



Thermo Scientific Dionex Inuvion Core ion chromatography system

Keywords

Ion chromatography, Inuvion, reliable, advanced, consistency, stability, high-performance, configurable and upgradeable, improved reproducibility, function-driven, space-saving design

Introduction

The Thermo Scientific™ Dionex™ Inuvion™ Core ion chromatography system provides the benefits of continuous chemical suppression and higher-pressure operation to deliver consistently excellent results. The robust Dionex Inuvion platform is easily configurable and economically upgradeable to full-featured capabilities as budget allows.

Ultra reliable day-to-day performance

- Advanced high-performance pump technology and electronics
- System self-diagnostics automatically detect any issues with hardware and consumables
- Thermostatted high-performance conductivity detector permits measurements that are unaffected by temperature variation for improved reproducibility
- Advanced digital input with operating range to 18,000 μS full scale, with autoranging to provide accurate detection of major and minor constituents in a single run. Single-range analog signal output is also standard
- Optional column heater provides day-to-day consistency, ensuring reproducibility and stability. Eluent preheating prior to the column maintains the column temperature set by the analyst
- Inert, non-metallic PEEK™ components throughout the system ensure compatibility with corrosive eluents and provide metal-contamination-free chromatography
- Thermo Scientific™ Chromeleon™ Chromatography Data System (CDS) software control includes automated configuration and setup wizards along with an electronic logbook to monitor nearly unlimited user selectable operational parameters
- Electronically actuated six-port Rheodyne PEEK injection valve for precise sampling

Simple, intuitive user experience

- Smart, function-driven design allows quick and safe access to everything on the instrument
- Space-saving design preserves valuable bench space
- Automated sample preparation capabilities enable techniques such as on-line filtration, concentration, and matrix elimination
- Automatic eluent monitor helps operators ensure there is sufficient eluent for the analyses scheduled to be run, optimizing system uptime and throughput
- Built-in how-to videos reduce training time and simplify setup and operation

- Smart startup, standby, and shutdown routines ensure the system is quickly ready for the day's work without user intervention
- Streamlined e-panel quickly shows status during runs
- Clear, descriptive error codes enable faster problem resolution and first-time fixes

Easily configurable and upgradeable

- Versatile, adaptable platform lets you configure the system with several user-installable optional accessories to meet current and future needs
- Upgrade to Reagent-free IC (RFIC™) with eluent degas to extend IC capabilities to easily and cost-effectively adapt to changing sample types and workflow requirements

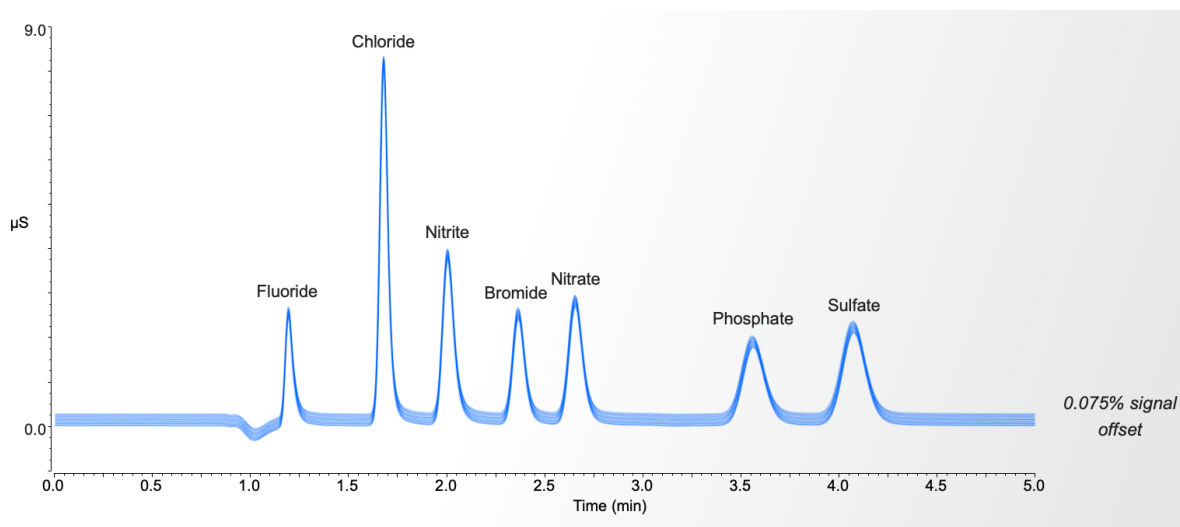


Figure 1. Overlay of chromatograms from 40 injections of an anions standard that demonstrates the high reproducibility that is achieved.

Dionex Inuvion Core specifications

Specification	Value
Analytical pump and fluidics	
Type	Serial dual-reciprocating pistons, microprocessor-controlled constant stroke, variable speed
Construction	Chemically inert, metal-free PEEK pump heads and flow paths compatible with aqueous eluents of pH 0–14 and reversed-phase solvents
Pump operating pressure	0–35 MPa (0–5000 psi)
Flow rate range	0.00–5.00 mL/min in 0.01 mL/min increments
Flow precision	<0.1%, typically
Flow accuracy	<0.1%, typically, at 13.8 MPa (2000 psi) and 1.0 mL/min
Pressure ripple	<1%
Eluent on-off valve	Standard
Leak sensor	Optical, standard
Piston seal wash (optional)	Pump head wash can be operated in continuous or intermittent mode when connected to rinse solution supply
Pressure alarm limits	Upper and lower limit pressure alarms can be set
Eluent bottles	Standard 2 L polypropylene bottle; allows various sizes
Eluent bottle pressure	Supported by digital controlled regulator with display
Injection valve	6-port, 2-position Rheodyne valve, electronically activated
Columns supported	2, 3, 4, and 5 mm ID; maximum length 250 mm analytical column with 50 mm guard column

