



Nanoparticle counter for ambient air monitoring with Nafion[®] aerosol dryer (optional) and high volume flow for up to $2 \cdot 10^6$ particles/cm³ (single count mode)

Description

The Palas[®] condensation particle counter ENVI-CPC 200 is a CPC for environmental ambient air monitoring. Model 200 is appropriate for high concentrations and offers single particle counting up to 2,000,000 particles/cm³. It can be used for ambient air monitoring without a dilution system.

The ENVI-CPC 200 can be equipped with an isothermal Nafion[®] aerosol dryer that has no consumables and can be used for months without maintenance. The humidity of the aerosol at the inlet is measured and controlled. Additionally, it has a second pump for the working fluid in order to suck it out of a large butanol reservoir. Due to those features it can operate for months without refilling the fluid reservoir.

The cut-off diameter is, as requested for ambient air monitoring CPCs, at 7 nm. Another advantage is the high aerosol flow rate of 1 l/min which reduces diffusion losses to a minimum. The ENVI-CPC 200 can be equipped with a powerful meteorological sensor that monitors ambient air temperature, pressure, humidity, wind speed, wind direction and precipitation type and intensity. A protective outdoor housing is available.

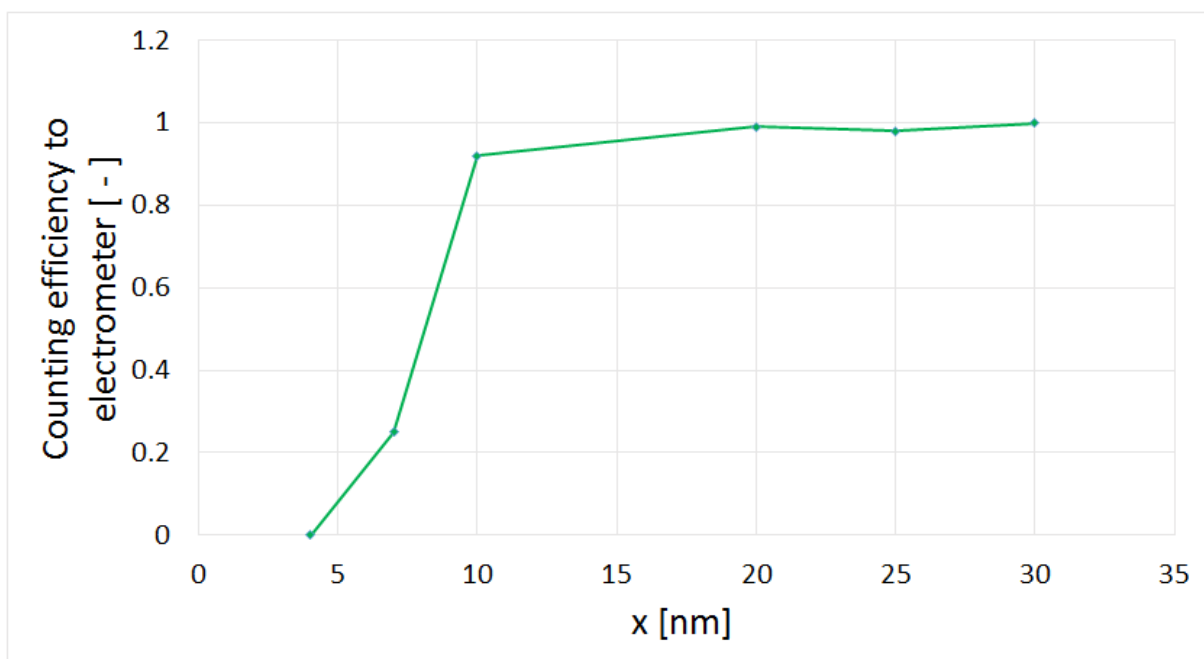


Fig. 1: Counting efficiency curve of the ENVI-CPC measured at the Leibniz Institute for Tropospheric Research

The control of the volume flow is enabled by an internal flow sensor with accessed long-life membrane pump. Contrary to a control with critical nozzle a contamination of the system does not lead to an drop of the volume flow. This is important especially for long-time measurements in ambient air. Additionally, the volume flow can be calibrated afterwards by the user.

As user interface the ENVI-CPC 200 has a 7" touch display. For remote and network applications the ENVI-CPC 200 supports a standardised interface with different protocol choices, e.g. Modbus, Bayern-Hessen protocol and features like remote access and data storage in the internet or in an internal network.

Benefits

- The unique, patented way of providing the working fluid for unattended operation of months
- Depending on the sensor used (exchangeable by the user), the ENVI-CPC counts up to 2,000,000 particles/cm³ in count mode
- Ambient air monitoring without dilution system
- Integrated computer with 7" touch screen
- Intuitive user interface with sophisticated software for data evaluation
- Integrated data logger
- Limitless integrated network connectivity that supports remote operation and data storage in the internet
- Powerful software package

Datasheet

Parameter	Description
Interfaces	USB, Ethernet (LAN), RS-232/485
Measurement range (size)	4 – 5,000 nm
Measurement range (number C_N)	$2 \bullet 10^6$ particles/cm ³ (single count mode)
Volume flow	0.9 l/min
Data acquisition	Digital, 20 MHz processor, 256 raw data channels
Light source	LED: High stability, long-lasting
User interface	Touchscreen, 800 • 480 pixel, 7" (17.78 cm)
Dimensions	33 • 38 • 24 cm (H • W • D)
Weight	Approx. 10 kg
Accuracy	5% (Einzelzählmodus)
Response time	$t_{90} = 3$ s
Operation liquid	Butanol
Installation conditions	+10 – +30 °C (others on demand)

Applications

- Aerosolforschung
- Umweltmessungen
- Umweltüberwachungsmessnetze
- Arbeitsplatzsicherheit und Studien zur Belastung am Arbeitsplatz
- Verkehrsemissionsüberwachung
- Gesundheitsstudien
- Mobile Studien zu Aerosolen

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