

SMPS+C

Scanning Mobility Particle Sizer with Condensation Particle Counter

- Reliable nanoparticle sizing and counting
- DMA-controller and CPC in one instrument
- Vienna type Differential Mobility Analyzers



Features

- **Vienna type Differential Mobility Analyzers (DMAs)**
 - Two size ranges (M and L-DMA)
 - Integrated high voltage power supply
 - Integrated temperature and pressure sensors
 - Integrated pre-impactor
- **n-butanol based CPC**
 - $D_{50} = 4.0$ nm
 - Droplet size control
 - Saturator shutter
- **Integrated DMA controller**
 - 3.0 l/min sheath air flow supply
 - High voltage control for DMA
- **Internal sample air and sheath air pumps**

Benefits

- **Suitable for many nanoparticle applications**
 - Fundamental aerosol research
 - Workplace monitoring
 - Inhalation and exposure studies
 - Studies on atmospheric nucleation
- **All in one solution**
 - Ready to use
 - Status control via LEDs for CPC and SMPS functionality
 - 5477 nanoSoftware for Sizers
- **Different neutralizer options**
- **U-DMA option**
 - Easy conversion of DMA classification length

Technical data

Measurement principle	Electrostatic classification with subsequent detection in a condensation particle counter
Particle size range	<ul style="list-style-type: none"> • M-DMA: 5 ... 350 nm • L-DMA: 10 ... 1094 nm
Particle size resolution	<ul style="list-style-type: none"> • Stepping mode: 45 ... 255 channels • Scanning mode: 64 channels per decade; logarithmic spacing
Maximum particle concentration	Up to 10^7 particles/cm ³ depending on aerosol neutralizer
Min. scan time	150 s
DMA parameters	$R_i = 26$ mm; $R_o = 40$ mm $L = 88$ mm (M) or 350 mm (L)
Output HV module	5 ... 10 000 V positive polarity; negative polarity on request
Working fluid CPC	n-butanol (n-butyl alcohol)
Response time CPC	$t_{10} \dots t_{90} < 3$ s
Aerosol sample air flow rate	0.3 l/min
DMA sheath air flow rate	3.0 l/min
Flow control	Critical orifices with stabilized temperature
Connectivity	USB, USB flashdrive, RS-232, analog pulse output, analog input for meteorological sensors
Power requirements	90 ... 264 VAC; 47 ... 63 Hz; wide range power supply 80 ... 130 W

Operating conditions	<ul style="list-style-type: none"> • Ambient temperature: 10 ... 40 °C (50 ... 104 °F) • Ambient humidity: 0 ... 95 % RH, non-condensing • Absolute pressure range: 500 ... 1 100 mbar
Transport and storage	0 ... +50 °C (32 ... 122 °F), RH < 95%
DMA	
Dimensions (h x w x h)	<ul style="list-style-type: none"> • M-DMA: 23.4 x 14 x 15.6 cm (9.2 x 5.5 x 6.1 inch) • L-DMA: 47.8 x 14 x 15.6 cm (18.8 x 5.5 x 6.1 inch)
Weight	<ul style="list-style-type: none"> • M-DMA: 5.7 kg (12.6 lbs) • L-DMA: 7.9 kg (17.3 lbs)
5416 CPC	
Dimensions (h x w x h)	40 x 25 x 29 cm (15.7 x 9.8 x 11.4 inch)
Weight	12.4 kg (27.3 lbs)



Optional accessories: 55-U DMA; universal DMA conversion kit