

ALEXYS™

ELECTROCHEMISTRY AND LIQUID CHROMATOGRAPHY PRODUCTS & PARTS CATALOGUE

LC-ECD Systems

Detectors

Autosamplers

Pumps

Organizers and racks

Flow cells

Columns, kits and valves

Software

Documentation



Antec®
Proven Performance!



Antec[®]

Proven Performance!

COMPANY PROFILE

For over 20 years Antec has been the world's leading supplier of analyzers using High Performance Liquid Chromatography (HPLC) with Electrochemical Detection (ECD). With the introduction of the ROXY™ line of products for on-line Electrochemistry (EC)/MS, Antec is bringing electrochemistry back to the attention of the chemist, assuring success with EC/MS applications and the mimicking of nature's Redox reaction.

Antec is headquartered just outside Amsterdam, in Zoeterwoude, The Netherlands. Antec offers its products and services through a worldwide distributor network. Antec's subsidiary in Palm Bay, Florida provides products and services directly to the North American market.

In the early years, Antec's product offering was primarily comprised of electrochemical detectors. That changed with the release of the ALEXYS™ analyzers, a fully featured HPLC/ECD product line, and the introduction of the ROXY™ product line for electrochemistry upfront MS.

For Antec, focus on application support and product quality has always been our highest priority. We have strong collaborations with our customers developing dedicated and customized application solutions.

Sharing knowledge of the systems and application methods, including on-site training, has become a valuable service in supporting our customers. Antec's commitment to providing 'guaranteed applications' means that upon installation Antec invests time and efforts to have customers' applications fluidly running ensuring a head start without losing time over details.



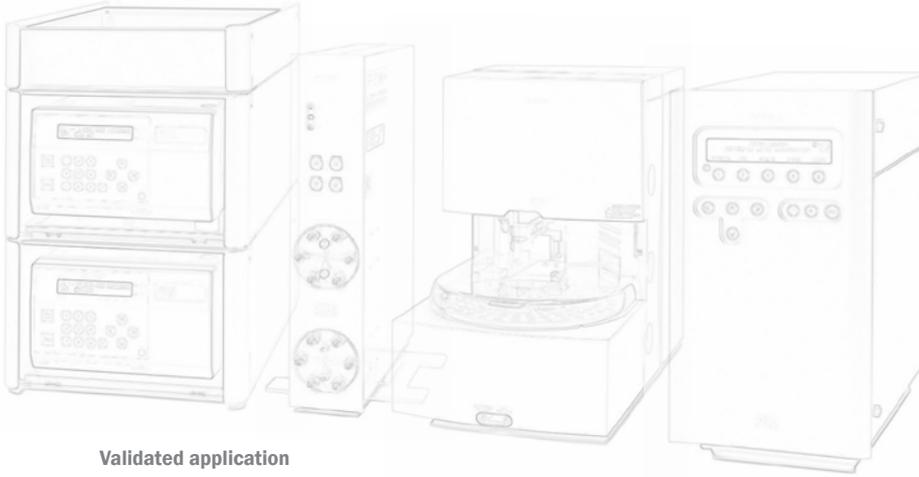
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ALEXYS™ Analyzers products & parts catalogue

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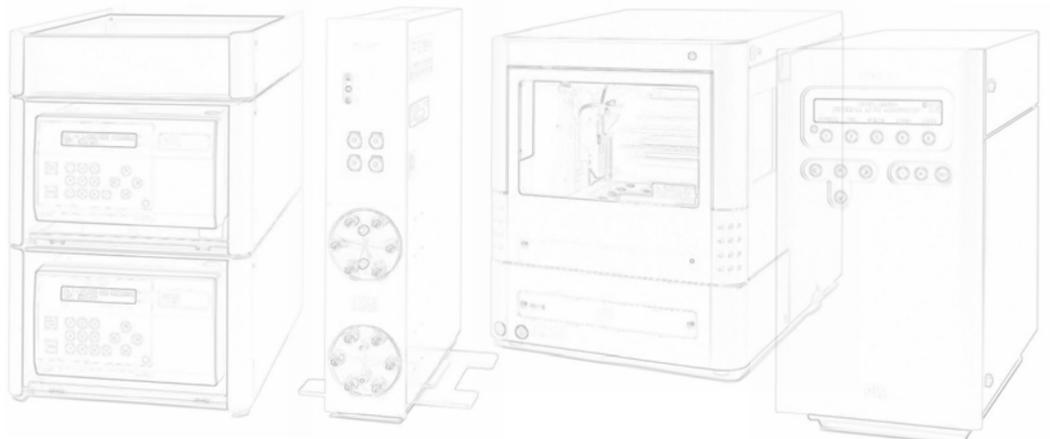


ALEXYS™ Analyzers



Validated application

All relevant HPLC and detection parameters such as mobile phase composition, working potential etc. have been established and optimized for you. The robustness, linearity and repeatability of the method has been determined for you by our experts at Antec. The data acquisition software contains pre-configured system files and acquisition parameters to run any validated application. Application notes are published on the internet. The system solution is ready for you to use straight out of the box.



Proven analyzers to guarantee your performance

Antec[®]
Proven Performance!



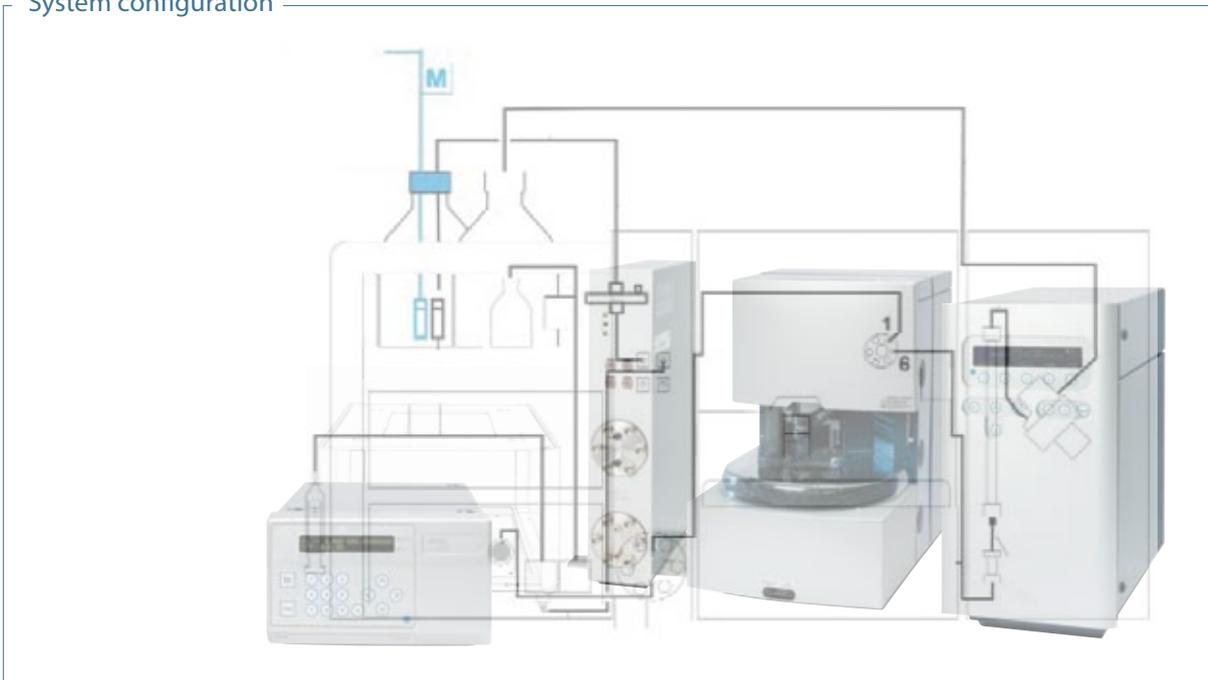
CONFIGURING ALEXYS™ ANALYZERS

Proven to guarantee performance



All parts of a system solution have been carefully selected to meet the requirements for best sensitivity in HPLC with EC detection. Additional components such as switching valves or mixing devices are added if necessary.

System configuration



Proven analyzers to guarantee your performance



Due to its incredible sensitivity, EC detection has very high demands from an LC system.

To fully exploit LC-ECD, Antec Leyden has created a system that meets these demands.

This dedicated system is comprised of the DECADE II, autosampler, pump and data acquisition software.

An organizer rack with a high-efficiency integrated degasser, up to 2 pulse dampeners and a mains power distributor for all devices are also part of the system.

The ALEXYS™ is easily upgradeable to allow micro-bore and capillary LC-ECD.

The fully featured data acquisition software contains all the tools for automated sampling, data acquisition, calibration, processing and reporting.



ALEXYS™ ANALYZERS

Ready to prove performance

Integrated system solutions have been developed for the analysis of neurotransmitters such as noradrenaline, dopamine, serotonin and metabolites in microdialysates.

Typically, picomolar concentration detection limits have been obtained in only a few microliters of sample.

Parallel detection schemes using multiple flow cells have been developed for time, sample and experimental cost savings!

The ALEXYS™ can be used for routine analyses in clinical, food & beverage, environmental and pharmaceutical laboratories.



