

DESCRIPTION

The PMF86000 Series of Gen II mass air flow sensors is designed for respiratory care and other medical and instrumentation applications. Compared to our previous generation solution, the PMF86000 Series offers improved accuracy, repeatability, and signal-to-noise performance.



The PMF86000 series features Posifa's third-generation thermal flow die, benefiting from the latest innovations in microfabrication. The entire sensor PCB assembly is coated with parylene, including the sensor die, allowing the sensor to perform reliably in harsh environments such as high humidity and trace amounts of corrosive gases. The PMF86000 series has adopted a single, main flow path design, eliminating the risk of bypass being clogged by water condensation and dust particles.

The PMF88000 sensors provide both analog (voltage) and digital I²C outputs and support bi-directional flow measurement.

APPLICATIONS

- Oxygen concentrators
- Respirators and ventilators
- Nebulizers
- CPAP equipment
- Anesthesia delivery
- Environmental monitoring
- Fuel cell control

FEATURES

- Accurate and low noise
- Fast response time
- Resistant to condensed water and dust particles
- Long-term stability
- Bidirectional flow sensing (optional)
- Analog and I²C, Linear output

MAXIMUM RATINGS

- Operating Temperature: -25°C to 65°C
- Compensated Temperature: 0°C to 50°C
- Storage Temperature: -25°C to 70°C
- Over Pressure: 50 psi

SPECIFICATIONS

Test Conditions: $V_{in}=5\pm0.01VDC$, $T_a=22^{\circ}C$.					
SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
PMF86050		50		SLM	
PMF86100		100		SLM	
PMF86150		150		SLM	
PMF86200		200		SLM	
PMF86300		300		SLM	
Output Count (Digital)	6553 to 58981			count	
Null Count (Digital)	5898		7208	count	
Output (Analog)	0.5 to 4.5			VDC	
Null Output (Analog)	0.45		0.55	VDC	
Flow Repeatability		0.5		% F.S.	
Accuracy		1%		F.S.	0 to 25% F.S.
		4%		Reading	25% to 100% F.S.
Flow Response Time ³		5		ms	
Warm Up Time			5	sec	
Over Pressure	50			psi	
Operating Temperature	-25		85	°C	
Supply Voltage		5		VDC	We recommend using 1% voltage regulator
Supply Current		20		mA	at 5 VDC supply
Wetted Materials	Nylon, Parylene, and Silicone for Sealing				

Notes:

1. SLM: standard liter per minute. Standard conditions: 0 °C and 1 atmosphere. Also known as NLPM (nominal liter per minute).
2. 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.
3. 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 **PMF86000 Analog Output**

Flow Rate = $[(V_{out} - 0.5 \text{ V}) / 4 \text{ V}] \times \text{Full Scale Flow Rate}$

For example, for PMF86200 full scale flow rate is 200 SLM. When Vout reads 3.5 V, the Flow Rate is: $[(3.5 \text{ V} - 0.5 \text{ V}) / 4 \text{ V} \times 200 \text{ SLM}] = 150 \text{ SLM}$

