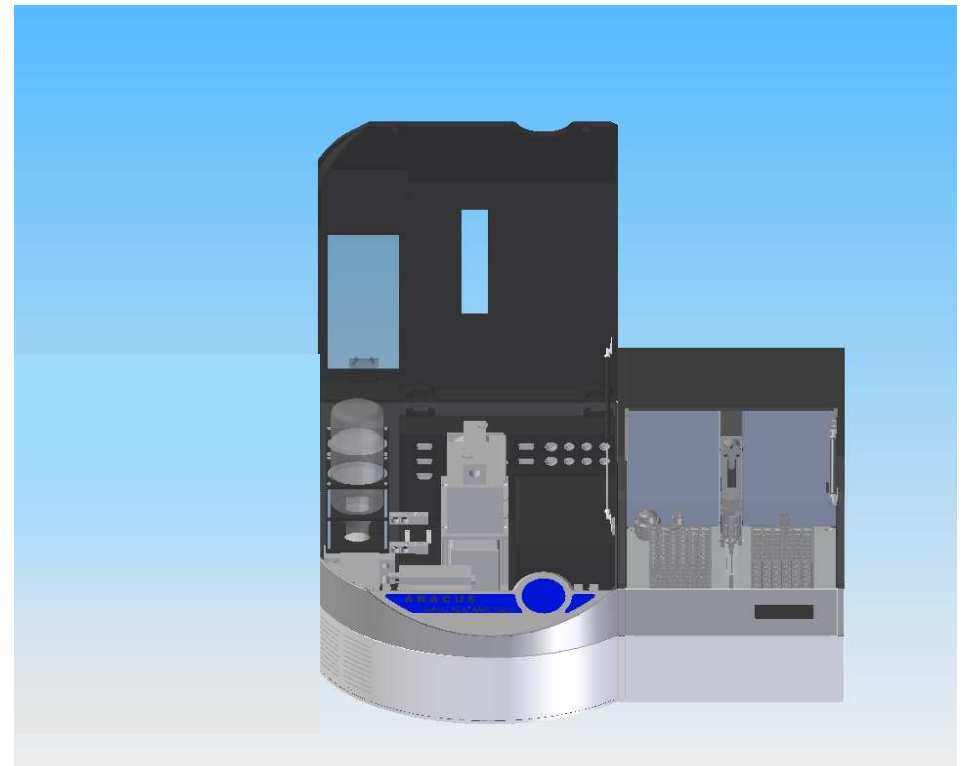


IONUS

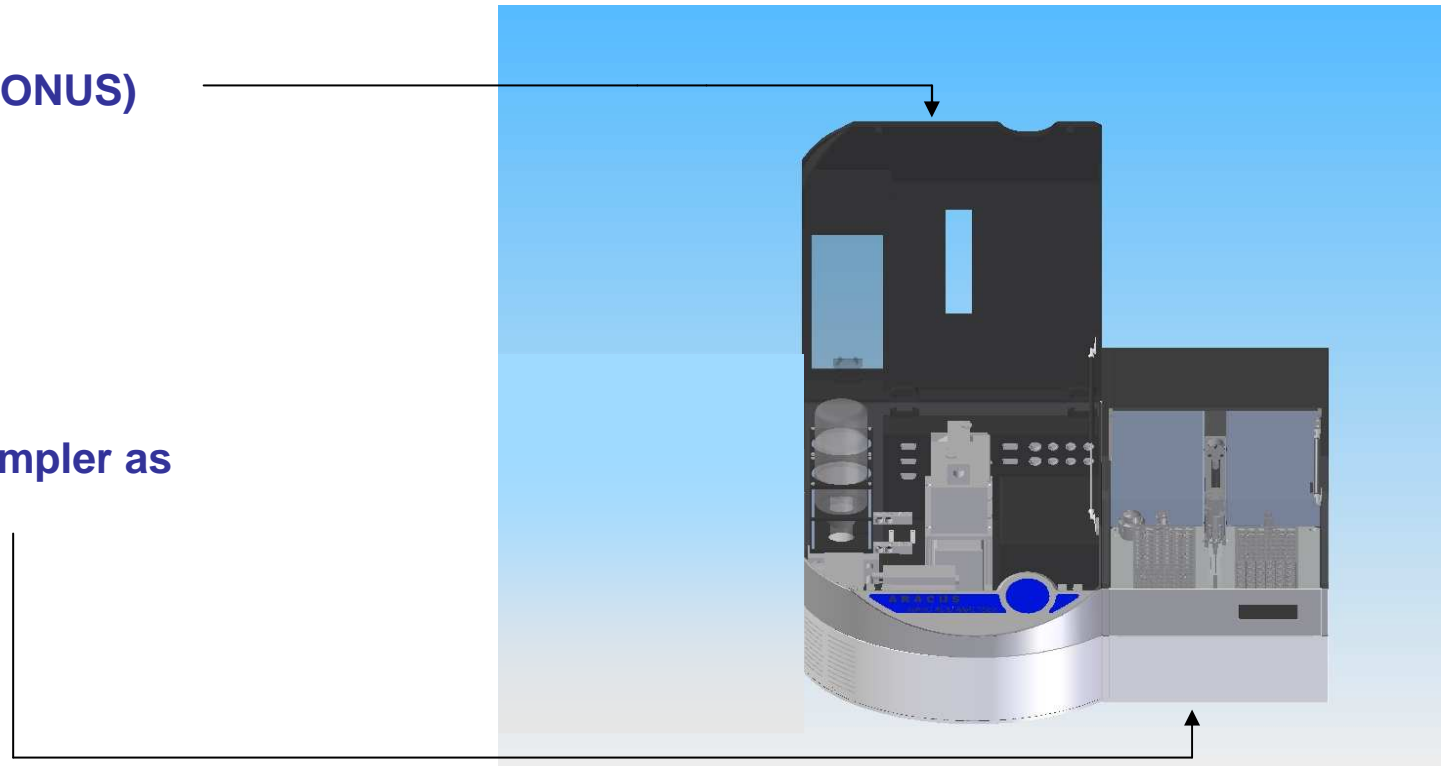
**High technology modules –
assembled for excellent
performance**



