

# A20 bCPC

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Airmodus Condensation Particle Counters are designed to count individual aerosol particles accurately from very low to high concentrations. They are ideal for ambient air monitoring as well as aerosol research.

The A20 is a robust and reliable tool for aerosol particle measurements in all applications where precision and sensitivity is of the essence. It is a user-friendly tool for counting aerosol particles larger than 5 nm (by request A20 can be delivered with a cut-off between 5 – 10 nm, e.g. for ambient measurements 7 nm).

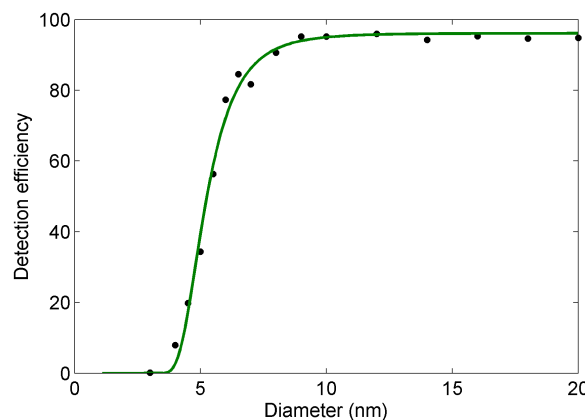
## A versatile particle counter

The A20 can be used both as a stand-alone instrument for measuring the total particle number concentration, and as a counter in different kinds of aerosol measurement systems. It is **easy to use and handle**. All settings can be quickly adjusted from a handy touch screen, which also displays the current concentration reading and instrument diagnostics.

*The A20 is also compatible with the Airmodus Particle Size Magnifier A10. Use the A10 when you want to study particles as small as 1 nm!*

## Benefits of the A20

- High statistics for low concentrations: *the instrument is specially designed for precise particle counting and the sample flow is not diluted*
- High accuracy for high concentrations: up to 30 000#/cm<sup>3</sup> in single particle counting mode, for higher concentrations the Total Scattering Mode Correction is automatically applied
- In addition to the easy to use touch screen, adjusting the settings and data logging is easy. User-friendly operation software is delivered with the instrument
- All connections optimized for easy access



# A20 bCPC Specifications

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<b>Particle size range</b>	5 nm – 2.5 µm Dp50% = 5 nm* (on request 5 – 10 nm)
<b>Concentration</b>	0 – 100 000 #/cm <sup>3</sup> Up to 30 000 #/cm <sup>3</sup> in single particle counting mode with coincidence <10%; higher concentrations with Total Scattering Mode Correction
<b>Aerosol sample flow</b>	Nominal flow 1 lpm, controlled with a critical orifice
<b>Response time</b>	t <sub>95</sub> 1.15 s**
<b>False counts</b>	<0.001 #/cm <sup>3</sup>
<b>Working fluid</b>	n-Butanol (>99.5%)
<b>Operating temperatures</b> (Dp50% = 5 nm*)	Saturator: 39°C Condenser: 15°C Optics: 40°C
<b>Sample conditions</b>	Pressure: 75 to 105 kPa Relative humidity: 0 to 95% non-condensing (preferably <40%***)
<b>Environmental conditions</b>	Temperature: 15°C to 35°C Pressure: 75 to 105 kPa Relative humidity: 0 to 95% non-condensing
<b>Communication</b>	<i>Analog in:</i> BNC connector, 0 to 10 V (reading data of external sensor) <i>Analog out:</i> BNC connector, 0 to 10 V, user-selectable function output (linear concentration, also DMA voltage control) <i>Pulse out:</i> BNC connector <i>Serial:</i> RS-232 <i>Ethernet:</i> RJ45 <i>USB:</i> type B connector  All communication based on ASCII character-encoding scheme.
<b>Fittings</b>	<i>External Vacuum:</i> 1/4 in. stainless steel tube <i>Inlet:</i> 1/4 in. stainless steel tube
<b>Software</b>	Airmodus A2X software for online data acquisition (for Microsoft Windows, 7 or newer)
<b>External vacuum requirement</b>	100 - 400 mbar pressure at NTP (or <40% of inlet pressure)
<b>Power requirements</b>	Instrument uses an external power adaptor (provided with the instrument)  Power adaptor input: 100 - 240 VAC 50/60 Hz max. 160 W  Power adaptor output: 12VDC 11.5 A
<b>Dimensions and weight</b>	260x230x400 (height x width x depth in mm) 10.5 kg
<b>Shipping conditions</b>	Temperature: 0 - 40°C Relative humidity: <95% non-condensing The instrument should be shipped in upright position and should be protected against tremor and blows.

\*) Cut-off size in mobility equivalent diameter. See calibration certificate. On request the cut-off can be calibrated to be in the range 5 – 10 nm.  
Note: When delivered as part of an A11 nCNC system, the A20 CPC is delivered with a cut-off of about 10 nm.

\*\*\*) Enroth et al. 2018. <https://doi.org/10.1080/02786826.2018.1460458>

\*\*\*) With high relative humidity, an aerosol drier should be used to prevent excess water condensation inside the instrument.  
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