FIDAS® SMART 100

Fidas® Smart 100 is the most advanced compact measuring instrument for ambient air quality. It continuously and reliably analyzes airborne fine dust particles in the size range of 0.18 – 18 μm. The Fidas® Smart is approved by TÜV for $PM_{2.5}$ and PM_{10} for official measurements.

In addition to the fine dust fraction relevant for regulatory immission control, Fidas® Smart 100 simultaneously calculates and stores PM_1, PM_4, total dust, particle number concentration, and their particle size distribution, including pressure, temperature, humidity, CO_2.

BENEFITS

- Technology based on the certified Fidas® 200 series (EN16450 and MCERTS); simultaneous measurement of C_n, PM_1, $PM_{2.5}$, PM_4, PM_{10}
- High accuracy due to advanced algorithms
- Long-term stable: up to 2 years of operation without calibration possible.
- On-site calibration with test dust (NIST traceable) is possible
- Operation with AC or DC power source
- Long-life blower for sample airflow
- Regulated aerosol heating to avoid condensation

FEATURES

- Smallest and lightest EN 16450-certified device on the market
- On-site calibration and adjustment (particle size and volume flow)
- Installation and operation directly outdoors without air conditioning
- Data visualization via Palas Cloud (″MyAtmosphere-ready″)
- Measurement data acquisition per second
- E-version also available with extendable sampling tube for installation in a measuring container

APPLICATIONS

- Regulatory environmental monitoring
- Construction sites
- Networks with roads, railways, and ports
- Smart City
- Occupational safety

MODEL VARIATIONS

Fidas® Smart 100 E

Fine dust measuring device for existing roof openings for measuring $PM_{2.5}$ and PM_{10} (EN 16450-certified) and other parameters such as PM_1, PM_4, TSP

https://www.palas.de/product/fidasmart100e

DATASHEET

Measuring principle	Optical light scattering at single particles, 90° sideways scattering
Reported data	$PM_{2.5}$, PM_{10} (optional PM_1, PM_4, $PM_{xCE,}$TSP), C_N, CN, T, rH, p, CO_2, particle size distribution, AQI
Measurement range (number C_N)	0 – 20,000 particles/cm³
Measurement range (size)	0.178- 17.8 μm
Measurement range (mass)	0 – 20,000 μg/m³
Measurement uncertainty	9.0 % for $PM_{2.5}$, 9.7 % for PM_{10} (expanded measurement uncertainty according to EN 16450, TÜV Report)
Volume flow	1 l/min +/-1.5% (-20 to +50°C), time-of-flight volume flow control
Size channels	64 (32/decade)
Time resolution	1s - 60s
Interfaces	USB, Ethernet (LAN), Wi-Fi, 4G (optional via LTE stick)
User interface	Touchscreen 800 • 480 Pixel, 5″ (12,7 cm)
Protocols	UDP, ASCII, Modbus, Bayern/Hessen
Data logger storage	Approx. 6 GB data storage (2 years)
Data acquisition	Max. 256 raw data channels (32 size channels/decade)
Light source	Polychromatic LED
Housing	Polymer housing with weather protection and tripod/wall/pole mount option
Operating system	Windows 10 IoT (LTSA)
Power supply	115 – 230 V, 50/60 Hz
Power consumption	Normal operation: 15 W, max. 60 W
Installation conditions	Operating temperature: -20 to +50 °C (weatherproof), operating humidity: 0 to 100% (non-condensing)
Sampling head	Sigma head (non-selective passive collector)
Dimensions	240 • 320 • 190 mm (H • W • D)
Weight	3.9 kg
Sampling system	Intelligent Aerosol Drying System (Compact-IADS) -Version E: extended inlet for installation in measuring containers
Noise emission	< 40 dB(A)
Resolution	0.1 μg/m^3
Data Management	Prepared for connection to the Palas Cloud MyAtmosphere (“MyAtmosphere-ready”)

NORMS AND CERTIFICATES

ISO 21501-1, EN 15267, EN 16450