Technical Specifications

ARVE SENSE Pro

SWISS AIR QUALITY SYSTEM

Product Overview

Key Monitoring Parameters:

- Particulate Matter - PM2.5 / PM10
- Carbon Dioxide - CO_2
- Total Volatile Organic Compounds - TVOCs
- Temperature and Humidity

Sensor Overview

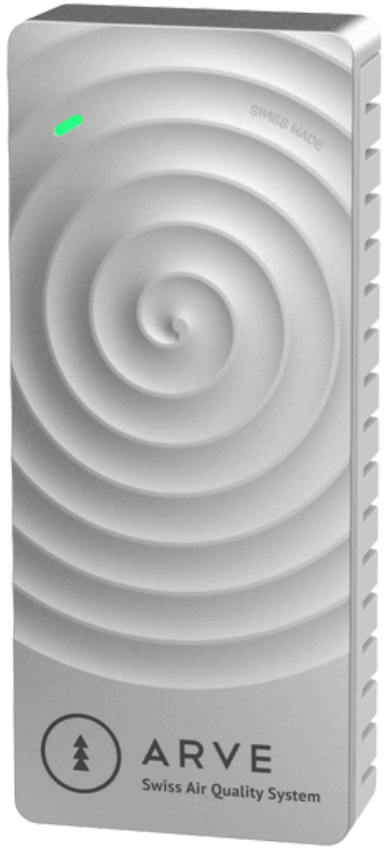
ARVE SENSE Pro

SWISS AIR QUALITY SYSTEM

ARVE SENSE Pro

The ARVE SENSE Pro is a Swiss-engineered air quality monitoring system designed for accuracy, reliability, and simplicity. It measures:

- CO_2 (NDIR sensor)
- Particulate Matter $PM_{2.5}$ & PM_{10} (laser scattering)
- Humidity & Temperature (CMOS sensor)
- TVOCs (advanced MOX multi-pixel sensor)



Key Features:

- Multi-room monitoring — Covers up to 100 m^2
- Wi-Fi connectivity & easy setup
- Smart integration — Works with Home Assistant, dTwin & Swiss-Air-Autopilot
- Virus Transmission Risk Index (VTRI) — Track & manage airborne risks
- 24/7 operation with enterprise-level security

Core Specifications

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
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	802.11 b/g/n
Antennas	Built-in (2.4 Ghz Wi-Fi)

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 ($PM_{2.5}$ / PM_{10})

- Optical laser scattering sensor for precise $PM_{2.5}$ / PM_{10} measurement
- Advanced particle size binning & superior mass-concentration accuracy
- Long-term stability with fully calibrated output

PARAMETERS	CONDITIONS	VALUES
Mass concentration accuracy1	0 to 100 µg/m3 100 to 1'000 µg/m3	±10 µg/m3 ±10 %
Mass concentration range	-	0 to 1'000 µg/m3
Mass concentration resolution	-	1 µg/m3
Mass concentration size range2	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 /cm3
Number concentration size range2	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

$PM_{2.5}$ / PM_{10} Notes:

1. Accuracy verified against TSI DustTrak™ DRX Aerosol Monitor 8533 using a defined potassium chloride particle distribution after sensor calibration.
2. PMx refers to particles smaller than "x" micrometers (e.g., $PM_{2.5}$ = particles <2.5 µm).

CO_2 (Carbon Dioxide) Sensor

- Dual-channel NDIR sensor for high stability and reliability
- Measurement range 400–10,000 ppm with ±(30 ppm + 3%) accuracy
- Fully calibrated and linearized for consistent, precise output

PARAMETERS	CONDITIONS	VALUES
CO_2 measurement range	-	0 – 40'000 ppm
Accuracy1	400 ppm – 10'000 ppm	± (30 ppm + 3%MV)
Repeatability2	400 ppm – 10'000 ppm	±10ppm
Response time3	τ63%	20s
Accuracy drift over lifetime4	400 ppm – 10'000 ppm ASC field-calibration algorithm activated	±50ppm

CO_2 Sensor Notes:

1. Deviation measured against a high-precision reference in the calibrated range (400–10,000 ppm). Full accuracy restored via ASC recalibration. Accuracy based on tests with gas mixtures (tolerance ±1.5%).
2. RMS error reflects consecutive measurements at constant conditions.
3. Response time (τ_{63}) is the time to reach 63% of a step change.
4. CO_2 concentrations below 400 ppm may cause sensor drift when ASC is active. For proper ASC field-calibration, the sensor should be regularly exposed to air with ~400 ppm CO_2.

