ARVE SENSE Pro

Swiss Air Quality Monitoring System

Technical Specifications

Datasheet

Key Monitoring Parameters

- Particulate Matter — $PM_{2.5}$ / PM_{10}
- Carbon Dioxide — CO_2
- Total Volatile Organic Compounds — TVOC
- Temperature & Relative Humidity
- Sensor & System Specifications

ARVE SENSE Pro

SWISS AIR QUALITY SYSTEM

ARVE SENSE Pro

Key Features

Swiss-engineered air quality monitoring system for continuous indoor environmental monitoring.

Multi-parameter monitoring

- CO_2 — NDIR sensor
- Particulate Matter — $PM_{2.5}$ / PM_{10}, laser-scattering sensor
- TVOC — MOX multi-pixel sensor
- Temperature & Relative Humidity — CMOS sensor

System Features

- Continuous 24/7 monitoring
- Wi-Fi connectivity with simple setup
- Multi-room monitoring — suitable for spaces up to 100 m^2 per device*
- Smart integrations — Home Assistant, dTwin and Swiss-Air-Autopilot
- Virus Transmission Risk Index (VTRI) for risk monitoring and management

**Actual coverage depends on room size, layout and environmental conditions.*

Core Specifications

Specification	Details
Installation	Wall-mounted or tabletop
Dimensions (L × W × D)	143.5 × 60 × 27.5 mm
Weight	165 g, including holder and USB cable
Operating Temperature	−25 °C to +70 °C
Input Voltage	5 VDC, 1 A
Power Supply	USB power supply
Display	None

Power requirement: Use the original ARVE cable and power supply supplied with the ARVE SENSE Pro.

Connectivity

Specification	Details
Wi-Fi	IEEE 802.11 b/g/n
Frequency	2.4 GHz
Antenna	Built-in

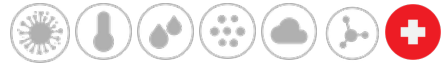
Data Logging & Storage

Specification	Details
Measurement / Log Interval	10 seconds
Data Push Interval	10 seconds
Onboard Memory	16 MB
Data Transmission Rate	Approx. 6 KB/minute*
Estimated Monthly Data Volume	Approx. 265 MB/month*

** Data volume depends on the measurement configuration and communication overhead.*

User Interface

Specification	Details
ARVE Account	Account registration via ARVE support
Web Dashboard	Accessible through major modern web browsers
Mobile App	ARVE air
Minimum iOS Requirement	iOS 11.0 or later; 64-bit devices



PM — Particulate Matter Specifications

The ARVE SENSE Pro uses an optical laser-scattering sensor for continuous particulate-matter monitoring, with particle-size classification and mass- and number-concentration measurement.

Mass Concentration

Parameter	Condition / Range	Values
Mass concentration accuracy[1]	0–100 µg/m³	±10 µg/m³
Mass concentration range	—	0–1,000 µg/m³
Mass concentration resolution	—	1 µg/m³
Particle size range[2]	$PM_{0.5}$	0.3–1.0 µm
	$PM_{2.5}$	0.3–2.5 µm
	PM_{4}	0.3–4.0 µm
	PM_{10}	0.3–10.0 µm

Number Concentration

Parameter	Condition / Range	Values
Number concentration range	—	0–3,000 particles/cm³
Particle size range[2]	$PM_{0.5}$	0.3–0.5 µm
	$PM_{1.0}$	0.3–1.0 µm
	$PM_{2.5}$	0.3–2.5 µm
	PM_{4}	0.3–4.0 µm
	PM_{10}	0.3–10.0 µm

Measurement Notes

[1] Accuracy verified against a TSI DustTrak™ DRX Aerosol Monitor 8533 using a defined potassium chloride particle distribution following sensor calibration.

[2] PMx denotes particulate matter with an aerodynamic/particle diameter below the specified threshold. The particle-size ranges above should be confirmed against the sensor manufacturer's exact specification before publication.

CO_2 — Carbon Dioxide Specifications

- Dual-channel NDIR sensor for stable CO_2 measurement
- Measurement range: 0–40,000 ppm
- Accuracy: ±(30 ppm + 3 % of measured value) from 400–10,000 ppm
- Response time (τ_{63}): 20 s

CO_2 Sensor Specifications

Parameter	Conditions	Values
CO_2 measurement range	—	0–40,000 ppm
Accuracy[1]	400–10,000 ppm	±(30 ppm + 3 % of measured value)
Repeatability[2]	400–10,000 ppm	±10 ppm
Response time[3]	τ_{63}	20 s
Accuracy drift over lifetime[4]	400–10,000 ppm; ASC field-calibration algorithm activated	±50 ppm

CO_2 Sensor Notes

[1] Accuracy specified for the calibrated range of 400–10,000 ppm. Reference measurements are based on gas mixtures with a stated tolerance of ±1.5%.

[2] Repeatability represents the RMS error of consecutive measurements under constant conditions.

[3] Response time (τ_{63}) is the time required to reach 63% of a step change in CO_2 concentration.

