

Technical Data for BASIS 2 Mass Flow Meters and Controllers

100 sccm full scale through 100 SLPM full scale

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060
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ACCURACY READINGS				
Fluids	Air, N ₂ , O ₂ , CH ₄	He, H ₂	Ar	CO ₂ , N ₂ O
Mass flow accuracy ¹	± 1.5% reading or ± 0.2% full scale ²	± 1.8% full scale	± 1.5% reading or ± 0.5% full scale ²	100 SCCM – 2 SLPM: 1.5% reading or 0.5% full scale ² 5 – 20 SLPM: 2.0% reading or 1.0% full scale ² 50 – 100 SLPM: 3.0% reading or 2.0% full scale ²

¹ Stated accuracy is at calibration conditions, after tare, under equilibrium conditions, includes repeatability and linearity.

² Whichever is greater.

SENSOR AND CONTROL PERFORMANCE	
Flow repeatability (2σ)	± 0.25% reading or ± 0.05% of full scale
Control and measurement range	0.1% – 100% of full scale (1,000:1 turndown ratio)
Temperature sensitivity	Mass flow zero and span shift: ± 0.05% of reading per °C from calibration conditions
Temperature accuracy	± 1.5 °C
Operating temperature range	0 – 50°C (ambient and gas)
Operating pressure range ³	Meters: 0 – 145 PSIG Controllers: Valve dependent LV08 valve: 0 – 60 PSIG LV05 valve: 0 – 100 PSIG All other valves: 0 – 145 PSIG
Valve function ⁴	Normally closed
Totalizer volume uncertainty	± 0.6% of reading in additional uncertainty
Typical control response time ⁴	As fast as 100 ms (T63), flow rate dependent, user-adjustable
Typical indication response time	< 6 ms, flow rate dependent
Typical warm-up time	1 minute (5 minutes optional)

³ LV05 is default for 20 SLPM and LV08 is default for 5-10 SLPM. Custom valve sizing available to increase pressure rating.

⁴ Applies to controllers only.

MECHANICAL	
Wetted materials	300-series stainless steel, brass, hard-anodized aluminum, FKM, NBR, FR4, SiO ₂ /SiNx/Si, ABLEBOND®, 84-3J, PBT UL 94V-0, tin, copper
Maximum pressure	Damage possible above 175 PSIG
Relative humidity range	95%, non-condensing
Ingress protection	IP40
Mounting orientation sensitivity	Calibrated in horizontal mounting orientation
Mounting holes	2× M3×0.5 threaded, ⌀ 0.236" [6 mm]

POWER AND COMMUNICATION	
Digital input and output options	RS-232 or RS-485
Digital data update rate	As fast as 176 Hz, baud rate and system dependent
Analog input and output	0-5Vdc or 4-20mA
Analog update rate	400 Hz
Analog signal accuracy	± 0.125% of full scale additional uncertainty Hz
Electrical connection	6-pin JST GH
Power requirements ⁵	Controller: 12–24 Vdc, 210 mA Meter: 12–24 Vdc, 12 mA

⁵ Add 40 mA to power requirements if equipped with 4-20 mA analog output.

