PROMO® DUAL

The Promo® Dual is a scattered-light aerosol spectrometer designed for real-time simultaneous determination of particle size and concentration at two measurement points. Sensors with different measurement volumes can be easily connected via optical fibers and interchanged as needed.Depending on the application, sensors with a heatable cuvette up to +250 °C and pressure-resistant versions up to 14 bar overpressure are available.

Central to the instrument's performance is a white-light LED light source. The compact 19-inch rack-mount enclosure, with reduced depth and lower weight, allows for flexible integration into existing systems and test benches. The Promo® Dual is designed for 24/7 continuous operation and can be integrated into higher-level process control systems via interfaces such as Modbus.

OPERATION PRINCIPLE

SCATTERED-LIGHT AEROSOL SPECTROMETER SYSTEM WITH TWO SENSORS FOR REAL-TIME SIMULTANEOUS MEASUREMENT

The Promo® Dual operates on the principle of 90° scattered-light detection and supplies two independent sensors with light from a common high-luminance white-light LED source in real time—without optical fiber splitting. Particles are guided individually through a defined measurement volume and illuminated; the scattered light is detected by a photomultiplier and converted into an electrical signal.

The patented T-aperture eliminates edge-zone errors and detects and corrects coincidences in the individual signal. The unique calibration curve of the white light source enables precise size assignment across the entire measurement range. Data from both channels is acquired and recorded simultaneously, enabling direct evaluation of the separation efficiency and particle size distribution in real time.

Extensions

Promo® Aerosol Sensor 2070: dp ≈ 0.2–40 μm | $C_{N\,max} \approx 10^6$ particles/cm^3

Promo® Aerosol Sensor 2100: dp ≈ 0.2–40 μm |CN max ≈ 5 * 10^5 particles/cm^3

Promo® Aerosol Sensor 2300: dp ≈ 0.2–105 μm |CN max ≈ 4 * 10^4 particles/cm^3

Promo® Aerosol Sensor 2500: dp ≈ 0.3–105 μm | CN max ≈ 4 * 10^3 particles/cm^3

Promo® Aerosol Sensor 2xx0 P: pressure resistant < 14 bar overpressure | process temperature -20 °C–+150 °C

Promo® Aerosol Sensor 2xx0 HP: pressure resistant < 14 bar overpressure | T +250 °C | process temperature -20 °C–+250 °C

Benefits

- Real-time simultaneous measurements
- Durable, robust, and energy-efficient thanks to LED technology
- 24/7 continuous operation
- Very high size resolution
- Concentration range from < 1 particle/cm³ to 10 particles/cm³
- Calibration curves for different refractive indices
- Very high and reproducible counting efficiency starting at 0.2 µm
- Fiber-optic technology
- Calibration and cleaning can be performed by the customer

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)
Time resolution	1 s
Interfaces	USB, Ethernet (LAN), RS-232/485
User interface	Touchscreen, 7″ (17,78 cm)
Protocols	UDP, ASCII, Modbus
Software	FTControl, PDAnalyze
Light source	White LED light source
Housing	Table housing with mounting bracket for rack installation
Support options	Direct Remote Access
Operating system	Windows 10 IoT (LTSC)
Power supply	115 – 230 V, 50/60 Hz
Power consumption	Max. 120 W
Installation conditions	+5–+40 °C (control unit)
Dimensions	185 • 485 • 295 mm (H • W • D) (19″)
Weight	Control unit: approx. 8.5 kg, sensor: approx. 2.1 kg

APPLICATIONS

- Filter Testing and Separation
- Process Monitoring and Quality Control
- Environmental and Occupational Safety
- Research and Development
- Simultaneous Measurement of Raw and Purified Gas in Filter Test Benches

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