Automation, sample preparation

Autosamplers for Ion Chromatography

Thermo
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Dionex AS-AP
Autosampler

Advanced Features

Perform full-loop, partial-loop, limited sample, sample preparation, sample dilution, precolumn derivatization, matrix elimination, sample preconcentration, and more. With so much application flexibility, even your most difficult analytical challenges can now be fully automated.

Speed

The Dionex AS-AP Autosampler offers the speed required to support Fast IC applications. With fast cycle times, (<30 s for 5 µL injection) and high sample capacity (from 81 × 10 mL vials to 1152 samples with micro well plates) the Dionex AS-AP provides the speed and capacity required for high-throughput laboratories.

Simultaneous and Sequential Analysis

Double your sample throughput using a single autosampler. The Dionex AS-AP Autosampler runs both simultaneous and sequential analysis to dramatically improve laboratory productivity. The simultaneous injection technique accelerates analysis by using one autosampler to supply a single sample to two systems running unique or similar applications. Sequential analysis introduces two unique samples to two systems running unique or similar applications using only one Dionex AS-AP module.

New Advanced Automation Features

In-line sample conductivity, and pH measurement, and fraction collection options offer a level of automation and convenience unmatched by any other IC autosampler. The Dionex AS-AP Sample Conductivity and pH Accessory—the first ever in an IC autosampler—allows in-line measurement of the sample conductivity and pH prior to injection. Thermo Scientific Dionex Chromeleon Chromatography Data System (CDS) triggers can then be used to either inject the sample or modify the sample prior to injection. The Chromeleon™ Fraction Collection License enables collection of sample fractions using either time to peak-based methods or fraction collection.

Application Flexibility

The Dionex AS-AP Autosampler can be configured to accommodate the most complex matrices. From 0.25 mL to 5 mL syringes, from 10 mL vials to 0.10 mL well plates, you now have the flexibility to mix and match features to suit your needs. The sample preparation option automates dilution, internal standard addition, and precolumn derivatization, thus simplifying complex methods. In addition, as all wetted surfaces are inert, there is no need to compromise when it comes to running metal-sensitive samples or corrosive buffers.

The powerful new Dionex AS-AP Autosampler provides a full suite of automation capabilities that elevate laboratory productivity to new heights. Flexible, customizable, and easy to use, the Dionex AS-AP Autosampler establishes a new standard for laboratory automation performance.

Sample Concentration/Matrix Elimination

Achieve the lowest possible detection limits on your most difficult analyses with sample concentration/ matrix elimination. With these powerful sample preparation tools, even the most complex tasks can now be automated. The Dionex AS-AP Autosampler simplifies each step with powerful Chromeleon software wizards and the option of front panel control.

Precise Performance

The Dionex AS-AP Autosampler provides accurate and consistent performance for all your sampling needs. From small sample volumes to large-loop or concentrator loading, delivery of sample is precise, reliable, and accurate with every injection.

Temperature Control

Temperature control is ideal for thermally sensitive samples including carbohydrates, amino acids, organic acids, proteins, peptides, and nucleic acids. The Dionex AS-AP Autosampler reliably controls the sample environment to ensure that even the most reactive samples are safely maintained in the sample tray.

Fully Inert PEEK Needle and Flow Path

The unique PEEK™ needle design and flow path protects sensitive samples from metallic contamination and ensures compatibility with aqueous and reversed-phase eluents.

Reliability

Load the Dionex AS-AP Autosampler and walk away. With fully integrated communication feedback and audit trails, the Dionex AS-AP Autosampler performs every assigned automation task and tracks each activity. Equipped with the option for rugged, electrically actuated Rheodyne valves, the sampler completes each task with ease and confidence.

Automatic Resampling

The AutoDilution option of the Chromeleon software adds the power of automatic decision making to the Dionex AS-AP Autosampler. The AutoDilution program evaluates your data, determines if any sample concentrations are out of range, and automatically re-analyzes only the samples that require it. Samples can be transferred to another vial and diluted automatically before reinjection, or different volumes can be automatically reinjected using either a partial-loop or a different injection loop altogether if the system is equipped with a 10-port valve.

