

Technical Data for IMC Mass Flow Devices

0.5 SCCM full scale through 250 SLPM full scale

Standard specifications. Consult Alicat for available options.



+1 (888) 290-6060
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SENSOR AND CONTROL PERFORMANCE	
Mass flow accuracy ¹	± 0.8% of reading or ± 0.2% of full scale, whichever is greater
Flow repeatability (2σ)	± (0.15% of reading + 0.05% of full scale)
Pressure accuracy ¹	Above 1 atm: ± 0.5% of reading Below 1 atm: ± 0.07 PSIA
Steady state control range ²	0.2 – 100% of full scale (500:1 turndown ratio)
Operating pressure	11.5 – 160 PSIA
Pressure sensitivity	Mass flow zero shift: ± 0.02% of full scale per atm from tare pressure Mass flow span shift: ± 0.2% of reading per atm from calibration conditions
Temperature sensitivity	Mass flow zero shift and span shift: ± 0.025% of full scale per °C from 25°C
Temperature accuracy	± 0.75°C
Operating temperature range	0 – 85°C (gas)
Valve function ²	Normally closed
Sensor response time	< 1 ms
Typical control response time ²	As fast as 50 ms (T63), flow rate dependent, user-adjustable
Typical indication response time	< 10 ms, flow rate dependent
Typical warm-up time	< 1 s

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

² Applies to controllers only.

MECHANICAL	
Wetted materials	stainless steel, aluminum; FKM, alumina ceramic, brass, glass, gold, heat-cured epoxy, heat-cured silicone rubber, polyamide, silicon
Maximum pressure	Damage possible above 200 PSIA common mode pressure. Damage possible by rapid pressure change above 75 PSI differential pressure.
Relative humidity range	0 – 95%, non-condensing
Ingress protection	IP40
Mounting orientation sensitivity	None
Mounting holes	2× 8-32 UNC threaded ⚓ 0.328" [8.89 mm]

POWER AND COMMUNICATIONS	
Digital input and output options	RS-232 Serial and Modbus RTU (default), RS-485 Serial and Modbus RTU
Digital data update rate	40 Hz at 19200 baud
Analog input and output options	4 – 20 mA, 0 – 5 Vdc, 1 – 5 Vdc, 0 – 10 Vdc Meters do not have inputs.
Analog data update rate	1 kHz
Analog signal accuracy	± 0.1% of full scale additional uncertainty
Electrical connection options	9-pin male D-sub (DB9)
Power requirements	12 – 24 Vdc, 250 mA (290 mA if equipped with 4 – 20 mA output)

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™	30 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. Custom gases available upon request.
Valve overrides ³	Force close, force open
Status LED	Power, serial activity, error

³ Analog input applies to controllers only.

