PROMO® 2000

Promo® 2000 is a light-scattering aerosol spectrometer system for particle size analysis and concentration determination that can be equipped with all welas® sensors. On Promo® 2000, the welas® sensors equipped with different measurement volumes, as required, can be easily connected via fiber optic cables and interchanged as needed. These sensors allow reliable measurement in the concentration range from < 1 particle/cm^3 to 10^6 particles/cm^3 in gases.

Promo® 2000 is famous for up to 128 size channels per measuring range and a concentration range from < 1 particle/cm^3 to 10^6 particles/cm^3.

MODEL VARIATIONS

Promo® 2000 H

With heating control up to 250 °C for welas® aerosol sensors

Promo® 2000 HP

Version with automatic regulation of the sampling flow through the welas® aerosol sensors at an overpressure of 2 to 10 bar or with heating regulation to 120 °C

Promo® 2000 P

Version with automatic regulation of the sampling flow through the welas® aerosol sensors at an overpressure up to 10 bar

OPERATION PRINCIPLE

SCATTERED-LIGHT AEROSOL SPECTROMETER SYSTEM WITH LIGHT WAVE CONDUCTOR TECHNOLOGY

A touch display ensures user-friendly operation. Measurements can be started quickly, and all data, such as the current number distribution and the number concentration, and 24 further statistical values, can be evaluated and displayed in real-time.

Measurements are performed continuously with Promo® as a standalone measuring device (i.e., without an external computer), and measurements are performed continuously. All incoming data can be stored with a maximum temporal resolution of 1 s. Promo® 2000 can therefore measure and save data over weeks independently. For data transfer, Promo® can also be integrated into a company network.

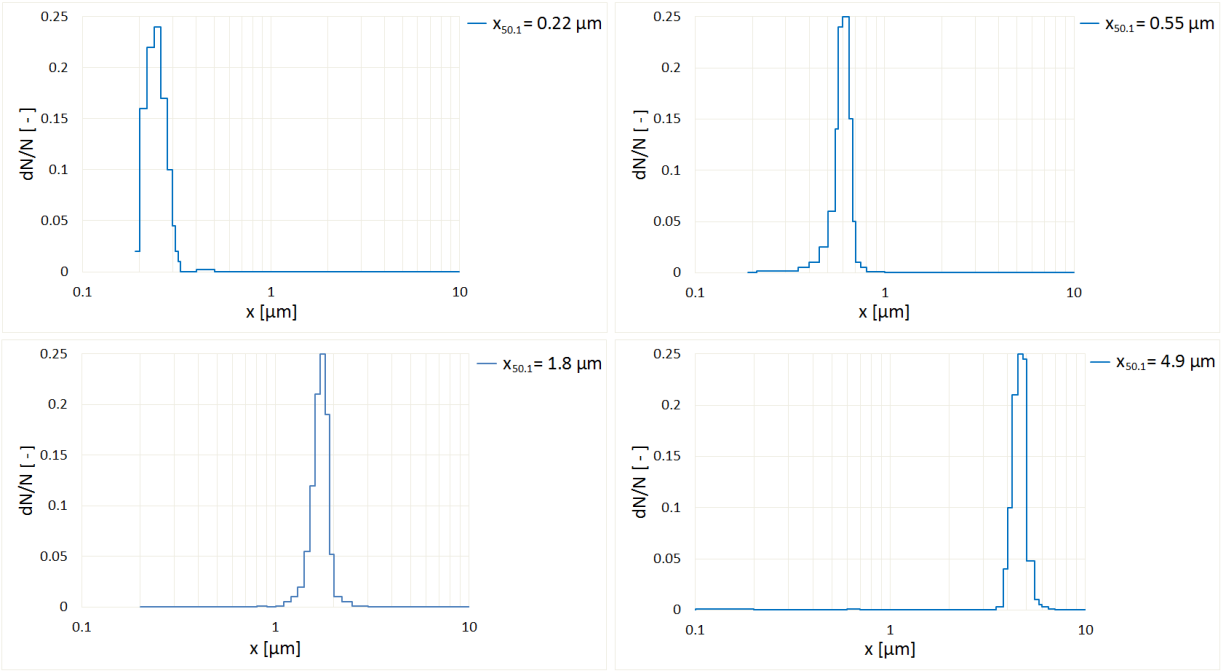
Promo® 2000 has a standard interface and can be controlled by a process control system or a simple Labview program. For this reason, Promo® 2000 is especially well suited for control and monitoring applications. Temperature, humidity, and pressure sensors can be connected.

Palas® offers remote maintenance for the device and data access via www.palas.de/user.

Promo® 2000 offers a new, fast 20 MHz signal processing processor, which analyses the progression of each particle signal. This makes it possible to recognize coincidental events in light scattering measurement technology at the individual signal and correct them (according to Dr. Umhauer / Prof. Dr. Sachweh). This way, increasing the maximum concentration limit is up to 10^6 particles/cm^3 (welas® 2070 sensor). Also, low concentrations of < 1 particle/cm^3 with the welas® 2500 sensor lead to higher measuring accuracy.