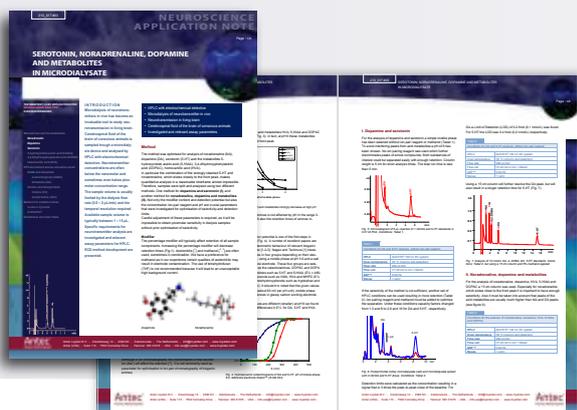
Proven analyzers to guarantee your performance



NEUROSCIENCE ALEXYS™ ANALYZERS with fluidly running applications

NEUROTRANSMITTER ANALYSES IN MICRODIALYSATES & BRAIN TISSUE

For the analysis of noradrenaline, dopamine, serotonin and acid metabolites two assays are presented in the application note. One method for dopamine and serotonin (I), and another method for noradrenaline, dopamine and metabolites (II). The effect of modifier content, ion-pair reagent concentration, mobile phase pH, and electrode potential on the analysis of these substances are presented. Detection limits are typically in the range of 0.2fmol on column.



ALEXYS Monoamines Analyzer™

- ALL MONOAMINES & METABOLITES
- ONE INJECTION, TWO CHROMATOGRAMS, FULLY FLEXIBLE
- SMALL SAMPLES < 5 µL

ALEXYS GABA and Glutamate Analyzer™

- AUTOMATED PRE-COLUMN DERIVATIZATION
- ONE INJECTION, TWO CHROMATOGRAMS, COLUMN SWITCHING
- SMALL SAMPLES < 5 µL

ALEXYS Acetylcholine Analyzer™

- ENZYME COATED ELECTRODE
- SUPERIOR REPRODUCIBILITY AND SENSITIVITY
- SMALL SAMPLES < 5 µL

ON-LINE IN VIVO ANALYSES

Conventional sampling of once every 20 minutes is not sufficient to accurately describe fast neurochemical responses. To improve time resolution, a 14-port valve with 3 loops connected in series is used to directly collect the microdialysate. The content of these loops is then simultaneously injected on 3 HPLC flow paths that run the same analysis, and during analysis the following three samples are collected. A DECADE II™ Triple Cell Control (TCC) detector acquires all signals.

ALEXYS OMD High Throughput Analyzer™

- HIGH THROUGHPUT
- 3 RATS, 3 X 6 - PORT VALVE
- EFFICIENT MULTIPLE ANALYSES ON ONE SYSTEM

ALEXYS OMD Time Resolution Analyzer™

- 1 RAT, 14 - PORT VALVE, 3 LOOPS
- INCREASED SAMPLING FREQUENCY
- 3 µL LOOPS = 3 MIN SAMPLES

ALEXYS OMD Monoamines Analyzer™

- ALL MONOAMINES & METABOLITES
- 14 - PORT VALVE, 2 LOOPS, NO SAMPLE LOSS
- IMMEDIATE RESULTS



Proven analyzers to guarantee your performance



PHARMACEUTICAL & BIOTECH ALEXYS™ ANALYZERS with fluidly running applications



ALEXYS Aminoglycosides Analyzer™

- AMINOGLYCOSIDES
- EP/USP METHODS
- BULK AND VETERINARY COCKTAILS

The analyzers are dedicated and methods are validated to meet the specifications of the EP and/or USP. Aminoglycosides such as Gentamicin, Tobramycin, Kanamycin, Spectinomycin and Lincomycin in cocktails can be analyzed.



ALEXYS Azithromycin Analyzer™

- MACROLIDE ANTIBIOTICS
- USP METHOD
- APPLICABLE FOR CLARI-, ROXI-, AND ERYTHROMYCINE



The USP method for Azithromycin utilizes two flow cells in series. The first cell is used for screening, and the second for detection of the analytes. For this application, the ALEXYS Azithromycin Analyzer™ utilizes a FlexCell in series with a VT-03 cell for detection.

Proven analyzers to guarantee your performance



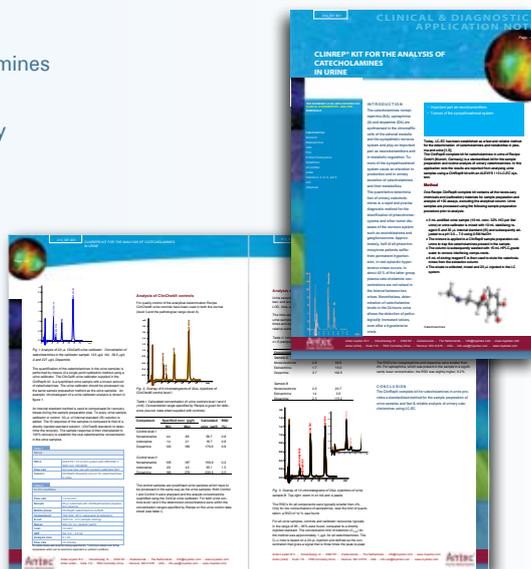
CLINICAL & DIAGNOSTICS ALEXYS™ ANALYZERS with fluidly running applications



ALEXYS Catecholamines Analyzer™

- VALIDATED CONCEPT
- ROBUST, DEDICATED FOR ROUTINE ANALYSIS
- TUMOR AND CARDIOVASCULAR MARKERS

Today, LC-ECD has been established as a fast and reliable method for the determination of catecholamines and metabolites in plasma and urine as well for Serotonin. Complete kits contains all the necessary chemicals and (calibration) materials for sample preparation and analysis of 250 plasma assays, excluding the analytical column.



ALEXYS Iodide Analyzer™

- IODIDE IN URINE
- DIAGNOSIS OF THYROID DYSFUNCTION
- EXCELLENT SENSITIVITY AND PEAK SHAPE WITH MAGIC DIAMOND



With the introduction of conductive diamond an interesting new electrode material became available in electrochemistry. Diamond has several advantages over conventional electrode materials such as a wide potential window in aqueous solutions, excellent chemical inertness and stability. For this application a sensitive and reliable LC-ECD method is available for the analysis of iodide based on DC amperometry using the Magic Diamond™ (MD) electrode.



Proven analyzers to guarantee your performance



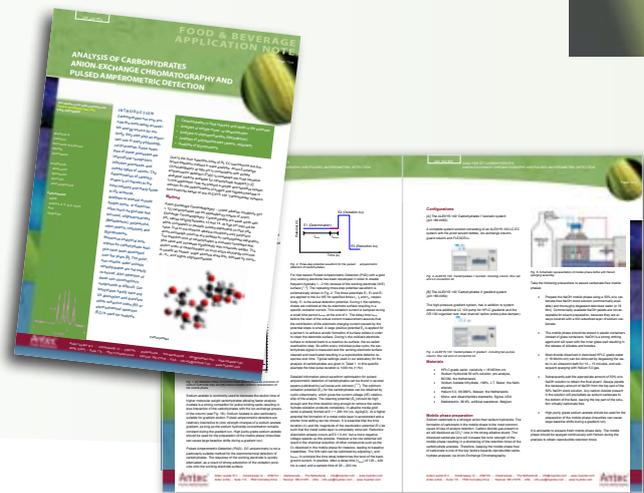
FOOD & BEVERAGE ALEXYS™ ANALYZERS with fluidly running applications



ALEXYS Carbohydrate Analyzer™

- QC OF FOOD PRODUCTS
- FOOD RESEARCH, PHYTOCHEMICALS
- DETECT CONTAMINANTS AND POLLUTANTS IN BEVERAGES

The ALEXYS Carbohydrate Analyzer™ gradient system is suitable for the more demanding analysis of complex carbohydrate mixtures such as oligosaccharides. With this high-pressure gradient analyzer based on pulsed amperometric detection, “fingerprints” of oligosaccharides and other complex carbohydrate mixtures can be recorded. This can serve as a tool for estimating chain length distribution.



ENVIRONMENTAL ALEXYS™ ANALYZERS with fluidly running applications

ALEXYS Phenol Analyzer™

- WATER AND SOIL SAMPLES
- KETONES IN BIODIESEL EXHAUST
- USED BY CRO LABS FOR ROUTINE ANALYSIS



Chlorophenols and nitrophenols are used for industrial and agricultural reasons, thus posing a threat to contaminating river and drinking water. The MAC (maximum admissible concentration) in the EEC countries for phenols in drinking water is 0.5 µg/l. In the 70's the US Environmental Protection Agency (EPA) made a list of the eleven most important phenol contaminants as priority pollutants.



Proven analyzers to guarantee your performance



ALEXYS™ ANALYZERS LINE-UP

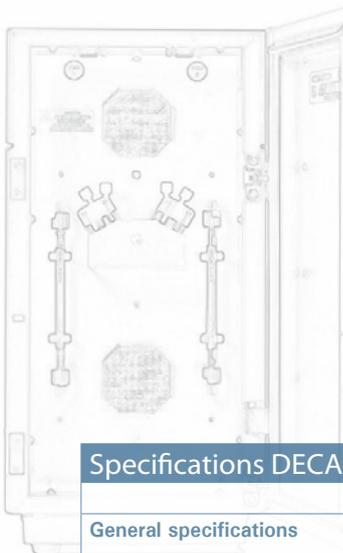
27 major configurations on display

Order no.	Standard configurations	
180.0035A	ALEXYS Cool	
180.0036A	ALEXYS Basic	
180.0037A	ALEXYS Cool, Micro	
Neuroscience		
	OFF-LINE ANALYZERS FOR MICRODIALYSATES AND BRAIN TISSUE	
180.0088A	ALEXYS Monoamines Analyzer	
180.0070A	ALEXYS GABA and Glutamate Analyzer	
180.0067A	ALEXYS Acetylcholine Analyzer	
180.0068A	ALEXYS Disulfides Analyzer	
	ON-LINE ANALYZERS FOR MICRODIALYSATES	
180.0082A	ALEXYS OMD High Throughput	
180.0083A	ALEXYS OMD Time Resolution	
180.0081A	ALEXYS OMD Monoamines Analyzer	
	MODULAR ALEXYS CONFIGURATIONS	
180.0091A	ALEXYS Flex SCC	
180.0092A	ALEXYS Flex DCC	
Pharmaceutical & Biotech		
180.0050A	ALEXYS Aminoglycosides Analyzer	
180.0058A	ALEXYS Kanamycin/Amikacin Analyzer	
180.0056A	ALEXYS Gentamicin Analyzer	
180.0059A	ALEXYS Spectinomycin/Lincomycin Analyzer	
180.0086A	ALEXYS Azithromycin Analyzer, USP	
180.0068A	ALEXYS Disulfides Analyzer	
Clinical & Diagnostics		
190.0035A	ALEXYS Clinical Analyzer	
180.0068A	ALEXYS Disulfides Analyzer	
180.0095A	ALEXYS Iodide Analyzer	
180.0078A	ALEXYS Vitamins Analyzer	
Food & Beverage		
180.0090A	ALEXYS Bisphenol A Analyzer	
180.0094A	ALEXYS Polyphenols Analyzer	
180.0054A	ALEXYS Carbohydrates Analyzer	
180.0095A	ALEXYS Iodide Analyzer	
Environmental		
180.0094A	ALEXYS Polyphenol Analyzer	

