

DESCRIPTION

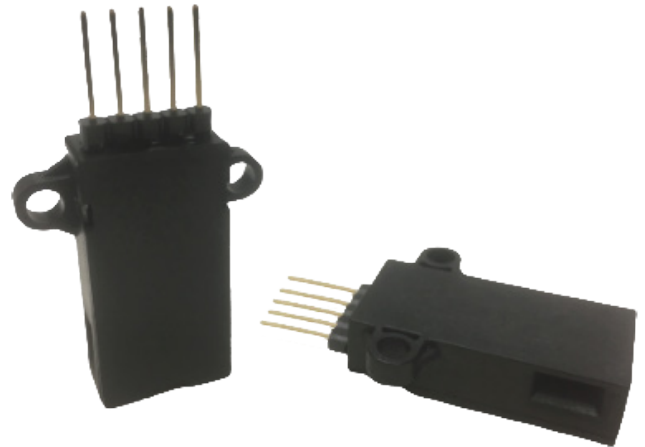
The PAV1000 is an economical high-performance air velocity sensor for thermal management in even the most space-constrained locations, such as data center server farms. Unlike thermistor based solutions, the Posifa MEMS sensor core is minimally affected by ambient temperature changes and provides instant real-time feedback on proper air flow at the server blades.

The PAV1000 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 the temperature gradient caused by mass flow, delivering an excellent signal-to-noise ratio and repeatability. The solid-state thermal isolation structure on the sensor die eliminates the need for a surface cavity or fragile membrane used in competing technologies, making the sensor resistant to clogging and pressure shock.

The PAV1000 series is available with analog voltage output trimmed at zero and full-scale and digital I²C output.

APPLICATIONS

- Data center thermal management
- HVAC VAV damper control
- HVAC filter monitoring



FEATURES

- Unsurpassed performance in a robust and cost-effective package
- Solid-state sensing core (no surface cavity or fragile membrane) is resistant to clogging and pressure shock
- No moving parts
- Extremely fast response times (125 ms typ)
- Excellent repeatability (1% FS)
- Compact packaging