Dionex AS-AP Features:	
Syringe Size	100, 250, 1000, and 5000 µL
Injection	Electrically actuated Rheodyne valves
Vial Size	10 mL polystyrene vials 1.5 mL glass vials 0.3 and 1.5 mL polypropylene vials 0.10, 0.45, 0.5, and 2.0 mL well plates
Sample Capacity	10 mL vials—81 samples 0.3 or 1.5 mL vials—120 samples 0.45, 0.5, or 2 mL (three well plates, 96 wells per plate) 1152 samples (three well plates 384 wells per plate)
Heat/Cool	4–60 ºC
Flow Path	PEEK
Applications	Simultaneous and sequential injection, concentration, matrix elimination, fraction collection and sample conductivity/pH measurement

Dionex AS-HV
Autosampler

High-Volume Samples

When higher sample volumes are required for trace analysis, matrix elimination, or automated sample preparation, the Dionex AS-HV Autosampler delivers with ease of use, reliability, and flexibility. The Dionex AS-HV Autosampler provides superior functionality in a compact footprint, and accommodates sample volumes up to 250 mL.

Optimized Automation

Using a unique pirouette arm motion, the Dionex AS-HV Autosampler provides powerful automation for many sampling requirements. Rapid, precise arm motion accelerates sampling time to maximize efficiency. The X, θ, Z movement of the Dionex AS-HV Autosampler arm minimizes mechanical motion and increases the reliability and ease of operation of the unit.
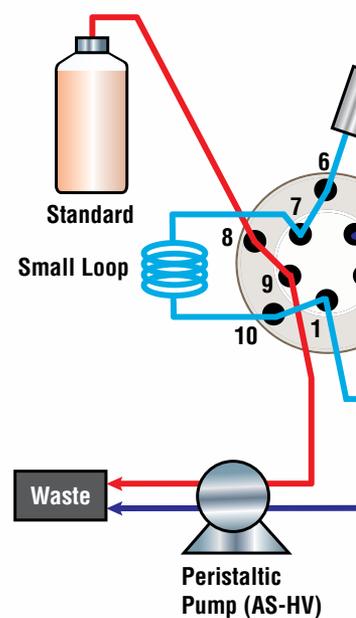
Fully Inert Peek Needle and Flow Path

With all PEEK fluidics, the Dionex AS-HV Autosampler achieves the lowest possible level of detection by using the cleanest materials on all wetted surfaces. The needle and flow path are compatible with a wide range of eluents and samples, from deionized water to extreme pH chemicals, reagents, and buffers. Optional Sample Delivery Pumps The Dionex AS-HV Autosampler supports syringe pump, single piston, and peristaltic pump sampling options.

AutoPrep Option for Trace Analysis

Sample and standard handling and dilution can introduce contamination. The AutoPrep system works in combination with the Dionex AS-HV Autosampler and Thermo Scientific Dionex ICS-5000 system to automatically calibrate the system using just a single stock standard. Precise valve switching ensures accurate calibration curves with coefficients of determination typically better than 99.9%. Automated injection and concentration of the sample prevents dilution errors and exposure to environmental contamination.

The Dionex AS-HV Autosampler simplifies low-level ion analysis with state-of-the-art design, customizable fluidics and trace-compatible materials.

Optional Trace Analysis Cover

Extremely clean samples require isolation and protection from ambient contamination. The Dionex AS-HV Autosampler can be isolated with a protective cover that can be purged with ultrahigh purity gases.
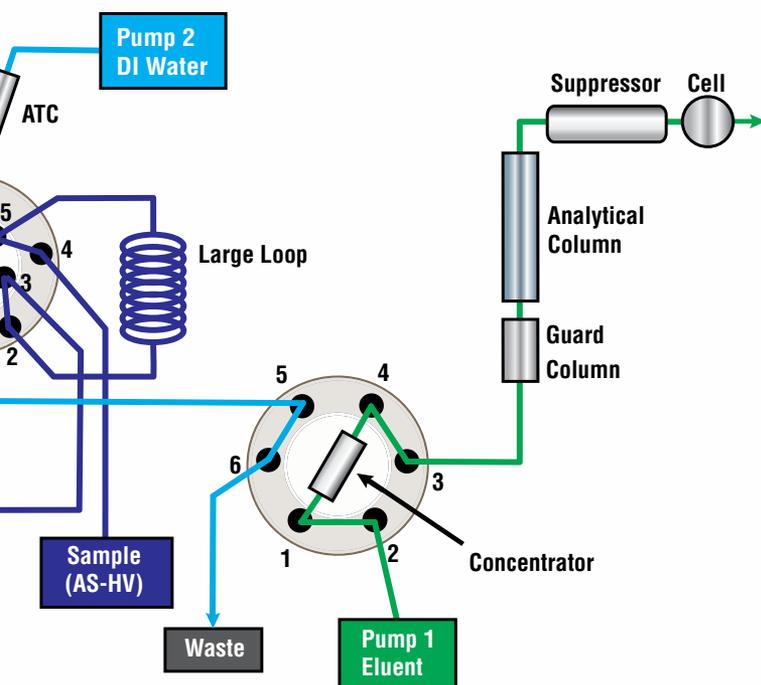
Trace Grade Vials

To achieve the lowest detection limits, rely on low–contaminant tissue culture flasks or Thermo Scientific Nalgene poly bottles. Available in polystyrene or polyethylene, each sample vessel configuration is fully supported with optional septa that can be pierced with any supported probe to ensure that no contamination comes into contact with the sample.

