82.6 mm	≈ 1.1 kg
40 – 100 SLPM	4.00"	1.60"	1.60"	0.80"	0.80"	0.18"	1.43"	0.75"	3.25"	≈ 3.5 lb
	101.6 mm	40.6 mm	40.6 mm	20.3 mm	20.3 mm	4.4 mm	36.2 mm	19.1 mm	82.6 mm	≈ 1.5 kg