PALAS®

FIDAS® FROG

# MOBILE REAL-TIME AEROSOL SPECTROMETER

## For Environment, Industry and Science

***Made in Germany***



# Mobile Fine Dust Measurement With FIDAS® FROG

**Whether it's fine dust pollution in the air, dust pollution at workplaces or measurements of the effectiveness of air filters: FIDAS® FROG covers a wide range of applications.**

The mobile fine dust measuring device FIDAS® FROG works according to the proven principle of optical measurement and classification of individual particles. Palas has significantly advanced the development of this technology. In the FIDAS® 200, which is certified according to EN 16450, this principle has become a worldwide standard for the continuous monitoring of fine dust.

FIDAS® FROG is battery-powered, and thus very flexible and mobile, which makes it the perfect complement to the FIDAS® series. The detachable tablet connects to the measuring unit via Wi-Fi. It visualizes dust concentration trends and particle size distributions with high resolution. At the same time it is possible to change settings on the device, record measurement series and generate reports.

# Application Examples



MEASUREMENT OF PARTICULATE MATTER IMMISSIONS AT ANY LOCATION



WORKPLACE MEASUREMENTS (EN 481)



STUDIES ON AEROSOL DISPERSION INDOORS



MOBILE PARTICLE MEASUREMENT ON THE FACTORY FLOOR

# Principle of Operation

Unlike photometers or nephelometers, the FIDAS® FROG uses the much more precise measuring principle of optical light scattering on the individual particle. This is ensured by a long-life, powerful LED light source and a highly sensitive photomultiplier. A notable advantage of the Palas measurement technology: Users can easily clean and calibrate the optical system on their own. Certified calibration dust for generating the test aerosol is included in the scope of delivery.




All measured values are visualized in real-time as a current value and by continuous graphic display on the user interface of FIDAS® FROG. Limit values for mass concentrations of the various PM fractions can be set individually. Limit exceedances are indicated immediately.

# Special Advantages and Benefits

## Latest technology

- Multifunctional tablet PC, connected to the measuring unit via Wi-Fi
- Integrated camera for documentation of the measurement task incl. report generation
- Time resolution 1 s, adjustable time averaging over longer periods of time
- Simple, proven and highly accurate on-site calibration of the optical sensor using supplied monodisperse test powder
- Option for an extended sample air inlet with sampling head for outdoor air measurements and for connection of an isokinetic sampling system

## Different measurements

- Particle measurement range from 180 nm to 93 µm, up to 100 mg/m$^3$ mass concentration or 20,000 particles/cm$^3$ (single particle analysis)
- Continuous, simultaneous real-time measurement of multiple PM fractions
- Option to perform workplace measurements according to EN 481

## Extensive output options

- Visualization of the measured data in real time and their course
- Data and parameters can be subsequently evaluated with Palas PDAnalyze software
- Real-time transmission of measured data

# Technical Features

| | |
|---|---|
| **Measuring principle** | Optical light scattering at single particles, 90° sideways scattering |
| **Reported data** | $PM_1$, $PM_{2.5}$, $PM_4$, $PM_{10}$, TSP, $C_N$, T, rH, p,particle size distribution |
| **Measurement range (number $C_N$)** | 0 – 20,000 particles/$cm^3$ |
| **Measurement range (size)** | 0.178 – 17.8 (extended to 93 µm) |
| **Measurement range (mass)** | 0 – 100 $mg/m^3$ |
| **Measurement uncertainty** | Approximately 12% for $PM_{2.5}$, approximately 12% for $PM_{10}$ |
| **Volume flow** | 1.4 l/min (Time-Of-Flight) |
| **Size channels** | Max. 256 raw data channels (32 size channels/decade) |
| **Time resolution** | Rolling average 1s - 600s adjustable, interval 1.5, 10, 60s, distribution 5, 10, 30, 60s, UDP 1.5, 10, 60s interval |
| **Interfaces** | USB, Ethernet (LAN) via adapter, Wi-Fi |
| **Power supply** | 115–230 V, 50/60 Hz, output: 19 V |
| **Installation conditions** | 0 – +40 °C |
| **Dimensions (H • W • D)** | 100 • 240 • 150 mm |
| **Resolution** | 0.1 $µg/m^3$ |

Subject to technical changes

# More Measurement Devices

**... for real-time indoor air quality assessment.**

To determine indoor infection risk, the AQ Guard combines the best available particle measurement technology with precise measurement of $CO_2$ concentration in the air.




**... for fine dust monitoring in real-time.**

The measuring device AQ Guard Smart is suitable as a supplement to official measurements, for monitoring and checking safe working conditions and for temporary fine dust measurement at various locations.




**... for use in regulatory environmental measurement.**

The aerosol spectrometer Fidas® 200 continuously analyzes the fine dust particles present in the ambient air and, like the functionally identical variants Fidas® 200 E and Fidas® 200 S, is certified in accordance with the standards EN 16450, EN 15267-1 and -2.



Palas is a leading developer and manufacturer of highprecision instruments for the generation, measurement and characterization of particles in air.

With more than 30 active patents, Palas develops technologically leading and certified fine dust and nanoparticle analyzers, aerosol spectrometers, generators and sensors as well as related systems and software solutions. Palas was founded in 1983 and employs more than 100 people.

**Palas GmbH**
Siemensallee 84 | Building 7330 | 76187 Karlsruhe
Phone: +49 721 96213-0
**www.palas.de**

Version: October 2026