posifa TECHNOLOGIES

PMF83000 SERIES

MASS AIR FLOW SENSORS

131 E. Brokaw Road | San Jose CA 95112 | +1 (408) 392-0989 | info@posifatech.com | www.posifatech.com

DESCRIPTION

The PMF83000 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 PMF83000 Series offers improved accuracy, repeatability, and signal-to-noise performance.

The PMF83000 series 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 eliminates the need for the surface cavity or fragile membrane used in competing technologies. In addition, the entire sensor PCB assembly is coated with parylene, including the sensor die. This extra level of protection allows the sensor to perform reliably in harsh environments such as high humidity and trace amounts of corrosive gases.

The PMF83000 sensors provide both voltage and digital I^2C outputs, and support bi-directional flow measurement.

APPLICATIONS

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

FEATURES

- Compact footprint
- Accurate and low noise
- Fast response time
- Resistant to condensed water and dust particles
- Long-term stability
- Bidirectional flow sensing (optional)
- Analog and I^2C, 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

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SPECIFICATIONS

Test Conditions: Vin=5±0.01VDC, Ta=22°C.					
SPECIFICATIONS	**MIN**	**TYP**	**MAX**	**UNIT**	**CONDITIONS**
PMF83015		15		SLM	
PMF83020		20		SLM	
PMF83050		50		SLM	
PMF83100		100		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[2]		5		ms	
Warm Up Time			5	sec	
Heater Temperature			50	°C	Over ambient
Over Pressure	50			psi	
Operating Temperature	-25		65	°C	
Supply Voltage		5		VDC	We recommend using 1% voltage regulator
Supply Current		20		mA	at 5 VDC supply
Heater Power Consumption		62		mW	4.5V excitation
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. 10% to 90% rise time of the flow sensor to electrically respond to any mass flow change. May be affected by the pneumatic interface.

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OUTPUT DESCRIPTION

For PMF83000 Analog Output

Flow Rate = [(Vout - 0.5 V) / 4 V] x Full Scale Flow Rate

For example, for PMF83050 full scale flow rate is 50 SLM. When Vout reads 3.5 V, the Flow Rate is: [(3.5 V - 0.5 V)/4V x 50 SLM] =37.5 SLM

For PMF83000 Digital Output

Flow Rate = [(Count - 6553) / 52428] x Full Scale Flow Rate

For example, for PMF83050 full scale rate is 50 SLM. When digital output reads 10000, the Flow Rate is:
[(10000 - 6553)/52428 x 50 SLM] = 3.28 SLM

*Contact Posifa for I²C Communication app note.

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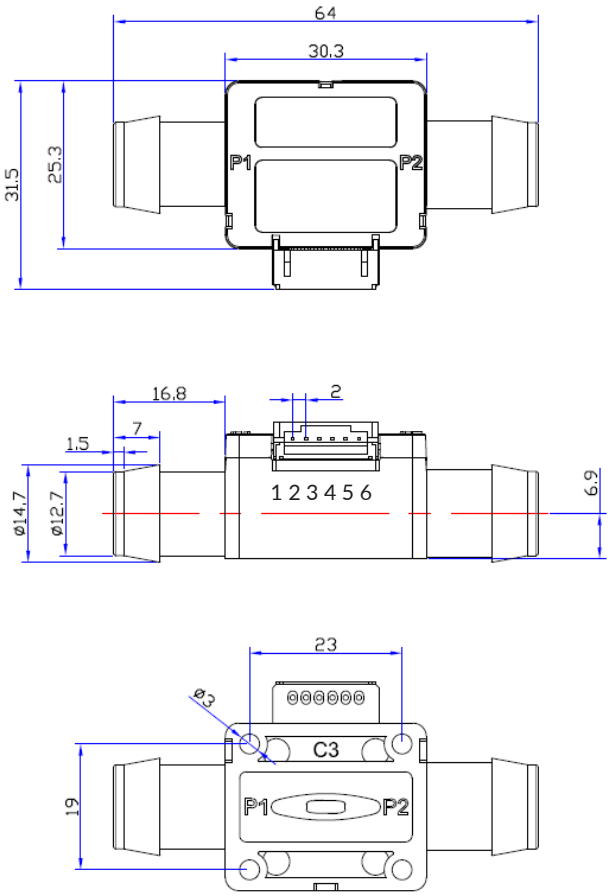
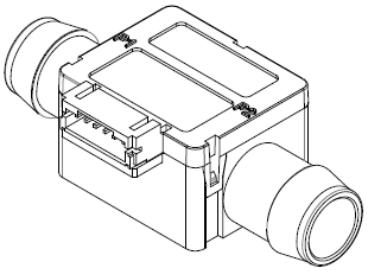
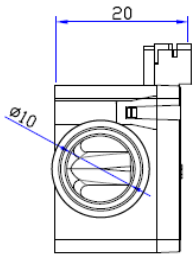
PACKAGE DIMENSIONS







Pin#	Description
1	Vdd
2	GND
3	Out
4	SDA
5	SCL
6	N/C

Notes:
1. Flow direction is from P1 to P2.
2. Mating connector is JST S6B-PH-SM4-TB or equivalent.

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ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PMF83015	15 SLM, voltage and digital I^2C output, Linear
PMF83020	20 SLM, voltage and digital I^2C output, Linear
PMF83050	50 SLM, voltage and digital I^2C output, Linear
PMF83100	100 SLM, voltage and digital I^2C output, Linear

Note: Please use -B to indicate bi-directional models, e.g. PMF83100-B

EUROPEAN DISTRIBUTOR

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