

# GRIMM CPC 5421 CEN 19" Condensation Particle Counter

Full compliance with CEN standard EN 16976:2024

- 24/7 real-time monitoring of UFP in ambient air
- $D_{50} = 10 \text{ nm}$
- n-Butanol based CPC with long term operation tank unit
- Inlet system with Nafion® based dryer



Digital version



## FEATURES

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

## TECHNICAL DATA

<b>Measuring principle</b>	Condensation particle counting
<b>Measuring parameter</b>	Particle number concentration/cm <sup>3</sup>
<b>Working fluid</b>	n-Butanol (n-butyl alcohol)
<b>Particle concentration range</b>	<ul style="list-style-type: none"> <li>• Single count mode: Up to 100,000 particles/cm<sup>3</sup> (0.6 l/min sample flow)</li> <li>Up to 150,000 particles/cm<sup>3</sup> (0.3 l/min sample flow)</li> <li>• Photometric mode: Up to 10<sup>7</sup> particles/cm<sup>3</sup> **</li> </ul>
<b>Particle concentration accuracy</b>	Single count mode: ≥ 95% Photometric mode: ≥ 90%
<b>Data output interval</b>	1 ... 90 s (user selectable)
<b>Counting efficiency</b>	D <sub>50</sub> = 10 ± 1 nm   D <sub>90</sub> ≤ 20 nm Other calibrations possible, e.g. D <sub>50</sub> = 4nm
<b>Linearity slope</b>	1 ± 0.05
<b>Response time t<sub>10</sub> ... t<sub>90</sub></b>	< 2 s (0.6 l/min sample flow) < 3 s (0.3 l/min sample flow)
<b>Sample inlet pipe</b>	<ul style="list-style-type: none"> <li>• Nafion® based dryer</li> <li>• Drying of aerosol flow to ≤ 40% RH</li> <li>• Maximum particle losses ≤ 25% at 10 nm</li> </ul>
<b>Total inlet flow rate</b>	1.8 l/min (through sample pipe)
<b>CPC sample flow rate</b>	0.3 or 0.6 l/min
<b>Flow control</b>	Critical orifices with stabilized temperature

- \* 0.3 l/min sample flow rate version
- \*\* 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 up to 6 weeks\*
- Easy transport: just close the saturator, no drying step required

<b>Standards and certificates</b>	<ul style="list-style-type: none"> <li>• EN 16976:2024</li> <li>• ISO 27891:2015</li> <li>• ACTRIS compliant instrument***</li> </ul>
<b>Data recording</b>	On PC with GRIMM 5475 nanoSoftware, on USB flash drive or direct USB/RS-232 read-out
<b>Connectivity</b>	USB, USB flash drive, RS-232, analog input for meteorological sensors, analog pulse output
<b>Power requirements</b>	110 ... 240 VAC; 50/60 Hz; maximum 130 W
<b>Ambient aerosol conditions</b>	<ul style="list-style-type: none"> <li>• Temperature: -20 ... 40 °C (-4 ... 104 °F)</li> <li>• Humidity: 0 ... 95% RH, non-condensing</li> <li>• Absolute pressure range: 500 ... 1,100 mbar</li> </ul>
<b>Transport and storage</b>	0 ... +50 °C (32 ... 122 °F), RH < 95%
<b>Installation</b>	<ul style="list-style-type: none"> <li>• 19" rack****</li> <li>• Indoor or outdoor***** protected environment</li> <li>• Temperature: 10 ... 25 °C (50 ... 95 °F)</li> <li>• Humidity: 0 ... 95% RH, non-condensing</li> </ul>
<b>System components</b>	<ul style="list-style-type: none"> <li>• CPC 5421</li> <li>• 5438-1.5: Butanol and condensate tank unit</li> <li>• 182-1.5: 1.5 m sample pipe</li> </ul>
<b>Dimensions (h x w x d)</b>	<ul style="list-style-type: none"> <li>• CPC: 22 x 48 x 41 cm (8.7 x 19 x 16 in.) 5 height units 19 in.</li> <li>• Tank unit: 9 x 48 x 32 cm (3.5 x 19 x 12.6 in.) 2 height units 19 in.</li> <li>• Height with sample pipe: 182 cm (72 in.)</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>• CPC: 16.2 kg (35.7 lbs)</li> <li>• Tank unit: 4.1 kg (9 lbs)</li> <li>• Total with sample pipe: 23.3 kg (51.4 lbs)</li> </ul>

