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 PM_1, $PM_{2.5}$, PM_4, PM_{10}, 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 PM_1, $PM_{2.5}$, PM_{10} 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

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

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

DATASHEET

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/cm³
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
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 μg/m³
Data Management	Prepared for connection to the Palas Cloud MyAtmosphere (“MyAtmosphere-ready”)

NORMS AND CERTIFICATES

EN 481:1993, ISO 21501-1