Ionus in max Version

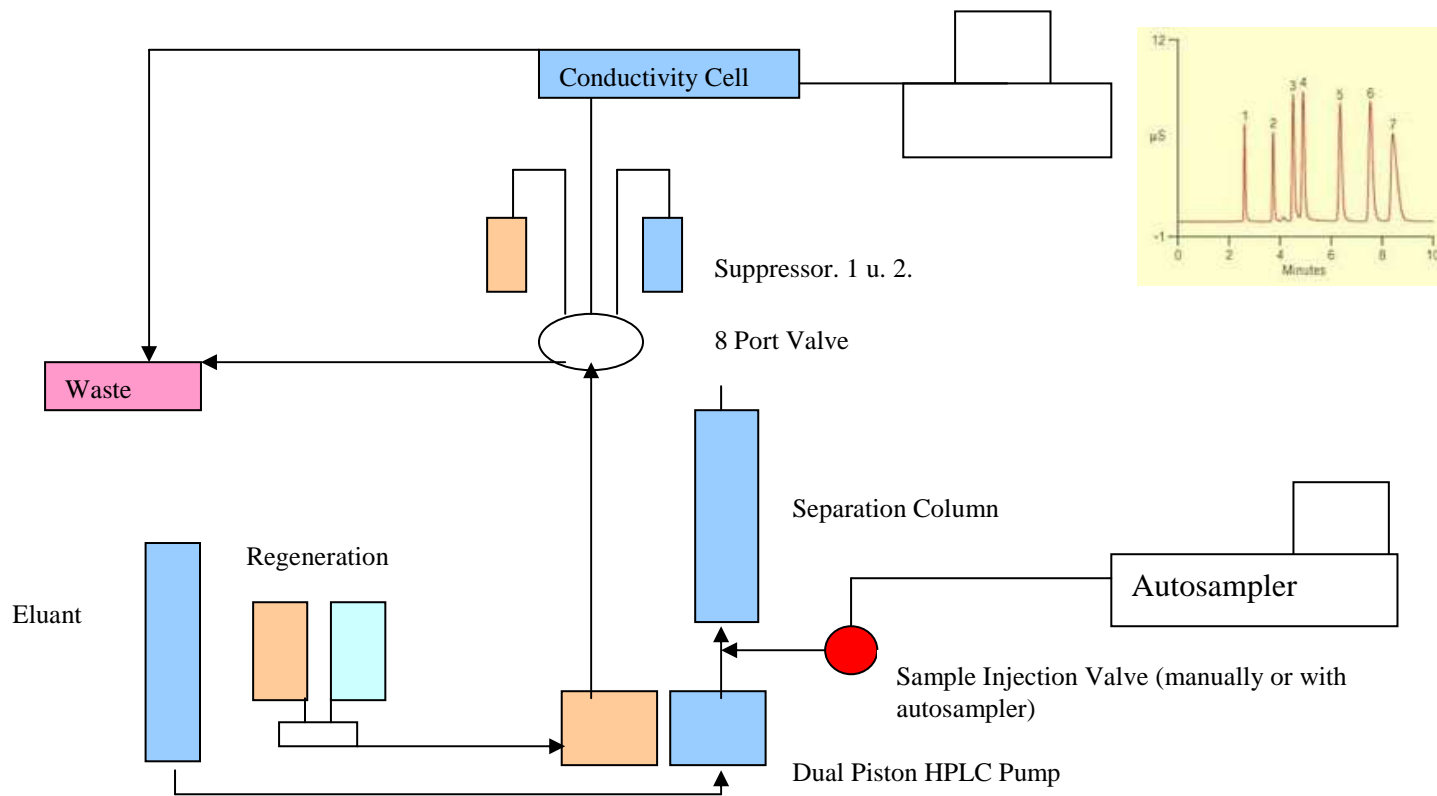
- Main Unit (Basic IONUS)

