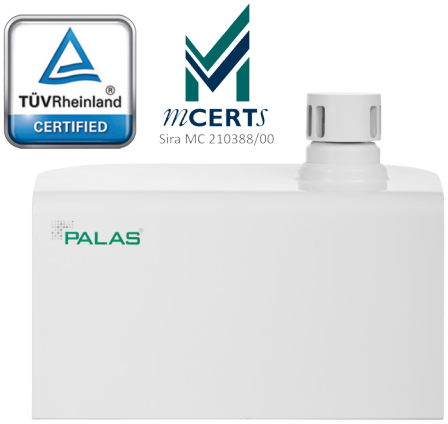
FIDAS® SMART 100



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 0.175 – 20 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, carbon-based PM fractions (PMx_CE) and TVOC (total volatile organic components).

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

DESCRIPTION

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Certificates

- TÜV Qal1.de[1]
- MCERTS indicative[2]

Compact measuring instrument for the determination of fine dust

The system works on the 90-degree scattered light measurement principleon a single particle, considering signal duration and shape. Technology and algorithms were developed based on the EN 16450-certified Fidas ® 200[3] . Automatic calibration tracking of the measurement system allows operation for up to two years without recalibration. If necessary, the calibration status can be checked and corrected using a test dust calibrated by Palas®.

Palas® aerosol spectrometers are thus the only optical fine dust measuring instruments that can be calibrated against a traceable standard by the user at the point of operation.

Fidas® Smart 100 features Ethernet, WLAN, and mobile phone connectivity. All measured values are calculated and recorded directly and, if desired, can be transferred to Palas®' own cloud MyAtmosphere[4] directly for visualization or further processing.

[1] TÜV Qal1.de: https://qal1.de/15267/0000081155_00_palas_FidasSmart100_de.pdf
[2] MCERTS indicative: https://www.csagroup.org/wp-content/uploads/MC21038801.pdf
[3] Fidas® 200: https://www.palas.de/en//en/product/fidas200
[4] MyAtmosphere: https://my-atmosphere.net/

Comparison measurement

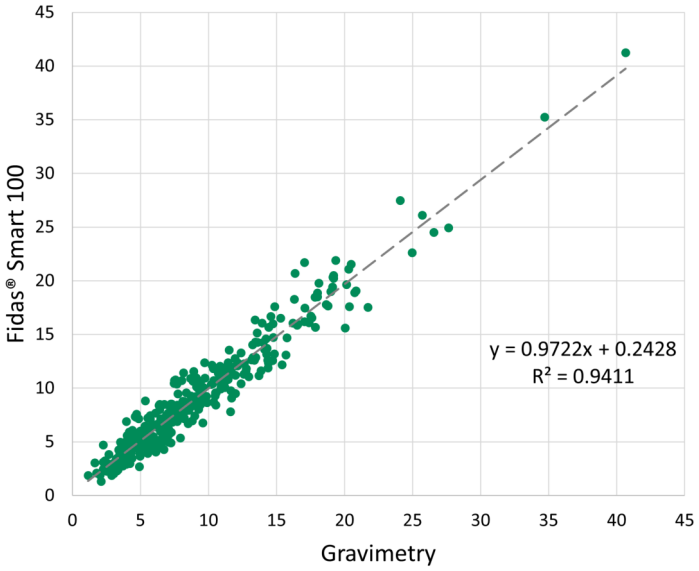

Fig. 1: Fidas® Smart 100 vs. Gravimetry $PM_{2.5}$

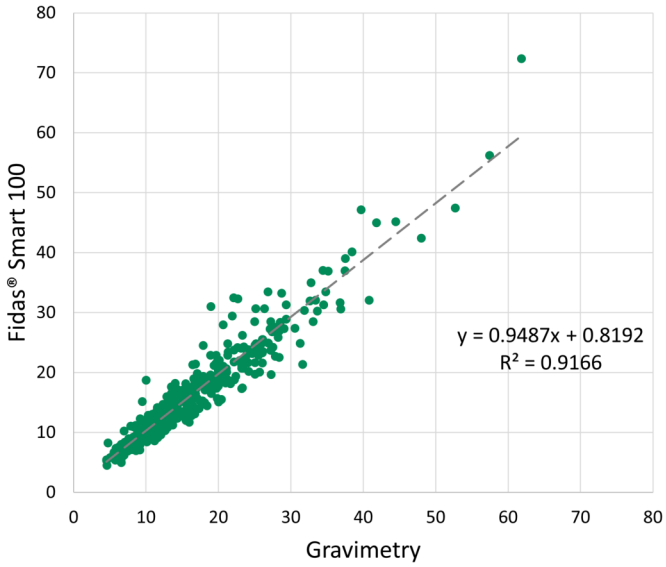

Fig. 2: Fidas® Smart 100 vs. Gravimetry PM_{10}

Extensions/Accessories

Fidas® Smart 100 is equipped with robust weather protection and can be combined with various commercially available mounting systems via a VESA mount.

Benefits

- TÜV suitability tested
- MCERTS certified
- 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 due to self-calibration; up to 2 years of operation without calibration possible.
- On-site recalibration 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

DATASHEET

Measurement range (number C_N)	0 – 20,000 particles/cm³
Size channels	64 (32/decade)
Measurement range (size)	0.18 – 18 μm (certified range, other measuring ranges on request)
Measuring principle	Optical light scattering at single particles
Reported data	PM1, PM2.5, PM4, PM10, TSP, CN, particle size distribution, ambient pressure, ambient temperature, rel. ambient humidity, CO2, TVOC, Air Quality Index, source indication (depending on configuration)
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 $\triangleq$ 0.06 m³/h
Time resolution	1 s – 24 h
Data acquisition	Digital, 22 MHz processor, 256 raw data channels
Light source	Long term stable LED
Power consumption	Normal operation: 15 W, max. 60 W
User interface	Touchscreen 800 • 480 Pixel, 5″ (12,7 cm)
Housing	Polymer housing with weather protection and tripod/wall/pole mount option
Weight	3.9 kg
Operating system	Windows 10 IoT Enterprise
Data logger storage	10 GB
Software	PDAnalyze
Response time	< 2 s
Installation conditions	-20 – +50 °C (weatherproof)
Interfaces	USB, Ethernet (LAN), Wi-Fi, 4G
Protocols	UDP, ASCII, Modbus
Power supply	115 – 230 V, 50/60 Hz
Dimensions	240 • 320 • 190 mm (H • W • D)
Sampling System	Trocknung des Aerosols durch Kompakt-IADS (Intelligent Aerosol Drying System) - Version E: verlängerter Einlass für den Einbau in Messcontainern
Noise emission	< 40 dB(A)
Resolution	0.1 μg/m^3
Power consumption	Normal operation: 15 W, max. 60 W

APPLICATIONS

- Industry: production processes, bulk material handling (mixing, discharging, storage, packaging, etc.), perimeter monitoring
- Construction sites: roads, railroads, demolition works
- Buildings: schools, kindergartens, hospitals, hotels, offices, public buildings
- Residential buildings near construction sites or other polluted areas
- Public transport: outdoor areas at airports, train stations, streets, and subway stations, outdoor areas of cruise ships

Mehr Informationen:
https://www.palas.de/product/fidas-smart100

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