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**Catalog 2017**

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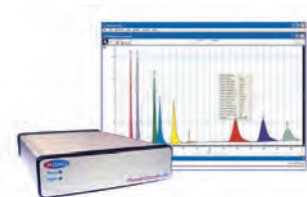
## Data Recording, Separation Science and Teaching

### e-corder and Mini-corder Systems (ED410, ED821 and ED1621)



e-corder and Mini-corder units collect and display signals from many types of transducers, sensors, and laboratory instruments. They connect to a computer via USB and are supplied with Chart and Scope software for real-time display and analysis of analog voltage signals. Models with 1, 2, 4, 8 and 16 channels are available.

### PowerChrom Systems (ER180R and ER181R)



These PowerChrom systems record and analyse signals from gas and liquid chromatographs, and capillary electrophoresis systems. They are supplied with PowerChrom software. The units connect to a computer via USB and can record signals from one (ER181R) or two (ER180R) detectors.

### Flow Analysis System (ER180F and ER181F)



The Flow Analysis System is used for the detection, display and analysis of peaks from Flow Injection Analysis (FIA) and similar experiments. It collects signals from one or two detectors and features automatic peak detection and calibration. The software can generate user configurable reports and it is easy to copy and paste results into other applications.

### Mega Teaching Kit (ER7004)



This kit includes the hardware, software, electrodes and transducers required to conduct a range of exciting experiments for chemistry and biochemistry laboratory courses. It includes a potentiostat, electrodes kit, isoPod meters and sensors for measuring pH,  $dO_2$ , temperature, and conductivity. Also includes Chart, Scope, EChem and PowerChrom software packages.

## Electrochemistry

### Integrated Potentiostat (ER467)



An integrated unit containing potentiostat, waveform generator, and data acquisition unit. Ideal for research and teaching use, this fully software controlled potentiostat can measure from sub-nanoampere currents up to 1 A, at up to  $\pm 10$  V. Ideal for cyclic voltammetry and electroanalytical chemistry. Two auxiliary data acquisition channels are provided for recording ancillary signals such as temperature, pressure, quartz crystal microbalance, surface plasmon resonance, etc.

### Potentiostat (EA165)



A modular potentiostat with a high bandwidth, must be used with either the Z100 for electrochemical impedance spectroscopy experiments, or an e-corder unit for electroanalytical chemistry and cyclic voltammetry.

### Dual Picostat (EA362)



A high sensitivity, electrically isolated, modular potentiostat that can measure from sub-picoampere currents up to 10  $\mu$ A at up to  $\pm 10$  V. Ideal for use with *in vivo* microelectrodes (including carbon fibers for neurotransmitter monitoring) and other low current sensors. The Dual Picostat can also be used as a bipotentiostat, or 4-electrode (two reference and two working electrodes) potentiostat for membrane or ITES experiments. Ideal for use with an e-corder 410 unit.

### QuadStat (EA164)



The QuadStat is a four-channel modular potentiostat that can be used with one, two (bipotentiostat), three or four working electrodes, with either common or separate reference and auxiliary electrodes. It is ideal for microbial fuel cell, and sensor research, and other work where replicate samples are required. It has a current range settings of 200 pA – 10 mA per channel at up to  $\pm 10$  V. The QuadStat is best suited for use with either the 8 or 16 channel e-corder unit.

### Waveform Generator (ER175)



The Waveform Generator has been designed to produce pulses, ramps, as well as triangular and sinusoidal signals that can be sent to an eDAQ or other potentiostats to facilitate various electrochemical experiments. A triangular waveform can be paused, or even reversed, during slow speed cyclic voltammetry experiments. This unit is a modern replacement for the PAR 175 Universal Programmer.

### Dual Reference Adaptor (EA167)



The Dual Reference Adaptor connects to the reference electrode lead of a 3-electrode eDAQ or other potentiostat and enables its use with two reference electrodes. The potentiostat thus becomes a 4-electrode system with one working, one counter, and two reference electrodes suitable for studies of membranes (4-electrode voltage clamp), or the interface between two immiscible electrolyte solutions (ITES), or other liquid junction.