Application Flexibility

With the capacity to accommodate seven different types of sample trays, the Dionex AS-HV Autosampler can run up to 180 samples. The range of volumes and vial types include 10, 15, 26, and 50 mL centrifuge tubes, 40 and 60 mL ASE collection vials, and 250 mL bottles and tissue culture flasks.

Fully Integrated Chromeleon Control

To ensure maximum productivity, the Dionex AS-HV Autosampler is fully controlled using the advanced features that you have come to expect from Chromeleon software.

The large loop is loaded with sample in pull mode using the AutoPrep system and the Dionex AS-HV Autosampler.

Dionex AS-HV Features:	
Parameter	**Specification**
Injection Type	Full loop/concentrator
Vial Size	10, 15, 26, 40, 50, and 60 mL
Sample Capacity	63 × 50 mL: 72 × 26 mL; 120 × 15 mL, 180 × 10 mL, and 63 × 40/60 mL ASE vials
Injections per Vial	Variable
Flow Path	PEEK
Sample Loading	Push or pull
Applications	Simultaneous injection, concentration, matrix elimination

Dionex AS-DV
Autosampler

Versatile Options to Configure the Optimum Solution

The Dionex AS-DV Autosampler uses precise mechanics to accurately control dispense speed and volume, resulting in highly reproducible results. Chromeleon software control and random access provide high flexibility to select optimal injection parameters. Sample preparation automation provides easy sample introduction to the chromatograph—a set-and-forget capability. Panels and reporting capabilities in audit trails provide reliability and reduce labor. Additional time savings are achieved by utilizing the sample overlap capability of the Dionex AS-DV Autosampler and Chromeleon software.

Variable Filter Options

Each sample can be automatically filtered during loading using an optional 20 µm filter in the vial cap. Particulates can be removed during sampling, eliminating the tedious task of prefiltering samples, resulting in significant savings in both time and cost. The filter also acts as a seal to minimize contamination and evaporation of samples before analysis. Caps without filters are also available for ultrapure water analysis.

Optional 6-Port and 10-Port Valves

A high-pressure switching valve can be installed in the Dionex AS-DV Autosampler. Models are available in 6-port and 10-port configurations. The valves can perform the following functions:

- Bleed Valve
- Injection Valve
- Matrix Elimination
- Concentration
- Large/Small Loop Reinjection

Chemically Inert

The Dionex AS-DV Autosampler is entirely chemically inert. All wetted surfaces are nonmetallic and designed to work with a large variety of samples, from deionized water to extreme pH chemicals, reagents, and buffers. Inert materials ensure that sample contamination is minimized and that hardware life is extended.

Dionex AS-DV Features:	
Injection Type	**Positive displacement**
Software Control	Chromeleon CDS and random access
Injection Volume	0.1–5.0 mL in 0.1 mL increments
Dispense Speed	0.1–5.0 mL/min in 0.1 mL/min increments
Sample Capacity	50 PolyVials 0.5 mL, 5.0 mL, or mix of the two
Sample Filtration	Optional 20 µm filter caps
Optional Valve	High-pressure switching valve, 6- or 10-port
Concentrator	Delivers sample against backpressure of up to 690 kPa (100 psi). Recommened flow rates are 0.4 mL/min (0.5 mL vials) orrates are 0.4 mL/min (0.5 mL vials) or 1 mL/min (5 mL vials)
Applications	Simultaneous injection, concentration, matrix elimination

The Dionex AS-DV Autosampler provides features you would expect in a high-end instrument at an affordable price, without sacrificing performance. The AS-DV autosampler in combination with the Dionex ICS-900, -1100, or -1600 system is the cost-effective solution for the water analysis laboratory.