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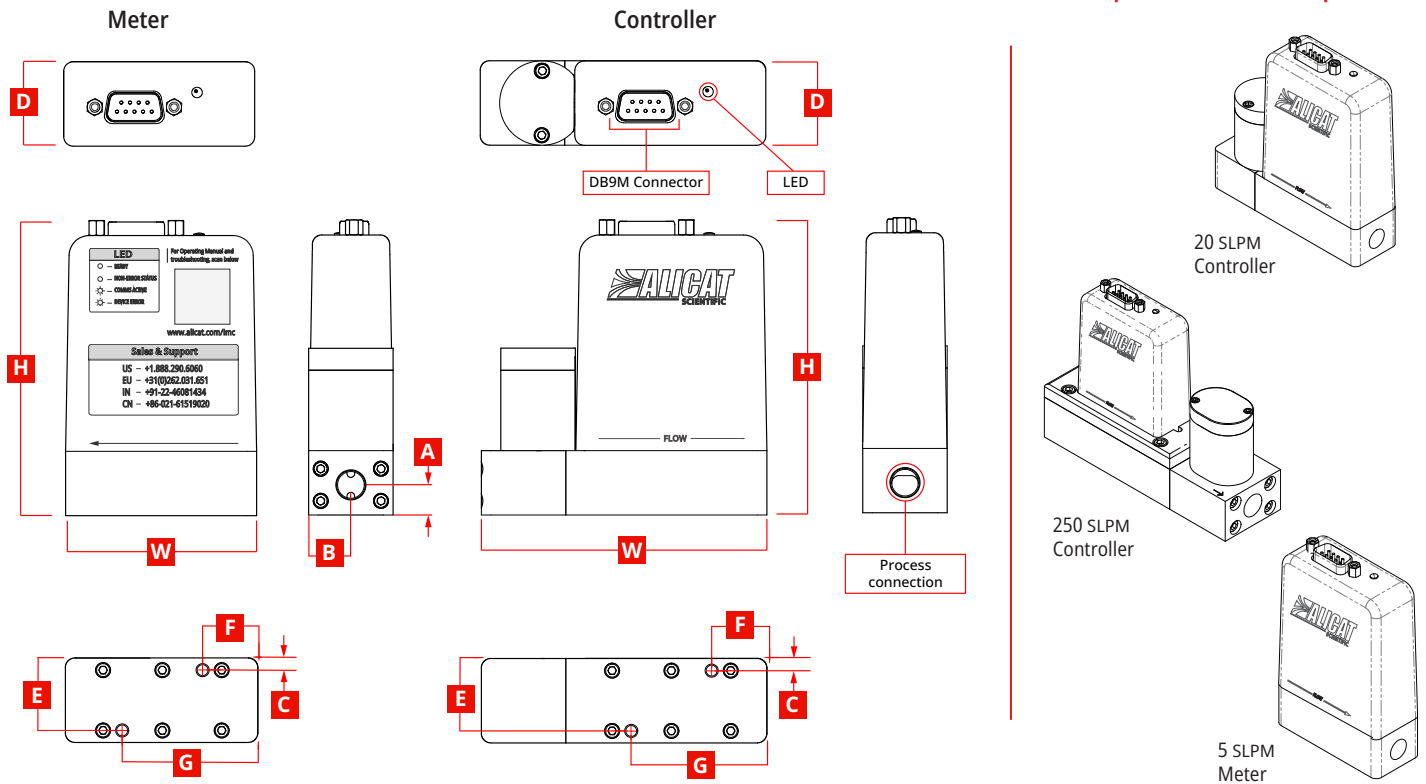


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Full scale flow	RANGE-SPECIFIC TECHNICAL DATA		Default process connections ⁴
	Pressure drop at full scale when venting air to atmosphere		
	Controllers	Meters	
0.5 SCCM	1.0 PSID	1.0 PSID	M5 female thread (10-32 compatible)
1 – 5 SCCM	2.0 PSID	1.0 PSID	M5 female thread (10-32 compatible)
10 SCCM	2.8 PSID	1.0 PSID	M5 female thread (10-32 compatible)
20 – 50 SCCM	1.0 PSID	1.0 PSID	M5 female thread (10-32 compatible)
100 – 500 SCCM	1.0 PSID	1.0 PSID	1/8" NPT female
1 SLPM	1.5 PSID	1.0 PSID	1/8" NPT female
2 SLPM	3.0 PSID	1.0 PSID	1/8" NPT female
5 SLPM	2.0 PSID	1.0 PSID	1/8" NPT female
10 SLPM	5.5 PSID	1.0 PSID	1/8" NPT female
20 SLPM	12.0 PSID	1.0 PSID	1/8" NPT female
50 SLPM	4.5 PSID	TBD	1/4" NPT female
100 SLPM	12.5 PSID	TBD	1/4" NPT female
250 SLPM	52.0 PSID	TBD	1/4" NPT female

⁴ Shipped with Buna-N O-ring face seal to 1/8" female NPT fittings.

Representative Examples



Full scale flow	DIMENSIONS									WEIGHT
	Width	Depth	Height	A	B	C	E	F	G	
0.5 – 20 SLPM Meter	2.38"	1.05"	3.67"	0.38"	0.53"	0.15"	0.90"	0.69"	1.69"	≈ 0.4 lb
	60.3 mm	26.7 mm	93.2 mm	9.5 mm	13.3 mm	3.8 mm	22.9 mm	17.5 mm	42.9 mm	≈ 0.2 kg
0.5 – 20 SLPM Controller	3.55"	1.05"	3.67"	0.38"	0.53"	0.15"	0.90"	0.69"	1.69"	≈ 0.6 lb
	90.2 mm	26.7 mm	93.2 mm	9.5 mm	13.3 mm	3.8 mm	22.9 mm	17.5 mm	42.9 mm	≈ 0.3 kg
50 – 250 SLPM Controller	5.24"	1.60"	4.00"	0.50"	0.80"	0.18"	1.43"	0.56"	3.06"	≈ 2.0 lb
	133.1 mm	40.6 mm	101.6 mm	12.7 mm	20.3 mm	4.4 mm	36.2 mm	14.3 mm	77.8 mm	≈ 0.9 kg