Proven analyzers to guarantee your performance



Analytes	Documentation
Basic systems extendable with kits	
Basic systems extendable with kits	
Basic systems extendable with kits	
Monoamines & metabolites	213_017, 221_004
Gaba/Glutamate	213_019, 221_009
Choline/Acetylcholine	213_022
Glutathione/Disulfides	211_004
Monoamines & metabolites	221_011, 221_012
Monoamines & metabolites	221_011, 221_012
Monoamines & metabolites	221_011, 221_012
Neurotransmitters, add kit to this configuration	All neurotransmitters applications
Neurotransmitters, add kit to this configuration	All neurotransmitters applications
Neomycin/Framycetin/Tobramycin/Spectinomycin	217_010, 217_014, 217_018, 221_005
Amikacin and Kanamycin	217_015
Gentamicin	217_013
Spectinomycin and Lincomycin	217_019
Azithromycin	217_011, 217_017
Glutathione and Disulfides	211_004
Catecholamines	214_001, 214_002
Serotonin	214_003, 214_004
Metanephrines	214_005
VMA, HVA, 5-HIAA	214_006
Homocysteine	211_003, 221_003
Iodide	212_003
Vitamins	218_005, 218_001
Bisphenol A (from polycarbonate bottles)	216_005
Catechin, Flavonoids and other Polyphenols	216_006, 221_019
Carbohydrates	220_002, 221_007
Iodide	212_004, 221_022
Phenols in water	216_001, 216_002



Part no.	Description
171.0035	DECADE II w/o flow cell, single cell control
171.0038	DECADE II w/o flow cell, dual cell control
171.0039	DECADE II w/o flow cell, triple cell control
171.0040	DECADE II w/o flow cell, quadruple cell control
171.0035 MD	DECADE II w/o flow cell, single cell control
171.0038 MD	DECADE II w/o flow cell, dual cell control

Specifications DECADE II

General specifications	Power	100-240 VAC, 50/60 Hz, 260 VA max., auto-sensing
	Operating modes	DC, PAD and Scan
	Potential range	Between +2.00 and -2.00 V in 10 mV increments
	Potential range "MD"	Between +2.50 and -2.50 V, activation tool MD
	Output	Between +1 and -1 V or between +10 and -10 V (20 bit D/A converter)
	Offset	Between +50% and -50% of max. output voltage, 5% steps
	Event marker	Pulse of 10% of max. output
	Auto zero	Triggered by keyboard, rear panel TTL, or RS232C control
	RS232C	Instrument control, data acquisition at 1, 2, 5 and 10 Hz
	Injector sensor	Starts system clock at injection
	Oven	Height 37 cm, from 7°C above ambient to 45°C, accuracy 0.5°C, stability 0.1°C; accommodates column and flow cell(s)
	Diagnostics	LCD screen, keyboard and noise (internal dummy cell)
	Service mode	System settings and calibration parameters
	Configuration	Menu for system customization and optimization
	Firmware	Upgradeable via PC (RS232), flash technology
Environmental	Operating temperature: 4 – 40°C, RH 20 to 80%, non-condensing	
DC mode	Ranges	10 pA – 200 µA in 1, 2, 5 steps
	Filter (cut off)	Advanced Digital Filter, 0.5 - 0.001 Hz, 1, 2, 5 steps
	Noise	Better than 2 pA with a dummy cell (load of 300 MOhm and 0.5 µF), filter off, E _c +800mV and temperature of 30°C.
PULSE mode	Range	10 nA – 200 µA in 1, 2, 5 steps
	Filter (cut off)	Advanced Digital Filter, 0.5 - 0.001 Hz, 1, 2, 5 steps
	Pulse times	t ₁ : 100 - 2000 ms; t ₂ : 0 - 2000 ms; t ₃ : 0 - 2000 ms in 10 ms steps
	Sample times	20, 40, 60, 80 and 100 ms
SCAN mode	Range	10 nA – 200 µA in 1, 2, 5 steps
	Scan rate	1 - 50 mV/s in 1, 2, 5 steps
	Cycle	half, full or continuous
AUTO mode	DC mode (5 files) and pulse mode (4 files), cycle time, number of cycles and oven temperature. Time-based control of 50 time points as to range, filter, output contacts (2 TTL, 2 relays), auto zero, board ID, offset, valve position (if present) and cell potential.	
Rear panel I/O connections	Mains, Output, 2 Connectors 15 pins (A, B), manual valve (C), RS232C connector	
Physical specifications	Dimensions	44 (D) x 22 (W) x 44 (H) cm = 17.3" (D) x 8.7" (W) x 17.3" (H)
	Weight	14.6 kg (32 lbs) without flow cell and column



DECADE II

Digital electrochemical amperometric detector

- ACCURATE
- VERSATILE
- SENSITIVE



Accurate

Both chromatography and EC detector responses are strongly affected by temperature fluctuations. It is a prerequisite for trace analysis to have a shielded and thermostatted environment for both the flow cell and column (fig 1).

Versatile

The DECADE II can control up to 4 flow cells. The column/flowcell combination can be used in parallel, but also serial arrangements are possible. To facilitate flow cells with Magic Diamond™ electrodes the DECADE II has an activation pulse button. In addition, the DECADE II is equipped with DC, Pulse and Scan mode.

Sensitive

The DECADE II demonstrates superiority in EC detection and sets a new standard in design and performance. For electrochemical detection applications, sensitivity is crucial. The DECADE II with a newly developed Advanced Digital Filtering (ADF), is breaking new records in detection limits.

A DECADE ahead

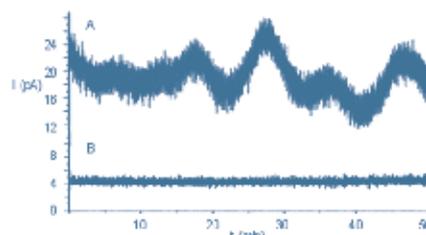
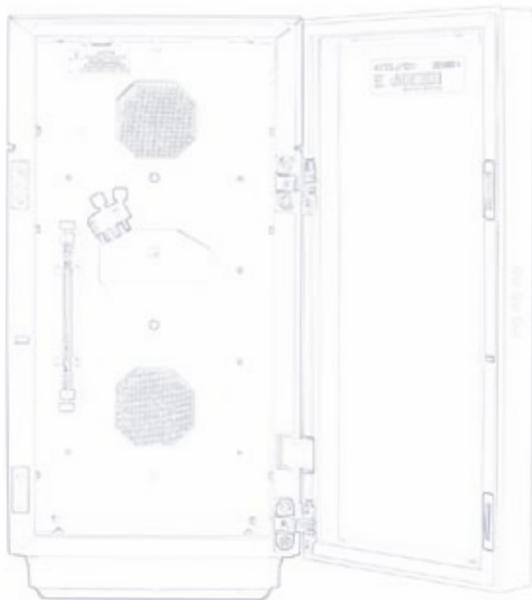


Fig. 1. Baseline without temperature control (A) and baseline of DECADE II with temperature control (B).



Part no.	Description
174.0035	DECADE II SDC w/o flow cell

Specifications DECADE II SDC		
General specifications	Power	100-240 VAC, 50/60 Hz, 260 VA max., auto-sensing
	Operating mode	DC
	Potential range	Between + 2.00 and - 2.00 V in 10 mV increments
	Output	Between + 1 and - 1 V or between + 10 and - 10 V (20 bit D/A converter)
	Offset	Between + 50% and - 50% of max. output voltage, 5% steps
	Event marker	Pulse of 10% of max. output
	Auto zero	Triggered by rear panel TTL or RS232C control
	RS232C	Instrument control, data acquisition at 1, 2, 5 and 10 Hz
	Oven	Height 37 cm, from 7°C above ambient to 45°C, accuracy 0.5°C, stability 0.1°C; accommodates column and flow cell(s)
	Environmental	Operating temperature: 4 – 40°C, RH 20 to 80%, non-condensing
	DC mode ranges	10 pA – 200 µA in 1, 2, 5 steps
	Filter (ADF)	Advanced Digital Filter, 0.5 - 0.001 Hz, 1, 2, 5 steps
	Noise	Better than 2 pA with dummy cell in 1 nA/V range, filter off, Ec + 800mV and temperature of 30°C.
	Auto mode	DC mode (5 files), cycle time, number of cycles and oven temperature. Time-based control of 50 time points as to range, filter, output contacts (2 TTL, 2 relays), auto zero, board ID, offset, valve position (if present) and cell potential.
	Environmental	Operating temperature: 4 – 40°C, RH 20 to 80%, non-condensing
Physical specifications	Dimensions	44 (D) x 22 (W) x 44 (H) cm = 17.3" (D) x 8.7" (W) x 17.3" (H)
	Weight	14 kg (32 lbs) without flow cell and column



