

EDM 465

Ultra-fine particle counter

For real-time monitoring of ultrafine particles –
CPC performance according to CEN/TS 16976:2016

- Fully automatic 24/7 monitoring system
- Temperature-controlled weather housing



Features

- Real-time monitoring of ultrafine particles
- Fully automatic 24/7 monitoring system
- Temperature-controlled weather housing
- Energy-efficient sampling with isothermal drying system
- Various meteorological sensors

Technical data

Detection principle	Condensation particle counter
Working fluid	n-butanol (n-butyl alcohol)
Output	Particle number concentration/cm ³
Particle concentration range	Single count mode: up to 150 000 particles/cm ³ Photometric mode : up to 10 ⁷ particles/cm ³
Reproducibility	Single count mode: > 95% Photometric mode: > 90%
Particle size range	4.0 nm ... 1 µm D ₅₀ = 7 nm (measured with silver particles) D ₉₀ < 14 nm
Response time	t _{rise} < 5 s, t _{fall} < 5 s
Sampling and conditioning	1 m sampling pipe with sampling head, isothermal humidity extraction via Nafion membrane, senso-controlled
CPC Sample flow rate	0.3 l/min pulse-free carbon vane pumps
Total inlet flow rate	1.5 l/min, ≤ 5% difference to the nominal flow rate
Flow control	Critical orifice with stabilized temperature
Diffusion losses	< 30% for smallest relevant particle size of 7 nm

Benefits

- CPC performance according to CEN/TS 16976:2016
- 30 days unattended operation
- Low maintenance
- Remote access via data logger with GSM connection
- High precision at low and high concentrations
- Excellent counting statistics and reproducibility

Weather housing	Stainless steel, powder-coated, thermally isolated, temperature-controlled
Meteorological sensors	Wind speed and direction, precipitation, pressure, temperature relative humidity; GPS positioning
Data recording	Data logger and netbook integrated in housing for online data, optionally on USB flash drive
Connectivity	Data logger, USB, GSM with SIM card for mobile network, analog input for meteorological sensors
Power requirements	110 ... 220 VAC, 50 ... 60 Hz; 100 ... 150 W
Operating conditions	<ul style="list-style-type: none"> • Ambient temperature: -20 ... 40 °C (-4 ... 104 °F), RH < 95% • Ambient humidity: 0 ... 95% RH, non-condensing • Absolute pressure range: 500 ... 1100 mbar
Transport and storage	0 ... 50 °C (32 ... 122 °F), RH < 95%
Dimensions (h x w x d)	<ul style="list-style-type: none"> • Housing: 49 x 28 x 65 cm (19.3 x 11 x 25.6 inch), • Total height with sampling pipe and meteorological sensor: 140 cm (55.1 inch)
Weight	38 kg (83 lbs)