TVOCs (Total Volatile Organic Compounds) Sensor

- CMOS multi-pixel gas sensor with high robustness against real-world contaminating gases
- Measurement range 0–60,000 ppb with outstanding long-term stability
- Low drift for reliable, continuous 24/7 monitoring

PARAMETERS	CONDITIONS	VALUES
Measurement range1	Ethanol signal H2 signal	0 ppm2 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
Accuracy3	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

TVOC Sensor Notes:

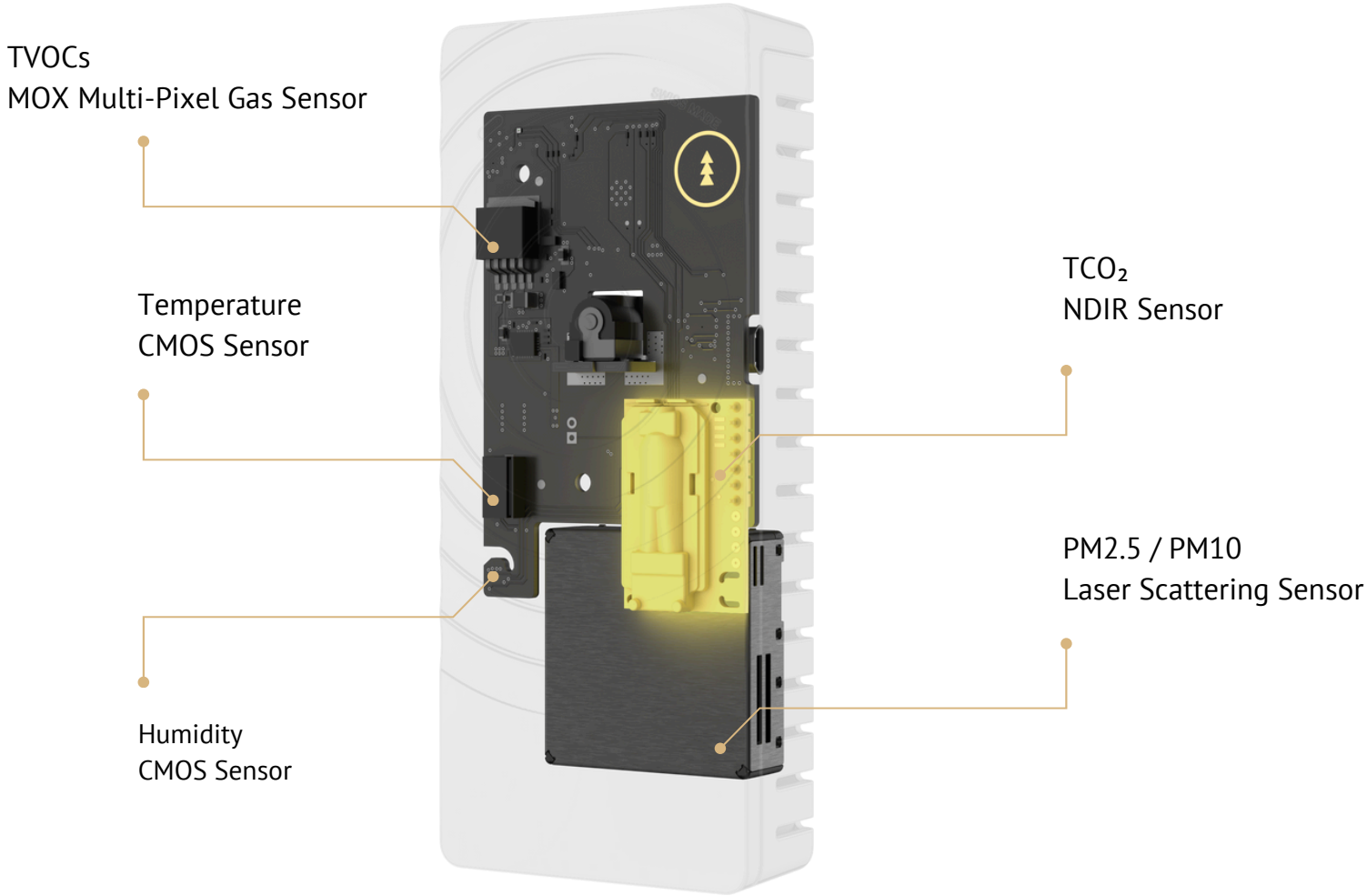
1. Exposure to ethanol and H_2 concentrations up to 1,000 ppm has been tested.
2. ppm = parts per million; 1 ppm = 1,000 ppb (parts per billion).
3. 90% of sensors operate within the typical accuracy tolerance; >99% are within the maximum tolerance.

Temperature & Humidity Sensor

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

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

ARVE SENSE Pro – Sensor Overview



ARVE – Contact & Support

Request a Demo Today!

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