

MASS FLOW CONTROLLERS

MASS AND VOLUMETRIC GAS FLOW CONTROLLERS

The Alicat line of Laminar Flow Controllers utilize a proportional valve coupled to a flowmeter body. Measurements are taken within the laminar region of the flowmeter and the integral PID controller positions the valve according to the user programmed set points.

These robust, closed-loop devices can accept a 0-5Vdc control set point from either external devices or Alicat™s optional Local Set Point Module (LSPM). The controllers can also accept an RS-232, 0-10Vdc or 4-20mA control input signal, depending on what is preferred by the customer. Independent of the set point voltages, the controllers can be configured for single or dual output signals of the same or different voltages and/or different parameters such as mass flow and temperature or flow and pressure. This is because our mass flow controllers incorporate solid-state Differential, Absolute Pressure and Temperature sensors to determine flow. The result is an easy to use, fast responding meter that is inherently linear and can display or transmit multiple process parameters. With the RS232 digital link, all the process data is available simultaneously as well as remote set point capability. In a parallel connection, up to 26 units can be individually addressed. Gas units are available from 500 micro-litres per minute full scale to 1000+ litres per minute full scale. Dimensions are available on the back, however the foot print used will depend on operating conditions.

(Volumetric meters do not require absolute pressure sensors or discrete temperature sensors and are therefore less expensive. They are commonly used in applications where back pressure is a constant).

- ◆ Full Scale Ranges from 0.5cm³/min to 1000+ l/min
- ◆ Response time of 100milliseconds typical
- ◆ Turndown Ratio of 50:1 Typical
- ◆ Position Insensitive
- ◆ AutoTare or Push Button Tare on display units
- ◆ Accuracy of +/-1% full scale (optional 0.5%)



OPTIONS

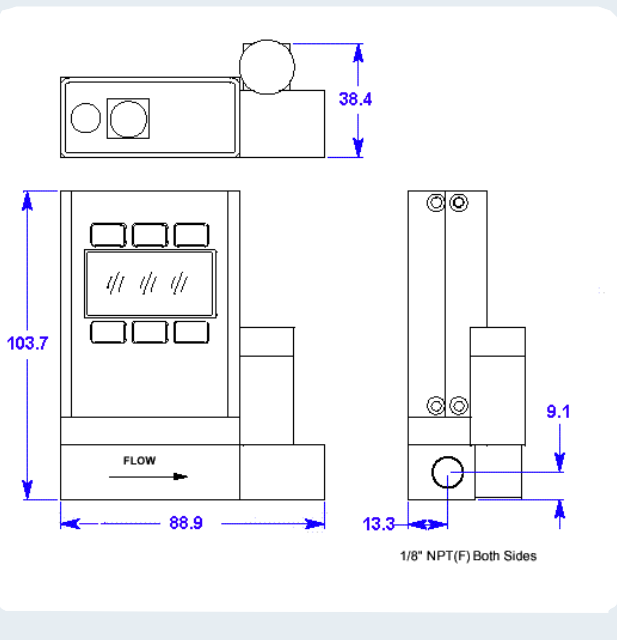
- ◆ Local Set Point Module (LSPM)
- ◆ 13 Gas Selectability without re-calibration (with display only)
- ◆ Special Gas Blends
- ◆ Remote Digital Displays
- ◆ Dynamic Digital Display
- ◆ Customized Pressure Drop

APPLICATIONS

- ◆ Medical
- ◆ Industrial
- ◆ Process Control
- ◆ Laboratory
- ◆ OEM
- ◆ Thermal Mass Meter Replacement
- ◆ Leak Testing

Specifications	MC	VC	Units of Measure	Sample FS Ranges
Accuracy	+/- 1% (0.5% opt)	+/- 1%	Full Scale	0.5(s)cm ³ /min
Repeatability	+/- 0.5%	+/-1%	Full Scale	1 (s)cm ³ /min
Turndown Ratio	100: 1	100: 1		2 (s)cm ³ /min
Control Response Time	100	100	Milliseconds	5 (s)cm ³ /min
Pressure Drop	-	-	Consult Factory	10 (s)cm ³ /min
Operating Temperature	0 to +50	0 to +50	°C	20 (s)cm ³ /min
Zero Shift	0.02% / ATM	0.02%	Full Scale / °C	50 (s)cm ³ /min
Span Shift	0.02% / ATM	0.02%	Full Scale / °C	100 (s)cm ³ /min
Humidity Range	0-100%	0-100%	Non-Condensing	200 (s)cm ³ /min
Excess Flow Rate	+ 2.4%	+ 2.4%	Full Scale	500 (s)cm ³ /min
Maximum Pressure	125	125	PSIG	800 (s)cm ³ /min
Supply Current (Typical)	0.250 for 20(s)l/min & Under 1 for 50(s)l/min & Above		Amp	1 (s)l/min 2 (s)l/min
Supply Voltage	≤20 (s) l/min: 12-25V ≥50 (s) l/min: 24-30V			3 (s)l/min 5 (s)l/min
Input/Output	0-5V dc, 0-10V dc, 4-20mA, RS-232		Volts dc	10 (s)l/min
Electrical Connections	8 pin	8 pin	Circular Mini DIN	20 (s)l/min
Mechanical Connections	1/8" for 20(s)l/min & under 1/2" for Valve Side & 1/4" Meter Side 50(s)l/min +100 (s) l/min 1/2" for 250-1000(s)l/min 1/0 for 1000(s)l/min+		NPTF	50 (s)l/min 100 (s)l/min 250 (s)l/min 500 (s)l/min 1000 (s)l/min
Wetted Materials	303 and 302 Stainless Steel, Viton®, Silicone RTV, Glass Reinforced Nylon, Anodized AL, 410 & 304 Stainless Steel, Nickel, Brass, Delrin®, Loctite® Adhesives 326, 401, 609			

MC and VC Series Gas Flow Controllers 0-20 (s)l/min Typical



DIMENSIONS

Flow Range (s)l/min	Height mm	Length mm	Depth mm	Meter Port NPT(F)	Valve Port NPT(F)
≤20*	103.7	89.2	39.6	1/8"	1/8"
20+ to 50	116.8	~144.8	50.8	1/4"	1/2"
50+ to 100	120.0	~167.6	50.8	1/4"	1/2"
100+ to 1000	133.1	~167.6	50.8	1/2"	1/2"

*Very low flow devices may have special ports to reduce dead volume. Occasionally, particular flow/pressure conditions may dictate various port size combinations.

Every effort has been made during the preparation of this document to ensure the accuracy of statements and specifications. However, we do not accept liability for damage, injury, loss or expense caused by errors or omissions made. We reserve the right to withdraw or amend products or documentation without notice.

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