

DESCRIPTION

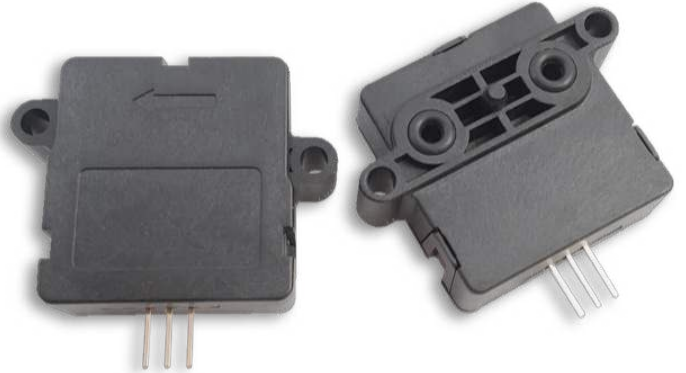
PMF6000 was developed specifically for use in bypass assemblies by customers wishing to design their own flow body and restrictor element. By utilizing the linearized factory calibration from Posifa customers can create master calibration curves specific to their custom bypass design with minimal additional corrections in the production process. The compact packaging protects the flow die inside and provides a standardized package for manifold mounting.

PMF6000 features Posifa's third-generation thermal flow die, benefiting from the latest innovations in microfabrication. The sensor die uses a pair of thermopiles to detect changes in temperature gradient caused by mass flow, delivering excellent signal-to-noise, and repeatability. The "solid state" thermal isolation structure on the sensor die eliminates the need for surface cavity or fragile membrane used in competing technologies, making the sensor resistant to clogging and pressure shock.

The PMF6000 series includes the analog output PMF6000V and the digital I²C output PMF6000D.

APPLICATIONS

- Oxygen concentrators
- Nebulizers
- CPAP equipment
- Leak detection
- Spectroscopy
- Mass flow controller
- Fuel cell control
- Environmental monitoring



FEATURES

- Unsurpassed performance in a robust and cost effective package
- "Solid state" sensing core (no surface cavity or fragile membrane) resistant to clogging and pressure shock
- Highly accurate (4% reading typ.)
- Fast response time (5 ms typ.)
- Linear output and temperature compensation
- Long-term stability with minimal null drift

MAXIMUM RATINGS

- Operating Temperature: -25 to 85 °C
- Calibrated Temperature Range: 0 to 50 °C
- Storage Temperature: -40 to 90 °C
- Humidity: 0 to 100% RH, non-condensing
- Operating Pressure 25 psi

SPECIFICATIONS

| Test Conditions: $V_{in}=10\pm 0.01VDC$, $T_a=25^{\circ}C$. Relative Humidity: $40\% < RH < 60\%$ | | | | | |
|---|---|-----|------|-------------------|--------------------------------------|
| SPECIFICATIONS | MIN | TYP | MAX | UNIT | CONDITIONS |
| PMF6102 | 0 | | 1000 | sccm ¹ | |
| PMF6106 | 0 | | 6000 | sccm | |
| Output Voltage (V) ² | 1 to 5 | | | VDC | |
| Null Voltage (V) | 0.95 | 1 | 1.05 | VDC | |
| Output Count (D) | 256 to 16124 | | | Count | |
| Null Count (D) | 156 | | 356 | Count | |
| Null Drift | | | 0.2 | % F.S. | Per year |
| Repeatability | | 0.1 | | % F.S. | |
| Accuracy ³ | | 1% | | F.S. | 0 to 25% F.S. |
| | | 4% | | Reading | 25 to 100% F.S. |
| Resolution (D) | | 14 | | Bit | |
| Response Time ⁴ | | 5 | | mSec | |
| Supply Voltage (V) | 6 | 10 | 16 | Vdc | |
| Supply Voltage (D) | 4.75 | | 16 | Vdc | 10V recommended for best performance |
| Current | 22 | | 23 | mA | |
| Wetted Materials | Silicon carbide, epoxy, PPS, FR4, and silicone as static seal | | | | |

1. SLM: standard liter per minute. Standard conditions: 0 °C and 1 atmosphere.
2. V refers to the analog version of PMF2000, and D refers to the digital I2C version.
3. Maximum deviation in output from nominal over the entire calibrated flow range and temperature range. Errors include offset, full scale span, linearity, flow hysteresis, repeatability and temperature effects over the compensated temperature range.
4. 10% to 90% rise time of the flow sensor to electrically respond to any mass flow change. May be affected by the pneumatic interface.

OUTPUT DESCRIPTION

For **PMF6000V**

Flow Rate = $[(V_{out} - 1\text{ V}) / 4\text{ V}] \times \text{Full Scale Flow Rate}$

For example, for PMF6102V full scale flow rate is 1000 sccm. When V_{out} reads 3 V, the Flow Rate is: $[(3\text{ V} - 1\text{ V})/4\text{ V} \times 1000\text{ sccm}] = 500\text{ sccm}$