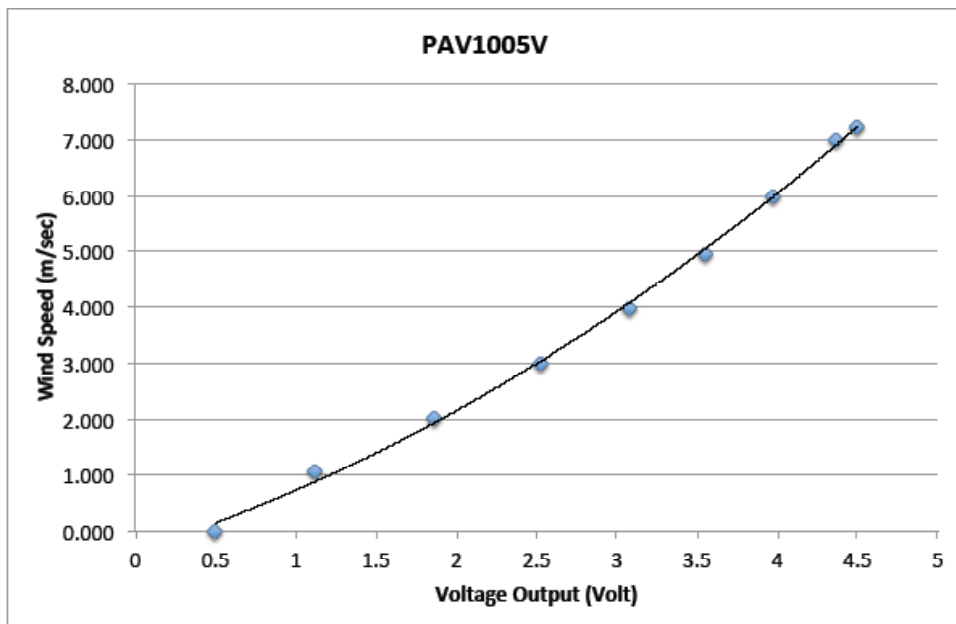
MAXIMUM RATINGS

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

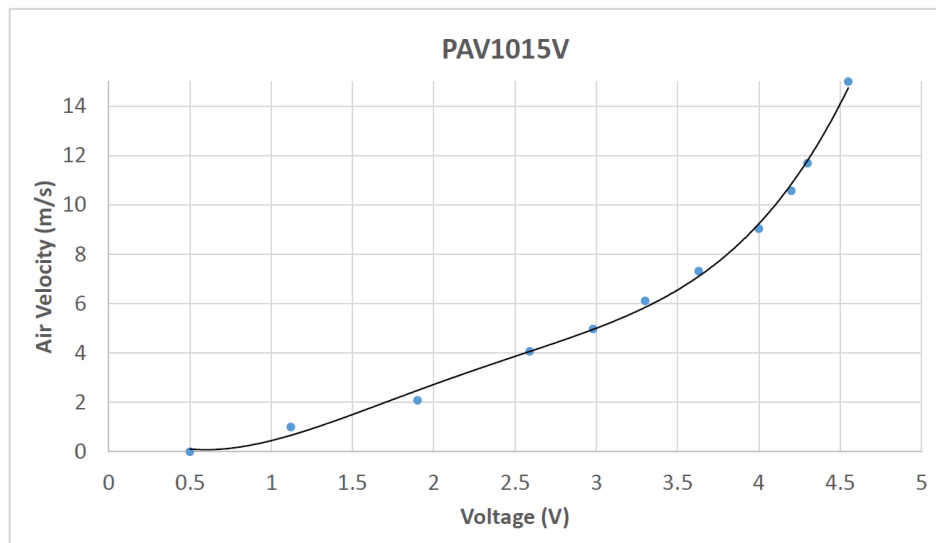
SPECIFICATIONS

Test Conditions: $V_{in} = 5 \pm 0.01$ VDC, $T_a = 25$ °C. Relative Humidity: $40\% < RH < 60\%$					
SPECIFICATIONS	MIN	TYP	MAX	UNIT	CONDITIONS
PAV1005	0		7.23	m/sec	
PAV1015	0		15	m/sec	
Output Voltage (V)	0.5		4.5	VDC	
Output Count (D)	409 to 3686			Count	
Null Voltage (V), $\pm 5\%$	0.5			VDC	
Null Output Count, $\pm 5\%$	409			Count	
Resolution		12		Bit	
Repeatability		1 %		F.S.	
Accuracy		5 %		F.S.	
Response Time		125		mSec	
Supply Voltage		5		VDC	
Supply Current		30		mA	

TYPICAL OUTPUT CURVE



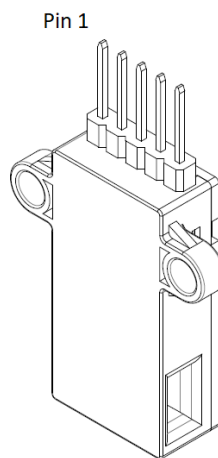
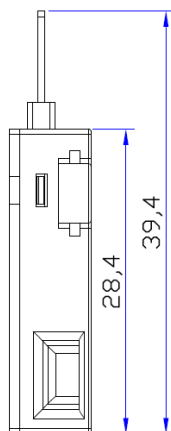
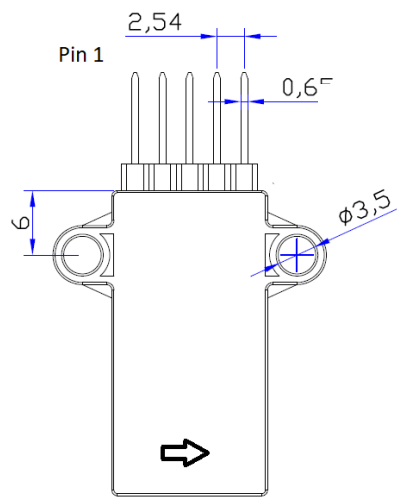
Wind Speed (m/s)	Output (Volt)
0	0.500
1.07	1.118
2.01	1.858
3.00	2.522
3.97	3.080
4.96	3.550
5.98	3.975
6.99	4.361
7.23	4.500



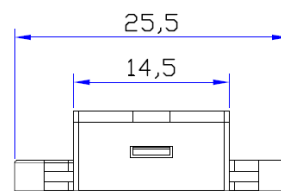
Wind Speed (m/s)	Output (Volt)
0	0.5
1	1.12
2.08	1.9
4.06	2.59
4.97	2.98
6.11	3.3
7.32	3.63
9.04	4
10.57	4.2
11.69	4.3
15	4.55

PACKAGE DIMENSIONS

PAV1000



All dimensions in millimeters (mm)