DECADE II SDC

Plain performance

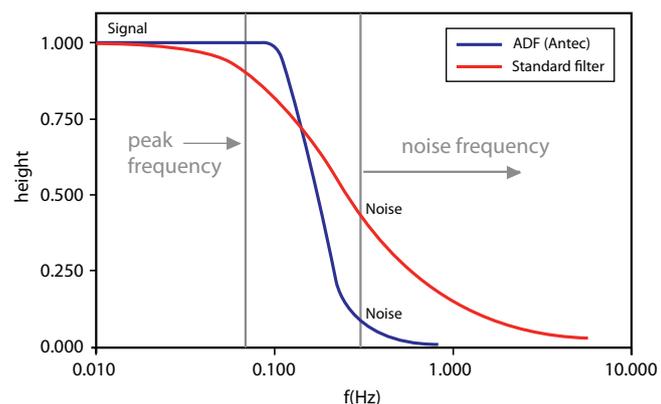
- SDC: SINGLE CELL CONTROL, DC MODE ONLY
- ADF: ADVANCED DIGITAL FILTER FOR NOISE SUPPRESSION
- CONTROLLED BY (FREE) PC SOFTWARE



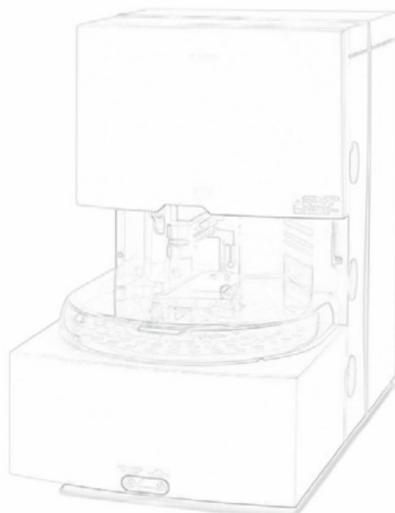
The DECADE II SDC has the same performance as the famous DECADE II. It has an integrated oven with Faraday cage and is equipped with the superior ADF. The DECADE II SDC can control one flow cell and runs in DC mode only. Without the presence of front panel control, the unit is operated by PC control using our data acquisition software or a free version of Dialogue™ software. The DECADE II SDC is compatible with all Antec flow cells. An electrically actuated injector or a manual valve is optional.

Integrated oven with Faraday cage

Comparison ADF and standard noise filter



Using ADF results in a factor
10 to 100 times better S/N Ratio.



Part no.	Description
181.0037	Autosampler AS 100, cool, micro, 6-PV
181.0038	Autosampler AS 100, cool, micro, 10-PV

Specifications Autosampler AS 100		
General specifications	Power	115 or 230 VAC ± 10%, 50/60 Hz, 250 VA max
	Operating conditions	10 - 35°C, 20 - 80% RH, non-condensing
	Sample capacity	160, 96, 72 or 32 vials (20, 12, 9 or 4 per segment)
	Vial dimensions	7, 12, 15, or 22 mm vial diameter min/max height: 32/46 mm (including cap) micro vial inserts for micro dialysis
	Dispenser	Syringe: 100, 250 (standard), 500, 1000 µL, or 10 mL
	Wetted parts	SS316, PTFE, TEFZEL, VESPEL, glass, PEEK, silica
	Loop volume	5 µL - 1 mL (1, 2, 5 steps), 100 µL standard
	Injection	Pre-puncturing septa/caps with air needle, dual needle design, vial & height detection by vial sensor
Analytical performance	Fool loop	RSD < 0.3% (all specs for capped and sealed vials)
	Partial loop fill	RSD < 0.5%, injection volumes > 5 µL, with headspace pressure on the vial and 30 µL pre-flush with air segment
	µL Pick-up	RSD < 1.0%, injection volumes > 5 µL, with headspace pressure on the vial
	Carry-over	< 0.01% with programmable needle wash
Injection programming	Methods	Full loop, partial loop and µL pick-up, user defined programming
	Volumes	1 µL - 1 mL (method dependent)
	Injections	Vial, volume, repetitions: freely programmable in data acquisition software
	Wash	Programmable needle wash
Connections	Outputs	Marker TTL and contact closures: inject, vial, labelled vial, stop I/O; programmable: 4 TTL, 4 relays contacts no/nc, 2 relays contacts no/nc, 4 TTL time based; alarm
	Inputs	Next injection, next vial, freeze, stop, 4 TTL
	PC control	RS232C, full control with data acquisition software
Options	Sample cooling	4 - 40°C; accuracy: ± 2°C capacity: ambient - 20°C (measured on cooling tray)
	Micro option	Optimized for small injection volumes > 1 µL; with 5.3 µL needle, 20 µL loop and 100 µL syringe volume, µ-bore valve
Physical specifications	Dimensions	540 (D) x 280 (W) x 440 (H) mm 21.3" (D) x 11.0" (W) x 17.3" (H)
	Weight	22 kg (48 lbs), 30 kg (66 lbs) incl. cooling option



AUTOSAMPLER AS 100

Fast, accurate & reproducible

- AUTOMATED DERIVATIZATION, DILUTION, pH ADJUSTMENTS
- INJECTION VOLUME < 10 μL WITHOUT SAMPLE LOSS
- SAMPLE PICK-UP DOWN TO 1 μL
- COOLED SAMPLE TRAY



Flexible vial choice

The AS 100 has impressive records in injection precision and sample handling. It can be equipped with sample tray cooling to protect labile samples against degradation, which can be crucial in various LC-ECD applications. Highest injection performance is provided in the flushed and partial loop fill mode. If no sample loss can be accepted, e.g. in case of μ -dialysate sampling, the custom injection mode can be used.

The coaxial design of the sample needle inside a pre-puncture needle allows for penetration through various septa without damaging the sample needle. The AS 100 features mixing routines enabling aspiration and dispensing of any volume from any vial into any destination vial. Pre-column derivatization, dilution and pH adjustment can also be automated. Programmable wash steps decrease carry-over to an absolute minimum.

Programming is straight forward and intuitive via the data acquisition software.

*Customized injection program
to minimize sample loss*



Autosamplers



Part no.	Description
191.0035	Autosampler AS 110, standard, cool, 6-PV
191.0036	Autosampler AS 110, standard, 6-PV
191.0037	Autosampler AS 110, cool, micro, 6-PV
191.0038	Autosampler AS 110, cool, micro, 10-PV
191.0039	Autosampler AS 110, micro, 6-PV

Specifications Autosampler AS 110

General specifications	Power	95 - 240 Volt AC \pm 10%; 50 - 60 Hz; 200VA
	Operating conditions	10 - 40°C , 20-80% RH
	Sample capacity	Well Plates: 2x 96-well high/low and 384-well low formats, according to SBS standards. Vials: 2 trays of 48 (1.5 mL) or 12 vials (10 mL)
	Vial dimensions	Max. plate/vial height: 47 mm (incl. septa or cap-mat)
	Dispenser	Syringe: 500 μ L (standard) or 2.5 mL (prep. option)
	Wetted parts	SS316, PTFE, TEFZEL, VESPEL, Glass, Teflon. Optional: PEEK
	Loop volume	1 μ L – 5 mL (1,2,5 steps) and 10 mL (prep. option)
	Sampling technology	PASA™, pressure-assisted sample aspiration no sample syringe contact, fixed concentric air/sample needle pair. Injection cycle time < 20 s, depending on settings
Analytical performance	Fool loop	RSD < 0.3 % (all specs for capped and sealed vials)
	Partial loop fill	RSD < 0.5 %, injection volumes = 10 μ L
	μL Pick-up	RSD < 1.0 %, injection volumes = 10 μ L
	Carry-over	< 0.05 % with programmable needle wash
Injection programming	Methods	Full loop, partial loop fill and μ L pick-up, user defined programming
	Volumes	1 μ L – 5000 μ L (with 1 μ L incr.), depending on system settings
	Wash	Programmable, between injections or vials
Connections	Outputs	1 programmable relay output, programmable as inject marker (default), aux, alarm
	Inputs	2 programmable TTL inputs, next injection , freeze, stop
	PC control	RS232C, control via acquisition software
Options	Sample cooling	Built-in Peltier cooling, non-condensing, range: 4°C to ambient - 3°C
	Bio-compatible	Inert sample needle (Silco steel) and bio-compatible valve (PEEK)
	Prep. kit	2.5 mL syringe, prep valve, 10 mL sample loop, LSV needle and sample tray for 10 mL vials
Physical specifications	Dimensions	300 (W) x 575 (D) x 360 (H) mm (with cooling option)
	Weight	19 kg (42 lbs), 21 kg (46 lbs) with cooling
	Max. weight on top	65 kg (143 lbs)



AUTOSAMPLER AS 110

Fast, accurate & reproducible

- UNIQUE NEEDLE CONCEPT
- SAMPLE PICK-UP DOWN TO 1 μ L
- COOLED SAMPLE TRAY
- WELL PLATES OR VIALS



The AS 110 is a new generation autosampler. It is a fast, robust and easy to use autosampler without compromising accuracy and reproducibility. The AS 110 includes indispensable features for the highest injection performance. It has a dual needle with positive headspace pressure, extensive wash routines for minimal carry over and 3 injection modes including μ L pick-up mode for zero sample loss.