- Robotic (Autosampler as Option)



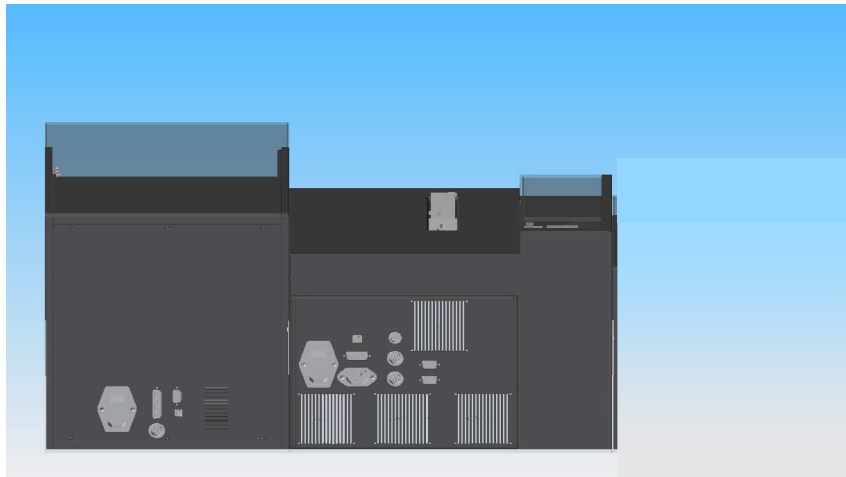
Flowdiagram IONUS

- overview IONUS operation mode

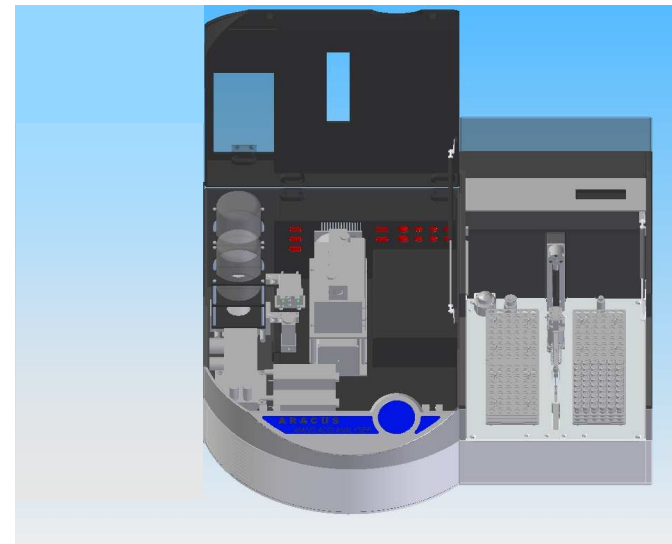


View Front and Back

- overview connecting mode

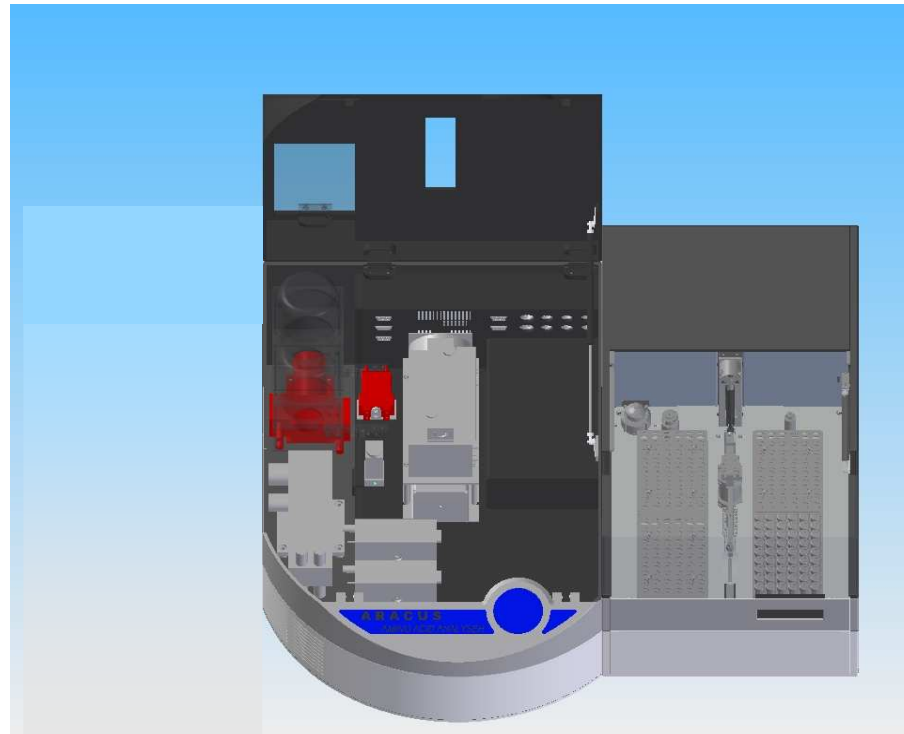


- overview IONUS front mode



IONUS Degazing System

- **Microchamber**
- **Continuous flow**