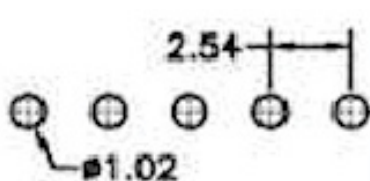
Pin#	Description
1	Vdd
2	GND
3	Out
4	N/C
5	N/C

Analog Output

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

Digital Output

Recommended connectors: Molex part numbers 0022012057 (KK 254 Crimp Housing, Friction Ramp, 5 Circuits, Natural) and 08-50-0114 (KK 254 Crimp Terminal, 22-30 AWG, Bag, Hot Tin (Sn) Dip Plating)



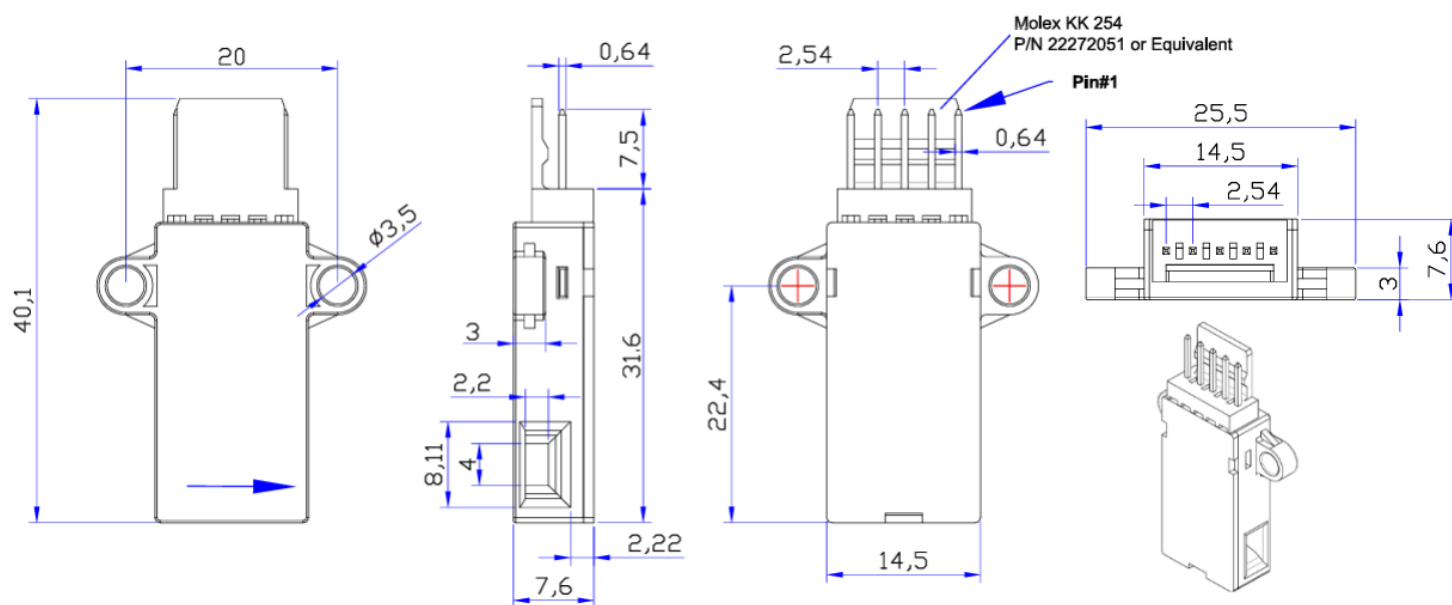
Recommended PCB Hole Layout

*Contact Posifa for sensor CAD model

PACKAGE DIMENSIONS

PAV1000-KX

All dimensions in millimeters (mm)



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

Analog Output

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

Digital Output

Recommended connectors: Molex part numbers 22-01-3057 (KK 254 Crimp Housing, Friction Ramp with Polarizing Ribs, 5 Circuits, Natural) and 22-01-2057 (KK 254 Crimp Housing, Friction Ramp, 5 Circuits, Natural)

ORDERING INFORMATION

PART NUMBER	SPECIFICATIONS
PAV1005	7 m/sec, 0.5 V to 4.5 V, non-linear with I2C digital output
PAV1015	15 m/sec, 0.5 V to 4.5 V, non-linear with I2C digital output
PAV1005-KX	7 m/sec, 0.5 V to 4.5 V, non-linear with I2C digital output and Molex connector
PAV1015-KX	15 m/sec, 0.5 V to 4.5 V, non-linear with I2C digital output and Molex connector

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.