

# 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

## 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**

## Technical data

<b>Measurement principle</b>	Electrostatic classification with subsequent detection in a faraday cup electrometer
<b>Particle size range</b>	Depending on sheath flow rate and DMA; typical ranges: <ul style="list-style-type: none"> <li>• S-DMA: 0.8 ... 53 nm</li> <li>• M-DMA: 5 ... 350 nm</li> <li>• L-DMA: 10 ... 1094 nm</li> </ul>
<b>Particle size resolution</b>	<ul style="list-style-type: none"> <li>• Stepping mode: 45 ... 255 channels</li> <li>• Scanning mode: 64 channels per decade</li> <li>• Logarithmic spacing</li> </ul>
<b>Maximum particle concentration</b>	Up to 10 <sup>7</sup> particles/cm <sup>3</sup> , depending on aerosol neutralizer
<b>DMA parameters</b>	R <sub>i</sub> = 26 mm, R <sub>o</sub> = 40 mm, L = 15 mm (S), 88 mm (M), or 350 mm (L)
<b>Output HV module</b>	5 ... 10 000 V positive polarity; negative polarity on request
<b>Maximum current detectable by FCE</b>	± 4000 fA
<b>Response time FCE</b>	t <sub>10</sub> ... t <sub>90</sub> : 200 ms
<b>Aerosol sample flow rate</b>	1 ... 5 l/min
<b>DMA sheath air flow rate</b>	3 ... 20 l/min
<b>FCE rinsing air flow rate</b>	0.6 l/min
<b>Connectivity</b>	RS-232
<b>Power requirements</b>	230 V/50 Hz; optional 110 V/60 Hz
<b>Operating conditions</b>	<ul style="list-style-type: none"> <li>• Ambient temperature: 0 ... 40 °C (32 ... 104 °F)</li> <li>• Ambient humidity: 0 ... 95% RH, non-condensing</li> <li>• Absolute pressure range: 600 ... 1100 mbar</li> </ul>

DMA	
<b>Dimensions (h x w x d)</b>	<ul style="list-style-type: none"> <li>• S-DMA: 16.1 x 14 x 15.6 cm (6.3 x 5.5 x 6.1 inch)</li> <li>• M-DMA: 23.4 x 14 x 15.6 cm (9.2 x 5.5 x 6.1 inch)</li> <li>• L-DMA: 47.8 x 14 x 15.6 cm (18.8 x 5.5 x 6.1 inch)</li> </ul>
<b>Weight</b>	<ul style="list-style-type: none"> <li>• S-DMA: 5.6 kg (12.2 lbs)</li> <li>• M-DMA: 5.7 kg (12.6 lbs)</li> <li>• L-DMA: 7.9 kg (17.3 lbs)</li> </ul>
FCE 5705	
<b>Dimensions (h x w x d)</b>	19 x 9 x 9 cm (7.5 x 3.5 x 3.5 inch)
<b>Weight</b>	1.36 kg (3.0 lbs)
DMA controller 5706	
<b>Dimensions (h x w x d)</b>	31 x 25.5 x 22 cm (12.2 x 10.0 x 8.7 inch)
<b>Weight</b>	12.2 kg (26.9 lbs)



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