PALAS®

FIDAS® SYSTEM

FINE DUST MEASURING DEVICE

EN 16450 Certified Optical Fine Dust Measurement

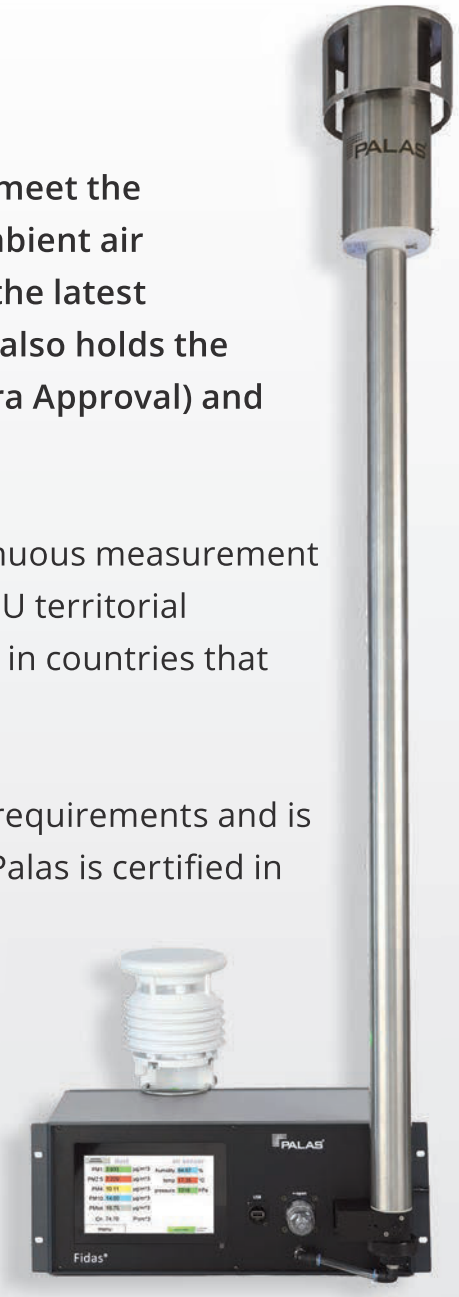
Made in Germany

State of the Art: FIDAS® SYSTEM

FIDAS® 200 is an optical aerosol spectrometer designed to meet the requirements of the EN 16450 standard for regulatory ambient air measurements. FIDAS® 200 is certified in accordance with the latest European Union standards – announced on qal1.eu – and also holds the British approval "MCERTS for UK Particulate Matter" (Def a Approval) and the French approval of the LCSQA.

FIDAS® 200 is one of the leading European systems for continuous measurement of particulate matter. It is used by authorities in almost all I U territorial states and EU-associated states and is also used worldwide in countries that recognize the European approval.

The production of the FIDAS® 200 meets the highest quality requirements and is audited annually by TÜV Rheinland according to EN 15267. Palas is certified in accordance with ISO 9001:2015.



The measurement data can be transmitted via the Palas Cloud MYATMOSPHERE.

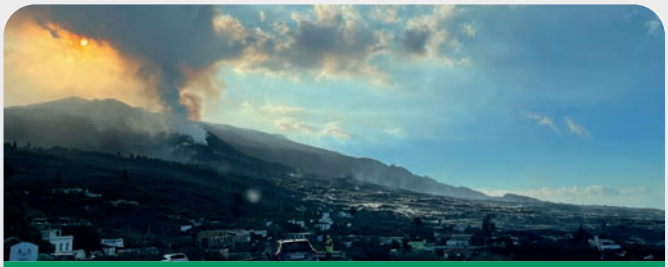
Application Examples

REGULATORY ENVIRONMENTAL MONITORING

IMMISSION MEASUREMENT CAMPAIGNS

LONG-TERM STUDIES

EMISSION SOURCE ALLOCATION



DISPERSION STUDIES

SPOT MEASUREMENTS

Principle of Operation

Intelligent and proven: **FIDAS® 200** determines the size distribution of aerosols contained in the air in real time by means of 90° scattered light measurement on individual particles and uses this to simultaneously determine fine dust fractions such as PM_{10} and $PM_{2.5}$. Thermal humidity compensation of the sample air and non-contact optical measurement enable low-maintenance and thus cost-effective operation. All this distinguishes the **FIDAS® 200** significantly from non-optical measuring systems.

The **FIDAS® 200** with polychromatic LED light source precisely determines the particle size from a single observation angle and with a signal receiver. This unique design allows the sensor and instrument to be tested and calibrated in the field while installed.

It is the only EN 16450 approved fine dust measurement system with a maintenance interval of three months. Designed with an integrated double pump system, it easily compensates for the failure of one pump and thus guarantees very high availability.