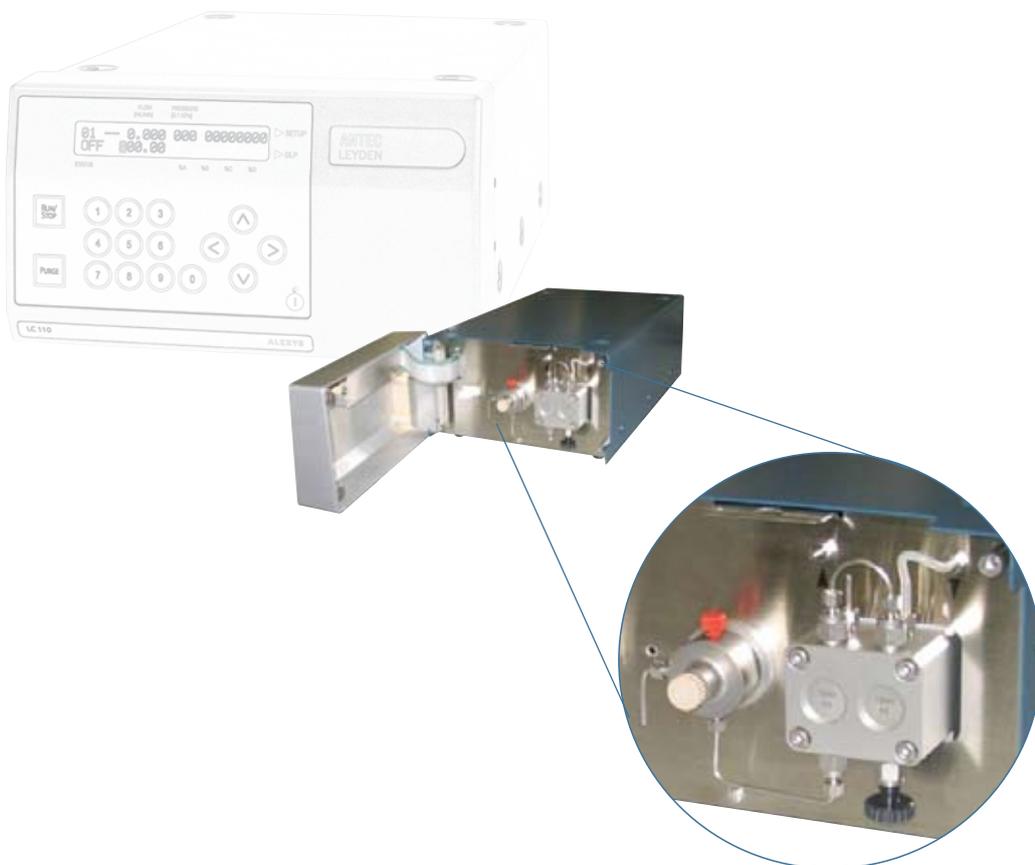
The AS 110 can handle sample volumes down to 1 μ L accurately and reproducibly. The sample tray offers temperature control down to 4°C. The fast needle movements result in unsurpassed speeds of less than 30s for a full cycle. These features make the AS 110 a perfect fit for high throughput routine analysis.

The AS110 cool, micro, 10 PV is equipped with an unique stainless steel needle with a total dead volume of 2.4 μ l and a micro bore flow path. This allows you to program small sample injections without peak broadening and loss of sample.

*Perfect fit for high throughput,
routine analysis & small samples*



Pumps



Part no.	Description
193.0035	Pump LC 110

Specifications HPLC Pump LC110

General specifications	Delivery system	Dual-piston pump with main and auxiliary piston in a serial configuration, automatic piston flush.
	Power	Auto-sensing, 90 - 260V, 47 - 63 Hz, 70 VA
	Operating conditions	10 - 40°C, 20 - 80% RH, non-condensing
	Flow rate	0.001 - 9.999 mL/min, 0 - 40 MPa
	Flow rate accuracy	< 1.5 % at 2 - 20% FS
	Ripple	Residual pressure pulsation < 3% (water, 12 MPa)
	Displacement volume	Primary piston 21.4 µL secondary piston 9.7 µL
	Pressure protection	Pmin: 0 (off) - 40 MPa, switch-off in 30 s. Pmax: 0.1 - 40 MPa, switch-off time < 1 s
	Operating modes	Isocratic, gradient (high pressure, up to 4 eluents)
	Instrument control	Numerical keypad & LCD, RS232C full digital control, REMOTE connector (stop, flow, pressure, error)
GLP features	Report of number of pump cycles, working time, delivered volume and service information	
Physical specifications	Dimensions	412 (D) x 226 (W) x 135 (H) mm 16.2 (D) x 8.9 (W) x 5.3 (H) inch
	Weight	5.3 kg (11.7 lbs)



PUMP LC 110

Superior performance LC pump for ECD

- OPTIMIZED FOR ECD APPLICATIONS
- ULTRA LOW PULSATION
- HIGH ACCURACY AT LOW μL FLOW RATES
- AUTOMATED PISTON WASH



The LC 110 pump is designed for lowest pulsation in combination with electrochemical detection. Consequently under optimized conditions no noise is detectable from the piston stroke.

The LC 110 pump features a dual piston design and an automated piston wash to remove traces of salt and other contaminants from the backside of the pistons, increasing the lifetime of the pump seals. The pump head can deliver flow rates in the low $\mu\text{L}/\text{min}$ range up to 10 mL/min.

The LC 110 pump head is available with stainless steel, titanium or ceramic inlays. These various pump head inlay materials meet the requirements of just about every application. High pressure gradient as well as flow rate programming is supported. The control software supports the programming of a quaternary high pressure gradient system.

*Dual piston design
with active pulsation dampening*

Baseline noise (ECD)

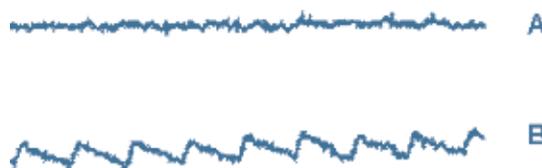
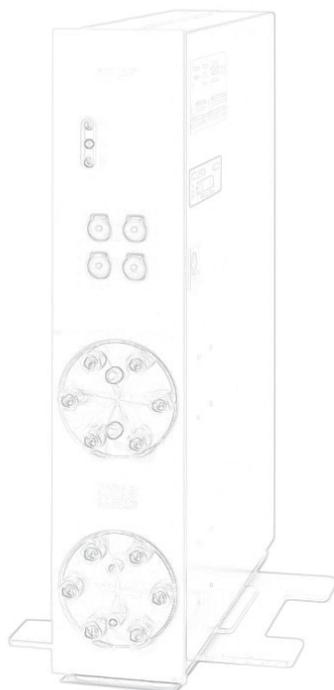


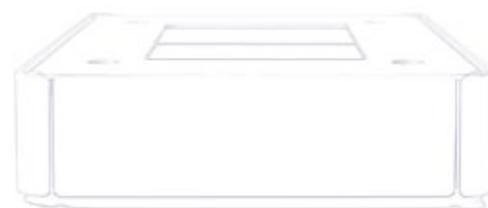
Fig 1. Baseline in ECD with LC110 (A) compared to another brand (B).



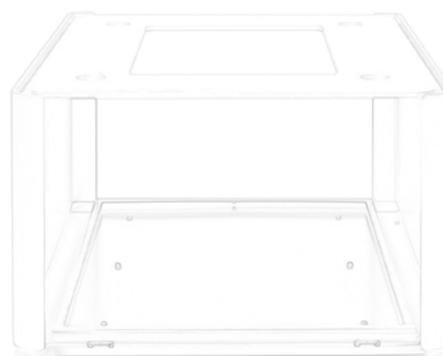
Organizers and racks



Bottle rack



Tool rack



Pump rack

Part no.	Description
184.0040	Organizer OR 110
184.0035	Organizer rack OR 100

Specifications Organizer OR 110

General specifications	Power	100 – 240 VAC, 50/60 Hz, 20 VA degasser only
	Operating conditions	10 – 35°C, 20 – 80% RH, non-condensing
	Power outlets	8 outlets: 100 VAC (max 800 VA total) – 240 VAC (max 1900 VA total), max 300 VAC per outlet Degasser 2 channels, volume 480 µL/channel, capacity < 2 ppm O ₂ at 1 mL/min, max flow rate 10 mL/min LED for power, start-up and vacuum level wetted materials: PEEK, PTFE, Teflon AF
	Pulse damper	Membrane type, dead volume 0.9 mL at max pressure 41.4 MPa (6,000 PSI wetted materials: 316 SS and FEP
Physical specifications	Dimensions	35 (D) x 9 (W) x 44 (H) cm
	Weight	10.3 kg (22.7 lbs) with 1 pulse damper

Specifications Bottle rack BR 110

Physical specifications	Dimensions	46 (D) x 30 (W) x 17 (H) cm
	Weight	6 kg (13 lbs)



ORGANIZER AND RACKS

Degasser, pulse damper and stackable, compact

- MAINS POWER DISTRIBUTOR FOR ALEXYS™
- DUAL CHANNEL DEGASSER
- INTEGRATED PULSE DAMPER
- STACKABLE
- LEAKAGE DRAIN



The compact Organizer OR 110 includes an extremely efficient degasser and pulse damper. It can be upgraded with a second pulse damper. The power supply for all ALEXYS™ components comes from the OR 110 avoiding grounding loops.

Two independent vacuum channels

- Dead volume 480 µl per channel
- Continuous vacuum degassing by means of a variable RPM vacuum pump
- Teflon AF

The PR 110 (pump rack), SR 110 (solvent rack) and TR 110 (tool rack), just to organize your system.

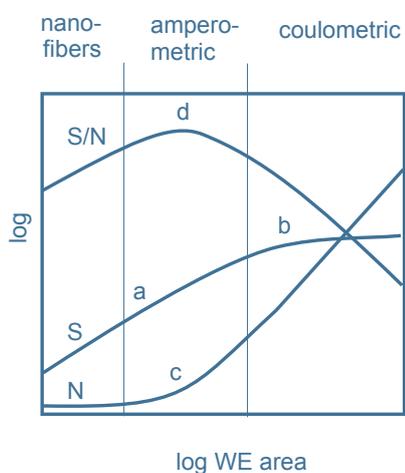
*An extremely efficient degasser
– stackable racks*



Flow cells



WHY AMPEROMETRY?



