



Technical Specifications

Wall-mounted - table top air quality sensor

ARVE SENSE Pro

SWISS AIR QUALITY SYSTEM

Datasheet

Product Overview

Specifications

Particulate Matter - PM2.5 / PM10

Carbon Dioxide - CO₂

Total Volatile Organic Compounds - TVOCs

Temperature and Humidity

Sensor Overview



Product Overview

ARVE SENSE Pro is an intelligent air quality monitoring system designed to transform the way indoor air quality is understood and managed. It delivers precise, real-time data on various air pollutants such as PM (particulate matter), TVOCs (total volatile organic compounds), CO₂, temperature, and humidity, enabling individuals and organizations to make informed decisions for creating healthier indoor environments.

Features

- Real-time monitoring – Continuous tracking of CO₂, VOCs, particulate matter, temperature, and humidity.
- Data-driven insights – Visualize air quality trends through an intuitive dashboard and app.
- Swiss precision – High-quality sensors ensure accurate and reliable measurements.
- Swiss Air Autopilot System – Enables automatic air purification by integrating with ventilation systems, ensuring cleaner air without manual intervention.
- Smart home integration – Connect with home automation systems for seamless air quality optimization.
- Virus risk assessment – Identify conditions that may increase the risk of airborne virus transmission.



GENERAL

Installation	Wall-mounted or table top
Dimensions (L x W x D)	143.5mm x 60mm x 27.5mm
Weight	165 grams (total with USB cable and holder)
Operating Temperature	25 °C to 70 °C
Power Consumption	1.6 Watt
Input Voltage	5 VDC, 1A (5.5mm USB power supply) - Only use ARVE SENSE Pro with the original ARVE cable and power supply
Screen Display	No

CONNECTIVITY

Wi-Fi (Setup using mobile app)	802.11 b/g/n
Bluetooth	Bluetooth V4.2 BR/EDR and Bluetooth LE
Antennas	Built-in (2.4 Ghz Wi-Fi, Bluetooth)

DATA STORAGE AND LOGGING

Log Interval	10 seconds
Data Push Interval	10 seconds
Onboard Memory	16 MB
Message Data Rate	6 KB per Minute; 0.005 Mbit/s; 265 Mb per Month

USER INTERFACE

ARVE Account	Contact support@arveair.com for account registration
Web Dashboard	Support all major browsers
Mobile App	ARVE air
Minimum OS Requirement	iOS 11.0 or later (64-bit devices)



Particulate Matter Sensor Specification

- Optical laser scattering sensor technology
- Unique long-term stability
- Advanced particle size binning
- Superior accuracy in mass-concentration sensing
- Fully calibrated output

PARAMETERS	CONDITIONS	VALUES
Mass concentration accuracy ¹	0 to 100 µg/m ³ 100 to 1'000 µg/m ³	±10 µg/m ³ ±10 %
Mass concentration range	-	0 to 1'000 µg/m ³
Mass concentration resolution	-	1 µg/m ³
Mass concentration size range ²	PM0.5 PM2.5 PM4 PM10	0.3 to 1.0 µm 0.3 to 2.5 µm 0.3 to 4.0 µm 0.3 to 10.0 µm
Number concentration range	1.6 Watt	0 to 3'000 /cm ³
Number concentration size range ²	PM0.5 PM1.0 PM2.5 PM4 PM10	0.3 to 0.5 µm 0.3 to 1.0 µm 0.3 to 2.5 µm 0.3 to 4.0 µm 0.3 to 10.0 µm

1 Deviation to TSI DustTrak™ DRX Aerosol Monitor 8533 reference. PM2.5 accuracy is verified for every sensor after calibration using a defined potassium chloride particle distribution.

2 PM_x defines particles with a size smaller than “x” micrometers (e.g., PM2.5 = particles smaller than 2.5 µm).



CO₂ Sesnsor Specification

- NDIR CO₂ sensor technology
- Dual-channel detection for superior stability
- Measurement range: 400 ppm – 10'000 ppm
- Accuracy: ± (30 ppm + 3%)
- Fully calibrated and linearized

PARAMETERS	CONDITIONS	VALUES
CO ₂ measurement range	-	0 – 40'000 ppm
Accuracy ¹	400 ppm – 10'000 ppm	± (30 ppm + 3%MV)
Repeatability ²	400 ppm – 10'000 ppm	±10ppm
Response time ³	τ63%	20s
Accuracy drift over lifetime ⁴	400 ppm – 10'000 ppm ASC field-calibration algorithm activated	±50ppm

1 Deviation to a high-precision reference in the calibrated range (400 – 10'000 ppm) of the sensor. Full accuracy is restored ASC recalibration features. Accuracy is based on tests with gas mixtures having a tolerance of ± 1.5%.