For **PMF86000 Digital Output**

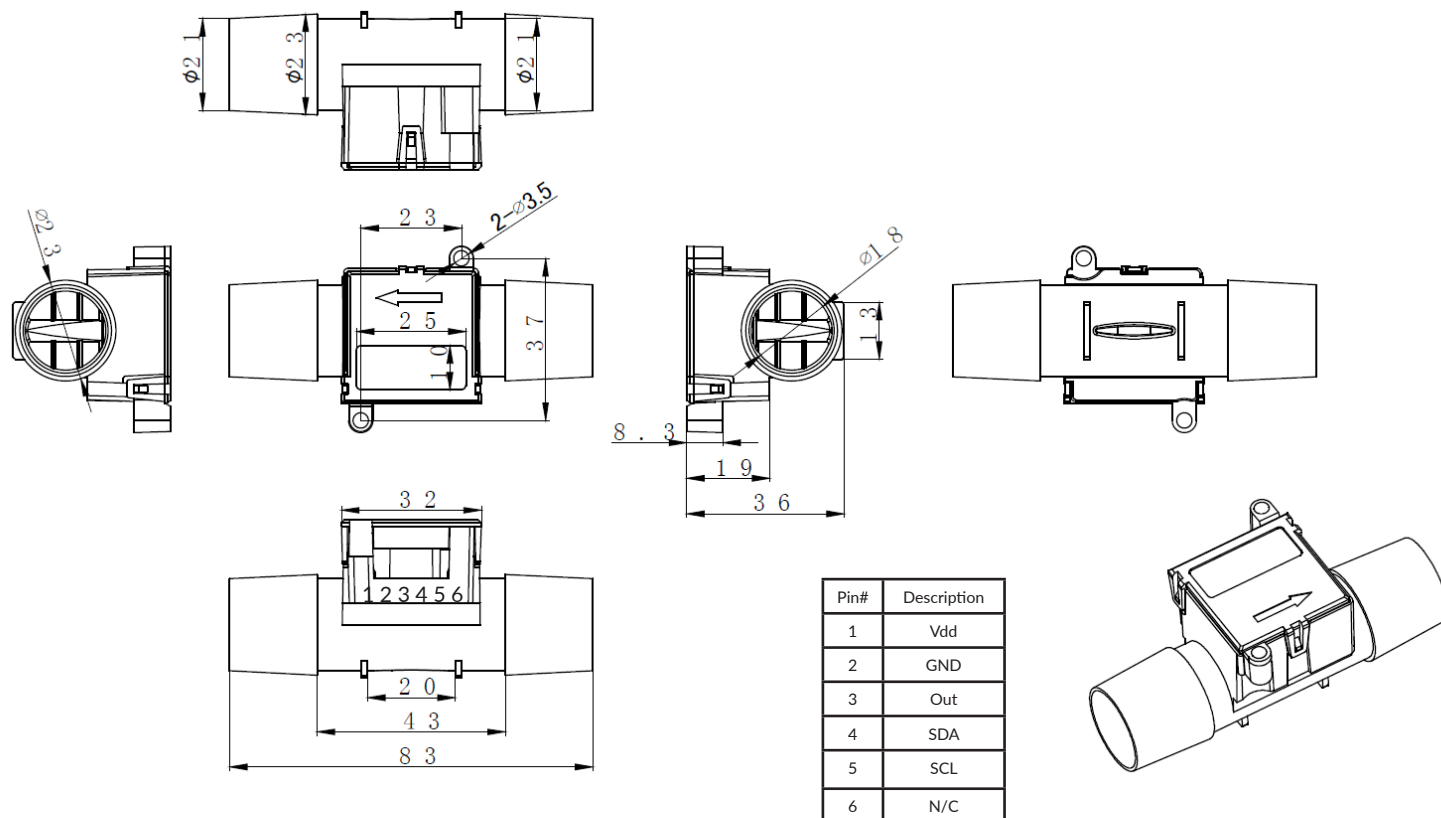
Flow Rate = $[(\text{Count} - 6553) / 52428] \times \text{Full Scale Flow Rate}$

For example, for PMF86200 full scale rate is 200 SLM. When digital output reads 10000, the Flow Rate is:

$[(10000 - 6553) / 52428 \times 200 \text{ SLM}] = 13.15 \text{ SLM}$

*Contact Posifa for I²C Communication app note.

PACKAGE DIMENSIONS



Notes:

1. Mating connector is JST S6B-PH-SM4-TB or equivalent.

ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PMF86050	50 SLM, voltage and digital I ² C output, Linear
PMF86100	100 SLM, voltage and digital I ² C output, Linear
PMF86150	150 SLM, voltage and digital I ² C output, Linear
PMF86200	200 SLM, voltage and digital I ² C output, Linear
PMF86300	300 SLM, voltage and digital I ² C output, Linear

Note: Please use -B to indicate bi-directional models, e.g. PMF86100-B

EUROPEAN DISTRIBUTOR

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