Why amperometry?

amperometry

- about 5 – 10 % conversion
- low noise
- best S/N ratio

coulometry

- highest signal
- highest noise
- poor S/N ratio

Figure from D. M. Morgan and S. G. Weber
Anal. Chem., 56, 1984, p. 2560

Part no.	Description
	Glassy Carbon working electrode
110.4105	VT-03 flow cell, 3 mm GC WE, sb REF
110.4205	VT-03 flow cell, 3 mm GC WE, ISAAC
110.4305	VT-03 flow cell, 3 mm GC WE, HyREF
110.4115	VT-03 flow cell, 2 mm GC WE, sb REF
110.4215	VT-03 flow cell, 2 mm GC WE, ISAAC
110.4315	VT-03 flow cell, 2 mm GC WE, HyREF
111.4105	μ -VT-03 flow cell, 0.7 mm GC WE, sb REF
111.4205	μ -VT-03 flow cell, 0.7 mm GC WE, ISAAC
111.4305	μ -VT-03 flow cell, 0.7 mm GC WE, HyREF
	Metal working electrode
110.4120	VT-03 flow cell, 3 mm Pt WE, sb REF
110.4220	VT-03 flow cell, 3 mm Pt WE, ISAAC
110.4320	VT-03 flow cell, 3 mm Pt WE, HyREF
110.4125	VT-03 flow cell, 3 mm Au WE, sb REF
110.4225	VT-03 flow cell, 3 mm Au WE, ISAAC
110.4325	VT-03 flow cell, 3 mm Au WE, HyREF
110.4130	VT-03 flow cell, 2 mm Ag WE, sb REF
110.4230	VT-03 flow cell, 2 mm Ag WE, ISAAC
110.4330	VT-03 flow cell, 2 mm Ag WE, HyREF
110.4135	VT-03 flow cell, 3 mm Cu WE, sb REF
110.4235	VT-03 flow cell, 3 mm Cu WE, ISAAC
110.4335	VT-03 flow cell, 3 mm Cu WE, HyREF

ISAAC reference electrode

In Situ Ag/AgCl reference electrode for VT-03 electrochemical flow cell

- Ultimate robustness
- No trapping of air bubbles
- Easy 'plug and play' installation

Reference electrode selection

- Standard: ISAAC
- Traditional or restrictions: 'good old' salt-bridge Ag/AgCl
- Extreme conditions: Hy-REF



VT-03 ELECTROCHEMICAL FLOW CELL

Highest sensitivity electrochemical wall-jet flow cell

- QUICK STABILIZATION
- LONG LIFETIME (5 YEAR WARRANTY)
- DOWN TO 5 nL WORKING VOLUME
- EASY MAINTENANCE



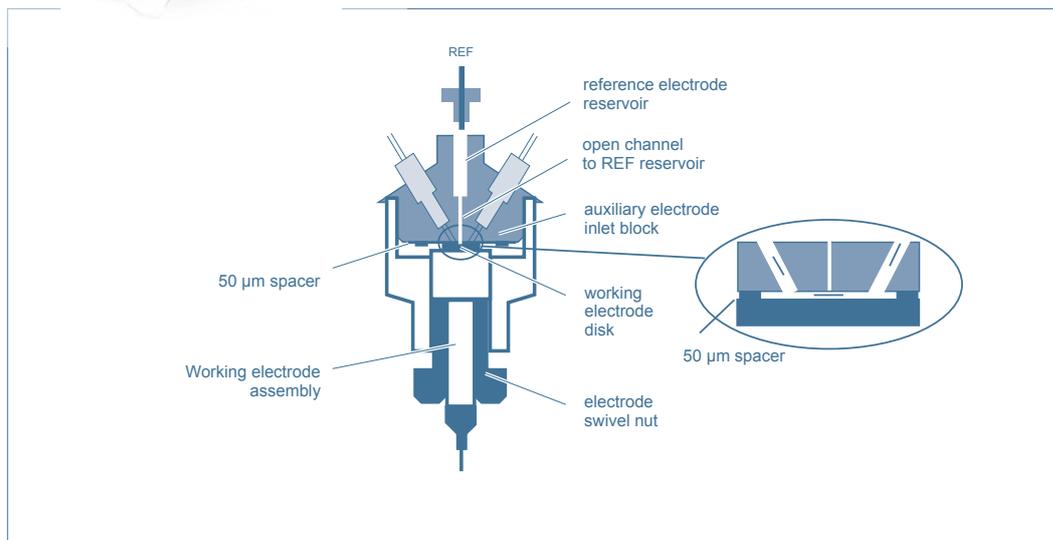
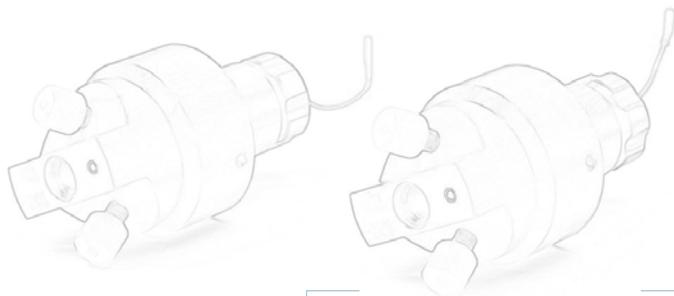
After extensive testing, it was determined that the confined wall-jet configuration gave excellent results. In addition, we found that the quality of the material used and the finishing process of the working electrode greatly affected the performance of the EC detector. While competitor flow cells deteriorate during use, the performance of the VT-03 flow cell increases with use. The VT-03 requires unusually short stabilization times: trace analysis within half an hour after start up can be expected. We have so much confidence in our VT-03 flow cell that we warrant the glassy carbon flow cell for a period of 5 years.

The VT-03 is available with working electrode materials such as glassy carbon, platinum, gold, silver and copper. A selection of working electrodes of 3, 2 and 0.7 mm diameter together with salt bridge, ISAAC and HyREF reference electrodes ensures compatibility with any type of HPLC analysis.

*Wall-jet configuration
for excellent results – short stabilization times*



Flow cells



Part no.	Description
102.4305M	FLEXCELL MD HyREF
102.4305	FLEXCELL GC HyREF
102.4320	FLEXCELL Pt HyREF
102.4325	FLEXCELL Au HyREF
102.4330	FLEXCELL Ag HyREF
102.4105	FLEXCELL GC sb
102.4120	FLEXCELL Pt sb
102.4125	FLEXCELL Au sb
102.4130	FLEXCELL Ag sb
102.4205	FLEXCELL GC ISAAC
102.4220	FLEXCELL Pt ISAAC
102.4225	FLEXCELL Au ISAAC
102.4230	FLEXCELL Ag ISAAC

HyREF reference electrode

Maintenance-free reference electrode, easy 'plug and play' installation

- pH resistant (1 - 14)
- Compatible with 100% modifier
- Inert

Reference electrode selection

- Standard: ISAAC
- Traditional or restrictions: 'good old' salt-bridge Ag/AgCl
- Extreme conditions: Hy-REF

Part no.	Description
102.5007	FLEXCELL WE disc GC (glassy carbon)
102.5022	FLEXCELL WE disc Pt (platinum)
102.5027	FLEXCELL WE disc Au (gold)
102.5032	FLEXCELL WE disc Ag (silver)
102.5037	FLEXCELL WE disc Cu (copper)
102.5050	FLEXCELL WE disc MD (magic diamond)





FLEXCELL

The most versatile flow cell for LC-ECD

- EXCHANGEABLE WORKING ELECTRODE
- WORKING ELECTRODES: GC, Pt, Au, Ag, Cu, MD
- LOW COST OF OWNERSHIP

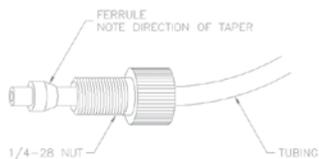


The name FLEXCELL is chosen since it emphasizes the versatility and serviceability of this thin-layer flow cell in the Antec program. With its unrivaled design working electrodes can be serviced or replaced in a few minutes. The low cost of ownership is attributed to the replacement of only the working electrode disc. The same holds for switching electrode material for different applications using the same flow cell. This makes the FLEXCELL suitable for all sorts of electrochemical analyses like the usual biogenic amines (glassy carbon), but also carbohydrates (gold or copper), peroxides (platinum), halides (silver), sulfides (Magic Diamond) etc.

Applications

The FLEXCELL properties can be fully exploited in applications using metal working electrodes. A typical example is the pulsed amperometric detection of carbohydrates, where consumption of the gold working electrode occurs. Renewal of the gold electrode is done in a few minutes when the erosion has become unacceptable. The total cell volume is less than 1 μL , which makes the FLEXCELL suitable as an electrochemical reactor in-line with other detectors such as a second EC flow cell.