## Electrochemistry Bundles and Kits

### EChem Startup System (ER461)



This electrochemistry system includes an ER466 Integrated Potentiostat, software and electrodes. It is an ideal system for research and teaching.

### QuadStat Bundle (ER7005)



This electrochemistry kit includes a EA164 QuadStat, ED821 8-channel e-corder data recording unit, ER175 Waveform Generator and software. It is an ideal system for multichannel channel studies of biosensors, microbial fuel cells, and in vivo oxygen or nitric oxide electrodes.

### Dual PicoStat Bundle (ER7162)



An electrochemistry kit comprising EA362 Dual Picostat, ED410 4-channel e-corder, ET014 Electrode Kit, and software. It is an ideal system for research with microelectrodes including in vivo recording of neurotransmitter levels with carbon fiber electrodes.

### Electrochemical Impedance System (ERZ102)



This system comprises a ERZ100 Electrochemical Impedance Analyzer and the EA163 Potentiostat. Designed to perform both potentiostatic or galvanostatic electrochemical impedance spectroscopy (EIS).

### Advanced Electrochemistry System (ERZ101)



A complete system for many electrochemistry techniques. Comprises:

- ERZ100 EIS Analyzer
- EA163 Potentiostat
- ED410 e-corder
- ET014 Electrode kit
- ES260 EChem software



## Contactless Conductivity Detection

C<sup>4</sup>D is capacitively-coupled contactless conductivity detection, typically used for capillary electrophoresis, microchip electrophoresis, ion chromatography, and salt gradient chromatography. Contactless conductivity detection can be used for virtually all charged species: inorganic anions and cations, as well as organic ions, such as carboxylic acids, amines, amino acids, peptides, proteins, DNA fragments, antibiotics and many other pharmaceutical compounds.

### Contactless Conductivity C<sup>4</sup>D Data System (ER225)



The C<sup>4</sup>D Data System is designed to be used with eDAQ PowerChrom software. Requires a C<sup>4</sup>D Headstage. This unit has four digital outputs for controlling external devices.

### C<sup>4</sup>D Detector (ER815)



This single channel C<sup>4</sup>D Detector can be used with many third party systems such as ChemStation from Agilent, and 32 Karat from Beckman Coulter, or your own systems designed with LabVIEW etc. It can also be configured to support Chart and PowerChrom software. Requires a C<sup>4</sup>D Headstage.

### C<sup>4</sup>D Multichannel Detector (ER825)



This multichannel C<sup>4</sup>D Detector is fitted with 1 – 8 inputs to measure multiple signals simultaneously (specify number when ordering). Each channel can either record a contactless conductivity signal, or record pH, temperature or other detector signals. The unit can be configured to be used with either third party software such as ChemStation, 32 Karat or LabVIEW etc, or eDAQ software such as PowerChrom and Chart. Each input channel requires a C<sup>4</sup>D Headstage or an analog input module.

### High Voltage Sequencer (ER430)



Four channel high-voltage supply (+/- 3000 V at 100 uA) suitable for microchip electrophoresis, electrokinetic chromatography, or as a voltage source for micro reactors and mixers based on EOF pumping. Includes sequencing software.

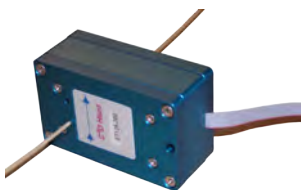
## Headstages for Contactless Conductivity Detection

### C<sup>4</sup>D Headstage for Capillary Electrophoresis (ET120)



This C<sup>4</sup>D headstage will connect to 365  $\mu\text{m}$  OD capillaries, the standard for capillary electrophoresis. Order the ET120-150 model for use with 150  $\mu\text{m}$  OD capillaries.