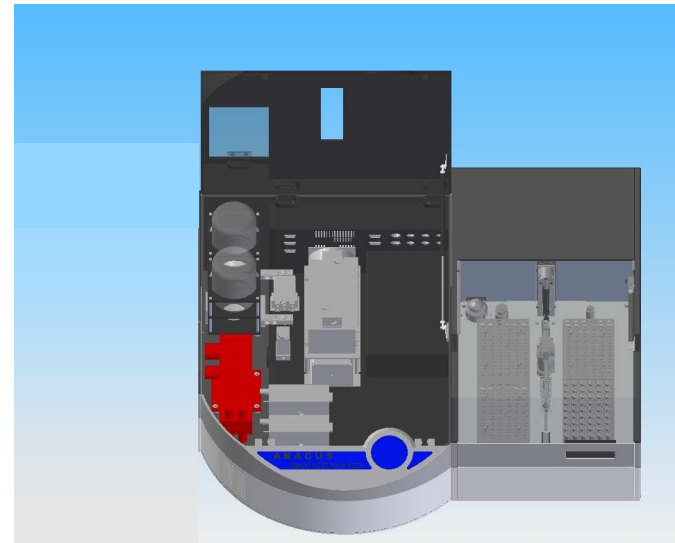


IONUS HPLC PUMP

- Dual piston pump
- Inert pump Head
- Flow range 0.01-9,9 mL/ min

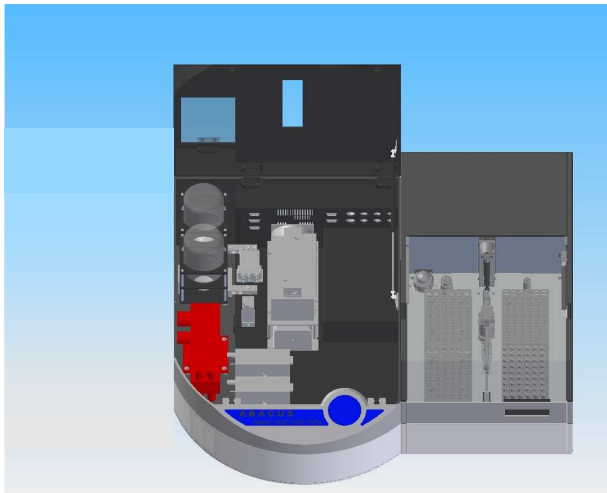
Two fluid lines:

1. For Eluents
2. For Regeneration solution



The Pump in Detail

Double Piston Pump, pump head especially designed for delivery of eluants and regeneration solutions simultaneously