[4] Long-term accuracy drift specified with the ASC field-calibration algorithm activated. For proper ASC operation, the sensor should be regularly exposed to ambient air at approximately 400 ppm CO_2. Prolonged exposure to CO_2 concentrations below 400 ppm may affect sensor calibration.

TVOC — Total Volatile Organic Compounds Specifications

- CMOS multi-pixel gas sensor designed for continuous VOC monitoring
- TVOC output range: 0–60,000 ppb
- Resolution: 1–32 ppb, depending on concentration range
- Continuous 24/7 monitoring

TVOC Sensor Specifications

Parameter	Conditions	Values[2]
Measurement range[1]	Ethanol signal H_2 signal	0–1,000 ppm[2] 0–1,000 ppm
Specified range	Ethanol signal H_2 signal	0.3–30 ppm 0.5–3 ppm
Accuracy[3]	Ethanol signal H_2 signal	Typ. ±15 % of measured value Typ. ±10 % of measured value
Output range	0–2,008 ppb 2,008–11,110 ppb 1,110–60,000 ppb	Resolution: 1 ppb Resolution: 6 ppb Resolution: 32 ppb

TVOC Sensor Notes

[1] Measurement range refers to tested exposure to the respective gas signals.
[2] ppm = parts per million; 1 ppm = 1,000 ppb (parts per billion).
[3] Typical accuracy specification. Approximately 90% of sensors are within the stated typical accuracy tolerance; more than 99% are within the manufacturer's maximum tolerance.

Temperature & Humidity Specifications

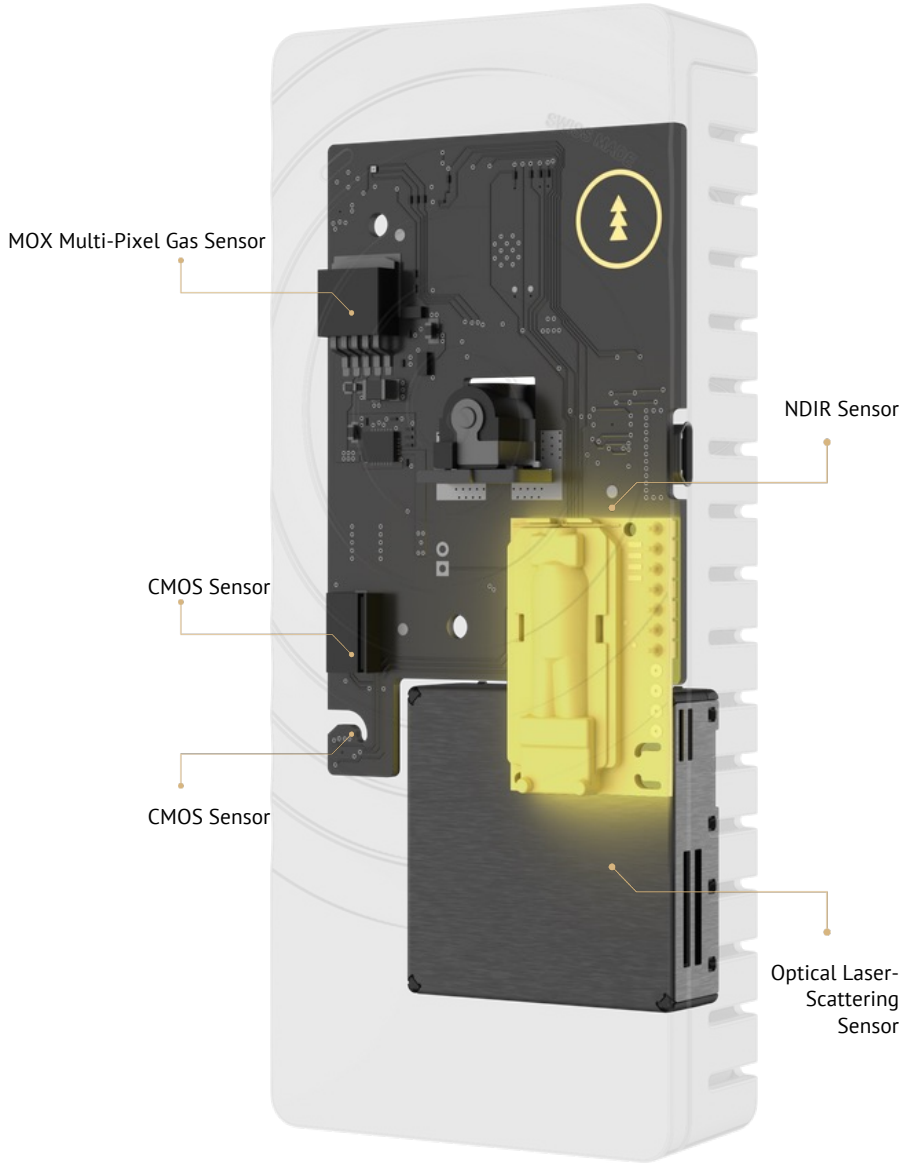
CMOS-based sensor for continuous measurement of temperature and relative humidity, with calibrated and temperature-compensated output.

