

### ALEXYS 100 LC-EC System

- Dedicated to LC-EC
- Designed for performance

Due to its principle and unsurpassed sensitivity EC detection may put very high and specific demands to an LC system. To fully exploit LC-EC, Antec Leyden has composed a system that meets these demands. This dedicated system comprises the DECADE II, autosampler, pump, interface, degasser and pulse damper. An organiser rack comprises the high-efficiency integrated degasser, up to 2 pulse dampers and all systems' main connections with single power inlet. The rack also accommodates pump(s), a powerful multi-channel data and switchboard interface and adaptable mobile phase bottle rack.

The ALEXYS 100 is easily upgradeable to allow micro-bore and capillary LC-EC. ALEXYS data system can control up to 2 systems in parallel operating on independent time bases. Each system can contain multiple detectors in series (up to 8 devices).

The 21CFR part 11 compatible ALEXYS software is able to integrate detector data up to 4 channels and controls all system components.

A standard ALEXYS 100 LC-EC System:

Part no.	Description
110.4205	VT-03 flow cell, 3 mm GC WE, ISAAC
171.0035	DECADE II EC controller w/o flow cell
181.0035	AS 100 autosampler, cool
182.0035	LC 100 pump, analytical
183.0035	AC 100 acquisition controller
184.0035	OR 100 organiser rack
180.0200	ALEXYS LC connection kit
185.0035	ALEXYS data system



Autosampler, pump and flow cell are also available in micro version:

Part no.	Description
110.4215	VT-03 flow cell, 2 mm GC WE, ISAAC
181.003Z	AS 100 autosampler, cool, micro
182.003G	LC 100 pump, micro

## ALEXYS data system

- 2 independent time bases, 2 channels each
- 21 CFR part 11 compliance

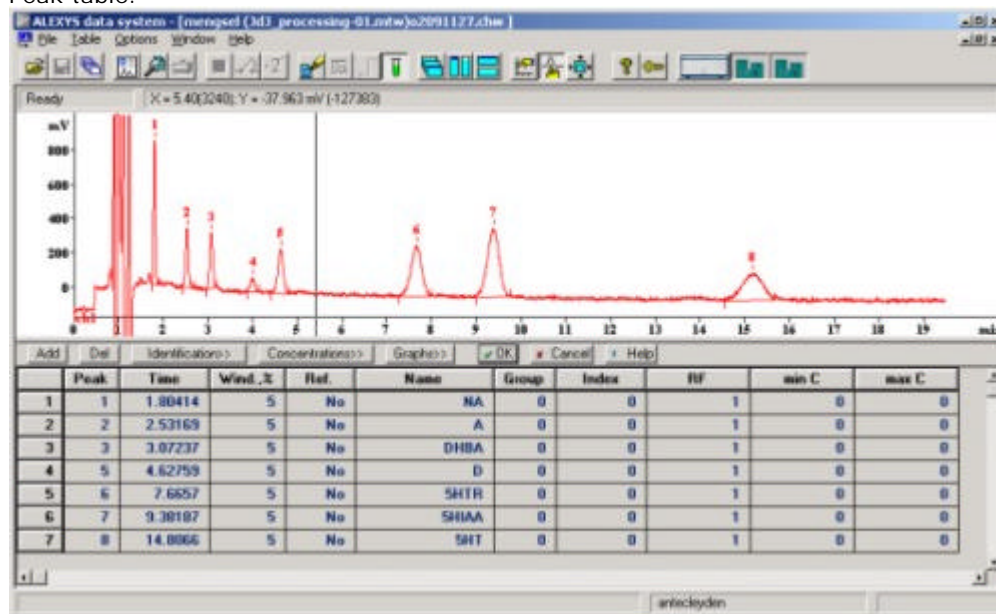
Our software is 21CFR part 11 compliant and meets GLP. It controls all ALEXYS hardware components via highly transparent drivers ('single point control'). ALEXYS data system provides acquisition from two independent time bases, 2 analogue channels each. In addition multiple device dependent channels can be added, such as cell1, cell2, temperature, uncompensated cell current, solvent A, B etc. It allows the user to compose and define a system.

