



FIDAS® FROG

# MOBILE REAL-TIME AEROSOL SPECTROMETER

For environment, industry and science

*Made in Germany*



# Mobile fine dust measurement with **FIDAS® FROG**

Whether 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 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 – 93 µm up to 100 mg/m<sup>3</sup> mass concentration or 20,000 particles/cm<sup>3</sup> (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

<b>Measuring principle</b>	Optical light scattering of single particles
<b>Reported Data</b>	PM <sub>1</sub> , PM <sub>2.5</sub> , PM <sub>4</sub> , PM <sub>10</sub> , TSP, C <sub>N</sub> , particle size distribution T, rH, P
<b>Size channels</b>	32/decade, 256 raw data channels
<b>Measurement range (number C<sub>N</sub>)</b>	0 – 20,000 particles/cm <sup>3</sup>
<b>Measurement range (size)</b>	0.18 – 93 μm
<b>Measurement range (mass)</b>	0 – 100 mg/m <sup>3</sup> (depending on the aerosol composition)
<b>Installation conditions</b>	0 – +40 °C
<b>Interfaces</b>	USB-C, network connection via USB-Ethernet-adapter or Wi-Fi
<b>Dimensions (H • W • D)</b>	100 • 240 • 150 mm
<b>Weight</b>	Approx. 2.1 kg
<b>Power supply</b>	19 – 25 V (adapter supplied) or internal battery (running time approx. 8h)
<b>Time resolution</b>	1 s, moving average over longer periods configurable

# 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<sub>2</sub> 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<sup>®</sup> 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<sup>®</sup> develops technologically leading and certified fine dust and nanoparticle analyzers, aerosol spectrometers, generators and sensors as well as related systems and software solutions. Palas<sup>®</sup> was founded in 1983 and employs more than 100 people.

**Palas GmbH**

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