2 RMS error of consecutive measurements at constant conditions.

3 Time for achieving 63% of a respective step function.

4 CO₂ concentrations < 400 ppm may result in sensor drifts when ASC is activated. For proper function of ASC field-calibration algorithm sensor has to be exposed to air with CO₂ concentration 400 ppm regularly.



TVOC Sensor Specification

- CMOS multi-pixel gas sensor technology
- Unmatched robustness against contaminating gases presents in real-world applications
- Outstanding long-term stability and low drift
- Measurement range: 0 – 60'000 ppb TVOC

PARAMETERS	CONDITIONS	VALUES
Measurement range ¹	Ethanol signal H2 signal	0 ppm ² to 1000 ppm 0 ppm to 1000 ppm
Specified range	Ethanol signal H2 signal	0.3 ppm to 30 ppm 0.5 ppm to 3 ppm
Accuracy ³	Ethanol signal H2 signal	typ.: 15% of measurement value typ.: 10% of measurement value
Output range	Range: 0 ppb – 2008 ppb 2008 ppb – 11110 ppb 11110 ppb – 60000 ppb	Resolution: 1 ppb 6 ppb 32 ppb

1 Exposure to ethanol and H2 concentrations up to 1000 ppm have been tested.

2 ppm: parts per million. 1 ppm = 1000 ppb (parts per billion)

3 90% of the sensors will be within the typical accuracy tolerance, >99% are within the maximum tolerance.



Temperature and Humidity Sensor Specifications

- CMOS sensor technology
- High reliability and long-term stability
- High signal-to-noise ratio
- Fully calibrated, linearized, and temperature compensated output
- Very fast measurement time

PARAMETERS	CONDITIONS	VALUES
Measurement range	-	-40 to 125 °C 0 to 100 %RH
Accuracy	-	±0.2 °C ±2 %RH
Long Term Drift	max	<0.03 °C/yr <0.25 %RH/yr



Sensor Overview

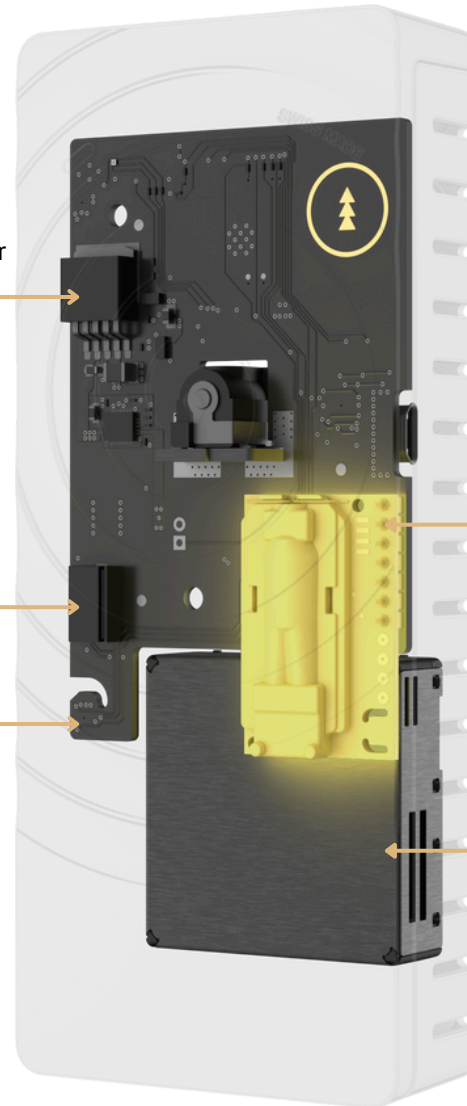
TVOCs
MOX Multi-Pixel Gas Sensor

Temperature
CMOS Sensor

Humidity
CMOS Sensor

TCO₂
NDIR Sensor

PM2.5 / PM10
Laser Scattering Sensor



Breathe with Confidence

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