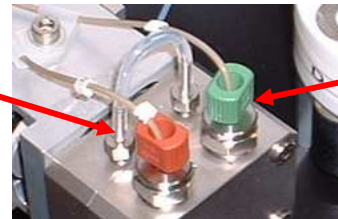
Pump Head: 10 mL Titanium

Flow Rate: 0.01 – 3.00 mL / min

Max. Pressure: 300 bar

Reproducibility of Flow: better 1% (RSD) at 100 μ L/min

Reagent Fitting

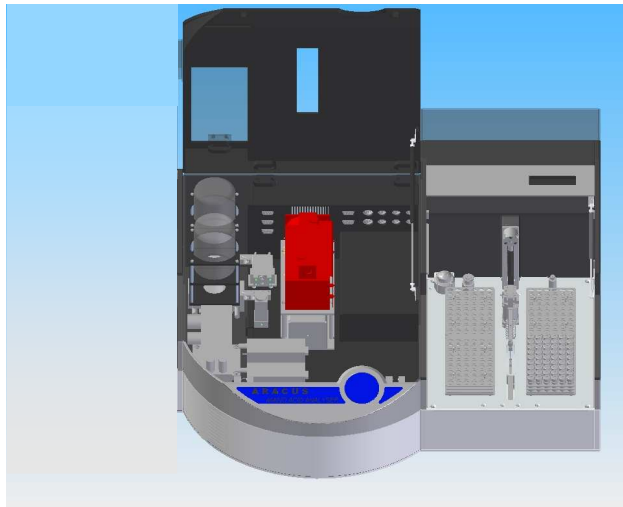
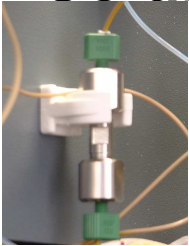


Buffer Fitting



especially designed for simultaneous flow rate of eluant and regeneration solution

Columns



Pre-Column: collecting crude contaminants; - protection of separation column (option)

Separation Column:

Anions: (F, Cl, Br, NO₂, NO₃, PO₄, SO₄)

Cations: (NH₄, Li, Na, Ca, Mg)

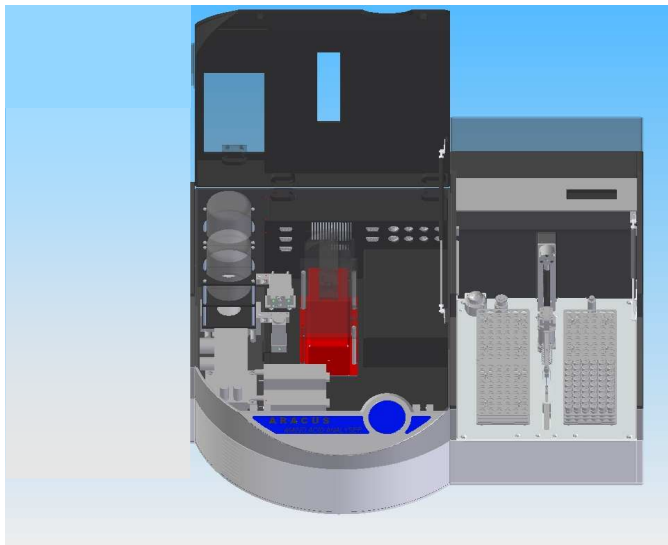
 *guarantees reproducible separation of ions*