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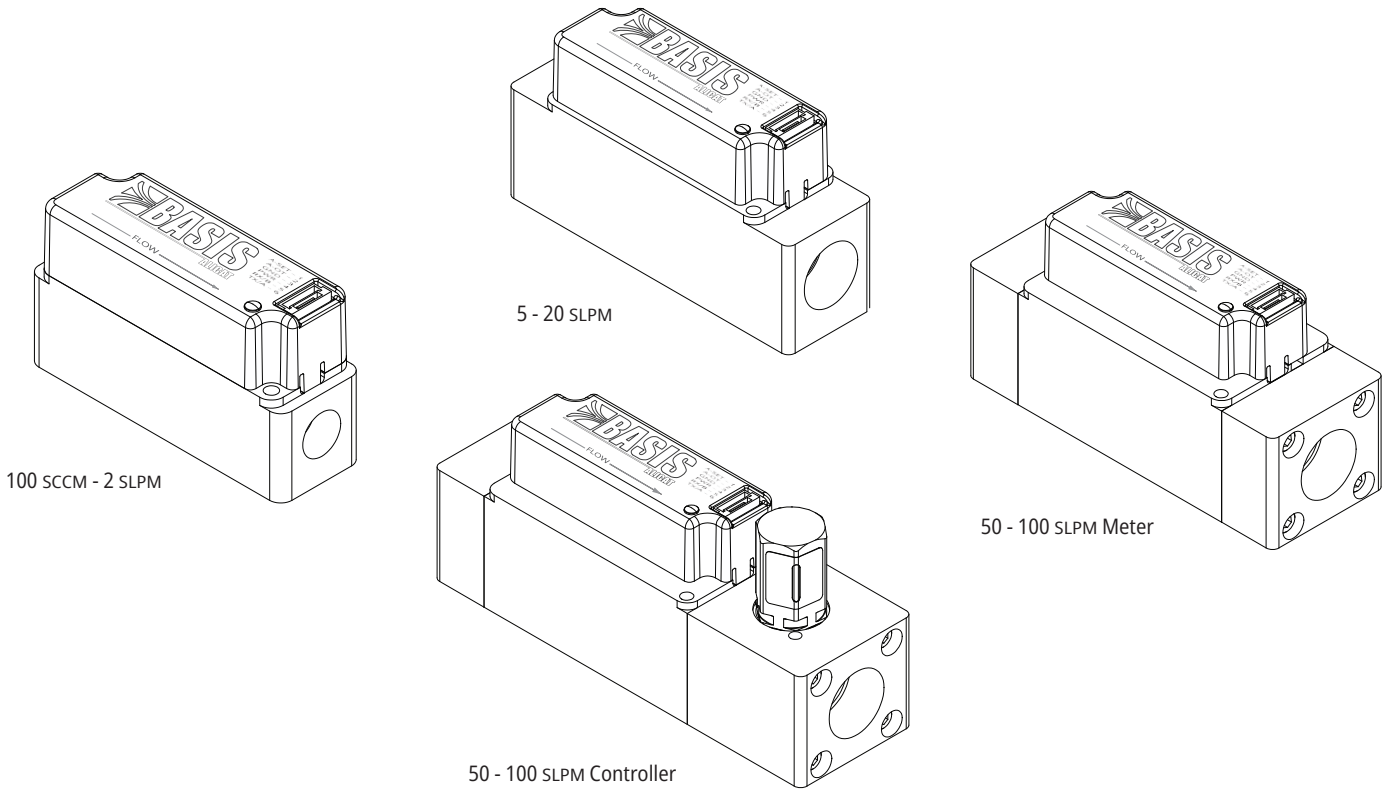


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FEATURES	
STP reference conditions	0°C, 20°C, 25°C, 70°F and 1 atm available, user-configurable
Gas selection	9 user-selectable gases stored internally. Compatibility: Air, N ₂ , O ₂ , CH ₄ , Ar, CO ₂ , N ₂ O, He, H ₂
Valve overrides	Hold, exhaust
Status LED	Power, serial activity, error

RANGE-SPECIFIC TECHNICAL DATA			
Full scale flow	Pressure drop at full scale when venting air to atmosphere		Process connections
	Controller	Meter	
100 SCCM	15.0 mbar	0.2 mbar	1/8" NPT female or SAE 4
200 SCCM	45.0 mbar	0.5 mbar	1/8" NPT female or SAE 4
500 SCCM	6.0 mbar	1.5 mbar	1/8" NPT female or SAE 4
1 SLPM	26.0 mbar	3.0 mbar	1/8" NPT female or SAE 4
2 SLPM	80.0 mbar	10.0 mbar	1/8" NPT female or SAE 4
5 SLPM	140.0 mbar	14.0 mbar	3/8" NPT female or SAE 6
10 SLPM	450.0 mbar	35.0 mbar	3/8" NPT female or SAE 6
20 SLPM	850.0 mbar	85.0 mbar	3/8" NPT female or SAE 6
50 SLPM	290.0 mbar	12.0 mbar	3/8" NPT female or SAE 6
100 SLPM	750.0 mbar	30.0 mbar	3/8" NPT female or SAE 6