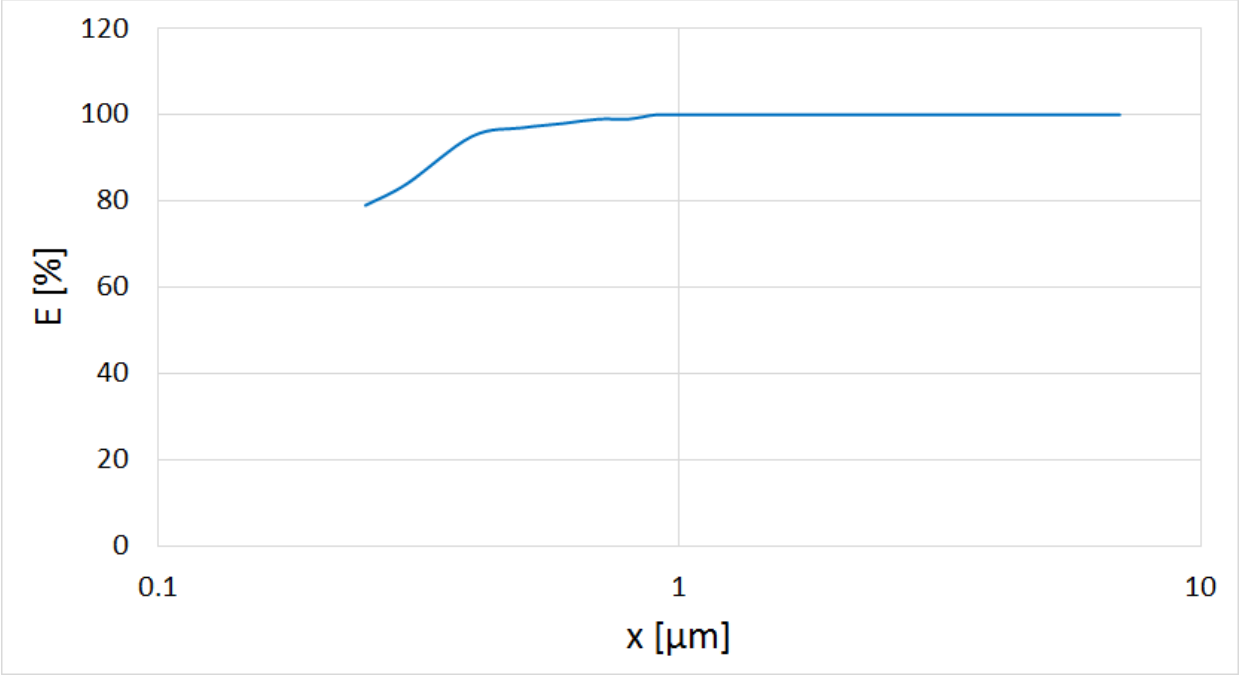
High classification accuracy and high particle size resolution are guaranteed by the following special features (see Graph 1):

- White light and 90° light-scattering detection ⇒ Unambiguous calibration curve
- Patented T-aperture ⇒ No border zone error
- New digital individual signal processing ⇒ Coincidence detection and correction of the individual signal making it possible to measure higher concentrations



Graph 1: Example with 2200 sensor

Promo® 2000 is characterized by its high counting efficiency starting from 0.2 μm!



Graph 2: Example with 2200 sensor, in relation to LAS-X II

Benefits

- Very high size resolution
- Concentration range from < 1 particle/cm^3 to 10^6 particles/cm^3
- Calibration curves for different refractive indices
- Very high and reproducible counting efficiency even from 0.2 μm
- Pressure resistant up to 10 bar (optional)
- Heatable up to 250°C (optional)
- Optical fiber technology
- Easy to operate thanks to large touch display
- Calibration, cleaning, and lamp replacement can be carried out independently by the customer
- External control via RS 232 or Ethernet

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. 128 (64/decade)
Interfaces	USB, Ethernet (LAN), Wi-Fi, RS-232/485
User interface	Touchscreen, 800 • 480 pixel, 7″ (17.78 cm)
Data logger storage	4 GB Compact Flash
Software	PDControl, FTControl, PDAnalyze
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
Support options	Direct remote access, Palas webserver service
Operating system	Windows embedded
Power consumption	100 W
Installation conditions	+5 – +40 °C (control unit)
Dimensions	185 • 450 • 315 mm (H • W • D) (19″)
Weight	Control unit: approx. 8 kg, sensor: approx. 2.8 kg

APPLICATIONS

- Emission monitoring of installations
- Control of grinding and classification processes
- Monitoring of production processes in the food, pharmaceuticals and chemicals industries
- Testing of complete filters, inertial and wet separators or electrostatic precipitators

Mehr Informationen:
https://www.palas.de/en/product/promo2000