Ordering
Information

AS-AP Autosampler

Description	Part Number
Dionex AS-AP Autosampler, Base Configuration	074921
Dionex AS-AP Autosampler, with Tray Temperature Control Option	074926
Sample Conductivity and pH Accessory [a]	074923
Valve Assembly, includes one 2-way 10-port Valve and Mounting Hardware	074122
Valve Assembly, includes one 2-way 6-port Valve and Mounting Hardware	074123
Secondary 2-way 10-port valve (use with either above valve assembly)	070208
Secondary 2-way 6-port valve (use with either above valve assembly)	070209
Dionex AS-AP 10 mL Vial Tray	074938
Dionex AS-AP 1.5/0.3 mL Vial Tray	074936
Dionex AS-AP Support Tray for Deep Well Plates	074939
Dionex AS-AP 8-position 10 mL Vial Tray	069877
Vial Kit, 10 mL Polystyrene with Caps and Blue Septa, 100 Each	074228
Vial Kit, 10 mL Polystyrene with Caps and Septa, 100 Each	055058
Vial Kit, 1.5 mL Glass with Caps and Septa, 100 Each	055427
Vial Kit, 0.3 mL Polypropylene with Caps and Septa, 100 Each	055428
Vial Kit, 1.5 mL Polypropylene with Caps and Septa, 100 Each	061696
Well Plates, 96 Micro-well, 0.5 mL, Round (U) Wells, Pkg. of 10 [b]	066332
Well Plates, 96 Micro-well, 0.45 mL Conical (V) Wells, Pkg. of 20 [b]	066333
Well Plates, 96 Deep-well, 2 mL Wells, Pkg. of 5 [c]	066334
Well Plate Covers for 0.45 mL and 0.5 mL Well Plates, Pkg. of 10	066335
Well Plate Covers for 2 mL Well Plates, Pkg. of 10	066330

[a] AS-AP Sample Conductivity and pH Accessory requires a 6-port valve for push mode configurations

[b] Micro-well plates mount on the top of the 1.5/0.3 mL vial trays PN 074936

[c] Deep-well plates mount on the top of the Deep-well plate Support Tray PN 069877

AutoPrep

Description	Part Number
AutoPrep System For Dionex ICS-5000 DC with installed Automation Manager. Includes sample and standard loops	066342
AutoPrep System plus Automation Manager . For new installations or Dionex ICS-5000 DC without installed Automation Manager. Includes pre-plumbed Automation Manager, sample and standard loops, and 10-port valve.	066343
AutoPrep Installation (recommended)	038677
AutoDilution License	069725

AS-DV Autosampler

Description	Part Number
Dionex AS-DV Autosampler	068907
Dionex AS-DV with 0.5 mL vial adaptors	068908
6-Port valve kit	068920
10-Port valve kit	068921
PolyVials and 20 µm filter caps, 250 each, for 5 mL vials	038141
PolyVials and 20 µm filter caps, 250 each, for 0.5 mL vials	038142
PolyVials and plain caps, 250 each, for 5 mL vials	038008
PolyVials and plain caps, 250 each, for 0.5 mL vials	038010
Sample tip replacement kit	040835
Peak Performance kit	055647
Cap removal tool	068925

AS-HV Autosampler

Description	Part Number
Dionex AS-HV with 24 position rack for 250 mL	064051
Syringe pump option	064506
AXP pump option	064507
External peristaltic pump	064508
Trace analysis cover	064052
Sample probe kit — PEEK	064511
Sample probe kit — PTFE lined and sleeved	064056
Additional sample rack—250 mL Nunclon—24 position	064233
Additional sample rack—250 mL Nalgene™ poly bottles—15 Position	064234
250 mL Tissue culture flask—Nunc (Pkg of 50)	064053
Caps and septa for tissue culture flask (Pkg of 50)	064235
250 mL Nalgene bottle—narrow mouth (Pkg of 72)	064236
Caps and septa for 250 mL Nalgene bottle— narrow mouth (Pkg of 72)	064232
The AS-HV can hold up to 3 of the below racks (only one type)	
Sample rack for 50 mL vials (30 mm o.d.) 21 position	064498
Sample rack for 26 mL vials (24 mm o.d.) 24 position	064499
Sample rack for 15 mL vials (20 mm o.d.) 40 position	064500
Sample rack for 10 mL vials (16 mm o.d.) 60 position	064501
Sample rack for 60/40 mL Thermo Scientific Dionex ASE Collection vials 21 position	072733
Split Septa for 60 mL Dionex ASE™ vials [d] (Pkg of 72)	064256

[d] Dionex ASE vials must be run without the standard thick septa. 40 mL Dionex ASE vials must be run without septa.

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BR70083_E 05/12S