



# Digital Mass Flow Sensor



Kelly Pneumatics, Inc. offers a Digital Mass Flow Sensor for high volume flow rates of Air and Oxygen. The sensor automatically compensates for temperature changes in the measured gas and outputs accurate readings of mass flow and temperature via I2C digital communication.

The Digital Mass Flow Sensor outputs flow for Air and Oxygen from 0-300 SLPM, with an accuracy of 2% of reading, and offers a flow sample response time of 2 milliseconds. An internal microprocessor measures signals from an internal thermistor and hot wire anemometer to linearize flow measurements, and allows for numerous settings for flow and temperature output readings. The compact, lightweight design is perfect for OEM applications, especially medical, semiconductor and gas analyzer products.

## Product Features

- High Accuracy of  $\pm 2\%$  of reading (or 0.05 SLPM)
- 2 Millisecond Response time
- I2C Digital Communication to Read Flow or Temperature, and Change Settings
- Temperature Compensating
- Microcontroller Design for Customization

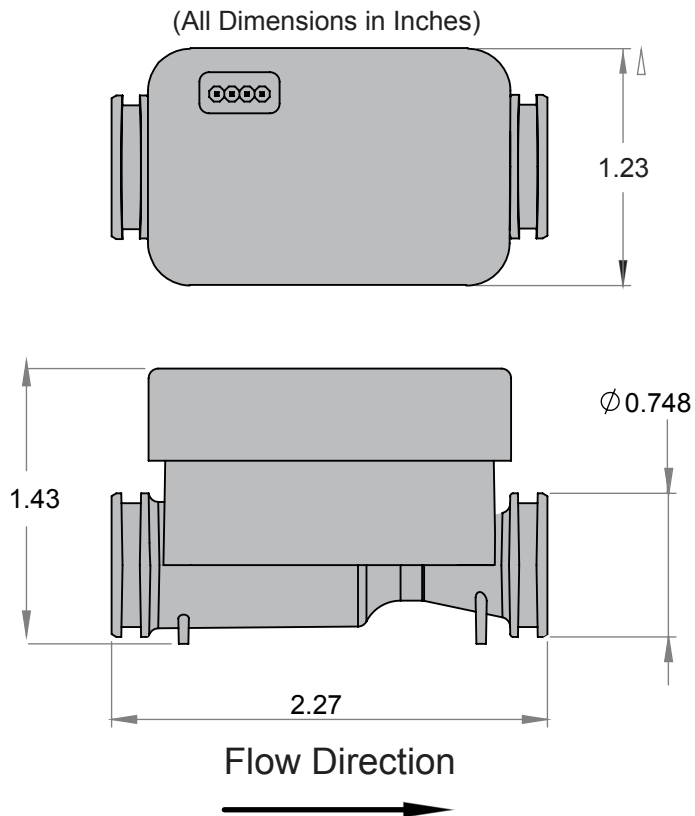
## Microcontroller Features

The unit has an internal microprocessor that can be used to dynamically change settings. Digital Commands allow switching between flow measurements in either Air or Oxygen, as well as reading the current gas temperature. I2C commands can also change the units of flow measurement between Standard Liters per Minute (SLPM) or Pound Mass Per Minute (lb/min). These preferences can also be saved to internal EEPROM to avoid initialization on start-up. Using a microcontroller also means custom software versions are available per your application's requirements.

# Specifications

| Gas Calibration         |   |
|-------------------------|---|
| Media                   | Air and Oxygen  |
| Flow Performance        |   |
| Range                   | 0 to 300 SLPM   |
| Accuracy                | 2% of reading or 0.05 SLPM, whichever is greater, at 70 °F and 14.7 psia              |
| Response Time           | 2 milliseconds  |
| Temperature Measurement |   |
| Range                   | 0 to 50 °C (0 to 122 °F)  |
| Accuracy                | ±1 °C (±1.8 °F) at flows >1 SLPM  |
| Power Requirement       |   |
| Voltage                 | 5 volts ±10% (0.785 Watts Max Power Consumption at 300 SLPM)                          |
| Temperature Limits      |   |
| Operating               | 0 to 50 °C (0 to 122 °F)  |
| Storage                 | -20 to 60 °C (-4 to 140 °F)   |
| Communication Interface |   |
| Interface               | 2-Wire I2C (see Application Note "I2C Details for KPI-DMFS-1" on website for details) |

## Dimensions



## Pin Layout