The Suppressors

Easy to change

Built of inert material; lifetime 6 month

Low cost suppressor system



 *guarantees reproducible results*

The Conductivity Detector Micro Cell, free of Maintenance

Principal: “Kohlrausch”, thermostated stainless steel
electrodes

Noise: 0.02 μS , 1s

Drift: $<1,0 \times 10^{-5} \mu\text{S/hr}$

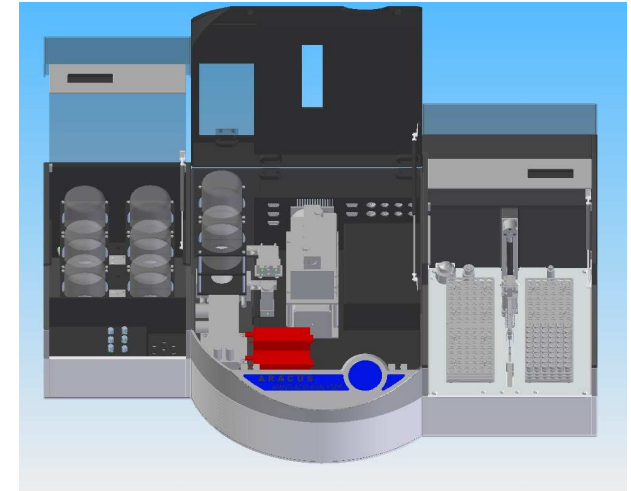
Linearity: $<1 \%$

Measurement range: 0 – 10.000 $\mu\text{S} / \text{cm}$

Analogue output: +/- 5 Volt

Autozero function: for the entire range

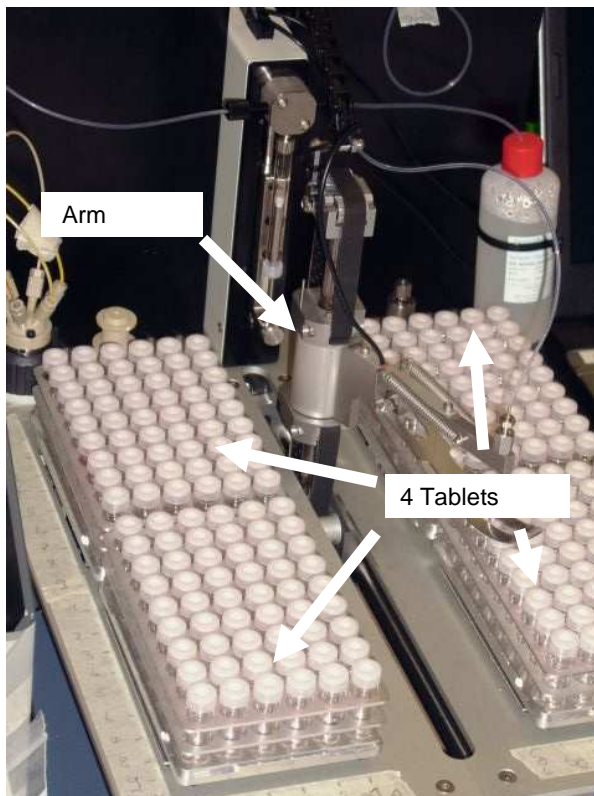
Measurement cell: 10 μL volume



encapsulated, high sensitive system with integrated measurement cell

Auto sampler I

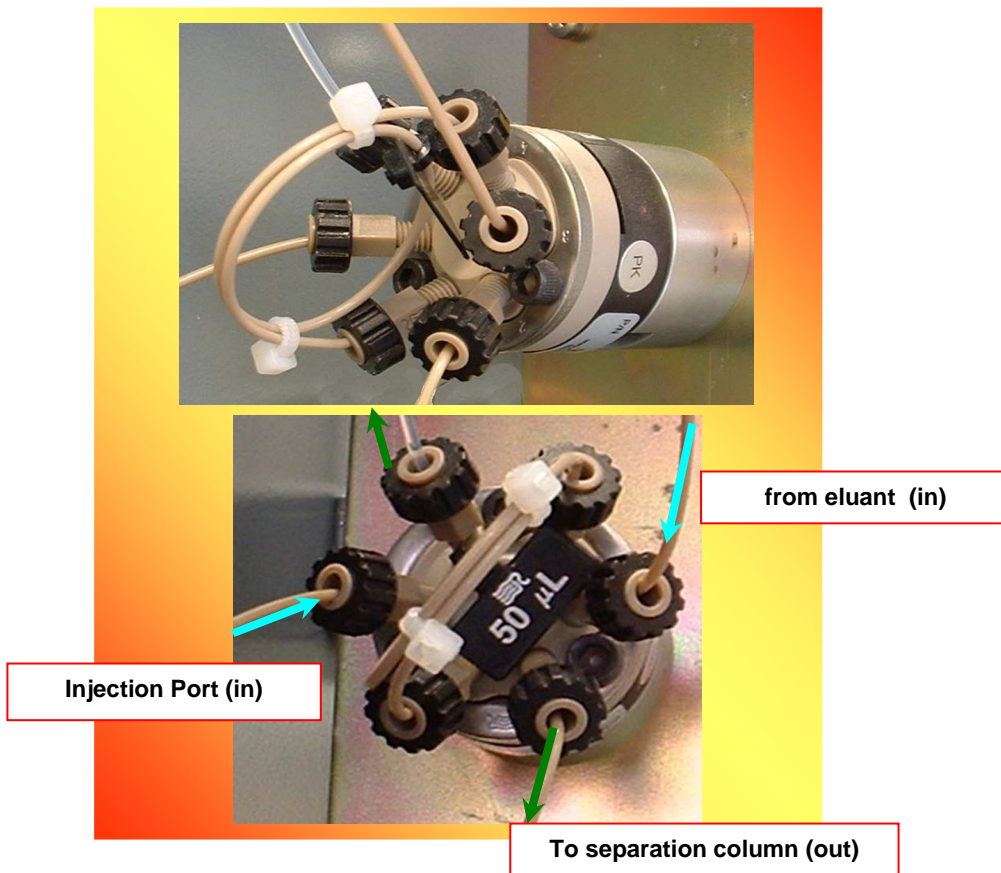
