



Low Flow Mass Flow Controller

Kelly Pneumatics, Inc. offers a reduced cost, single or dual-valve proportional valve design, Mass Flow Controller for high low flow applications.



The unit is calibrated for up to $\pm 0.5\%$ accuracy (full scale) for flow rates of 0-10 lpm. For greater accuracy, the unit can be customized to $\pm 2\%$ of reading. This mass flow controller can also adjust for back pressures of up to 100 psig, as well as compensate for changes in gas temperature. The controller can also be customized for response times of up to 20 milliseconds (full scale). This unit can accurately control numerous gases, including Air, Oxygen, Nitrogen, Argon, and many more. Further customization is possible due to an internal microcontroller. Change your response time, control range, or incorporate additional control or feedback signals, with customized software, modified to meet your most demanding flow control applications.

Product Features

- $\pm 0.5\%$ Full Scale Accuracy, or $\pm 2\%$ Reading *
- 20-30 Millisecond Response time *
- Back Pressure Compensation up to 100 psig
- Temperature Compensating
- Microcontroller Design for Customization

*See flow specifications below

Volumetric Flow Calculation

The unit can be customized to use four sensors to accurately output volumetric flow rates. Three sensors are in direct contact with the flow path: an anemometer for mass flow, a thermistor for gas temperature and a gauge pressure transducer for gas/back pressure. The fourth sensor, an absolute pressure transducer, is contained within the unit and away from the flow path for atmospheric pressure.

Using the readings from all four sensors, the mass flow is calculated using the current environmental and application conditions. This mass flow is then converted to volumetric flow based on the current density of the environment and back pressure in the system.





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Specifications

Input Pressure	0 to 100 PSI
Gas/Back Pressure	0 to 100 PSIG
Flow Output Accuracy	+/- 1% Full Scale accuracy, or 0.05 lpm, whichever is greater +/- 2-3% of Reading is available with custom calibration Results dependent on application specifications
Response Time	Typical: 50-80 milliseconds Custom: 20-30 milliseconds
Max Flow Rate	10 slpm @ 100 psi Differential Pressure
Port Size	1/8" or 1/4" FPT Supply and Outlet Ports
Weight	1.0 lb
Power Supply Voltage	12 or 24 VDC (Wire Leads); 110 VAC (Turnkey)
Current Required	90 mA to 180 mA
Control Signal	0-5 volts, 0-10 volts or 4-20 mA
Feedback Signal	0-5 or 0-10 volts
Operating Temperature	32-150 °F or 0-65 °C
Filtration	40 Micron Recommended
Wetted Materials	Cold rolled stainless steel w/ electroless nickel plating, brass and 304 stainless steel.

Wiring

Terminal Number	1	2	3	4
Lead Wire Color	Brown	White	Blue	Black
Function	Power Supply Voltage	Control Signal	Ground	Feedback Signal

Dimensions

(All Dimensions in Inches)

