



TORONTECH

ION CHROMATOGRAPH - TORON-IC™ 500+ (MULTI-FUNCTIONAL)



Ion Chromatograph - Toron-IC™ 500+ (Multi-functional)

Toron-IC™ 500+ is a high-performance, modular ion chromatograph designed to deliver precision and flexibility for complex laboratory workflows. Supporting a wide range of analytical needs, the system enables the accurate separation of anions, cations, and polar compounds through versatile detection options, including conductivity, amperometric, and UV-Vis technologies.

Engineered for scalability, the Toron-IC™ 500+ features a robust dual-pump, dual-channel architecture that supports multi-channel expansion and high-pressure operation. Its chemically inert PEEK flow path, combined with intelligent temperature control and integrated degassing, ensures exceptional baseline stability and long-term reliability, making it an ideal solution for the most demanding analytical environments.

APPLICATIONS

Ion Chromatograph - Toron-IC™ 500+ (Multi-functional) Applications

The Toron-IC™ 500+ Ion Chromatograph has extensive applications across various sectors:

- **Water Analysis:** Used in environmental testing for detecting anions and cations in drinking water, wastewater, and surface water.
- **Quality Control (Pharmaceuticals):** Supports the testing of raw materials and finished products.
- **Food & Beverage:** Essential for analyzing inorganic ions, preservatives, and additives.
- **Industrial Monitoring:** Employed in chemical and petrochemical laboratories for process monitoring and impurity analysis.
- **Trace Contamination:** Utilized in the power and electronics industries for analyzing trace ionic contamination.

- Research & Development: Valuable for academic and research laboratories requiring method development and multi-detector flexibility.



FEATURES

Ion Chromatograph - Toron-IC™ 500+ (Multi-functional) Key Features

Core System Flexibility and Expandability

- **Multi-Detector Compatibility for Comprehensive Analysis:** The system is designed to support a broad spectrum of detection techniques, offering seamless compatibility with conductivity, amperometric, and UV-Vis detectors. This versatility allows users to configure the system for a diverse array of ionic and polar compound analyses, from standard inorganic ions to complex organic species.
- **Modular System Architecture for Future-Proof Investment:** Built upon a modular system architecture, the Toron-IC offers exceptional flexibility. This design enables easy customization of the current configuration and ensures the system can be readily expanded and upgraded in the future as analytical requirements evolve, protecting the initial investment.
- **Dual-Pump, Dual-Channel Capability with Expansion Potential:** At its core, the system utilizes a powerful dual-pump, dual-channel design, allowing for simultaneous analysis of two different methods or sample types. This capacity can be further expanded up to four analytical channels, significantly increasing throughput and laboratory efficiency.

Advanced Fluidics and Pumping Technology

- **High-Pressure Quaternary Pumping for Unmatched Stability:** The system is equipped with a sophisticated high-pressure quaternary pump. This technology is crucial for delivering a stable and reproducible flow rate with minimal pressure fluctuation, ensuring the highest level of chromatographic repeatability and accuracy, even when using complex gradients.
- **Integrated Vacuum Degasser for Enhanced Baseline Quality:** An integrated vacuum degasser actively removes dissolved gases from the mobile phase. This critical feature improves baseline stability, minimizes noise and drift, and

enhances overall analytical repeatability by preventing bubble formation within the flow path and detector cell.

- **Chemically Inert Flow Path for Universal Compatibility:** The entire flow path is constructed from chemically inert PEEK (Polyether Ether Ketone) material. This robust construction ensures excellent chemical compatibility across the entire pH range of 0–14 aqueous eluents, making the system suitable for both acidic and basic separations without the risk of corrosion or metal contamination.

Automated Eluent Generation and Temperature Control

- **Built-in Eluent Generator for Reproducible Runs and Convenience:** The inclusion of a built-in eluent generator eliminates the need for manual preparation of corrosive eluents, dramatically reducing preparation time and operational errors. It reliably supports the generation of key eluents, including KOH, NaOH, LiOH, and MSA (Methanesulfonic Acid), ensuring highly reproducible results run after run.
- **Advanced Temperature-Controlled Column Compartment for Reproducible Separations:** The system features an advanced temperature-controlled column compartment. Precise thermal regulation is vital for maintaining consistent column performance, especially in sensitive ion separations. This compartment ensures the temperature remains stable, thereby guaranteeing reproducible separations regardless of ambient lab conditions.

Intelligent Monitoring and Control

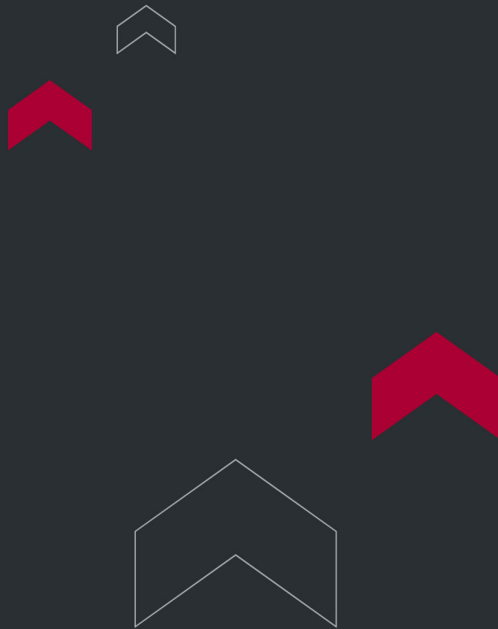
- **Dual-Terminal Control for Operational Flexibility:** The Toron-IC offers flexible control options with dual-terminal support, allowing the system to be controlled via a dedicated PC workstation or a portable tablet (PAD). This provides operational convenience whether at the bench or from a distance.
- **Ultrasonic Liquid-Level Monitoring for Uninterrupted Operation:** An innovative ultrasonic liquid-level monitoring system is integrated to provide real-time, non-contact measurement of solvent and eluent reservoirs. This intelligent feature provides users with instant feedback on water usage and the remaining run-time estimation, allowing for proactive management of resources and preventing runs from being interrupted due to dry reservoirs.

TECHNICAL SPECIFICATIONS

Ion Chromatograph - Toron-IC™ 500+ Technical Specifications

Parameter	Specification
Instrument Type	Ion Chromatograph
Model	Toron-IC™ 500+
Detector Options	Conductivity, Amperometric, UV-Vis
Conductivity Detector Range	0-50,000 µS/cm
Conductivity Resolution	≤ 0.0020 nS/cm
UV-Vis Wavelength Range	190-740 nm
Amperometric Signal Range	10 pA-200 µA
Minimum Detectable Concentration	Cl ⁻ ≤ 0.0001 µg/mL; Li ⁺ ≤ 0.0001 µg/mL
Pump Type	High-pressure dual-piston quaternary pump
Maximum Pump Pressure	42 MPa
Flow Rate Range	0.001-12 mL/min
Flow Stability	≤ 0.2%
Pressure Ripple	≤ 0.5%
Autosampler Capacity	120 × 2 mL (standard)
Injection Volume	1 µL minimum
Eluent Generator	KOH / NaOH / LiOH / MSA
Eluent Concentration Range	0.1-100 mM
Degasser	Integrated vacuum degasser

Parameter	Specification
Column Temperature Range	Ambient +5 °C to 60 °C
Temperature Accuracy	±0.1 °C
Suppressor	Self-regenerating electrolytic micro-membrane
Supported Column Sizes	2, 3, 4, and 5 mm I.D.
Flow Path Material	Metal-free PEEK
Operating Environment	Laboratory use



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