Part no.	Description
183.0035	AC 100 acquisition controller
185.0035	ALEXYS data system



## Screen shots

Peak table:



Report options:



**Report options**

number  
 retention time  
 halfwidth  
 height  
 height%  
 area  
 area%  
 capacity factor  
 resolution  
 effectivity, TP  
 effectivity, TP/m  
 reduced TP height  
 gaussian factor  
 asymmetry  
 response factor  
 raw concentration  
 concentration%  
 rel.concentration  
 rel.concentration%  
 peak amount  
 index  
 type  
 group  
 spectral ratio  
 name  
 file name  
 title

Report destination  
 Screen  Printer  File

Peak table  
 Quantification method: Custom  
 Standard component:  
 Concentration of std: 1  
 Total % for normalization: 100  
 Printing order: By peaks  
  Report all peaks  Groups

Template: ENGLISH.RTT  
 Separator: Space Tab size: 8

File output options  
 Directory:  Name: 11  
 C:\Program Files\Views\REPORTS\  
 Mode:  Overwrite  Append  
 Character set:  Windows  DOS  
 Custom program:

**Component - Noradrenaline**

Copy to clipboard Print/preview...  
 $Q = 0.114742A - 0.176216$   
 RSD = 1.996 %

Component: Noradrenaline  
 Retention time: 1.642  
 Concentration: 0.156

Calibration method: External standard  
 Standard addition:  Local  
 Base: Area  
 Reference channel: Cell  
 Formula: Linear  
 Statistical weight:  $1/X^2$   
 Standard component: Noradrenaline  
 Concentration of standard: 100

$k_2 = 0$   $k_1 = 0.114742$   $k_0 = -0.176216$   
 $k_3 = 0$

Level	Conc.	Area	File	Used
1	0	0	na221736.chw	No
2	0.1	19.1	na221745.chw	Yes
3	0.12	22.6	na221752.chw	Yes
4	0.14	25.7	na221759.chw	Yes
5	0.16	28.8	na221808.chw	Yes
6	0.18	33.6	na221816.chw	Yes



### ALEXYS AS 100 autosampler

- ❑ Sample pick-up down to 1µL
- ❑ Cooled sample tray
- ❑ Automated sample handling
  - ❑ Derivatisation
  - ❑ Dilution
  - ❑ pH changes



The AS 100 has impressive records in injection precision and micro-volume handling. It can be equipped with sample cooling and integrated stream switching. It offers highest injection performance for partial loop filling and zero (!) sample loss injection capability. The AS 100 can handle sample volumes down to the µL level accurately and reproducibly for research as well as for high throughput routine analysis.

It features reagent mixing routines enabling aspiration and dispensing any volume from any vial into any vial in the sample tray. The AS 100 can automate for example pre-column derivatisations, dilutions and pH changes. All operational parameters of the AS 100 are listed in the ALEXYS software. In fact: run any method on any vial or series!

Part no.	Description
181.0035	AS 100 autosampler, cool
181.0036	AS 100 autosampler
181.0037	AS 100 autosampler, cool, micro

### ALEXYS LC 100 pump

- ❑ Very low pulsation
- ❑ Easy exchangeable pump heads, auto sensing
- ❑ Compatible with micro bore



The LC 100 with its semi-floating piston design is a perfect match for ALEXYS because of its virtually pulse-free flow delivery. Two pump heads are available, an analytical and a micro head. The heads are auto-sensed by the pump firmware and can be exchanged in a minute. The LC 100 is equipped with a piston back-flush module.

Part no.	Description
182.0035	LC 100 pump, analytical
182.0036	LC 100 pump, micro

### ALEXYS OR 100 organiser rack

- ❑ Flexible
- ❑ Compact
- ❑ Integrated pulse damper and degasser



### OR 100 organiser rack

The compact OR 100 organiser rack has been developed for flexibility. It comprises a revolutionary and extremely efficient degasser and pulse damper. It can hold 1 or 2 LC 100 pumps, an AC 100 acquisition controller, a tray for mobile phase and waste bottles, and a bottle to back-flush pump pistons.

The power supply for all ALEXYS components comes from the OR 100 excluding occurrence of troubling ground loops.

Part no.	Description
184.0035	OR 100 organiser rack

### ALEXYS AC 100 acquisition controller

- ❑ 2 independent time bases
- ❑ 4 channels (24-bits ADC), 16 RS232 ports, 14 ports for ext. control
- ❑ 21 CFR part 11 compliance



The AC 100 has four 24-bit ADC analog inputs for data acquisition, 2x8 RS232 ports to control chromatographic equipment, and 2x7 outputs to control external events. Up to two independent chromatographic systems can be controlled. Up to 2 analog data signals, and 8 devices are supported for each chromatographic system.

### ALEXYS data system

The [data acquisition software](#) is 21CFR part 11 compliant and meets GLP. It controls all ALEXYS hardware components via highly transparent drivers ('single point control') and provides data acquisition from two independent time bases, 2 channels each. It allows the user to compose and define a system.