Specifications *(continued)*

Specification	Value
Column heater (optional)	
Operating temperature range	10 to 60 °C (50 to 140 °F); settable within the software; minimum working range is 5 °C above ambient temperature
Temperature accuracy	±0.5 °C at sensor, at calibration points (35, 45 °C)
Suppressors and control	
Chemical suppression	2 mm and 4 mm anion and cation suppressor types
Carbonic acid removal for anions	Thermo Scientific™ Dionex™ CRD 200 Carbonate Removal Device for use with hydroxide eluents or Thermo Scientific™ Dionex™ CRD 300 for use with carbonate eluents
Non-suppressed chromatography	Yes, supported
Suppressor wear parts	Optional regenerant pump for chemical suppressor
Dynamic suppression capacity	Anions: <ul style="list-style-type: none"> Thermo Scientific™ Dionex™ ACRS 500 (4 mm): 150 µeq/min Thermo Scientific™ Dionex™ ACRS 500 (2 mm): 75 µeq/min Cations: <ul style="list-style-type: none"> Thermo Scientific™ Dionex™ CCRS 500 (4 mm): 75 µeq/min Thermo Scientific™ Dionex™ CCRS 500 (2 mm): 37.5 µeq/min
Void volumes	<ul style="list-style-type: none"> <50 µL for 4 mm Thermo Scientific™ Dionex™ CRS 500 suppressors <15 µL for 2 mm Dionex CRS 500 suppressors
Conductivity detector electronics and flow cell	
Type	Microprocessor-controlled digital signal processor
Cell drive	128 kHz square wave
Linearity	$r^2 \geq 0.999\%$
Resolution	0.002 nS/cm
Full-scale output ranges	Digital signal range 0–18,000 µS/cm, with auto-ranging; analog signal range 0 – 18,000 µS/cm
Noise, wet	<ul style="list-style-type: none"> ≤ 0.2 nS at 23 µS/cm background ≤ 0.1 nS at 1 µS/cm background
Temperature compensation	Variable, default set at 1.7%/°C at cell temperature
Temperature range	Ambient +7 °C, 15 to 60 °C
Cell electrodes	Passivated 316 stainless steel; compatible with methanesulfonic acid
Cell body	Chemically inert polymeric material
Cell volume	<1 µL
Heat exchanger	Inert, tortuous path for low axial dispersion
Maximum cell operating pressure	10 MPa (1,500 psi)
Data filter	Rise times from 0 to 10 s, Data Collection Rate 1 to 100 Hz, user selectable
Autosampler	
Automation using autosampler	Thermo Scientific™ Dionex™ AS-DV, AS-AP, AS-HV, or third-party autosamplers
Sequential/simultaneous injection	Yes, depending on autosampler capabilities
Automated dilution	Yes, available with Thermo Scientific™ Dionex™ AS-AP autosampler
Dilution factor, Dionex AS-AP autosampler	1:1 to 1:1000
Dilution time, Dionex AS-AP autosampler	15 s with sample overlap
Inline sample degassing	Yes, optional with Dionex CRD 300/200
Inline filtration	Yes, Dionex AS-DV autosampler or inline filter
High automation flexibility	Conditionals using Chromeleon CDS software and post-run features

Specifications *(continued)*

Specification	Value
Software	
Chromeleon CDS software, is supported on the following OS: <ul style="list-style-type: none"> Windows 10 Enterprise and Pro Windows 11 Enterprise and Pro 	<ul style="list-style-type: none"> Autoconfiguration Automated procedure wizards System wellness and predictive performance Data trending plots (numerical device parameters) Virtual column simulator (evaluation mode standard, isocratic and gradient optional) Multi-vendor automation support of proprietary and 3rd party instruments (fully controls over 550 modules from more than 25 manufacturers, including GC, CE, HPLC, and MS) Customizable system control panels System status virtual channels System trigger commands and conditionals Data audit trail, system audit trail and instrument audit trail Multiple network control and network failure protection (optional) System calibration storage (factory, present, and previous; completely user selectable) Customized reporting (unlimited report workbooks) Automated system qualification (detailed, comprehensive qualification reports) Dual sequence view in the studio
Physical specifications	
Power requirements	100–240 V AC, 50–60 Hz autoranging
Operating temperature	4–40 °C (40–104 °F)
Operating humidity range	20–80% Relative, noncondensing
Control modes	Full control through Chromeleon CDS software; alternative control through TTL or relay closures; one relay output, two TTL outputs, two assignable TTL inputs
USB communication protocol	One USB input; three USB outputs
Product dimensions (h × w × d)	66.1 X 29.2 X 43.2 cm (26.0 X 11.5 X 17.0 in.)
Weight	15.3 kg (33.7 lb)

Ordering information

Description	Part No.
Dionex Inuvion Core ion chromatography system	22185-60100
Optional integrated accessories	
Column heater	22185-62400
Integrated regenerant pump	22185-62702
Digital gas pressure regulator	22185-62706
6-port auxiliary valve	22185-62704
10-port auxiliary valve	22185-62703
Seal wash pump	22185-62701
Thermo Scientific™ Dionex™ IC PEEK Viper™ precision kit	B51000232
3-port low pressure valve	B51001290
Eluent monitor	2L: 22185-62707 4L: 22185-62708

 Learn more at thermofisher.com/inuvion

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