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welas® digital 3000 P

With automatic regulation of sampling volume flow by the aerosol sensors welas® under overpressure up to 10 bar

Description

Depending on the composition of the aerosol 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. this reason, the welas® aerosol sensors welas® 2070 P, 2100 P, 2200 P, 2300 P and welas® 2500 P are equipped with a pressure-tight cuvette to ensure isobaric and isothermal sampling into the sensor's measurement volume.
welas® digital 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.
the welas® 3000 P the pressure of the carrier gas is measured and the required operating volume flow is automatically set to 5 l/min.
:

- Mass flow controller for volume flow regulation
- Absolute pressure capsule
- Filter unit

welas® digital 3000 P

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 fibre technology
- Measurement in 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
- Reliable function
- Reduces your operating expenses

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Datasheet

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

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Applications

- Determination of the separation efficiency of car interior filters, engine air filters, room air filters, compressed air filters, vacuum cleaner filters, cleanable filters, electrostatic precipitators, oil separators, cooling lubricant separators, wet scrubbers, cyclones and other separators
- Isothermal and isobaric particle size and quantitative determination, for instance in the automobile, chemical, pharmaceutical and food industries
- Analysis of fast, transient processes
- Inspection of smoke detectors
- Particle formation for cloud formation
- Emission measurements
- Immission measurements
- Breathing function: Inhalation / Exhalation (Particle size and number)

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