

Introduction

The Gravity: PAV3015 Air Velocity Sensor is a compact, high-performance anemometer for precise airflow measurement. It integrates the Posifa PAV3015D sensor, which operates on the thermopile principle by measuring temperature differences to calculate air velocity. This solid-state method provides significant advantages over traditional cup anemometers. The PAV3015 anemometer delivers a wide measurement range of 0 to 15 m/s with $\pm 5\%$ F.S accuracy and an exceptionally fast 125 ms response time. Coupled with a low 10 mA power consumption and a 3.3V–5V Gravity I2C interface, this air velocity sensor is ideal for embedded systems in applications like server cooling, HVAC monitoring, and UAV airspeed detection.

Compact Form Factor for Integrated Systems

The PAV3015's thermal-based design eliminates the bulk associated with traditional cup-and-vane anemometers. Its minimal footprint is a critical advantage, enabling seamless integration into compact devices, embedded systems, and portable equipment where space is a primary constraint. This allows for airflow measurement capabilities in applications previously limited by sensor size.

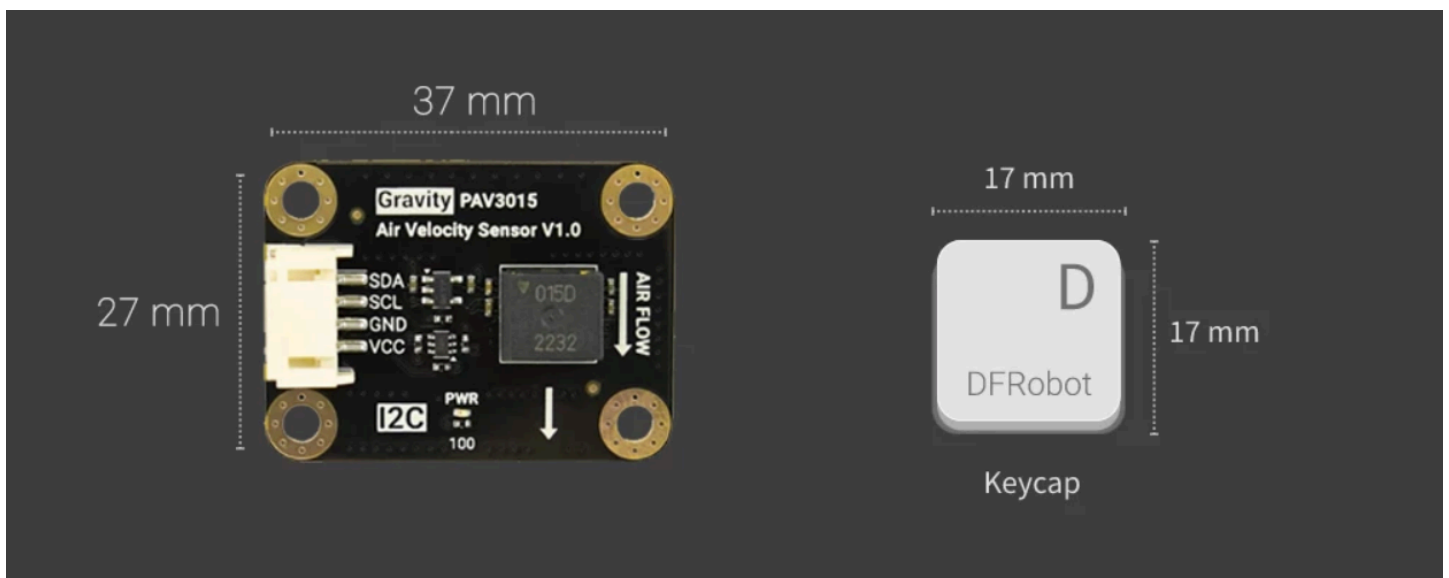


Figure: Dimension of Gravity: PAV3015 Air Velocity Sensor

High-Accuracy Measurement with Rapid Response

The PAV3015 delivers reliable and precise air velocity readings across its full 0–15 m/s range. With an accuracy of $\pm 5\%$ F.S, this wind speed sensor provides trustworthy data for critical monitoring. Furthermore, its 125 ms typical response time ensures immediate detection of airflow changes, making it highly effective for real-time feedback loops, system alarms, or dynamic control systems.

Simplified Integration with Gravity I2C

Equipped with the standard DFRobot Gravity I2C interface, this I2C anemometer ensures a simple, plug-and-play connection. It supports a wide 3.3V to 5V power supply, guaranteeing

out-of-the-box compatibility with mainstream microcontrollers such as Arduino, ESP32, and Raspberry Pi. This standardized interface accelerates prototyping and simplifies final project assembly.

Optimized for Low-Power Applications

Engineered for energy efficiency, the anemometer operates on a minimal 10 mA of current. This low-power profile makes it an excellent choice for battery-powered systems, remote monitoring stations, or portable measurement devices, such as handheld anemometers or sports equipment, where power conservation is a critical design requirement.

Applications

- **Data Center and Electronics Cooling:** Real-time airflow monitoring within server racks or electronic cabinets to prevent overheating and ensure stable operation.
- **Smart HVAC Systems:** Measuring airflow velocity inside ventilation ducts to optimize energy efficiency and air distribution in smart buildings.
- **UAV and Drones:** Integrating a lightweight, compact airspeed meter for stable flight control and performance monitoring.
- **Portable Measurement Devices:** Designing battery-operated instruments, such as bicycle anemometers or environmental monitors, that demand both accuracy and energy efficiency.

Specification

- **Supply Voltage:** 3.3–5V
- **Operating Temperature:** -25 to +85 °C
- **Operating Humidity:** 0–100% R.H. (non-condensing)
- **Operating Current:** 10 mA
- **Response Time:** 125 ms
- **Measurement Range:** 0–15 m/s
- **Accuracy:** ±5% F.S

Shipping List

- Gravity: PAV3015 Air Velocity Sensor x1
- Gravity 4pin sensor cable x1

Documents

- [Product Wiki](#)