Representative Examples



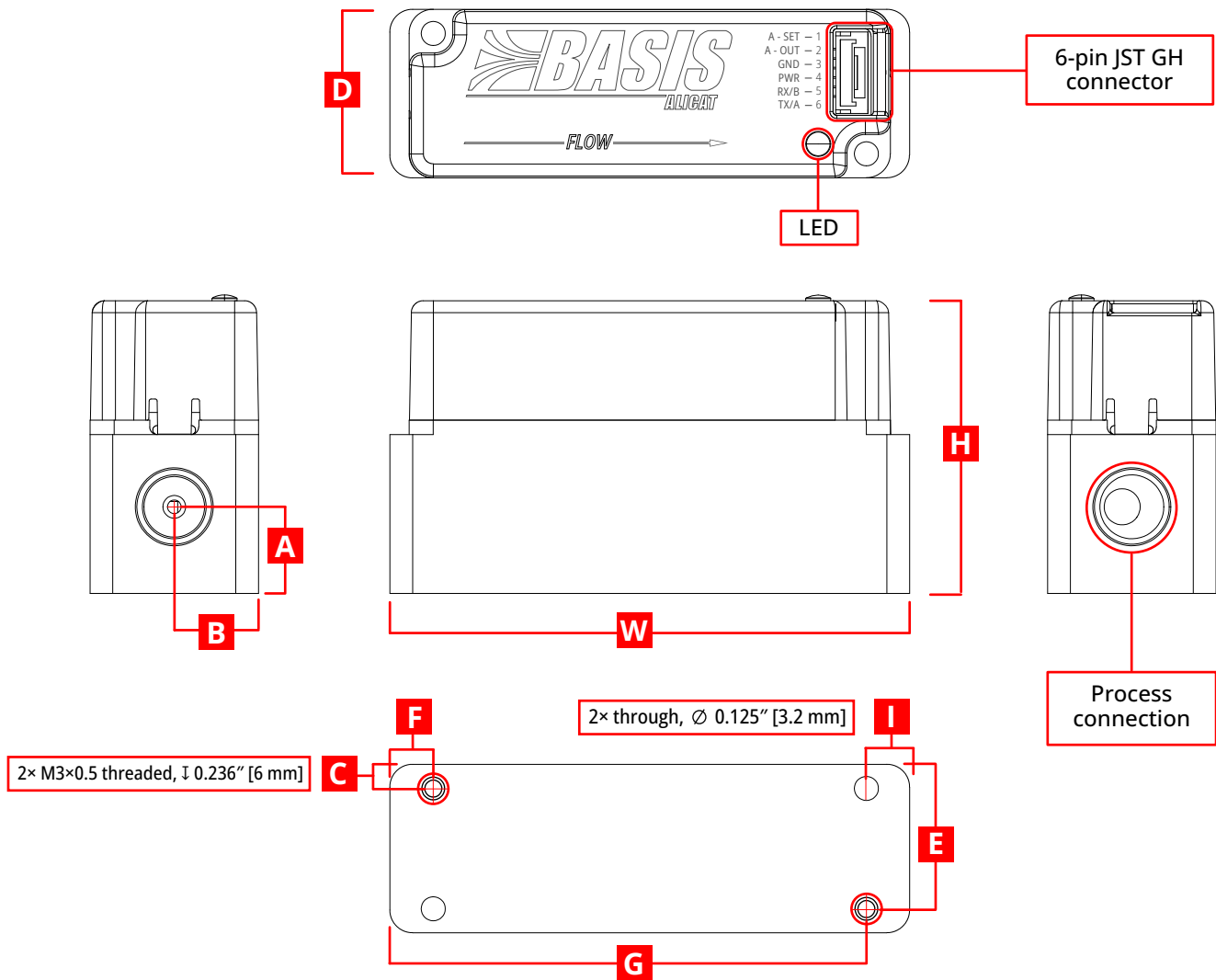
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DIMENSIONS										WEIGHT	
Full-scale flow	Width	Depth	Height	A	B	C	E	F	G	I	
100 SCCM – 2 SLPM	2.70"	0.88"	1.55"	0.45"	0.44"	0.14"	0.73"	0.27"	2.43"	0.23"	≈ 4.0 oz
	68.6 mm	22.23mm	39.4 mm	11.4 mm	11.1 mm	3.6 mm	18.6 mm	6.9 mm	61.8 mm	5.7 mm	≈ 116 g
5 – 20 SLPM	3.31"	1.00"	1.83"	0.58"	0.50"	0.15"	0.85"	0.47"	2.83"	0.52"	≈ 6.0 oz
	84.0 mm	25.4 mm	46.5 mm	14.8 mm	12.7 mm	3.7 mm	21.7 mm	12.0 mm	72.0 mm	13.1 mm	≈ 171 g
50 – 100 SLPM Meter	3.75"	1.38"	1.91"	0.58"	1.5"	0.11"	1.27"	0.74"	3.01"	0.74"	≈ 9.5 oz
	95.25 mm	35.0 mm	48.4 mm	14.7 mm	38.1 mm	2.7 mm	32.3 mm	18.8 mm	76.5 mm	17.5 mm	≈ 270 g
50 – 100 SLPM Controller	4.52"	1.38"	2.06"	0.58"	0.69"	0.11"	1.27"	0.74"	3.01"	1.5"	≈ 12.3 oz
	114.8 mm	35.0 mm	52.3 mm	14.7 mm	17.5 mm	2.7 mm	32.3 mm	18.7 mm	76.5 mm	38.1 mm	≈ 350 g