



## C4D 225 System (Model ER225)



- No programming required – just plug and play
- Collect signals from C4D and/or external detector
- 22 bit resolution
- Digital signal processing gives superior signal-to-noise ratio
- TTL or contact closure for triggering autosamplers etc.
- USB 2.0 and 1.1 compliant

### Description

Modern capacitively-coupled contactless conductivity detection (C<sup>4</sup>D) systems now match the sensitivity of conventional conductivity detectors. But because the sensor electrodes do not touch the sample solution the system is inherently electrically isolated and so less subject to instrumental interference while the electrodes never need cleaning.

The eDAQ C<sup>4</sup>D 225 system comprises conductivity detector and signal recording functions in one small footprint enclosure.

Signals can be recorded from the internal capacitively-coupled contactless conductivity detector (C<sup>4</sup>D) and an external UV-vis or fluorescence or other detector. Most detectors are suitable.

Sophisticated digital signal processing ensures high resolution, low noise signals. These signals are transmitted by USB to your computer without the need for internal computer cards or special cables!

### Computer Requirements

Windows XP, VISTA or 7. The computer should have a spare USB port for attachment of the System.

### Applications

The C<sup>4</sup>D 225 system is ideal for capillary or microfluidic chip electrophoresis, and ion chromatography, as well as for the study of defects in monolithic columns, with one of the optional headstages.

Automatic or manual operation is possible (depending on your chromatograph configuration). Autosamplers can be triggered with contact closure or TTL signals. Multiple-run experiments are controlled via sequence documents.

### Software

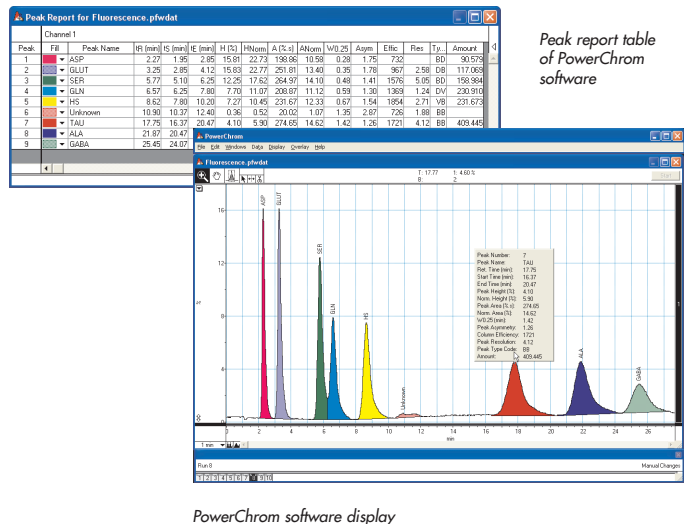
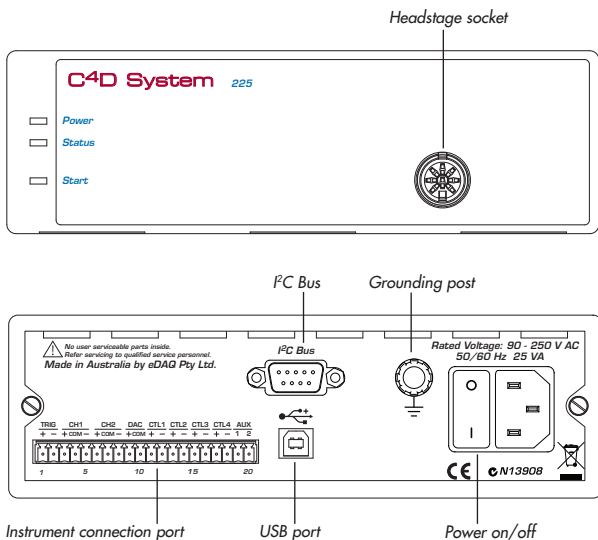
PowerChrom software is included with every C<sup>4</sup>D 225 system. It can also be ordered with Chart software which is more suited for flow injection analysis, or for studying defects in monolithic columns.

### Headstage Options

The C<sup>4</sup>D 225 system can be used with any of a number of headstages designed for different tubing diameters, or for electrophoresis microchips.

