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Find the *Brookhaven BI-9000AT* at our website: *Click HERE*

BI-9000AT: Digital Autocorrelator and Photon Counter. For Dynamic and Static Light Scattering

The new **BI-9000AT** Digital Correlator is an advanced and extremely versatile digital photon correlator and counter designed for use in static (SLS) and dynamic (DLS) light scattering. It is supplied in the form of a single PCI or ISA compatible card with control software for installation in a PC.



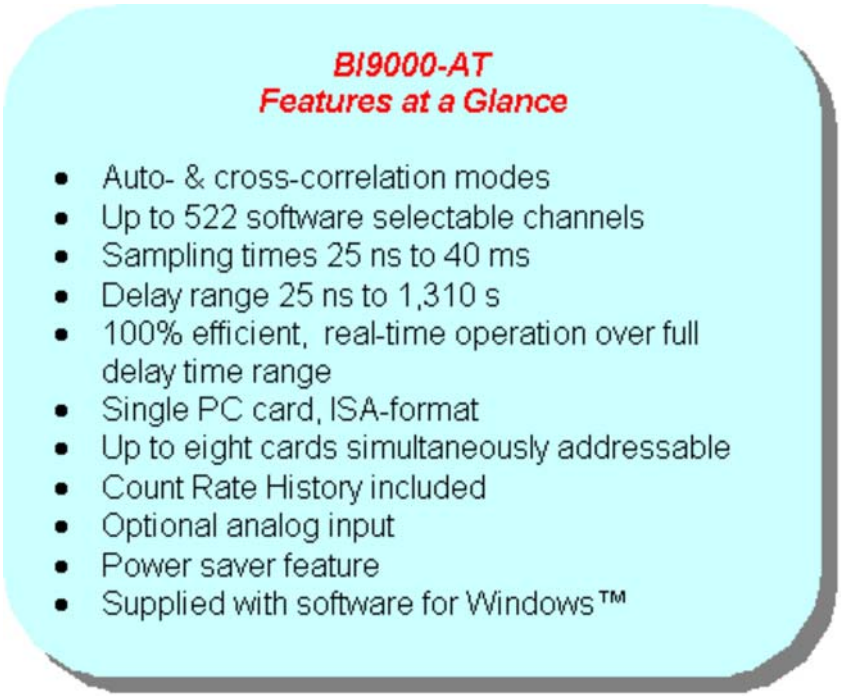
The BI-9000AT Autocorrelator, PCI version shown, ISA also available

The BI-9000AT has an adjustable delay range capable of producing a contiguous correlation function from 25 ns to 1,310 s representing a time axis that spans more than 10 decades in the standard configuration. The middle and low speed circuits can be operated as independent correlators, simultaneously processing different input signals. This can be used, for example, to correlate two light scattering signals from different detector angles simultaneously. Or, for cross correlating two signals originating from two different positions in a liquid.

An on-board microprocessor on each correlator card controls the circuits and collects the correlation function(s). This relieves the CPU of the host computer of many tasks and allows up to eight correlator cards to be run simultaneously in a single computer. Unlike other correlators, the BI-9000AT requires no prescaling.

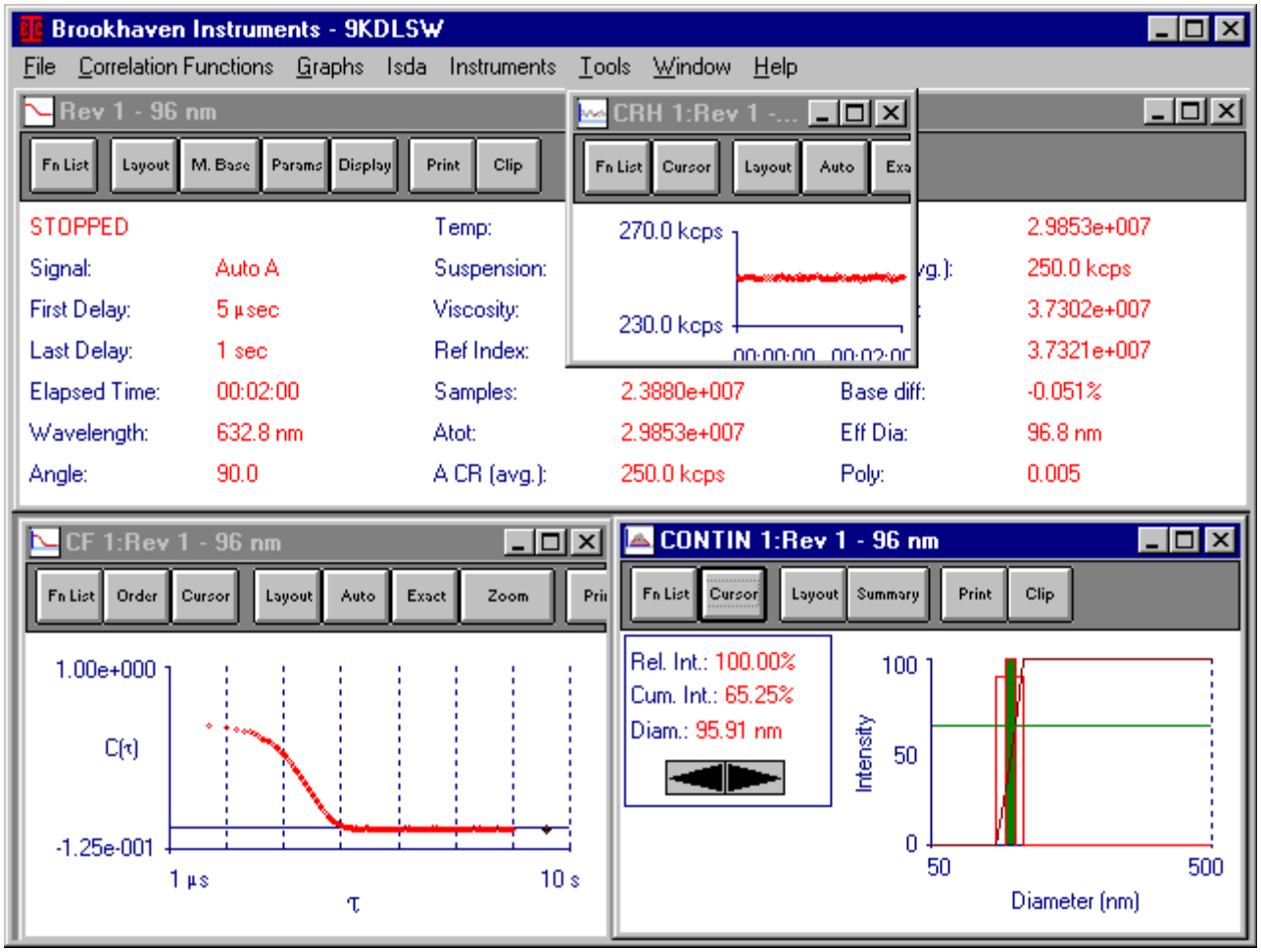
Operating modes The BI-9000AT digital correlator can be used for real-time operation in both auto- and cross-correlation modes. It is 100% efficient in either mode over the entire delay time range. Through the software, the user can select the number of channels, in either linear or constant ratio spacing, up to a total of 522 channels (including the 12, optional, 25 ns channels)

