Brookhaven Instruments

TurboCorr

Digital Autocorrelator

Features at a Glance

- Compact size, low power requirements; less than 300 mW

- Auto & cross-correlation software

- Up to 522 hardware channels

- Sampling time 25 ns to 40 ms

- Delay range 25 ns to 1,310 s

The new **TurboCorr** Digital Autocorelator is the successor to the BI-9010AT. The new correlator card is designed using a cutting edge digital signal processor (DSP) which allows all the circuits to be embedded in a single, high density chip. The benefits of this design include full, in-system programmability, significantly reduced power consumption as compared to the BI-9010AT, and a compact design. The **TurboCorr** now uses USB communications for enhanced portability and compatability.

The **TurboCorr** is an advanced and extremely versatile digital photon correlator and counter designed for use in dynamic and static light scattering (DLS & SLS).

The **TurboCorr** 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. 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. 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. Unlike other corelators, the **TurboCorr** never requires prescaling.

Applications

- Particle sizing

- Molecular weight determination

- Polymer solutions

- Glass transitions

- Concentrated colloidal suspensions

TurboCorr - Digital Autocorrelator
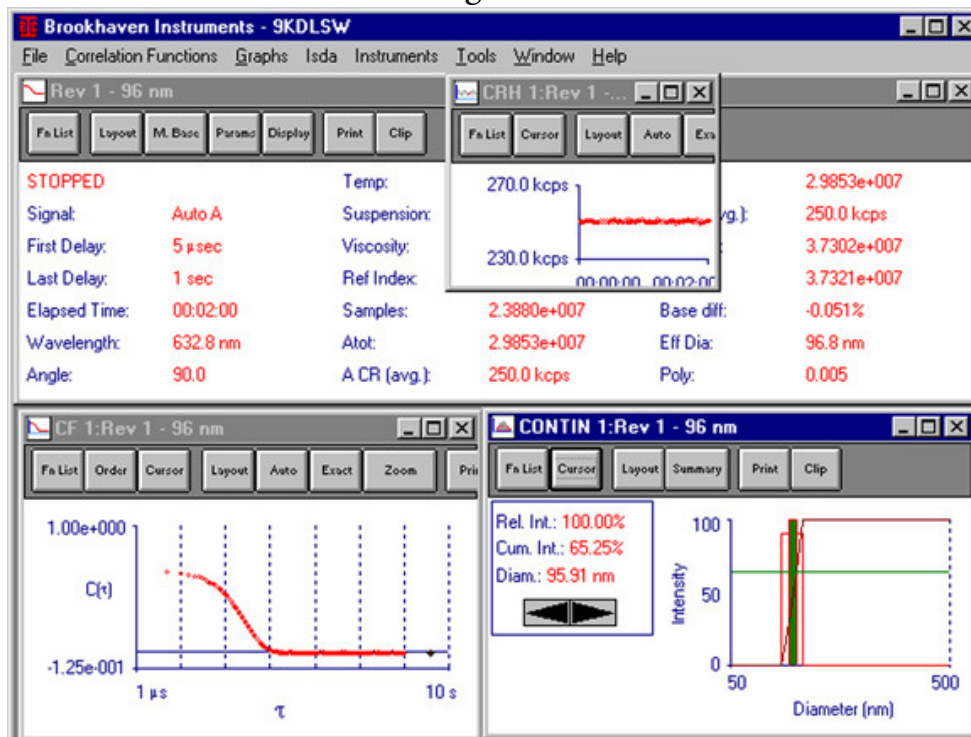
Screen shot of TurboCorr operated with advanced control software provided by Brookhaven Instruments.

Specifications

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 defined macro commands to write, save, and recall unlimited number of sequences for a single keystroke implementation
Maximum Count Rate	4 x 107 counts per second
Standard Input Levels	TTL, 50 ohm input impedance, 5 ns minimum pulse width; other levels via optional external converter
Dimensions	27 x 89 x 70 HWD in mm
Weight	85 g
Power Requirements	300 mW per card

A policy of continual improvement may lead to specification changes.

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