Choose a headstage appropriate for your experiments:

- ET120 CE Headstage for use with 360 µm OD tubing for capillary electrophoresis. Compatible with Agilent and Beckman Coulter CE systems. Also 150 µm OD option.
- ET121 Microchip Platform. Accepts a variety of electrophoresis microchips. The microchip channel is positioned across the C<sup>4</sup>D electrodes on the platform.
- ET225 Micronit Chip Electrophoresis Platform. Accepts Micronit CE chips (ET145-4) with integrated C<sup>4</sup>D electrodes.
- ET125 General Purpose C<sup>4</sup>D Headstage for tubing sizes 1/8 inch (3mm) OD or less (specify OD required). For flow injection analysis, monolithic column testing, or ion chromatography.



## Specifications

Analog Inputs			
Input channels:	Ch 1 (C <sup>4</sup> D), Ch 2 (for external detector)		
Input ranges:	Range	Gain	
	±10 V	1 (Ch 2 only)	
	±5 V	2	
	±2 V	5	
	±1 V	10	
	±0.5 V	20	
	±0.2 V	50	
	±0.1 V	100	
	±50 mV	200	
	±20 mV	500	
	±10 mV	1000 (Ch 1 only)	
C <sup>4</sup> D Sensitivity:	0.2 or 1.0 mV/nA (Ch 1 Headstage gain)		
Maximum input voltage:	±30 V (Ch 2, external detector)		
Input impedance:	~1 MΩ    1 nF @ DC (Ch 2, external detector)		
Low-pass input filter:	25 Hz (Channel 1) 3000 Hz, 2nd order Bessel (Channel 2)		
DC drift:	<1 µV/°C (Channels 1 & 2)		
CMRR (differential):	-105 dB @ 100 /s (typical)		
Channel crosstalk:	> -140 dB		
Input noise (pp, Ch 2):	Range	@10 /s	@100 /s
	±10 V	3 µV	5 µV
	±1 V	1 µV	2 µV
	±100mV	0.25 µV	0.3 µV
C <sup>4</sup> D Excitation & Output Signal			
Voltage amplitude:	100 V maximum		
Voltage instability:	< 1%		
Frequency range:	100 – 1200 kHz (sinusoidal)		
Frequency instability:	< 0.1%		
Output signal:	±2 V linear		
Output offset control:	±2.5 V		
Output gain:	x1, x10, x100		
Output bandwidth	25 Hz		
Sampling			
ADC:	24 bit sigma delta convertor		
System resolution:	22 bits		
Sampling rates:	12 /min to 100 /s (PowerChrom Software)		
Linearity error:	<0.001% of FSR		

Output Amplifier	
Output configuration:	Single-ended
Output resolution:	16 bits
Maximum output current:	10 mA maximum
Output impedance:	0.1 Ω typical
Slew rate:	1 V/µs
Settling time:	20 µs (to within 0.01% of FSR)
Output range:	Range      Resolution ±10 V      312.5 µV ±5 V      156.5 µV ±2 V      62.5 µV
Linearity error	±1 LSB (from 0 °C to 70 °C)
Instrument Connection Port	
Type:	20 pin male connector, 3.5 mm spacing. Terminal block adaptor supplied.
Digital Output Controls	
Outputs:	4 contact closure or TTL level. Set by software.
Contact closure outputs:	100 mA maximum. 350 V maximum. 'On' resistance 50 Ω maximum. Close time 1.5 ms; Open time 1 ms.
TTL level outputs:	4 V high @ 1 mA maximum each 0.5 V low at 15 mA maximum each
Microprocessor and Data Communication	
CPU:	FREESCALE DSP56858
RAM:	16 MB SRAM
EEPROM:	4 MB
Data communication:	USB 2.0 or 1.1 compliant
Expansion Ports	
I <sup>2</sup> C expansion port:	Power and control bus for eDAQ Amps (maximum of 500 mA).
Physical Configuration	
Dimensions (w x h x d):	200 x 65 x 250 mm (7.9 x 2.6 x 9.8")
Weight:	1.5 kg (3 lb 5 oz)
Power Requirements:	90 – 250 V AC 50/60 Hz, 25 VA
Operating conditions:	0 to 35 °C 0 to 90% humidity (non-condensing)
<i>eDAQ Pty Ltd reserves the right to alter these specifications at any time.</i>	

## Ordering

The C<sup>4</sup>D 225 system (model ER225) includes the detector hardware unit and PowerChrom software.

At least one headstage unit (ET120, ET121, ET125, or ET225) is also required.

WARRANTY: eDAQ hardware units are supported by a three year warranty.

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