systems

ICS-1500 Ion Chromatography System

The ICS-1500 system is a fully integrated and preconfigured system designed to perform IC separations using conductivity detection. The system is available with a dual-piston pump, LCD touch-pad front panel, thermally controlled conductivity cell, column heater, and optional vacuum degas. When coupled with AutoSuppression®, the ICS-1500 system provides high performance with ease of use. Automation provides full control and digital data collection from a PC using USB, high-speed communication protocol.

Versatile

- Performs all types of IC separations using conductivity detection.
- Integrated, preconfigured, factory plumbed, and tested for immediate productivity.
- Streamlined design with small footprint occupies minimal bench space.
- An LCD touch-pad front panel provides clear identification of key operating parameters permitting at-instrument control and monitoring.
- Dual-piston pump design reduces pulsations, allowing high-sensitivity detection and excellent flow-rate accuracy and precision.

Simple and Precise Control

- Built-in control for the SRS® and Atlas® electrolytic suppressors. AutoSuppression with electrolytic suppression eliminates the need to hand-prepare acid or base regenerants. Electrolytic suppression reduces background conductivity and provides high signal-to-noise ratios.
- Full control and digital data collection available with Windows® based Chromeleon® Chromatography Workstation Software using a USB high-speed communication protocol.
- Application templates preload all instrument parameters for fast and easy operation.

DIONEX

IC | MS | HPLC | EXTRACTION | PROCESS | AUTOMATION

- Through Chromeleon software control—an electronic logbook provides monitoring of operator-selectable operational parameters by creating virtual channels.

High Performance

- For improved reproducibility, the heated and thermostated high-performance conductivity detection cell permits measurements that are unaffected by temperature variation.
- Advanced single-range digital output with operating range to 3200 μS full scale. Alternate mode permits single-range analog signal output.
- Column heater provides day-to-day consistency, ensuring reproducibility and stability. Preheating of the eluent prior to the column ensures the column temperature set by the user. A transparent cover allows viewing of the column without temperature disruption.
- Optional built-in vacuum degas provides in-line degassing of eluents, ensuring reproducibility and protection of eluents from contamination and decomposition. Control of the degas operation can be automated to sense when degassing is required.
- Inert, nonmetallic PEEK components throughout the system ensure compatibility and metal contamination-free chromatography.

Convenient

- Versatile eluent organizer tray accommodates 1-, 2-, or 4-liter eluent bottles.
- Electrically actuated six-port Rheodyne PEEK injection valve.
- Ergonomically placed injection port for easy manual sampling.
- Eluent valve provides positive shut-off of eluent flow prior to the pump for easy servicing.
- Easy-access door to chromatography components.
- Leak detection and management allow fast response to system leaks.
- TTL controls for external pump, injection valve, range selection, and signal offset for stand-alone operation.

Key Features

- LCD front panel control
- Dual-piston pump
- Column heater
- Electrolytic suppression
- Digital conductivity detection
- Vacuum degas (option)
- USB connectivity, plug-n-play
- Optical leak detector
- Electronic logbook and trending through virtual channels

ICS-1500 IC SYSTEM SPECIFICATIONS

Analytical Pump and Hydraulics

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

Control Mode:
Full control through front panel or through Chromeleon software; alternative control through TTL or relay closures

Maximum Operating Pressure:
35 MPa (5000 psi)

Pressure Ripple:
<1.0 % from 0.4 to 2.0 mL/min at 1000–3000 psi

Flow Rate Range:
0.05–5.0 mL/min in 0.01 increments; typical operating range is 0.4 to 2.0 mL/min

Flow Precision:
<0.2%

Flow Accuracy:
<1.0 % of set value or ±2 µL/min, whichever is greater

Piston Seal Wash:
Dual-pump head, wash can be continuous when connected to rinse solution supply

Pressure Alarm Limits:
Upper limit 0–35 MPa or 0–5000 psi in one unit (MPa or psi) increments; lower limit can be set up to one unit lower than upper limit

Vacuum Degas (Option):
Single channel, automatic

Conductivity Detector Electronics and Flow Cell

Type:
Microprocessor-controlled digital signal processor

Cell Drive:
8 kHz square wave

Linearity:
1% at 1 mS

Resolution:
0.1 nS

Full-Scale Output Ranges:
Digital signal range 0–3200 µS
Analog signal range 0–3000 µS

