

CPC 5421-TR-CEN

19" Condensation Particle Counter

Calibrated according to CEN standard EN 16976:2024

- $D_{50} = 10 \text{ nm}$
- n-Butanol based CPC
- Long term operation butanol tank unit
- Inlet system with Nafion® based dryer



FEATURES

- Calibrated according to EN 16976:2024
- Compact 19" design
- Integrated pumps
- Long term butanol and condensate tanks
- Saturator shutter

TECHNICAL DATA

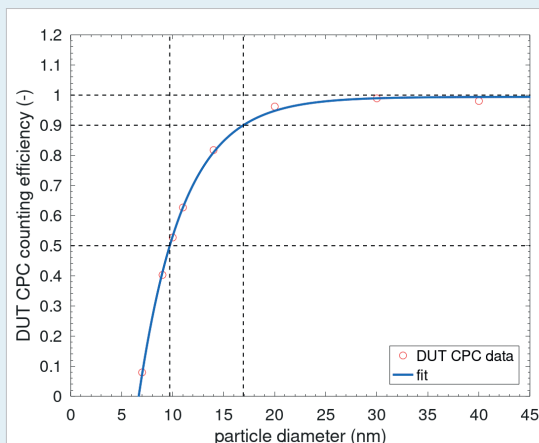
Measuring principle	Condensation particle counter
Measuring variable	Particle number concentration/cm ³
Working fluid	n-butanol (n-butyl alcohol)
Particle concentration range	• Single count mode: Up to 100,000 particles/cm³ (0.6 l/min sample flow) - Up to 150,000 particles/cm³ (0.3 l/min sample flow) • Photometric mode: Up to 10⁷ particles/cm³*
Particle concentration accuracy	Single count mode: ≥95% Photometric mode: ≥90%
Data output interval	1 ... 90 s (user selectable)
Counting efficiency	D ₅₀ = 10 ± 1 nm D ₉₀ ≤ 20 nm
Linearity slope	1 ± 0.05
Response time t ₁₀ ... t ₉₀	< 2 s (0.6 l/min sample flow) < 3 s (0.3 l/min sample flow)
Sample inlet pipe	• Nafion® based dryer • Drying of aerosol flow to ≤ 40% RH • Maximum particle losses ≤ 25% at 10 nm
Total inlet flow rate	1.8 l/min (through sample pipe)
CPC sample flow rate	0.3 or 0.6 l/min
Flow control	Critical orifices with stabilized temperature

- * For short-term measurements
 ** 0.6 l/min sample flow rate version
 *** Requires 19" rack rails
 **** Outdoor installation requires weather protection shelter

BENEFITS

- Harmonized UFP counting
- Easy integration in measurement stations
- No external vacuum required
- Unattended 24/7 operation for ≥ 3 weeks
- Prompt transport without butanol drying

Standards and certificates	• EN 16976:2024 • ISO 27891:2015 • List of ACTRIS compliant instruments**
Data recording	On PC with GRIMM 5475 nanoSoftware, on USB flash drive or direct USB/RS-232 read-out
Connectivity	USB, USB flash drive, RS-232, analog input for meteorological sensors, analog pulse output
Power requirements	110 ... 240 VAC; 50/60 Hz; maximum 130 W
Ambient aerosol conditions	• Temperature: -20 ... 40 °C (-4 ... 104 °F) • Humidity: 0 ... 95% RH, non-condensing • Absolute pressure range: 500 ... 1,100 mbar
Transport and storage	0 ... +50 °C (32 ... 122 °F), RH < 95%
Installation	• In 19" instrument rack*** • Indoor or outdoor**** protected environment • Temperature: 20 ... 30 °C (68 ... 86 °F) • Humidity: 0 ... 95% RH, non-condensing
System components	• CPC 5421-TR-CEN • 5438-1.5: Butanol and condensate tank unit • 182-1.5: 1.5 m sample pipe
Dimensions (h x w x d)	• CPC: 22 x 48 x 41 cm (8.7 x 19 x 16 in.) 5 height units 19" • Tank unit: 9 x 48 x 32 cm (3.5 x 19 x 12.6 in.) 2 height units 19" • Height with sample pipe: 182 cm (72 in.)
Weight	• CPC: 16.2 kg (35.7 lbs) • Tank unit: 4.1 kg (9 lbs) • Total with sample pipe: 23.3 kg (51.4 lbs)



CPC counting efficiency calibration according to CEN prEN 16976:2023

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