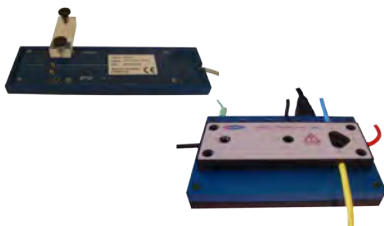
### General Purpose C<sup>4</sup>D Headstage (ET125, ET130, ET131)



These C<sup>4</sup>D headstages record the conductivity of a liquid flowing in a tube. They fit tubing with 1/16 inch (1.6 mm) outer diameter (can be less for ET131). They are configured for specific applications:

- ET125 is a general purpose headstage.
- ET130 for ion chromatography (IC) and flow injection analysis (FIA).
- ET131 is configured to meet customer defined applications.

### Microchip Electrophoresis C<sup>4</sup>D Platforms (ET121, ET225)



ET121: Platform for microchip electrophoresis experiments with C<sup>4</sup>D detection. The C<sup>4</sup>D electrodes are on the platform.

ET225: Platform for Micronit microfluidic chips with integrated C<sup>4</sup>D electrodes. It includes cables for connection to a high voltage sequencer.

### Octal Contactless Conductivity System (ER818)



The ER818 allows for the simultaneous contactless-conductivity measurement of up to eight samples that have a conductivity of between 0 – 20 mS/cm. It features low-volume samples, low wastage and zero cross contamination. It is manufactured to receive either pipette tips, melting point tubes, NMR tubes or capillaries.

### Microchip Electrophoresis Bundle (ER455)



Complete system for microchip electrophoresis experiments. Includes ER225 C<sup>4</sup>D Data System, ER430 high voltage sequencer, ET225 chip platform, chips, test solutions and software.

## isoPods and USB isoPods

eDAQ isoPods are miniature amplifiers for various sensors. They are fully controlled by software and are electrically isolated to reduce noise and interference from ground loops. The USB isoPods (EPUxxx) connect directly to a Windows XP, or later, computer and can be used with Pod-Vu, or third-party software such as LabVIEW. Ordinary isoPods (EPxxx) must be connected to an e-corder (page 3) and used with Chart software.



### Biosensor isoPod (EP352 and EPU352)

The Biosensor isoPod provides a bias voltage and records the resulting current signal from many types of amperometric sensors, including biosensors.

### pH/ISE isoPod (EP353 and EPU353)

The pH/ISE isoPod is suitable for use with most pH, ion selective and oxidation/reduction potentiometric (ORP) electrodes. Signal range is more than pH 0 – 14 with better than 0.001 pH resolution.

### Dissolved Oxygen isoPod (EP354 and EPU354)

The Dissolved Oxygen isoPod is used for monitoring polarographic (Clark) dissolved oxygen ( $\text{dO}_2$ ) electrodes.

### Nitric Oxide isoPod (EP355 and EPU355)

The Nitric Oxide isoPod is a compact, low noise, signal conditioner for monitoring polarographic nitric oxide electrodes.

### Thermocouple isoPod (EP356 and EPU356)

The Thermocouple isoPod is suitable for use with B, E, J, K, N, R, S and T-type thermocouples.

### Conductivity isoPod (EP357 and EPU357)

The Conductivity isoPod can be used with 2-electrode conductivity probes for solution conductivity measurements. Range settings: 0.002, 0.02, 0.2, 2, 20, and 200 mS.

### Thermistor/RTD isoPod (EP358 and EPU358)

This temperature isoPod can be used with 1000 ohm Pt RTD, or 30 kohm thermistor temperature probes.

