

SMPS+E

Scanning Mobility Particle Sizer

With Faraday Cup Electrometer

- Aerosol size spectrometer covering 0.8 ... 1094 nm
- All in one solution, ready to use
- Vienna type Differential Mobility Analyzers



Features

- **Vienna type Differential Mobility Analyzers (DMAs)**
 - Three size ranges (S, M, L-DMA)
 - Integrated high voltage power supply
 - Integrated temperature and pressure sensors
 - Integrated pre-impactor (optional)
- **5705 Faraday Cup Electrometer (FCE)**
 - Fast response time
 - High sensitivity + low noise level
- **5706 DMA controller**
 - Flow control for sheath air and sample air
 - High voltage control for DMA
 - Analog input for additional sensors

Technical data

Measurement principle	Electrostatic classification with subsequent detection in a faraday cup electrometer
Particle size range	Depending on sheath flow rate and DMA; typical ranges: • S-DMA: 0.8 ... 53 nm • M-DMA: 5 ... 350 nm • L-DMA: 10 ... 1094 nm
Particle size resolution	• Stepping mode: 45 ... 255 channels • Scanning mode: 64 channels per decade • Logarithmic spacing
Maximum particle concentration	Up to 10 ⁷ particles/cm ³ , depeding on aerosol neutralizer
DMA parameters	R _i = 26 mm, R _o = 40 mm, L= 15 mm (S), 88 mm (M), or 350 mm (L)
Output HV module	5 ... 10 000 V positive polarity; negative polarity on request
Maximum current detectable by FCE	± 4000 fA
Response time FCE	t ₁₀ ... t ₉₀ : 200 ms
Aerosol sample flow rate	1 ... 5 l/min
DMA sheath air flow rate	3 ... 20 l/min
FCE rinsing air flow rate	0.6 l/min
Connectivity	RS-232
Power requirements	230 V/50 Hz; optional 110 V/60 Hz
Operating conditions	• Ambient temperature: 0 ... 40 °C (32 ... 104 °F) • Ambient humidity: 0 ... 95% RH, non-condensing • Absolute pressure range: 600 ... 1100 mbar

Benefits

- **Suitable for many nanoparticle applications**
 - Fundamental aerosol research
 - Engine exhaust studies
 - Optimization of combustion processes
- **All in one solution**
 - Ready to use
 - No consumables
 - 5477 nanoSoftware for Sizers
- **Different neutralizer options**
- **U-DMA option: Easy conversion of DMA classification length**

DMA	
Dimensions (h x w x d)	• S-DMA: 16.1 x 14 x 15.6 cm (6.3 x 5.5 x 6.1 inch) • 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	• S-DMA: 5.6 kg (12.2 lbs) • M-DMA: 5.7 kg (12.6 lbs) • L-DMA: 7.9 kg (17.3 lbs)
FCE 5705	
Dimensions (h x w x d)	19 x 9 x 9 cm (7.5 x 3.5 x 3.5 inch)
Weight	1.36 kg (3.0 lbs)
DMA controller 5706	
Dimensions (h x w x d)	31 x 25.5 x 22 cm (12.2 x 10.0 x 8.7 inch)
Weight	12.2 kg (26.9 lbs)



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