Product data sheet

Palas® Promo® 3000 MPS

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

ParteQ GmbH Brunnenstraße 12· D-76316 Malsch · Germany · www.parteq.net
Phone: +49 7204 9474747· E-mail: info@parteq.net

ParteQ

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 106 particles/cm^3
- Calibration curves for different refractive indices
- Very high and reproducible counting efficiency rate starting at 0.2 µm
- Optical fibre technology
- Simple operation with a large touch display
- Calibration, cleaning and lamp replacement can all be performed independently by the customer
- External control by RS 232 or Ethernet
- With analysis software PDAnalyze
- Optional: Software PDControl for operation as welas® digital available
- Low maintenance
- Reliable function

ParteQ

Description

The Promo® is a light-scattering aerosol spectrometer system for particle size analysis and concentration determination that can be equipped with all welas® sensors.

On Promo® 3000, the welas® sensors equipped with different measurement volumes, as required, can be easily connected via fiber optic cables and interchanged as required. These sensors allow reliable measurement in the concentration range from < 1 particle/cm^3 up to 10^6 particles/cm^3 and are available for measurement in gases, as well as in liquids. Please consult the "welas® sensors" product data sheet.

Unique are 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).

Promo® 3000 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.

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

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

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

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

The quality in detail:

On Promo® 3000, two welas® sensors are supplied with one light source and the scattered light pulses are detected by a photomultiplier. This enables a quasi-simultaneous particle measurement at two sampling locations that are up to 100 meters apart.

With Promo® 3000 the user effectively has two scattered-light spectrometers in one device with the same device characteristics with regard to:

- Particle size resolution capability
- Particle size classification accuracy
- Counting efficiency
- Zero counting rate

The various welas® sensors are characterized by a particularly good conformity of counting efficiency and particle size resolution (see product data sheet: welas® sensors"). All welas® 2000 series sensors can be used with the Promo® 3000. The quasi-simultaneous particle size and particle quantitative

determination offers particular advantages for characterising separators with fluctuating raw gas concentrations.

Opto-mechanical switching

Using opto-mechanical switching, the two sensors that are connected can be easily controlled. The sensors are controlled automatically with the software. The particular advantage over a manual measurement selector switch:

- Faster change of the measurement location
- No deposits in sampling lines
- Long service life; no wear of the seals due to dust particles

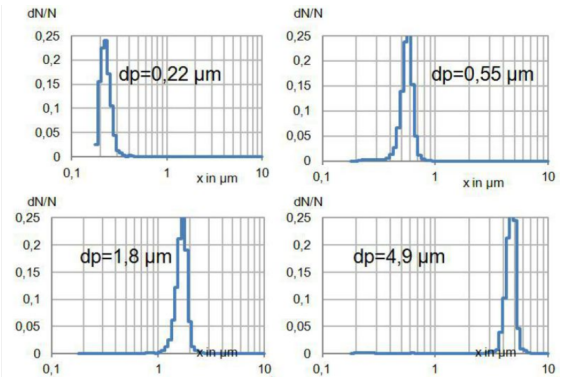
The Promo® measurement technology:
The Promo® has a new, fast 20 MHz signal processing processor, which analyses the interference of each particle. This makes it possible to recognise coincidental events on the basis of the scattered light signal, i.e. more than one particle in the measurement volume at one time can be identified from the individual signal and corrected (according to Dr. Umhauer / Prof. Dr. Sachweh).

This makes it possible to increase the maximum concentration limit up to 10^6 p/cm^3 (welas® 2070 sensor). Also in low concentrations < 1 particle/cm^3 with the welas® 2500 sensor, this leads to a higher measuring accuracy.

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

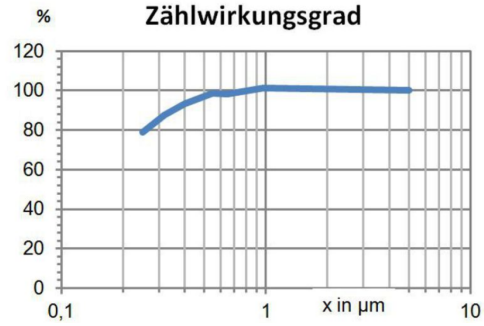
- White light and 90° light-scattering detection
  → **Unambiguous calibration curve**
- Patented T-aperture

  → **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

The Promo® aerosol spectrometer is characterized by its very high counting efficiency starting from 0.2 µm!



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

ParteQ GmbH Brunnenstraße 12· D-76316 Malsch · Germany · www.parteq.net
Phone: +49 7204 9474747· E-mail: info@parteq.net

ParteQ

Specifications

Interfaces	USB, ethernet, RS232/485, Wi-Fi
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 128 (64/decade)
Measuring principle	Optical light-scattering
Measurement range (number concentration)	< 1 • 106 particles/cm³
Time resolution	Up to 1 s
Thermodynamic conditions	10 – 40 °C, -100 – 50 mbarg
Volume flow	5 l/min
Data acquisition	20 MHz processor, 256 raw data channels, digital
Light source	Xenon arc lamp 35 W
Power consumption	100 W
User interface	Touch screen, 800 • 480 pixels, 7"
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" compatible)
Support options	Direct remote access, Palas® webserver service
Weight	Approx. 9.3 kg
Operating system	Windows embedded
Data logger storage	4 GB Compact Flash
Software	PDControl, FTControl, PDAnalyze

ParteQ GmbH Brunnenstraße 12· D-76316 Malsch · Germany · www.parteq.net
Phone: +49 7204 9474747· E-mail: info@parteq.net

ParteQ GmbH Brunnenstraße 12· D-76316 Malsch · Germany · www.parteq.net
Phone: +49 7204 9474747· E-mail: info@parteq.net