

## DESCRIPTION

The PAV5100 series measures air velocity and air temperature in a robust, probe-style package. OEMs can easily incorporate this fully calibrated and temperature-compensated solution into a portable anemometer or an in-duct air velocity monitor.

The PAV5100 series features Posifa's third-generation thermal flow die, which benefits 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 the surface cavity or fragile membrane used in competing technologies, making the sensor resistant to clogging and pressure shock.

More robust than traditional thermistor-based anemometer sensors, which connect to the circuit via a thin thread, the PAV5100's sensing element consists of a solid silicon chip flush mounted to a printed circuit board. The PAV5100 series provides exceptional durability against vibration, impact, and physical shock.

The PAV5100 series provides an I<sup>2</sup>C digital output via a connector-terminated wire harness, and features an on-board digital temperature sensor that is accessed via the same I<sup>2</sup>C bus.



## APPLICATIONS

- Portable anemometers
- Fixed in-duct air flow monitors

## FEATURES

- Unsurpassed performance in a robust and cost-effective package
- "Solid state" sensing core (no surface cavity or fragile membrane) is resistant to clogging, pressure shock, and vibration
- No moving parts
- Air temperature (digital output)
- Fast response times (20 ms typ)
- On-board digital temperature sensor
- Robust, probe-type package

## MAXIMUM RATINGS

- Operating temperature: -25 °C to 85 °C
- Storage temperature: -40 °C to 90 °C
- Humidity: 0 to 100 % RH, non-condensing

## SPECIFICATIONS

Test Conditions:  $V_{IN} = 5 \text{ VDC}$ ,  $T_a = 25 \text{ }^\circ\text{C}$ . Relative Humidity:  $40 \% < \text{RH} < 60 \%$

SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
Range (air velocity)	0		30	m/s	
Output (air velocity)	5,000 to 35,000			Count	
Resolution (air velocity)		0.01		m/s	
Accuracy		0.3 m/s +5%		M.V.	Measured Value
Response Time		20		ms	
Supply Voltage	4.8		5.5	VDC	
Supply Current		21		mA	
I <sup>2</sup> C Address (air velocity)		0x50			
Temperature Sensor Range	-55		125	°C	
Temperature Sensor Resolution		0.0625		°C	
Temperature Sensor Accuracy		1		°C	From -20 °C to 85 °C
I <sup>2</sup> C Address (temperature)		0x48			

## OUTPUT DESCRIPTION

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### Calculating Wind Speed From Digital Output

To access wind speed output, please refer to the "[PAV Series I2C Application Note](#)". Please note the I<sup>2</sup>C address of 0x50.

Wind speed (m/s) = (output count - 5,000) / 1,000

For example, when output reads 18,000, the wind speed is 13 m/s.

### Digital Temperature Sensor Output

The PAV5100 has a digital temperature sensor from Novosense, which shares the same I<sup>2</sup>C bus but at a different I<sup>2</sup>C address of 0x48. To read from the NST117, please refer to its data sheet.

## PACKAGE DIMENSIONS

### PAV5100



1. VCC
2. GND
3. SDA
4. SCL

### M12 Connector

Pin#	Description
1	VCC
2	GND
3	SDA
4	SCL

## CUSTOM EXTENSIONS

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For OEM customers, we provide custom extensions, such as attaching the anemometer probe to a custom telescopic rod. Please contact the Posifa Technologies sales team for details.

## ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PAV5130	30 m/s, digital I <sup>2</sup> C output, linear, probe only
PAV5120	20 m/s, digital I2C output, linear, probe only

### CUSTOMIZATION OPTIONS

Should the standard product delineated in this datasheet not fully align with your specific requirements, we invite you to connect with Posifa Technologies for an exploration of alternative solutions. Please provide us with a comprehensive understanding of your application and sensor needs, enabling us to collaborate effectively to identify the most suitable and optimized solution.