Part no.	Description
183.0035	AC 100 acquisition controller
185.0035	ALEXYS data system



**DECADE II**  
**Digital Electrochemical Amperometric Detector**



- **Sensitive:** strongly improved noise suppression by ADF
- **Accurate:** integrated, shielded column/flow cell oven
- **Flexible:** time-based, full parametric control
- **Versatile:** dual flow cell control

Antec Leyden has repeatedly demonstrated the supremacy of the 'workstation' concept in LC-EC. The DECADE II is based on this proven concept, guaranteeing highly reproducible retention times and peak heights, as well as non-drifting baselines to deliver LC-EC data meeting highest quality standards. The DECADE II platform introduces a new standard in EC detector electronics, performance and design.

- Data processing occurs by 24 bits A/D and 20 bits D/A converters.
- The soft- and firmware can be updated via Flash technology.
- In the firmware and via RS232 extensive timed event tables can be entered to customise the most extreme chromatographic conditions.
- A second detector controller board can be added enabling serial or parallel LC-EC analyses
- An optional, DECADE II-controlled electrical injector can be mounted externally for unattended continuous flow analyses.
- A noise suppressor, called ADF has been developed breaking new grounds in detection limits.
- IQ, PQ and OQ available.

The DECADE II is available with a glassy carbon, platinum, gold, silver and copper electrode flow cell. In combination with a 25 micrometer spacer detection volumes down to 11 nl can be obtained. Detection sensitivity of 100 picomol/L of catecholamines is guaranteed, and often considerably improved by customers.

Part no.	Description
171.0035	DECADE II w/o flow cell
171.0038	DECADE II w/o flow cell, dual cell control

Optionally the DECADE II can be equipped with a electrically actuated injector (standard or micro) or a manual injector. Injection valves:

Part no.	Description
250.0012	Valco manual injector
250.0013	Valco manual injector, micro
250.0017	Valco electrical injector
250.0022	Valco electrical injector, micro

Read more about DECADE II qualification procedures:

- [IQ procedure](#)
- [DECADE II Dialogue PQ](#)
- [DECADE II Dialogue OQ](#)



## DECADE II - IQ documentation

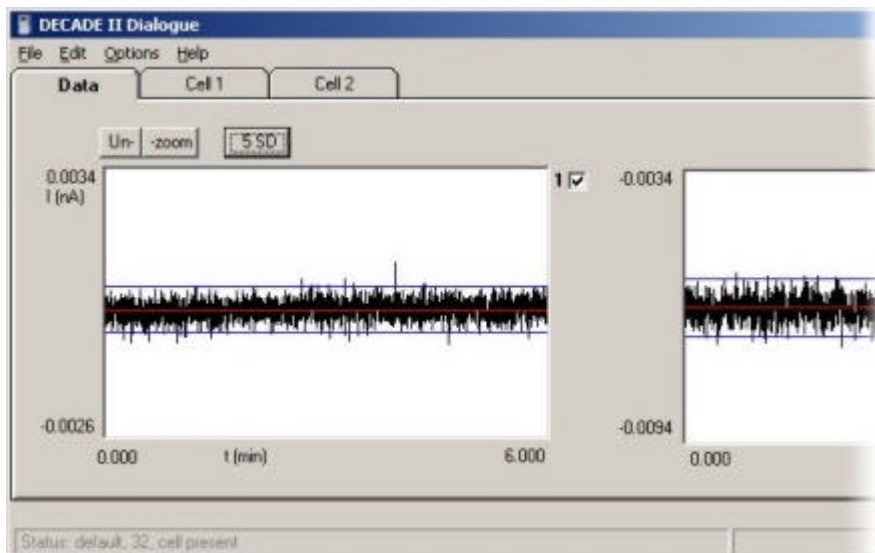
DECADE II Installation Qualification describes the installation procedure as advised by the manufacturer. It is a result from our interpretation of many regulations and laboratory practises. In addition, feedback from users and representatives helped us to finalize this procedure. All qualification checks have to be approved, or should be marked "n/a" if not applicable. Any deviation observed must be documented in the 'non-conformance' record. The IQ document describes:

- Installation
  - Unpacking and installation checks
  - Installation procedure
  - Operational familiarisation
- IQ certification
- Non- conformance record

Part no.	Description
171.0024	DECADE II IQ manual

## DECADE II Dialogue - PQ version

DECADE II Performance Qualification is implemented in Dialogue software. It is an automated performance qualification that results in a single page hardcopy PQ report.