### Quad MF isoPod (EPU452)



This multifunction (MF) isoPod can support up to four sensor probes on its four channels. Each channel can be independently configured by its user software to be suitable for a pH/ISE, dissolved oxygen ( $\text{dO}_2$ ), conductivity, or temperature (thermistor or RTD) probe. Specifications are at least as good as for the single channel isoPods, and the channels are independently electrically isolated from each other, and from ground. Available only as USB version for direct connection to a Windows XP or later computer

### Quad pH isoPod (EPU168)



This isoPod can support up to four pH, ion selective, and/or oxidation/reduction potentiometric (ORP) electrodes. Signal range is  $\pm 2000$  mV with better than 0.1 mV resolution (ie more than pH 0 – 14 with better than 0.001 pH resolution). The channels are electrically isolated from ground. Available only as USB version for direct connection to a Windows XP or later computer.



## SDx Tethered Membrane Systems

These systems are based on 'tethered membrane technology' whereby a phospholipid bilayer membrane is tied to the surface of a planar gold electrode by a series of molecular tethers. Subsequent addition of purified ion channel proteins, or ionophores, allows studies of membrane conductivity and ion currents to be undertaken (which would previously have been done by arduous patch clamping experiments). Ideal for the pharmaceutical screening of ion channel blockers and actuators.

### tethaPod (SDx-R1)



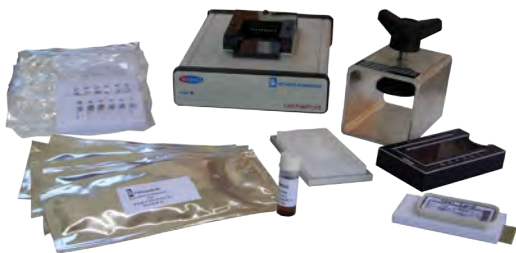
The SDx tethaPod™ measures conductance of tethered phospholipid bilayer membranes. Up to six samples can be measured at the same time using the tethaPlate sample holders. Ideal for studies of embedded ion channel proteins, including screening experiments for potential pharmaceuticals. Supplied with SDx-APP2 tethaQuick software which includes control and data analysis features.

### tethaPatch (SDx-R2)



The tethaPatch™ is designed for use with a tethaPlate™ for patch-clamp style experiments with a ER466 Potentiostat system. The six separate chambers of the tethaPlate can be addressed individually for convenient replicate experiments, or separate experiments can be performed in each chamber.

### tethaPod Starter Kit (SDx-K1)



An economically priced bundle for the continuous monitoring of the conductivity of tethered bilayer membranes comprising:

- SDx-R1 tethaPod;
- SDx-T10 tethaPlate cartridges;
- SDx-S1 Phospholipid Mix;
- SDx-A1 tethaPlate Assembly Jig; and
- SDx-A2 SDx tethaPod test card

### tethaPlate (SDx-T10)



The tethaPlate™ is a 6-chamber sample holder for tethered membrane preparations. It is used in conjunction with a tethaPod or tethaPatch system for the determination of membrane conduction and studies of protein ion channels.

### Phospholipid Mix (SDx-S1)



A 1 mL vial containing an ethanolic solution of lipids suitable for phospholipid bilayer membrane formation when used with a tethaPlate.

## Electrodes & Probes

eDAQ has a range of disc and screen-printed electrodes for voltammetry experiments. We also have a selection of electrodes for measuring temperature, pH, conductivity and oxygen.

### EChem Electrode Kit (ET014)



The EChem Electrode Kit contains three working electrodes (gold, platinum and glassy carbon), reference and auxiliary electrodes, plus reaction vials and a stand.

### Voltammetric Disk Electrodes



Glassy carbon (ET074, ET051), platinum (ET075, ET052), gold (ET076, ET053), silver (ET088), copper (ET079), and nickel (ET087) working disk electrodes with PEEK (polyetheretherketone) body. Other metals available on request. Body diameter is 3 (or 6) mm, with active disk material of 1 (or 3) mm diameter.

### Reference Electrodes



Leakless (ET069), Leakless Miniature (ET072) and Refillable Miniature (ET073) Ag/AgCl reference electrodes. The Hydroflex Hydrogen Reference Electrode (ET070) has a replaceable hydrogen producing cartridge.

