

Tetra Detector Array



The Tetra Detector Array is an integrated multi-detector device that combines light scattering with viscometry and concentration detectors to fully characterize your sample and maximize the information content of your GPC/SEC experiment.

The Viscotek Model 302-050 Tetra Detector Array is a revolutionary, integrated multiple-detector device with temperature control from ambient to 80°C. It is designed for the characterization of natural and synthetic polymers and copolymers, proteins, protein conjugates, excipients and other macromolecules. In a single GPC/SEC experiment, the Tetra Detector will provide:

- Absolute molecular weight without the assumptions, extrapolations or corrections required by alternative techniques.
- Molecular size expressed as Hydrodynamic Radius (Rh) to less than 1 nm and Radius of Gyration (Rg).
- Intrinsic viscosity or molecular density.
- Information on structure, conformation, aggregation, branching and copolymer or conjugate composition.

The Model 302-050 Tetra Detector Array consists of a Differential Refractive Index (RI) Detector, UV, four-capillary Differential Viscometer Detector and a Low Angle Light Scattering (LALS) Detector. All the detectors reside within a temperature-controlled compartment which also has space for 3-5 analytical GPC columns. This arrangement minimizes inter-detector volumes to reduce band-broadening effects and insures that detectors, inter-detector tubing, columns and sample reside at the same temperature throughout the course of the analysis.

for more information visit us @ www.viscotek.com

Viscotek is the leading provider of comprehensive GPC/SEC solutions, featuring multiple detection for the characterization of natural and synthetic polymers and proteins. Viscotek's innovative products and technologies are backed by expert-level technical service and analytical support.



The detectors in the Tetra Detector Array are arranged in a unique series configuration as follows: UV- light scattering - differential refractometer - differential viscometer. This configuration, with the viscometer placed after the RI, eliminates viscometer dilution effect and break-through, hence increasing sample throughput capability and efficiency of operation.

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Technical Specifications

Oven

Temperature Range: Ambient–80°C

Oven Space: 7.25 inches(w) x 10.25 inches(h) x 15.25 inches(d)

Light Scattering Detector

Right Angle Light Scattering Detector uses a 90° angle geometry for maximum signal-to-noise.

Low Angle Light Scattering Detector uses a 7° angle geometry that requires no extrapolation or correction.

Cell Volume: 18 microliters

Maximum Backpressure on Cell: 15 psi

Maximum Signal: 2.5 volts

Baseline Noise: 0.4 millivolts

Baseline Drift: 3.0 millivolts/hour

Light Source: laser at 670 nm wavelength

Viscometer Detector

Patented 4 capillary, differential Wheatstone bridge configuration.

Bridge Volume: 72 microliters

Maximum Flow Rate: 1.5 ml/min (H₂O); 3.0 ml/min (THF)

DP Noise Maximum: 0.7 millivolts

DP Noise Typical: < 0.5 millivolts

DP Drift Typical: < 3.0 millivolts/hour

Sensitivity: 2.0 x 10⁻⁵ Specific Viscosity

Transducer Linearity: < 1%

Shear Rate: 3000 sec⁻¹

Refractive Index Detector

Deflection type with reference cell included.

Cell Volume: 12 microliters

Maximum Backpressure on Cell: 5 psi

Maximum Signal: 2.5 volts

Baseline Noise: 0.3 millivolts, 3.0 x 10⁻⁸ RI units

Baseline Drift: 3.0 millivolts/hour

Light Source: light emitting diode (LED) at 660 nm wavelength

UV Detector

Variable wavelength and equipped with fiber optics.

Cell Volume: 10 microliters

Sensitivity: 2 x 10⁻⁵ AU at 240 nm and time constant 1.0 s

Baseline Noise: 1 x 10⁻⁵ AU at 240 nm

Baseline Drift: 15 x 10⁻⁵ AU/h at 240 nm

Light Source: deuterium lamp with wavelengths from 190 to 740 nm

Wavelength accuracy: +/- 2 nm

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