DECADE II Dialogue PQ:

- Automated PQ procedure with dummy cell
- Dual cell supported
- Hardcopy of PQ report (Excel template)

Part no.	Description
171.9005	DECADE II Dialogue, PQ version

**DECADE II Dialogue - OQ version**

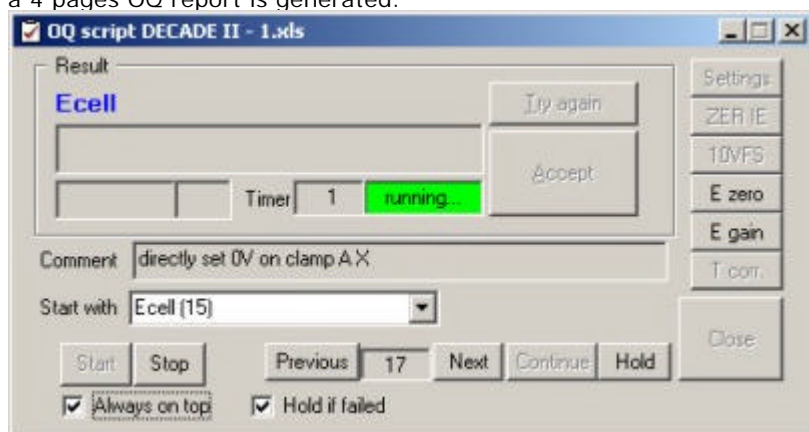
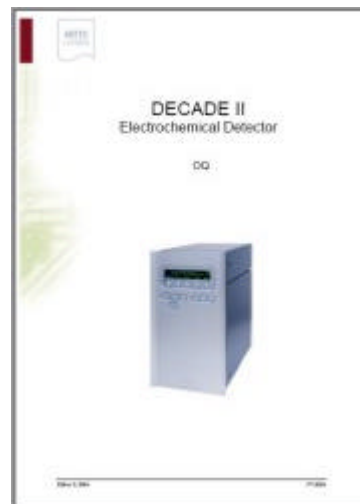
Choose a product ▼

DECADE II Operational Qualification describes the OQ procedure as advised by the manufacturer. It is a result from our interpretation of many regulations and laboratory practises. In addition, feedback from users and representatives helped us to finalize this procedure. A complete OQ for DECADE II consists of:

- Performance test of DECADE II electronics
- Performance test of DECADE II with flow cell

The second check is an overall HPLC-ECD check running a test sample. All qualification checks have to be approved, or should be marked "n/a" if not applicable. Any deviation observed must be documented in the 'non-conformance' record.

An OQ script in DECADE II Dialogue guides you through all steps of the procedure. All test results are electronically stored. After finalising a 4 pages OQ report is generated.



The OQ document describes:

- OQ for DECADE II electronics
  - Ecell
  - Output at 10 V / 1 V
  - Zero IE values
  - Linearity
  - Temperature
  - Dummy cell test
  - Noise and drift
- OQ for DECADE II with flow cell
  - OQ Testing procedure
  - QC criteria

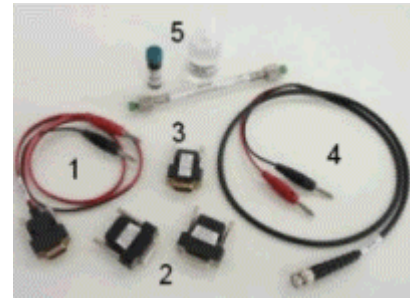


Column properties

- OQ certification
- Non-conformance record

Part no.	Description
250.3000	DECADE II OQ start-up kit

Read more about DECADE II qualification procedures:



**Start-up kit DECADE II OQ:**

Ecell test cable (1), I/O test plugs (2), 1 MOhm dummy (3), output cable (4), analytical column kit (5). Also included: DECADE II manuals and DECADE II Dialogue OQ version.



**INTRO**  
**Integrated Detector for Reduction and Oxidation**

- Integrated oven
- Oxidation or Reduction (DC)
- Large dynamic range
- Low cost system



The INTRO (INTEgrated detector for Reduction and Oxidation) is an analog electrochemical (EC) workstation that warrants optimal LC-EC conditions by means of a high degree of integration. Not only the flow cell is incorporated in the Faraday-shielded oven compartment, but also the LC column, an optional pulse dampener and injector.

The INTRO offers flexible but very stable working conditions even in ultra-trace analyses, combined with functional transparency and ease of use. All crucial functions and values are ranked in logical order and can be monitored with high accuracy. Especially the cell or background current (I<sub>cell</sub>), considered to be a crucial parameter for high-quality LC-EC, can be checked continuously with high, i.e. pico-ampere, resolution. The INTRO has been designed for continuous use and therefore shows its maximum stability under such working conditions.

The INTRO is available with a glassy carbon, platinum, gold, silver and copper flow cell. In combination with a 25 micrometer gasket detection volumes down to 5 nl can be obtained. Detection sensitivity of 100 picomol/l of catecholamines is guaranteed, and often considerably improved by customers.

Part no.	Description
130.0035	INTRO EC controller w/o flow cell