### Inert Wire Electrodes



Inert wire electrodes, ET078 (70 mm long) and ET086 (150 mm long), are 1.6 mm diameter titanium rods with a 2.5 micron coating of platinum. They are very resistant to corrosion and can be used as a miniature anode, cathode, or auxiliary electrode in many electrochemistry experiments.

### Screen-Printed Electrodes



A range of Kanichi and Zensor screen-printed electrodes, with working, reference and auxiliary electrodes on one strip. Available with different working electrode material. They can be used as low cost disposable electrodes for teaching experiments or for routine analyses. Flow cells available.

### Probes for Temperature, pH, Conductivity and Oxygen



A range of electrodes and sensors for measuring:

- temperature: thermocouples, thermistors and RTD probes.
- pH and oxidation/reduction potential.
- conductivity: 'dip in' or flow-through probes.
- oxygen: galvanic or polarographic probes.

## Software

eDAQ has a selection of software for different applications; You should choose the software that best suits your needs. The software can be purchased individually or as part of a package. For example, e-corder systems include both Chart software and Scope software, while PowerChrom Systems includes the PowerChrom software.

### Chart Software and Scope software (E5500)

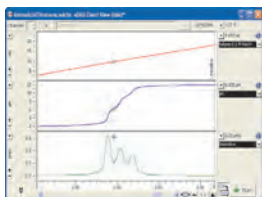
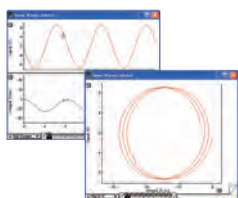
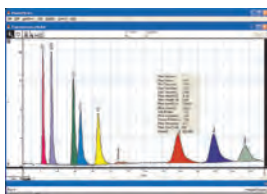


Chart software provides an intuitive data acquisition interface for e-corder units (page 3). Signals on multiple channels are simultaneously recorded in a series of adjacent blocks, within the one file, as you start and stop recording. Many calibration, annotation, and signal analysis features are included including the display of transformed signals on extra 'virtual channels'. As well, there are specialised software plug ins, 'Chart Extensions', free at [www.edaq.com/chart\\_extns\\_list.html](http://www.edaq.com/chart_extns_list.html)



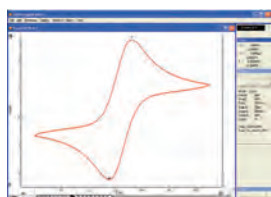
Scope software acquires data in a series of sweeps (or 'pages' ) within the one file. These sweeps can be overlaid to compare results from one sweep or you can average the signal from successive sweeps (to increase signal-to-noise levels) or subtract a 'baseline' sweep from others, or apply various mathematical transforms. Scope software can be used in place of XY, XYT plotters, or oscilloscopes.

### PowerChrom Software (E5280)



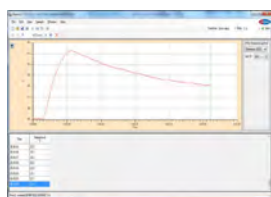
PowerChrom software is used for the collection, display and analysis of chromatographic data. It's the ideal data acquisition system for upgrading your GC, HPLC or IC instrument. Throw away integrators, chart recorders and DOS-based systems. The software can collect signals from one or two detectors. Easily create reports or copy and paste your data to third party software for publishing. Supplied with PowerChrom 180 and 181 systems (page 3), or optionally with e-corder systems.

### ECHEM Software (E5260)



EChem software controls the collection, display and analysis of data from electroanalytical voltammetric experiments. EChem is fully compatible with the eDAQ range of potentiostats (page 4). When used with an e-corder unit (page 3), many older third-party potentiostats can be upgraded to the full range of EChem techniques including cyclic, square wave, normal pulse, and differential pulse voltammetry and their stripping voltammetric equivalents.

### Pod-Vu Software (E5350)



Pod-Vu software enables your Windows XP, or later, computer to calibrate, display, and store signals from up to eight eDAQ USB isoPod channels (page 8).



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Document Number: M-SFCat-00617

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