WELAS® DIGITAL 3000 H

Depending on the aerosol composition to be measured, i.e., the carrier gas component and the particle material, pressure and temperature changes in the carrier gas can significantly influence the particle size distribution, e.g., due to condensation or evaporation.

For this reason, the aerosol sensors welas® 2070 H, HP, 2100 H, HP, 2200 H, HP, 2300 H, HP, and welas® 2500 H, HP[1] are equipped with a heatable and, as required, pressure-tight cuvette to ensure isobaric and isothermal sampling into the sensor's measurement volume.

The welas® digital 3000 H model variant also offers heating regulation for temperatures up to 250 °C for the aerosol sensors with heatable cuvette.

The welas® digital is usually calibrated for the operating volume flow. In the welas® digital 3000 H version, regulation of the sampling volume flow is performed independently by the customer taking the temperature ...

[1] aerosol sensors welas® 2070 H, HP, 2100 H, HP, 2200 H, HP, 2300 H, HP and welas® 2500 H, HP: https://www.palas.de/en//en/product/aerosolsensorswelas2000

Benefits

- Measuring range of 0.2 to 100 μm (4 measuring ranges selectable in one device)
- Up to four measuring ranges in only one device:
  - 0,2 μm – 10 μm
  - 0,3 μm – 17 μm
  - 0,6 μm – 40 μm
  - 2 μm – 100 μm (additionally for sensors 2300 and 2500)
- Up to 128 size channels per measuring range
- Concentration range of 1 particle/cm^3 up to 10^6 particles/cm^3
- Calibration curves for different refractive indices
- Very high and reproducible counting efficiency rate starting at 0.2 μm (see Graph 2)
- High temporal resolution down to 10 ms
- Optical fiber technology
- Measurement in potentially explosive environment
- Long service life of the light source of 2000 h
- Extensive PDControl

- Simple operation
- Calibration, cleaning and lamp replacement can all be performed independently by the customer
- Low maintenance

Applications

- Separation efficiency determination of automotive cabin air filters, engine air filters, ambient air filters, compressed air filters, vacuum cleaner filters, cleanable filters, electrostatic precipitators, oil separators, cooling lubricant separators, wet separators, cyclones, and other separators
- Isothermal and isobaric particle size and quantity determination, e.g., in the automotive, chemical, pharmaceutical, and food industries
- Investigation of fast, transient processes
- Test of smoke detectors
- Particle measurement for cloud formation
- Emission measurements
- Breathing function: inhalate / exhalate (particle size and number)

DATASHEET

Measuring principle	Optical light-scattering	Measurement range (number C_N)	< 1 • 10^6particles/cm^3
Measurement range (size)	0.2 – 10 μm, 0.3 – 17 μm, 0.6 – 40 μm, 2 – 100 μm	Volume flow	5 l/min
Size channels	Max. 64/decade	Time resolution	≥ 10 ms
Interfaces	USB	User interface	Laptop
Software	PDControl	Thermodynamic conditions	250°C, -100 – 50 mbar
Data acquisition	Digital, 20 MHz processor, 256 raw data channels	Light source	Xenon arc lamp 35 W
Gehäuse	Table housing, optional: with mounting brackets for rack-mounting	Power supply	115 – 230 V, 50/60 Hz
Installation conditions	+5 – +40 °C (control unit)	Dimensions	185 • 450 • 315 mm (H • W • D) (19″)
Weight	Control unit: approx. 18 kg, sensor: approx. 2.8 kg		