



Outdoor Air Quality Monitor

AirGradient Open Air (Model: O-1PP)

Open Air is an outdoor air quality monitor enabling you to know if the air quality is healthy or not. It measures PM1, PM2.5, PM10, Temperature and Humidity. It's fully open-source and customizable, so you can extend it in whatever way you like.

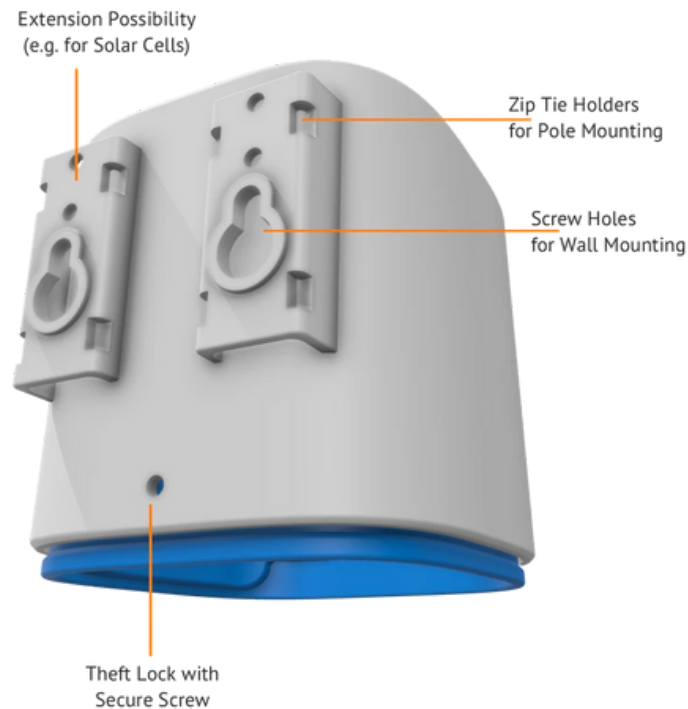
The AirGradient Open Air is also available as an easy to assemble kit.

Technical Data

Specification	Description
Model	O-1PP (AirGradient Open Air)
Microcontroller	ESP32-C3-MINI (32-bit RISC-V single-core processor, up to 160MHz, 384 KB ROM, 400 KB SRAM, 8 KB SRAM in RTC, 4 MB flash in chip package)
WiFi	2.4GHz IEEE 802.11 b/g/n-compliant
Bluetooth	Bluetooth LE: Bluetooth 5, Bluetooth mesh
Extensions	Broken out on PCB: I2C, 3 GPIO, 2 UART
Peripherals	Status LED, Push Button, USB C Connector
External Hardware Watchdog	Texas Instruments TPL5010
Particle Sensor Module	2x Plantower PMS5003T (laser scattering principle). Accuracy: $\pm 10\%$ @ $100\sim 500\mu\text{g}/\text{m}^3$, $\pm 10\mu\text{g}/\text{m}^3$ @ $0\sim 100\mu\text{g}/\text{m}^3$
Temperature and Humidity	ENS210 (inside PMS5003T module). Accuracy: Temperature $\pm 0.2^\circ\text{C}$ @ $0 - 70^\circ\text{C}$; Humidity $\pm 3.5\%$ RH @ $20 - 80\%$ RH
Enclosure	ASA Plastic, UV Resistant and Weather Proof
Mounting Options	Wall or pole mounting options
Cable	4m USB C Cable including data lines for flashing
Certifications	CE, RoHS, REACH, FCC ID: 2AC7Z-ESPC3MINI
License	Open Hardware under CC-BY-SA, Source Code available

Mounting Options

Flexible wall or pole mounting options



What does it measure?

The monitor focuses on measuring particulate matter, especially PM2.5, which can be harmful to our health. These tiny particles are released into the air from sources like vehicle emissions, industry, fossil fuel burning, and wildfires. When we breathe in PM2.5, it can go deep into our lungs and cause various health problems. Long-term exposure to PM2.5 is linked to respiratory and heart diseases, including asthma, bronchitis, heart attacks, and even early death.

The Open Air continually checks the air quality and alerts you when it becomes unhealthy, prompting you to take precautions. We collaborate closely with top universities on air quality monitoring, and are running one of the most widely spread co-location performance study in the world.

About AirGradient

AirGradient started as a volunteer project in a school in Northern Thailand monitoring dangerously high air pollution levels in classrooms during the “burning season”.

Our mission is to enable people to breathe healthy air by providing open-source, reliable and accurate air quality monitors and supporting organizations and citizens in understanding the air quality in their communities.



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