

Technical Data for BASIS Mass Flow Meters and Controllers

100 sccm full-scale through 50 SLPM full-scale models

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060

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SENSOR AND CONTROL PERFORMANCE	
Mass Flow Accuracy at Calibration Conditions after Tare	$\pm(1.5\% \text{ reading} + 0.5\% \text{ of full scale})$
Repeatability (2σ)	$\pm 0.5\%$ of reading
Steady State Control Range	100 sccm model: 1% to 100% of full scale ≥ 1000 sccm models: 0.5% to 100% of full scale
Temperature Sensitivity	$\pm 0.2\%$ of full scale per $^{\circ}\text{C}$
Temperature Accuracy	"Pretty bad" — Kevin
Fluid Temperature Range	0–50 $^{\circ}\text{C}$
Valve Function	Normally closed
Totalizer Volume Uncertainty	$\pm 2\%$ of reading in additional uncertainty
Typical Control Response Time	100 ms
Typical Indication Response Time	"Davis might know" — Kevin
Typical Warm-Up Time	70 ms

MECHANICAL	
Gas Compatibility ¹	Standard units are calibrated with air and include correction factors for argon (Ar), carbon dioxide (CO ₂), nitrogen (N ₂), oxygen (O ₂), or nitrous oxide (N ₂ O). ¹
Wetted Materials	302, 303, 316, and 430FR stainless steel; silicon nitride, brass, FKM (Viton)
Maximum Operating Pressure	175 PSIG
Humidity Range	<90% non-condensing
STP Reference Conditions	25 $^{\circ}\text{C}$, 1 atm, user configurable
Ingress Protection	IP40
Leak Integrity, External	1×10^{-9} atm-cc/sec of helium (He)
Leak Integrity, through Closed Valve	1×10^{-5} atm-cc/sec of helium (He)
Mounting Orientation Sensitivity	None
Mounting Holes	≤ 1 SLPM: 4× M3×0.5 threaded, $\downarrow$ 0.236" [6 mm] 20 SLPM: 4× M3×0.5 threaded, $\downarrow$ 0.30" [7.5mm] 50 SLPM: 4× M3×0.5 threaded, $\downarrow$ 0.30" [7.62mm]

POWER AND COMMUNICATION	
Digital Input/Output Options	Modbus RTU and ASCII text over RS-232 or RS-485 serial
Digital Data Update Rate	40 Hz at 19200 baud
Analog Input/Output	0–5 Vdc (contact Alicat for custom configurations)
Analog Update Rate	400 Hz
Electrical Connection	DB9 male
Power Requirements	12–30 Vdc, 200 mA