Automatic Sample Introduction System



- Working Field: for max. 4 x 48 Sample plates
- Z-Hub: 120mm
- Speed: max. X and Z-axis 200mm/sec.
- Rotation: max. 300°/sec.
- Reproducibility: +/- 0,1mm
- Position Change: without Z-movement
4,5mm/100ms
- Lifetime: > 5 mio of position change
- Force: max. 20N in all axis
- Thermostated sample plates
- Force sensor to recognize septum and bottom of used vials

Manual Injection-Rheodyne valve

Sample Introduction to the Flow System



In-coming Ports:

Eluent flow

Injection port from Autosampler

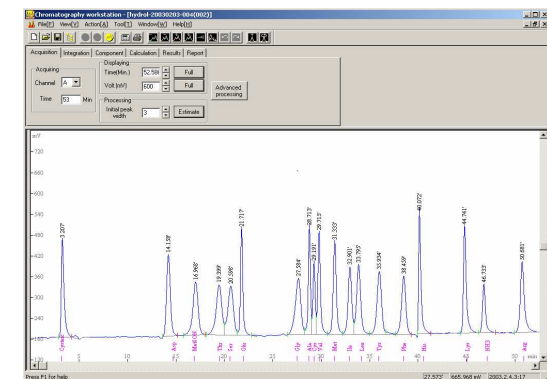
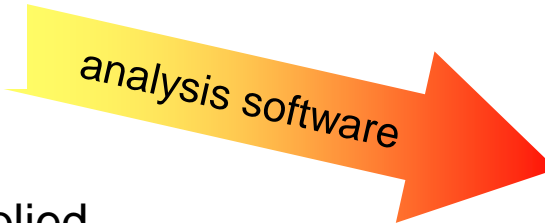
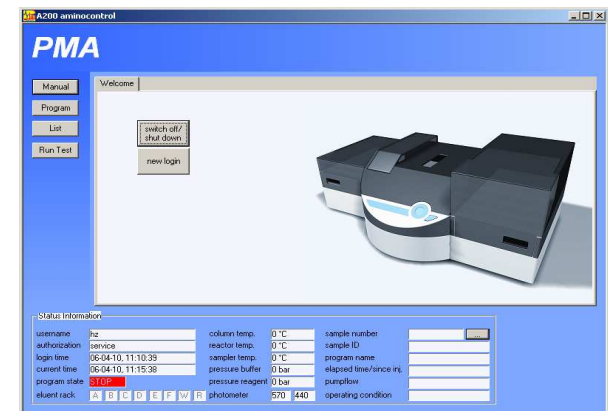
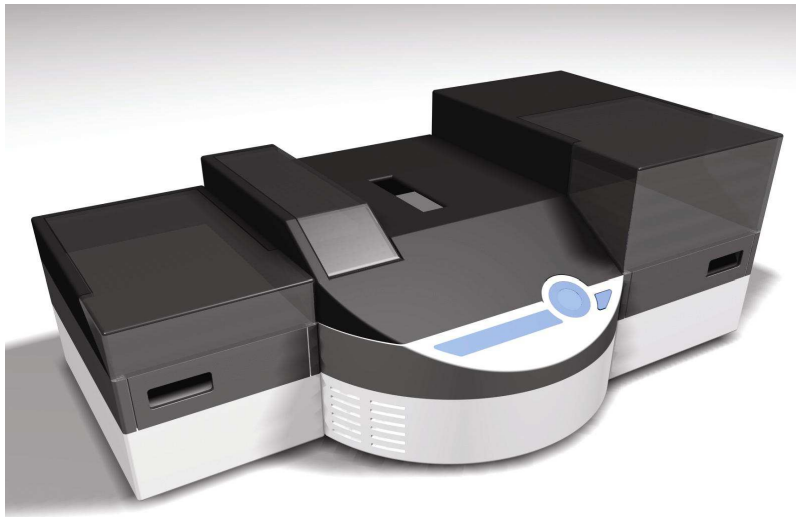
Out-going Ports:

