

Technical Data for MC-Series Mass Flow Controllers

10 sccm full scale through 20 SLPM full scale

Standard specifications. Consult Alicat for available options.



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SENSOR AND CONTROL PERFORMANCE	
Mass flow accuracy ¹	Standard accuracy: $\pm 0.6\%$ of reading or $\pm 0.1\%$ of full scale, whichever is greater High accuracy: $\pm 0.5\%$ of reading or $\pm 0.1\%$ of full scale, whichever is greater
Flow repeatability (2 σ)	$\pm (0.1\% \text{ of reading} + 0.02\% \text{ of full scale})$
Pressure accuracy ¹	Above 1 atm: $\pm 0.5\%$ of reading Below 1 atm: ± 0.07 PSIA
Steady state control range	0.01 – 100% of full scale (10,000:1 turndown ratio)
Operating pressure	11.5 – 160 PSIA
Pressure sensitivity	Mass flow zero shift: $\pm 0.01\%$ of full scale per atm from tare pressure Mass flow span shift: $\pm 0.1\%$ of reading per atm from calibration conditions
Temperature sensitivity	Mass flow zero shift: $\pm 0.01\%$ of full scale per °C from tare temperature Mass flow span shift: $\pm 0.01\%$ of reading per °C from 25°C
Temperature accuracy	$\pm 0.75^\circ\text{C}$
Operating temperature range	-10 – 60°C (ambient and gas)
Valve function	Normally closed
Totalizer volume uncertainty	$\pm 0.1\%$ of reading in additional uncertainty
Sensor response time	< 1 ms
Typical control response time	As fast as 30 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.

MECHANICAL	
Wetted materials	302, 303, 304, 316L, and 430FR stainless steel; 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 (consult Alicat for weatherproofing options)
Mounting orientation sensitivity	None
Mounting holes	10 – 50 sccm: 2× 8-32 UNC threaded $\mp 0.175"$ [4.45 mm] 100 sccm – 20 SLPM: 2× 8-32 UNC threaded $\mp 0.350"$ [8.89 mm]

POWER AND COMMUNICATIONS	
Digital input and output options	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 ²	40 Hz at 19200 baud
Analog input and output options	4 – 20 mA, 0 – 5 Vdc, 1 – 5 Vdc, 0 – 10 Vdc
Analog data update rate ²	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, setpoint, and pressure
Display update rate	10 Hz
Electrical connection options	6-pin locking, 8-pin mini-DIN, 8-pin M12, DB-9, DB-15
Power requirements ²	12 – 24 Vdc, 250 mA (290 mA if equipped with 4 – 20 mA output)

² Consult the individual operating bulletins for specific industrial protocol power requirements and data transmission specifications.

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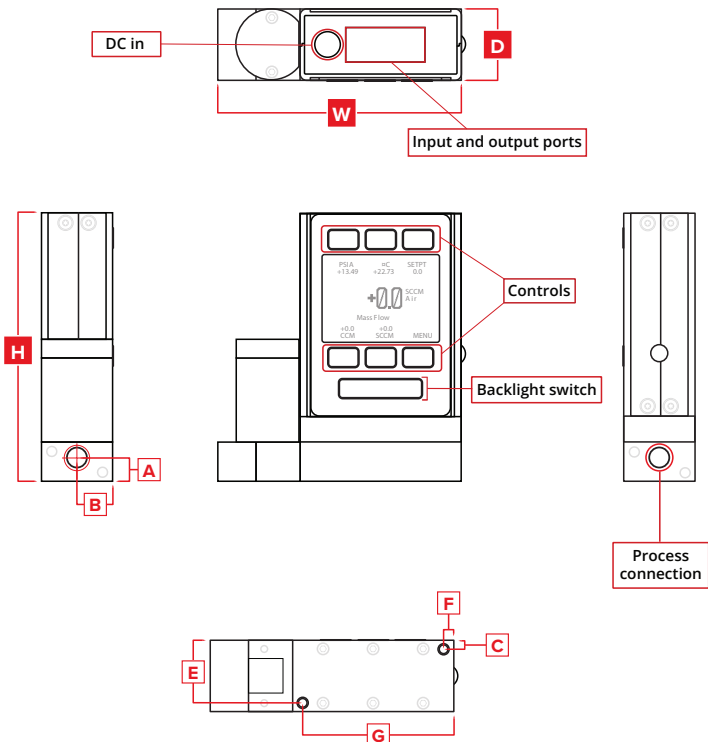


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Table with 2 columns: Feature, Value. Rows include STP reference conditions (25°C and 1 atm), NTP reference conditions (0°C and 1 atm), Gas Select™ (98 user-selectable gases), and COMPOSER™ (20 user-definable gas mixes).

Table with 3 columns: Full scale flow, Pressure drop at full scale when venting air to atmosphere³, Default process connections⁴. Rows show flow ranges from 10 sccm to 20 slpm and corresponding pressure drops and connection types.

3 Lower pressure drops and other valves available, including our WHISPER™ series mass flow controllers at alicat.com/mcw.
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

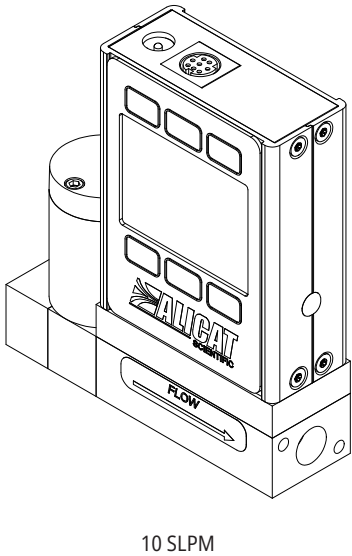


Table with 11 columns: Full scale flow, Width, Depth, Height, A, B, C, E, F, G, WEIGHT. Rows provide dimensions for 10-50 sccm and 100 sccm-20 slpm flow ranges.