For **PMF6000D***

Flow Rate = $[(\text{Count} - 256) / 15868] \times \text{Full Scale Flow Rate}$

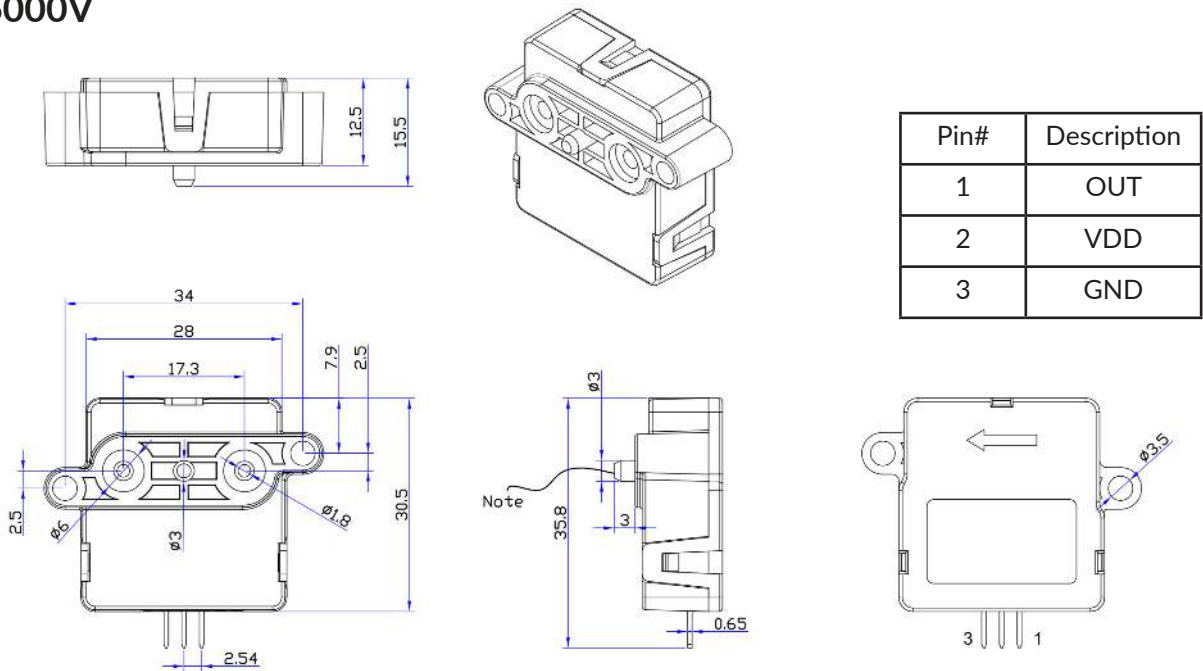
For example, for PMF6102D full scale rate is 1000 sccm. When digital output reads 10000, the Flow Rate is:

$[(10000 - 256)/15868 \times 1000\text{ sccm}] = 614\text{ sccm}$

*Contact Posifa for I²C communication app note

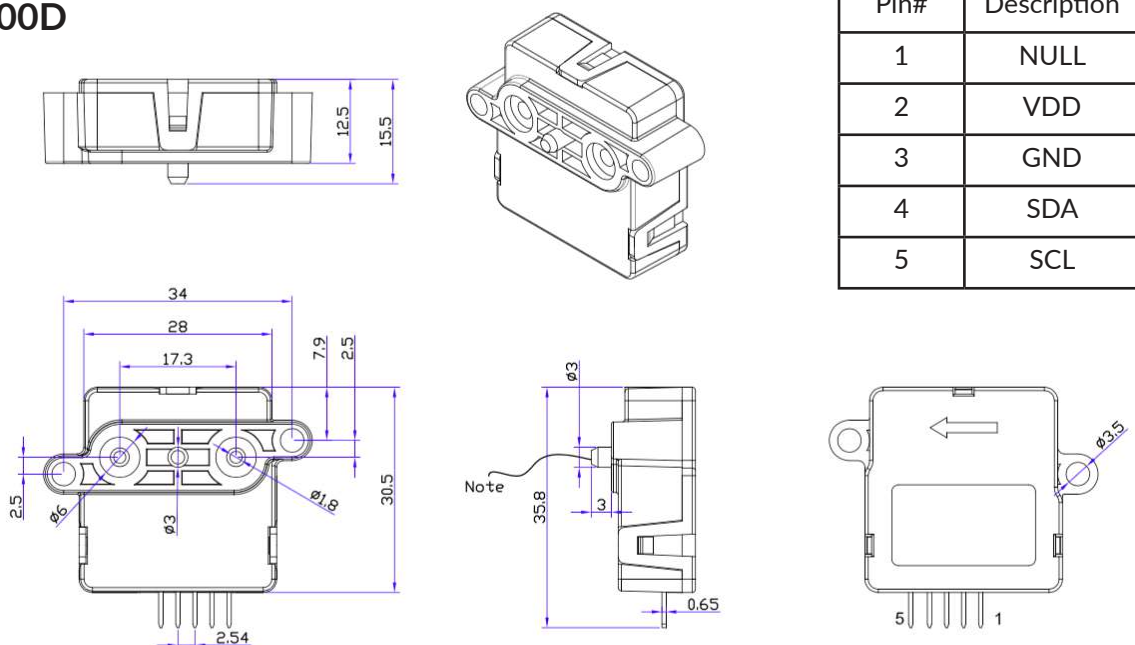
PACKAGE DIMENSIONS

PMF6000V



Note: The positioning hole on the manifold that receives the post shall have a diameter between 3.2 and 3.3mm, and a depth greater than 3.3mm. Contact Posifa for sensor CAD model.

PMF6000D



ORDERING INFORMATION

| PART NUMBER | SPECIFICATIONS |
|--------------------|-----------------------------|
| PMF6102V | 1000 sccm, 1 to 5 V, Linear |
| PMF6106V | 6000 sccm, 1 to 5 V, Linear |

Order I²C Digital Output models by specifying “D” instead of “V” in part numbers above.

Please contact Posifa to place an order.

CUSTOMIZATION OPTIONS

If the standard product described in this datasheet does not completely meet your needs, please contact Posifa Technologies to discuss other options. Help us understand your application and sensor requirements and we can work together to find the best overall solution.