WELAS® DIGITAL 2000 P

Depending on the aerosol composition to be measured, i.e., the carrier gas component and the particle material, pressure 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 P, 2100 P, 2200 P, 2300 P, and welas® 2500 P[1] are equipped with a pressure-tight cuvette to ensure isobaric and isothermal sampling into the sensor's measurement volume.

The welas® digital system is usually calibrated for the operating volume flow. As the operating volume flow changes with pressure, it is advantageous for the user if automatic volume flow regulation for the sampling volume flow is provided for in the device.

In the welas® 2000 P, the carrier gas pressure is measured, and the required operating volume flow is automatically set to 5 l/min.

Includes:

- Mass flow controller ...

[1] aerosol sensors welas® 2070 P, 2100 P, 2200 P, 2300 P and welas® 2500 P: http://www.palas.de//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 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 a potentially explosive environment
- Long service life of the light source of 2000 h
- Extensive PDControl and FTControl software
- 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 • 10^6 Partikel/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 regulated by mass flow
Size channels	Max. 64/decade	Interfaces	USB
User interface	Laptop	Software	PDControl, FTControl
Thermodynamic conditions	+10 – +40 °C, 10 bar	Data acquisition	Digital, 20 MHz processor, 256 raw data channels
Light source	Xenon arc lamp 35 W	Housing	Table housing, optional: with mounting brackets for rack-mounting
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		