



Awair Sensor Accuracy and Calibration



When choosing your partner in air quality monitoring, it's important to ensure you are getting the best technologies at the right price, including longevity and maintenance.

Awair's technology uses superior pre-calibrated sensors that go through batch calibration and testing during manufacturing. After sensor deployment, continuous automatic background calibration reduces the need for ongoing maintenance and the replacement of sensors every few years.

Our goal is for sensors to stay running so your focus is on improving health, safety, and energy efficiency rather than hardware.

The Cost of Recalibration

Recalibration can involve a maintenance person visiting each sensor in the building and performing a calibration routine or replacing a sensor cartridge. While the process is simple, it can become a significant added cost if recalibration is required on an ongoing basis. The added expense can outweigh potential energy savings. Never mind the environmental cost of replacement cartridges.

AWAIR'S SENSORS

Omni includes the following sensors: combination temperature and relative humidity, carbon dioxide (CO₂), chemicals (TVOCs), fine dust (PM2.5), illuminance, and sound pressure sensor. Our sensors are classified Building Grade – RESET Grade B – suitable for commercial purposes.

CALIBRATION

Calibration is a necessary part of operating a fleet of sensors. Auto-calibrating sensors, like those found in Omni, are common in IOT implementations and reduce cost and risk. All Omnis have a three-year warranty period during which Awair will replace the device if anomalies are detected.

SENSOR SPECIFICATIONS

Each sensor is pre-calibrated by the manufacturer and then goes through batch testing and calibration in a controlled environment chamber to achieve the maximum level of accuracy. Their internal layout within the casing facilitates natural airflow and consistent readings.

Sensor	Range	Accuracy	Resolution	Sensor	Calibration
Temperature Sensirion SHT31	-40 to 257°F (-40 to 125°C)	± 0.2°C	0.015°C	Complementary metal-oxide semiconductor sensor (CMOS)	Calibrated against NIST traceable sensor.
Relative Humidity Sensirion SHT 31	0 – 100% RH	± 2% RH	0.01% RH	Complementary metal-oxide semiconductor sensor (CMOS)	Calibrated against NIST traceable sensor.
CO₂ Amphenol-Telair T6703	400 – 5000 ppm	±10% or ± 75 ppm of reading	1 ppm	Non-dispersive infrared sensor	Automatic Background Calibration (ABC) Logic.*
Total Volatile Organic Compounds (VOCs) Sensirion SGP 30	20 - 36,000 ppb	± 15% of reading	1 ppb	Multi-pixel metal-oxide semiconductor sensor	Automatic background fresh air detection logic.**
Fine Dust (PM2.5+PM10) HPMA115SO	1 - 1000 µg/m3	± 15% (max ±15 µg/m3)	1 µg/m3	Optical laser, light scattering sensor	High RPM mechanical fan for flow control that prevents particle accumulation and clogging.
Illuminance	0.96 – 64,000 lux	±10%	0.1 lux	Photodiode, integrated ambient and infrared light to digital converter	Self-calibrated photodiode array
Sound Pressure	48 - 90 dBA	±3 dBA Leq	0.1 dBA	Analog MEMS microphone	Sensitivity: -26dBFS. Does not record audio; privacy conscious.

* Automatic Background Calibration (ABC) Logic is a patented self-calibration technique that is designed to be used in applications where CO₂ concentrations will drop to outside ambient conditions (400 ppm) in a 7-day period. The sensor will typically reach its operational accuracy after 24 hours of continuous operation. ABCLogic is designed for use in spaces that are periodically unoccupied for 4 or more hours per day so that indoor concentrations can drop down to typical outside levels.

** The sensor automatically recalibrates using a proprietary on-chip baseline compensation algorithm. In practice, the device needs to be exposed to "clean air" (low VOC environment) for at least 10 minutes every 7-14 days. Typical office usage will result in an automatic calibration without manual intervention.

Breathe better. Work better. Live better with Awair.

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