

FIDAS® FROG



The fine dust measurement device Fidas® Frog allows for a fast, reliable, and quality-assured determination of fine dust, e.g., monitoring within the scope of Health, Safety, and Environment (HSE) management at workplaces (exposure assessment) or in the range of indoor air quality measurements. It simultaneously measures the environmentally relevant mass fractions PM₁, PM_{2.5}, PM₄, PM₁₀, and TSP, as well as the particle number and the particle size distribution within the particle size range of 0.18 – 93 µm. The very compact and light design as a portable hand-held monitor with either battery or mains power operation and the operation time of up to 8 hours per battery charge allow for a flexible application at any measurement sites.

BENEFITS

- Continuous and simultaneous real-time measurement of PM₁, PM_{2.5}, PM₁₀ and TSP-values, particle number concentration and size distribution
- Adjustable time resolution from 1 s
- Direct comparison of different measurements
- Configuration of limit values possible
- Separation of the measuring device and the Tablet-PC for control (communication via WLAN)
- Ergonomic design and low weight
- Intuitive and simple operation
- Integrated camera for documentation of the measurement
- Export function for measured data in various formats
- Remote monitoring and control via network integration easily possible

FEATURES

- On-site calibration and adjustment (particle size and volume flow)
- Up to eight hours of measurement time in battery mode
- Detachable tablet, connected via WLAN
- Firmware can also be installed on PC
- Extended measuring range up to 93 µm

APPLICATIONS

- Fine dust monitoring at alternating locations or in movement
- Air quality monitoring indoors, at the workplace, or inside vehicles
- Use as an aerosol spectrometer in setups where space is limited

DATASHEET

Measuring principle	Optical light scattering at single particles, 90° sideways scattering
Reported data	PM1, PM2,5, PM4, PM10, TSP, CN, 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) über Adapter, Wi-Fi
User interface	Touchscreen, 1,280 • 800 pixel, 8" (20.32 cm)
Protocols	UDP, MODBUS RTU
Data logger storage	Approx. 16 GB
Data acquisition	Max. 256 raw data channels (32 size channels/decade)
Light source	Polychromatic LED
Housing	Plastic housing with tablet
Operating system	Windows 10
Power supply	115–230 V, 50/60 Hz, output: 19 V
Power consumption	13 W
Installation conditions	0 – +40 °C
Battery operation	Li-ion batteries, non-removable, base unit: 77 Wh (14.8 V; 5,200 mAh), 8 cells tablet: 20 Wh (3.8 V; 5,200 mAh), 2 cells
Sampling head	Rohr DN 10
Dimensions	100 • 240 • 150 mm (H • W • D)
Weight	Approx. 2.1 kg (operating panel: 0.4 kg, measuring unit: 1.7 kg)
Resolution	0,1 $\mu\text{g}/\text{m}^3$
Data Management	Prepared for connection to the Palas Cloud MyAtmosphere ("MyAtmosphere-ready")

NORMS AND CERTIFICATES

EN 481:1993, ISO 21501-1