



Technical Specifications

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

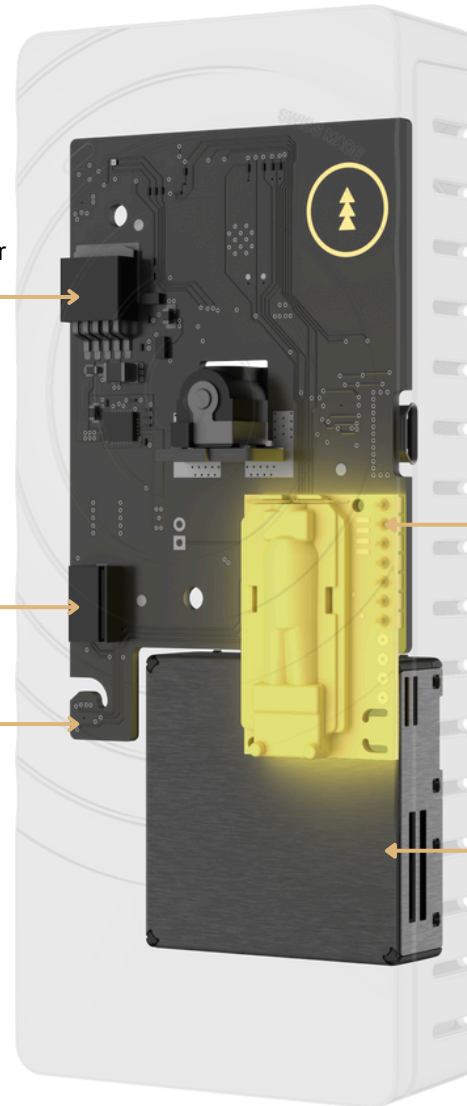
TVOCs
MOX Multi-Pixel Gas Sensor

Temperature
CMOS Sensor

Humidity
CMOS Sensor

TCO₂
NDIR Sensor

PM2.5 / PM10
Laser Scattering Sensor



Breathe with Confidence

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