WELAS® DIGITAL 3000 HP



The aerosol sensors welas® 2070 HP, 2100 HP, 2200 HP, 2300 HP, and welas® 2500 HP are equipped with a cuvette heatable up to 120 °C and pressure-tight up to 10 barg 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 and temperature, 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® digital 3000 HP, the pressure and temperature of the carrier gas are measured, and the required operating volume flow is automatically set to 5 l/min.

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)	$< 1 \cdot 10^6$ particles/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	120°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
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