Electronic Noise:
±0.1 nS when background conductivity is 0–150 µS
±2 nS when background conductivity is 151–3200 µmS

Filter:
Rise times from 0 to 10 s, user selectable

Temperature Compensation:
Fixed at 1.7% per 1 °C at cell temperature

Temperature Range:
Ambient +7 °C to 55 °C

Temperature Stability:
≤0.01 °C

Cell Electrodes:
Passivated 316 stainless steel

Cell Body:
Chemically inert polymeric material

Cell Volume:
<1 µL

Heat Exchanger:
Low dispersion

Maximum Cell Operating Pressure:
2 MPa (300 psi)

Suppressor Control:
AES, 0–150 mA in 1 mA increments
SRS, 0–500 mA in 1 mA increments

Column Heater

Operating Temperature Range:
Ambient +5 °C to 60 °C

Temperature Stability:
To ±1 °C

Temperature Accuracy:
±2 °C at 40 °C using external validation thermometer

Physical Specifications

Power Requirements:
100–240 VAC, 50/60 Hz (power supply is autosensing, no voltage adjustment required)

Voltage Requirements:
90–265 VAC, 47–63 Hz

Operating Temperature:
4–40 °C (40–104 °F); cold-room- (4 °C) compatible as long as system power remains on.

Operating Humidity Range:
5–95 % relative, noncondensing

Control Modes:
Full control through front panel and Chromeleon software; alternative control through TTL or relay closures; two relay out, two TTL out, four programmable inputs

USB Communication Protocol:
One input, built-in two output USB hub

Leak Detection:
Built-in, optical sensor

Dimensions (h × w × d):
22.1 in × 8.8 in × 21 in
56.1 cm × 22.4 cm × 53.3 cm

Weight:
54 lbs
24.5 kg

Ordering Information

To order in the U.S., call (800) 346-6390 or contact the Dionex Regional Office nearest you. Outside the U.S., order through your local Dionex office or distributor. Refer to the following part numbers.

PART NUMBERS

ICS-1500 Ion Chromatography System with Software and PC

An ICS-1500/Chromeleon 6.5/Windows Workstation bundled package includes: an ICS-1500 with isocratic dual-piston pump, injection valve, column heater, heated conductivity cell, LCD touch-pad front panel, USB cable, Chromeleon version 6.50, Computer (with Windows XP or Windows 2000), and USB dongle. Comes with one Class 1 Timebase controlling one Dionex IC system. Consumables must be ordered separately.

ICS-1500 Ion Chromatography System without Degas, Chromeleon 6.5, Windows XP Workstation 061081

ICS-1500 Ion Chromatography System with Degas, Chromeleon 6.5, Windows XP Workstation 061080

ICS-1500 Ion Chromatography System without Degas, Chromeleon 6.5, Windows 2000 Workstation 061083

ICS-1500 Ion Chromatography System with Degas, Chromeleon 6.5, Windows 2000 Workstation 061082

DIONEX www.dionex.com ON THE WEB

Dionex Corporation
1228 Titan Way
P.O. Box 3603
Sunnyvale, CA
94088-3603
(408) 737-0700

Dionex Corporation
Salt Lake City Technical Center
1515 West 2200 South, Suite A
Salt Lake City, UT
84119-1484
(801) 972-9292

Dionex U.S. Regional Offices

Sunnyvale, CA	(408) 737-8522
Westmont, IL	(630) 789-3660
Houston, TX	(281) 847-5652
Atlanta, GA	(770) 432-8100
Marlton, NJ	(856) 596-06009

Dionex International Subsidiaries
Austria (01) 616 51 25 *Belgium* (32) 3-353 42 94 *Canada* (905) 844-9650 *China* (852) 2428 3282 *Denmark* (45) 36 36 90 90
France 01 39 30 01 10 *Germany* 06126-991-0 *Italy* (06) 66 51 50 52 *Japan* (06) 6885-1213 *The Netherlands* (0161) 43 43 03
Switzerland (062) 205 99 66 *United Kingdom* (01276) 691722
* Designed, developed, and manufactured under an NSAI registered ISO 9001 Quality System.

LPN 1499 8M 02/03