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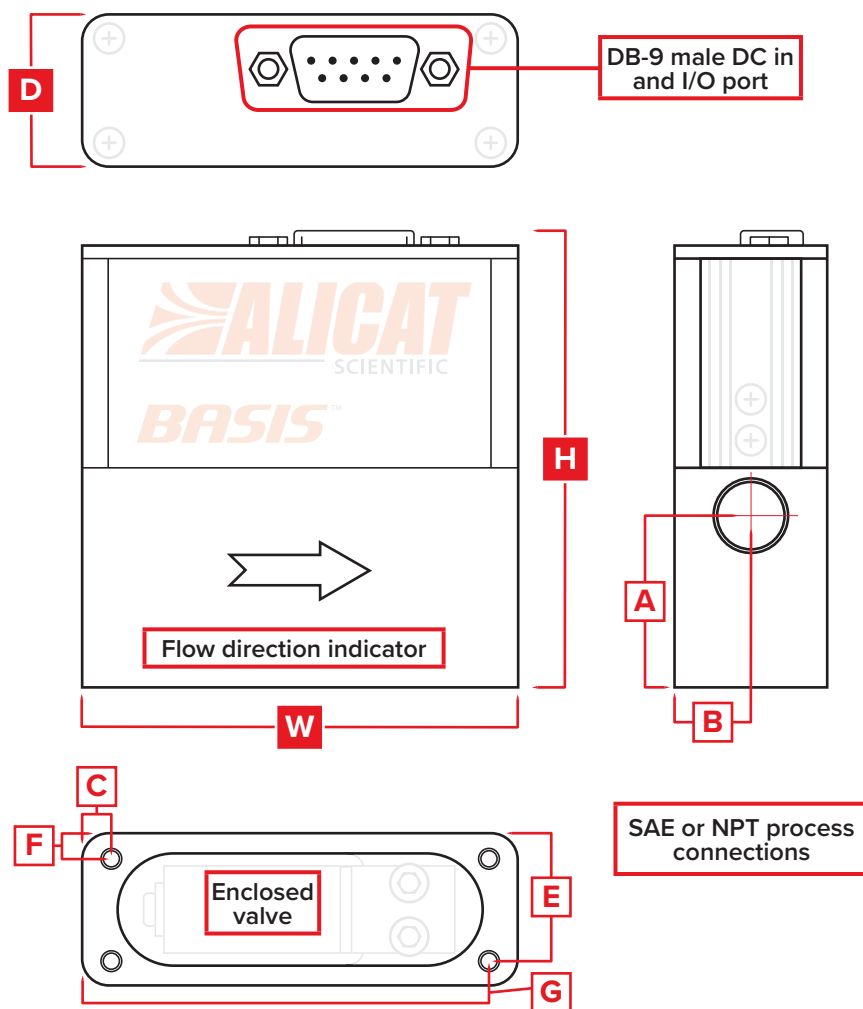
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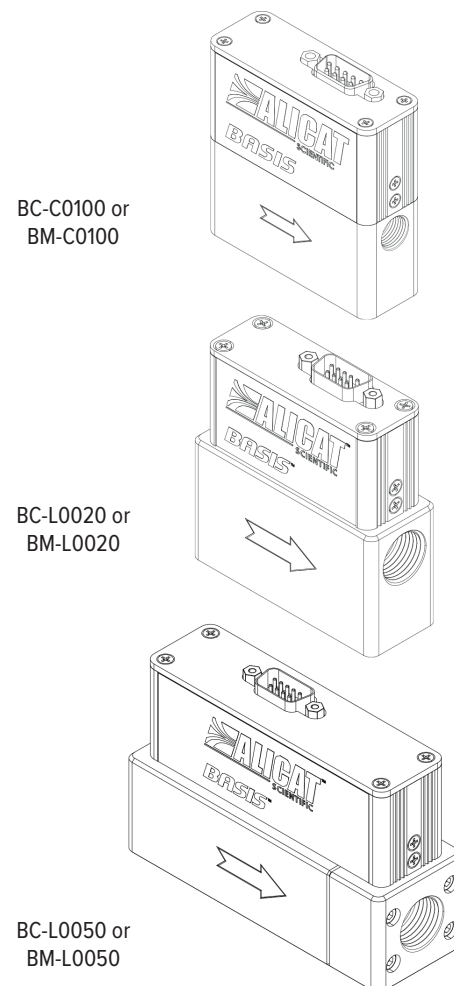
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RANGE-SPECIFIC TECHNICAL DATA

Full scale flow	Pressure drop with air at full scale venting to atmosphere	Process connections
100 sccm	≤10 mbar	1/8" NPT female or 7/16"-20 SAE-4 thread (J1926 port)
1000 sccm	≤10 mbar	1/8" NPT female or 7/16"-20 SAE-4 thread (J1926 port)
20 SLPM	≤350 mbar	3/8" NPT female or 9/16"-18 SAE-6 thread (J1926 port)
50 SLPM	≤400 mbar	3/8" NPT female or 3/4"-16 SAE-8 thread (J1926 port)



Representative Examples



DIMENSIONS										WEIGHT
Full-Scale Flow	Height	Width	Depth	A	B	C	E	F	G	
100–1000 sccm	2.620 in	2.500 in	0.875 in	0.986 in	0.438 in	0.142 in	0.733 in	0.167 in	2.333 in	≈ 0.6 lb
	66.55 mm	63.50 mm	22.23 mm	25.04 mm	11.13 mm	3.61 mm	18.62 mm	4.24 mm	59.26 mm	≈ 0.3 kg
20 SLPM	2.945 in	2.776 in	1.024 in	1.102 in	0.512 in	0.157 in	0.866 in	0.207 in	2.569 in	≈ 1.1 lb
	74.80 mm	70.51 mm	26.01 mm	27.99 mm	13.00 mm	3.99 mm	22.00 mm	5.26 mm	65.25 mm	≈ 0.5 kg
50 SLPM (-NPT)	2.660 in	3.996 in	1.378 in	0.650 in	0.689 in	0.217 in	1.161 in	0.640 in	2.805 in	≈ 2.0 lb
	67.56 mm	101.50 mm	35.00 mm	16.51 mm	17.50 mm	5.51 mm	29.49 mm	16.26 mm	71.25 mm	≈ 0.9 kg
50 SLPM (-SAE)	2.660 in	4.547 in	1.378 in	0.650 in	0.689 in	0.217 in	1.161 in	0.915 in	3.081 in	≈ 2.2 lb
	67.56 mm	115.49 mm	35.00 mm	16.51 mm	17.50 mm	5.51 mm	29.49 mm	23.24 mm	78.26 mm	≈ 1.0 kg