*Flexibility replaceable working
and reference electrodes*



Valves

250.0012	Valco manual injector	250.0017C	Repl. valve for Valco electr inj, 6-port
250.0013	Valco manual injector, micro	250.0022	Valco electrical injector, 4-port, micro
250.0014	OMD valve option Valco, 14-port	250.0025	Valco electrical injector, 10-port
250.0017	Valco electrical injector, 6-port	250.0026	OMD valve option Valco, 6-port
250.0017A	Seal for Valco electr injector, 6-port	250.0030	DECADE II valve mounting panel kit
250.0017B	Stator for Valco electr injector, 6-port		

Columns

250.1050	HPLC column for OQ	250.1114	ALF-115 column, 150x1.0mm, 3µm C18
250.1068	ALA-510 column, 100x4.6mm, 5µm C18	250.1116	ALF-205 column, 50x2.1mm, 3µm C18
250.1070	ALA-525 column, 250x4.6mm, 5µm C18	250.1118	ALF-210 column, 100x2.1mm, 3µm C18
250.1071	ALA-105 column, 50x1mm, 3µm C18	250.1120	ALF-215 column, 150x2.1mm, 3µm C18
250.1072	ALA-115 column, 150x1mm, 3µm C18	250.1122	ALF-515 column, 150x4.6mm, 3µm C18
250.1080	ALC-525 column, 250x4.6mm, 7µm	250.1125	ALF-315 column, 150x3.0mm, 3µm C18
250.1082	ALC guard column starter kit	250.1126	ALG-515 column, 150x4.6mm, 3µm
250.1084	ALC guard column repl. cartr. 5/pk	250.1128	ALG guard column inserts, 3pk
250.1094	ALB-215 column, 150x2.1mm, 3µm C18	250.1130	ALG guard column holder
250.1095	ALB-205 column, 50x2.1mm, 3µm C18	250.1132	ALH precolumn cartridges 5x1mm, 5pk
250.1096	ALB-115 column, 150x1.0mm, 3µm C18	250.1134	ALH precolumn holder 5mm
250.1097	ALB-105 column, 50x1.0mm, 3µm C18	250.1500	Column guard holder 4.0-4.6mm
250.1100	ALD-510 column, 100x4.6mm, 7µm AEX	250.1502	Column guard holder 2.1-3.0mm
250.1101	ALD guard column starter kit	250.1504	Column guard holder 1.0mm
250.1102	ALD-515 column, 150x4.6mm, 7µm AEX	250.1516	ALF 3µm drop-in cartridge 10x4.0mm,4pcs
250.1104	ALE-315 column, 150x3.0mm, 3µm C18	250.1518	ALF 3µm drop-in cartridge 10x2.1mm,4pcs
250.1105	ALE-310 column, 100x3.0mm, 3µm C18	250.1520	ALF 3µm drop-in cartridge 10x1.0mm,4pcs
250.1110	ALF-105 column, 50x1.0mm, 3µm C18	250.1522	ALA 5µm drop-in cartridge 10x4.6mm,4pcs
250.1112	ALF-110 column, 100x1.0mm, 3µm C18		



COLUMNS, KITS AND VALVES

Accessories for trouble free analysis

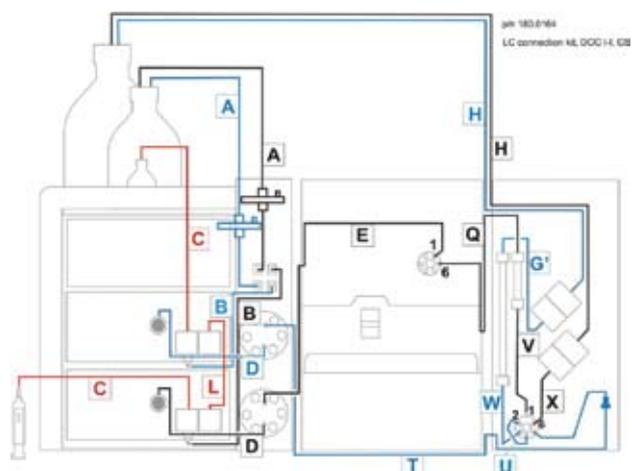
- STANDARDIZATION
- EASY & FAST INSTALLATION
- REDUCTION OF THE TOTAL INSTALLATION TIME
- OPTIMAL PERFORMANCE



For most applications the choice of column, chemicals and other accessories for sample pre-treatment are crucial for trouble free analysis. Antec's system solutions include all necessary parts and chemicals to make your analysis work.

To obtain superior performance relevant system details are optimized. For example, connecting tubing is prefabricated, sharply cut, and optimized in diameter and length to avoid dead volume. All Antec columns are flushed extensively removing all electrochemically active contaminants, and are shipped ready for EC analysis.

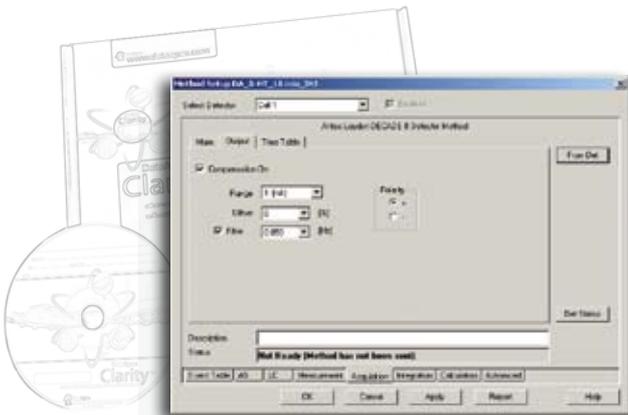
Schematic drawing LC connections



Proven analyzers to guarantee your performance

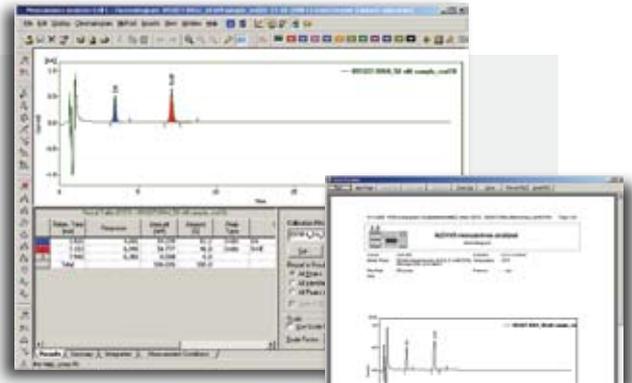


Software



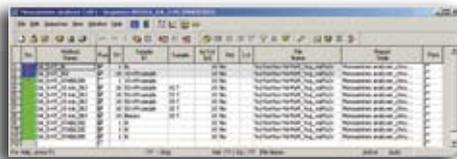
Device control

An extensive list of devices can be controlled by Clarity, operational parameters are stored in method files and chromatograms. It makes methods easily interchangeable between systems.



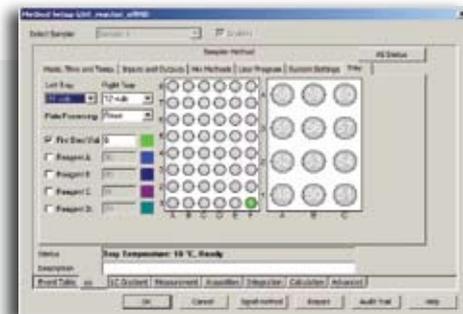
Peak table and chromatogram

Users can easily edit acquired chromatograms visually in the graph or through the integration table. The Result tables (Results, Summary, Column Performance, etc.) can be customized to display the data you want to see. The Summary tab displays data from overlaid chromatograms in one summary table.



Sample queue

The Sequence table is a user friendly interface to compose a queue for automated injections. The status of each row is indicated by the colored symbols. Copy, paste, fill down, auto increment and time/date fields for file title are available.



Tray menu

The AS 110 can be used with a large variety of well plates and vials. Up to 4 specific reagent positions can be defined.

Part no.	Description
195.0035	Clarity single instr. incl LC, AS mod.
195.0037	Clarity single instr. incl LC mod.
195.0C50	Clarity Single Instrument SW (1tb)
195.0C55	Clarity Single Instrument Add-on
195.0C59	Clarity Evaluation off line version

Hardware requirements

The minimal PC hardware requirements for the installation of the ROXY™ system in combination with the Clarity™ data software are listed in the table below:

Operating system	Windows XP/2000/Vista/7 The Windows operating system should be updated with the latest Service Packs (SP).
Processor	> 1 GHz
RAM	> 512 MB
Monitor Resolution	1024x768, 64K
Hard disc	NTFS, > 10GB free HD space
USB	2 free USB ports (USB 2.0)
PCI	2 free full-size 32-bit PCI 2.0 slots
Drives	DVD or CD-ROM

Software requirements

Beside the minimum hardware requirements we strongly recommend to have the following software installed:

Software	Use
Adobe PDF reader	Reading electronic versions of the user manuals
Internet explorer 7.0 or other browser + internet connection	Accessing the DataApex and Antec support websites, for updates of software, manuals, troubleshooting or other info.
MS Office (Excel®)	Statistical data analysis
WinZIP or other archiver	Extracting Clarity™ pre-configured system files



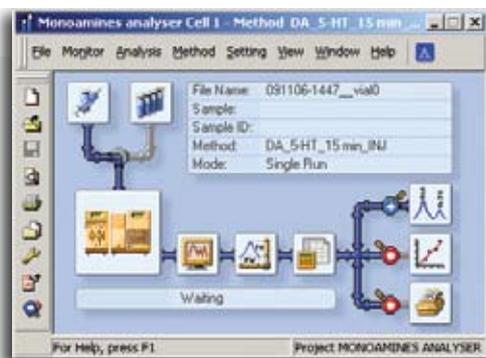
CLARITY™

Clarity software for system control and data acquisition

- INTUITIVE
- MODULAR SOFTWARE PACKAGE
- UP TO 4 INDEPENDENT TIMEBASES
- MULTIPLE INSTRUMENT CONTROL
- GLP, 21 CFR PART 11 COMPLIANCE

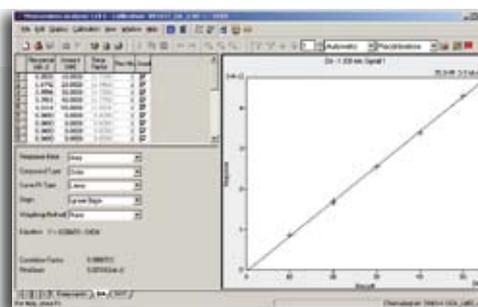


Clarity from DataApex is an advanced modular software package for data acquisition, data processing and instrument control. Up to four independent LC systems each with up to 12 detectors can be simultaneously connected. Optional 'Control modules' provide integrated control of selected instruments, 'Extensions' provide specialized functionality for PDA or GPC analysis. Its wide range of data acquisition interfaces (A/D converters, LAN, USB, and RS232) allows connection to virtually any chromatograph.