Parameter	Conditions	Values
Measurement range	Temperature	–40 to +125 °C
Measurement range	Relative Humidity	0–100 %RH
Accuracy	Temperature	±0.2 °C
Accuracy	Relative Humidity	±2 %RH
Long-term drift	Temperature, max.	<0.03 °C/year
Long-term drift	Relative Humidity, max.	<0.25 %RH/year

ARVE SENSE Pro – Sensor Overview

Parameter	Sensor Technology
CO_2	NDIR Sensor
Particulate Matter	Optical Laser-Scattering Sensor
TVOC	MOX Multi-Pixel Gas Sensor
Temperature	CMOS Sensor
Relative Humidity	CMOS Sensor

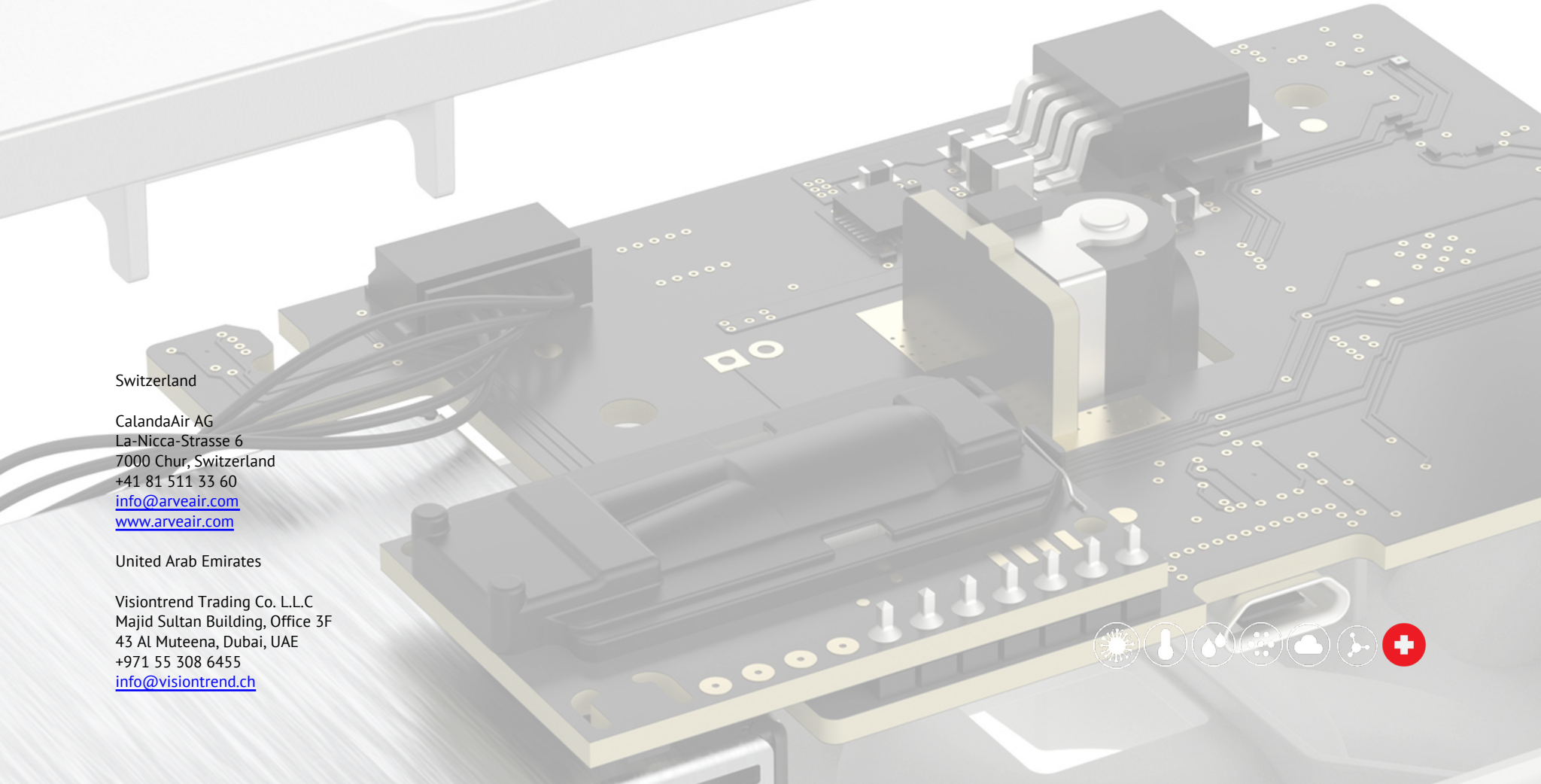
Particulate Matter
$PM_{0.5}$ · $PM_{1.0}$ · $PM_{2.5}$ · PM_4 · PM_{10}



ARVE SENSE Pro

Technical Support & Product Information

For product information, technical support, system integration, or a product demonstration, our team is ready to support your application requirements.



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