- to Separation column

- to Waste

SAMPLE LOOP: (50 µl, 100 µl)

IONUS Software iControl



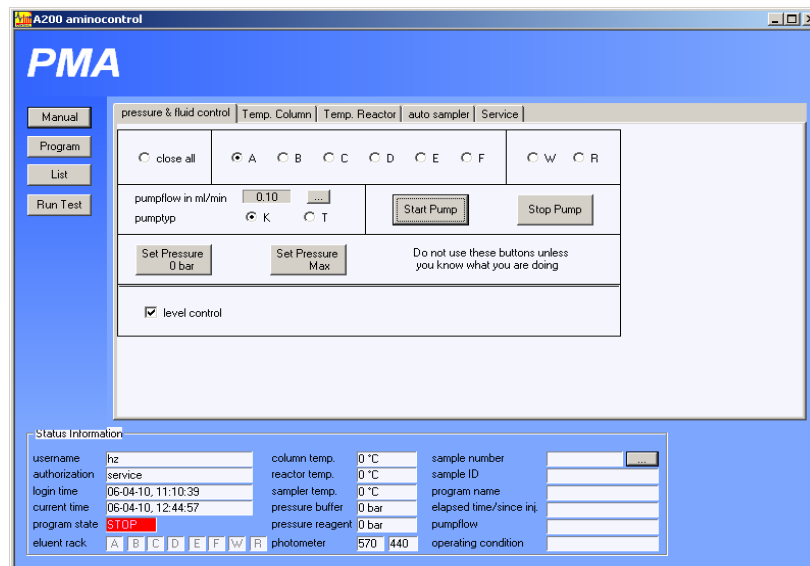
„all inclusive“

- control and analysis software supplied
- user-friendly programming
- visualization & documentation via log-files of all method parameters (GLP practice)

Software Structure (1)

Manual Mode

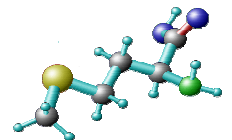
- Pressure + Fluid Control
- Column Temperature Control
- Reactor Temperature Control
- Autosampler
- Service



Edit Program Mode

Design or Modify a Program with the *subsections*:

- define RUN TIME
- define PUMP FLOW
- define use of BUFFER
- define COLUMN TEMP.
- define REACTOR TEMP.
- (define use of Photometer)
- define SETUP
- RESULTS: list of complete defined program

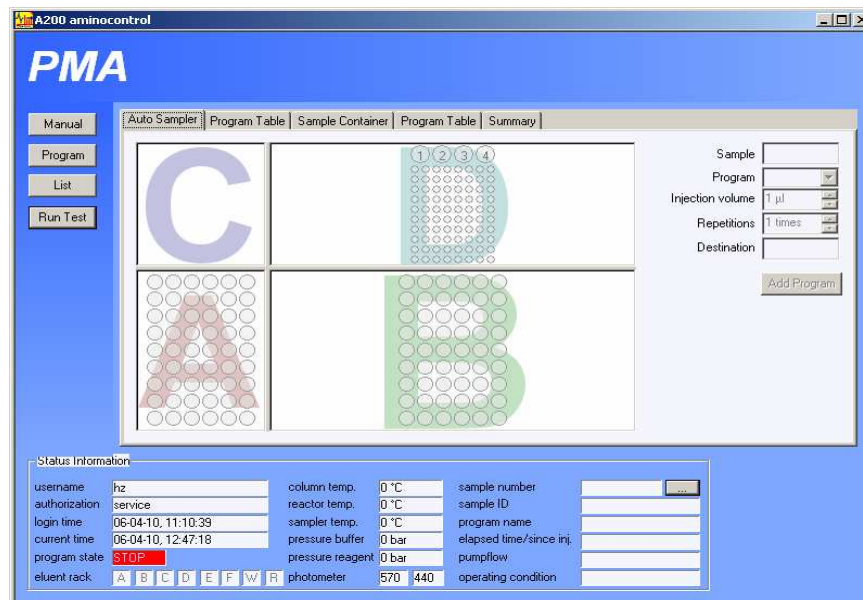


Software Structure (2)

List Program Mode

Relates Separation Program with sample to be analyzed

- *subsection:* SAMPLE CONTAINER
- *subsection:* PROGRAM TABLE



AUTOSAMPLER RUN Mode

Shows actual parameters of the running program with the *subsections:*

- *subsection:* SAMPLE CONTAINER
- *subsection:* PROGRAM TABLE
- *subsection:* SUMMARY