Instrument window

The Instrument window is the control center of the whole process of data acquisition and evaluation.

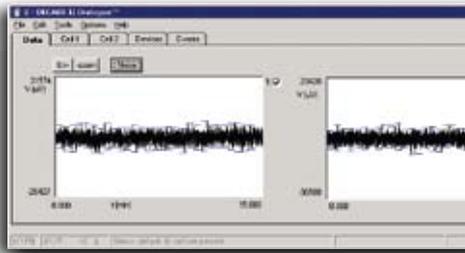


Data analysis

The Calibration window has two main screens, a global calibration table and dedicated tabs for each compound (on the screenshot). It includes a table with concentration levels matching the response with Amount and a calibration curve. Any point can be temporarily suspended in the graph it will be marked with a circle instead of a cross.

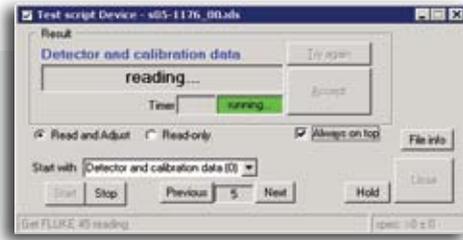


Software



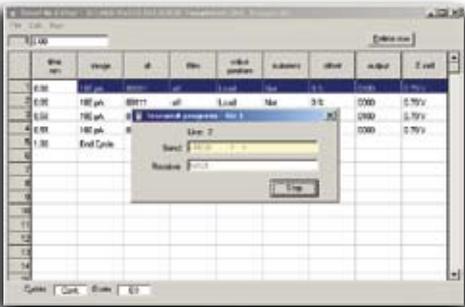
PQ noise measurement

DECADE II Performance Qualification is implemented in Dialogue™ software. It is an automated performance qualification that results in a single page hardcopy PQ report. For PQ Noise measurement a dummy flow cell must be installed.



Integrated scripting tool for OQ

An OQ script is a series of commands to set parameters and read data from the detector. A script is executed by the script manager in Dialogue™ software. All results are printed in the OQ document which also contains the noise and signal test data. For successful qualification a special OQ kit is available containing cables and tools for testing.



Editor for time files, and transmitting to DECADE II:
Time file editor is a tool for writing and transmitting time files to the detector.



Database for audit trail and user rights

An audit trail is available, keeping track of all events initiated by registered users.

Part no.	Description
171.9005	Dialogue™ software, PQ version
171.9002	Dialogue™ software, OQ/PQ version
171.9007	Dialogue™ software, free version



DIALOGUE™ SOFTWARE

Service and OQ/PQ tool for DECADE II

- OQ AND PQ MEASUREMENTS
- SCANNING VOLTAMMETRY
- SIMPLE DATA ACQUISITION
- NOISE MEASUREMENT



Dialogue™ software for Windows is a multi-functional program to control the DECADE II electrochemical detector. Dialogue™ software is a tool for:

- controlling all operational parameters of DECADE II
- creating and transmitting time files to DECADE II
- controlling DECADE II IO ports for external devices
- control of DECADE II SDC
- OQ and PQ measurements
- scanning voltammetry
- noise measurement

Dialogue™ software is one software package containing functionality for all different versions. Depending on the license dongle PQ/OQ functionality will be unlocked.

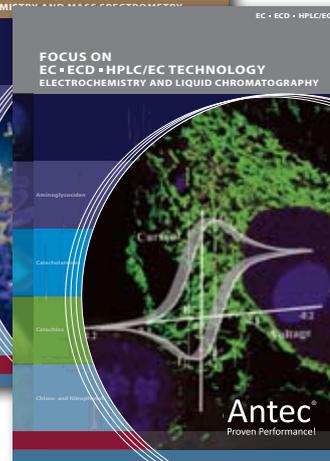
There are no tools for further data analysis, therefore Dialogue™ software can not be considered as a fully featured chromatography software package.

All relevant settings can be stored on PC and loaded for later use under identical conditions.



APPLICATION AND TECHNICAL NOTES

Proven performance

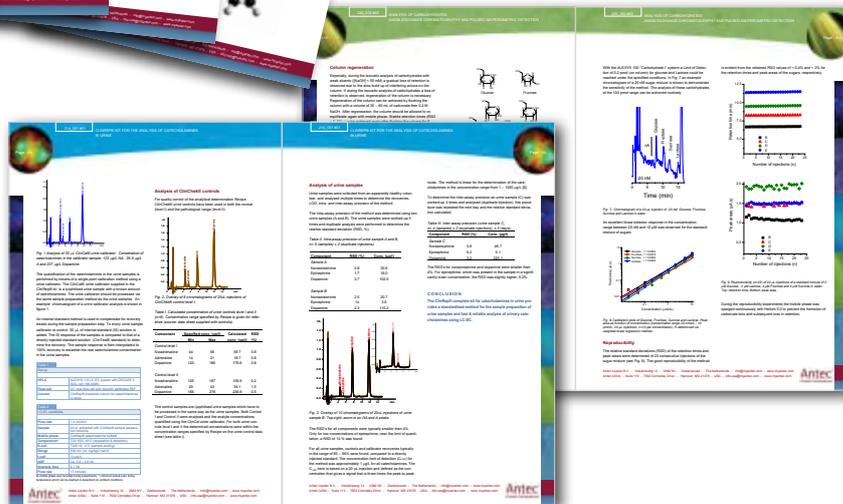


Application folders

Technology folders



Application notes & Technical notes



Trademarks

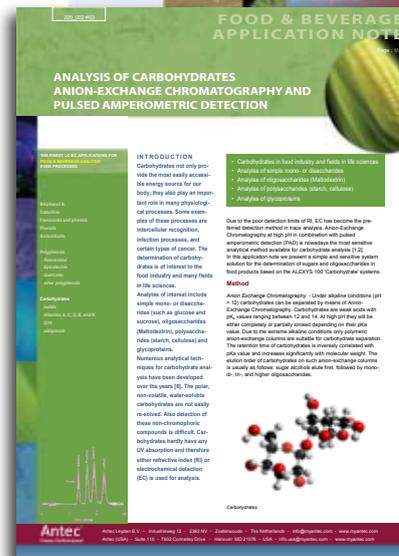
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- Adobe® Acrobat® are registered trademarks of Adobe Systems Incorporated



SUPPORT

Invitation to Antec's support site

- 24/7 ACCESS TO ANTEC'S KNOWLEDGE BASE
- APPLICATION NOTES, MANUALS, TUTORIALS
- SOFTWARE UPDATES & FREE TRIALS



Customer satisfaction is and has always been our first priority. To support our customers we have created a support website which is now at your disposal. Our knowledgebase contains all the relevant tips and tricks from years of experience in LC-ECD. It offers a 24/7 support, always available when needed.

Register today at www.myantec.com
go to support and have free access !



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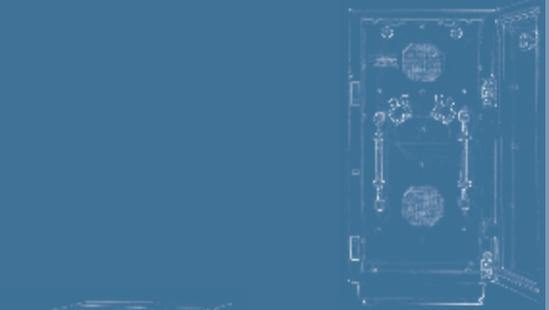
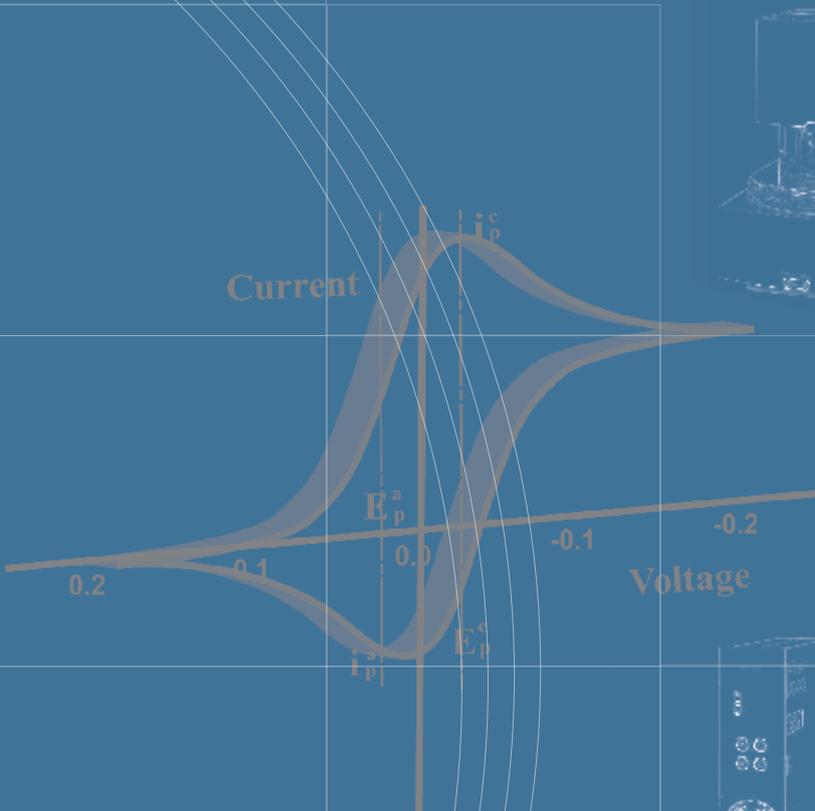
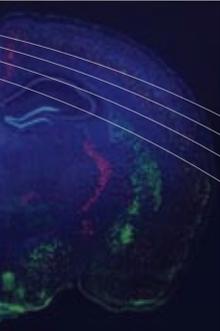
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