The **FIDAS® 200** is characterized by reliability, measuring accuracy and long-term stability as well as low operating costs.

TÜVRheinland®
ZERTIFIZIERT

Eignungsgeprüft
Entspricht
2008/50/EG
DIN EN 15267
Regelmäßige
Überwachung
www.tuv.com
ID 0000040212

mCERTS
Sira MC160290/03

FIDAS® SYSTEM

Flexible and future-proof: the FIDAS® SYSTEM is offered in three suitability-tested designs to meet different measurement requirements and installation situations:

- FIDAS® 200 as a 19” rack mount unit for cabin integration
- FIDAS® 200 E as a 19” rack mount unit for cabin integration; detached aerosol sensor allows use of existing roof flanges
- FIDAS® 200 S as a mobile and flexible system integrated in a weatherproof cabinet for outdoor installation

FIDAS® 200 E

All versions of the FIDAS® SYSTEM offer the choice between various weather stations, and can optionally be equipped with extended aerosol sampling lines.

All functions, calculations and controls are managed via an integrated, secured PC (Windows 10 IoT), which offers all the important communication interfaces and protocols. Client-specific adaptations are possible to ensure a future-proof investment.

FIDAS® 200 S

Special Advantages and Benefits

Certified state-of-the-art technology

- Type approved (EN 16450, MCERTS for UK Particulate Matter (Defra Approval), LCS-QA Approval for France)
- Continuous quality monitoring according to EN 15267 by TÜV Rheinland
- Zero-point stable measuring system with status monitoring: test interval of 3 months
- All device checks for calibration and operating parameters possible on site
- LED light source with constant sensitivity and long service life
- Sampling with two pumps (integrated) in parallel operation, data availability > 99 %
- Optical particle sizing and thermal moisture compensation – no consumables

Comprehensive measurement data acquisition and output

- Continuous simultaneous measurement of $PM_{2.5}$, PM_{10} as well as PM_1, PM_4, TSP, C_N
- Additional information by measurement of particle size distribution
- Weather stations including wind and precipitation optionally available
- Bayern-Hessen protocol (serial), MODBUS (serial/Ethernet), ASCII protocol (serial/Ethernet), UIDEP (Ethernet), UDP (Ethernet), internal storage in proprietary format and as txt file
- Remote access via Remote Desktop and TeamViewer, other solutions possible
- Integration into cloud platform MyAtmosphere for worldwide data retrieval possible

Technical Features

Measuring principle	Optical light scattering of single particles
Reported data	PM_1, $PM_{2.5}$, PM_4, PM_{10}, TSP, C_N, particle size distribution, pressure, temperature, relative humidity
Measurement range (number C_N)	0–20,000 particles/cm^3
Measurement range (size)	0.18–18 µm (certified range, other measuring ranges on request)
Measurement range (mass)	0–10,000 µg/m^3
Measurement uncertainty	9.7 % for $PM_{2.5}$, 7.5 % for PM10 (expanded measurement uncertainty according to EN 16450)
Volume flow	4.8 l/min = 0.3 m^3/h ± 3% (24h), compliant with EN 16450
Size channels	64 (32/decade)
Time resolution	1 s–24 h (900 s moving average in type approved mode)
Interfaces	USB, Ethernet (LAN), RS232, Wi-Fi
User interface	Touchscreen, 800 • 480 Pixel, 7“ (17.78 cm)
Power supply	100/240 V, 50/60 Hz
Power consumption	Normal operation: 60 W, max.: 200 W (FIDAS® 200 S < 300 W)
Dimensions	Control unit: 450 • 320 • 180.5 mm (H • W • D), 19“ Aerosol sampling tube: Ø 48 mm, 1150 mm (others on request) External sensor (FIDAS® 200 E): 240 • 180 • 120 mm (H • W • D)

As an aerosol technology expert, Palas® Germany is committed to providing users with solutions for the generation, conditioning, measurement and analysis of aerosol particles. Based on the unique advantages of its own technology, Palas® developed a variety of application cases in ambient air quality monitoring, particle filtration performance testing and various scientific research fields. Palas Instruments (Shanghai) Co., Ltd. is a wholly owned subsidiary of Hong Kong Palas (Asia) Limited. As one of the global branches of Palas GmbH, it has legally obtained the Palas trademark authorized by Palas GmbH in Exclusive use rights in China and Asia.

As a company that has passed the ISO 9001:2015 quality management system certification, Palas®'s test rig solutions can execute particle filtration performance tests for filter media and filter elements according to applicable international, national and regional standards. In terms of environmental protection, Palas®'s equipment meets the requirements of multiple environmental monitoring standards (EN 15267, EN 16450, HJ653, GBZ/T 192.6, etc.) for indoor and ambient PM2.5, PM10, particle number size distribution monitoring and analysis.

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