The BI-9000AT is available as a single ISA or PCI format card for installation into a computer. It is normally supplied with a state-of-the-art Pentium based system. The BI-9000AT can be used for a wide variety of applications including static and dynamic light scattering measurements.



Brookhaven offers a number of software programs suitable for use with the BI-9000AT and the BI-200SM laser light scattering goniometer system. These applications include particle sizing by dynamic light scattering (cumulants, NNLS, CONTIN, REPES, exponential sampling, double exponential, generalized exponential, Gaussian), characterization of gels and glass transitions (Williams-Watts), molecular weight measurements by total intensity methods (Zimm, Berry and Debye plots), and the BI-IST program used for alignment/stability purposes with the BI-200SM.

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BI9000-AT
Typical Applications

- Particle sizing,
- Molecular weights,
- Gels,
- Glass transitions,
- Concentrated colloidal suspensions,
- Polymer solutions.

BI-9000AT Specifications:

Format: Both ISA and PCI versions are available, Card length is 33.5cm. Four signal-input connectors and two low voltage outputs.

Channel Layout

Section	Channels	Sampling Time Range	Maximum Time Delay	Multiplier Bits
Low Speed	1 to 240	50 us to 40 ms	1,310 s (40 ms)	16 x 16

Mid Speed	1 to 256	500 ns to 100 us	1.6 s (100 us)	8 x 8
Std High Speed	14 Channels at 100, 200, 300, 400, 500, 600, 800 ns, 1.0, 1.2, 1.4, 1.6, 2.0 and 2.4 us			
Opt High Speed	12 Channels at 25, 50, 75, 125, 150,175, 225, 250, 275, 325, 350 and 375 ns			

Maximum Number of Channels: 240 + 256 + 14 + 12 = 522
Delay Time Axis: User selectable (except fixed channels) from linear, constant ratio, or as individual time points recalled from user files by name.
Dynamic Range: Over 10 decades (25 ns to 1,310 seconds).
Operation Modes: Automatic and Manual. User definable macro commands to write, save, and recall unlimited number of sequences for single keystroke implementation.
Maximum Count Rate: 4 x 10^7 per second.
Standard Input Levels: TTL, 50 ohm input impedance, 5 ns minimum pulse width. Other levels via, optional, external converter.
Dimensions: Full AT-compatible Bus Card
Weight: 100 g, without computer.
Power Requirements: ISA compatible bus, 22 Watts per card, 12 W with Power Saver Feature.
Power Saver: Automatically removes power from unneeded high speed channels.
Environmental Characteristics: Temperature 10.0 C to 75.0 C, Humidity 0% to 95%, non-condensing.

Options:
BI-25NS: Twelve, 25 ns channels.
B-ANIN: Analogue input.
BI-CON: Stepping motor controller, for use with the **BI-200SM** goniometer and accessories.
BI-ISTW: Alignment/Stability Software.
BI-ZPW: Zimm plot software.
BI-ISDAW: Particle size distribution software
BI-PCSW: Simple Cumulants (DLS) Software.
BI-SLSW: Particle and fluid structure algorithms: Guinier, Kratky, Fractal, R_g, ln (I_{ex}) vs q.
BI-NT: Special drivers for Windows NT (TM), contact factory.

A policy of continued improvement may lead to specification changes

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