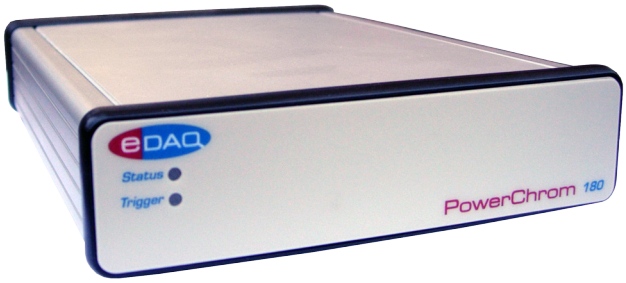
Mini-corder (Models ER180C and ER181C)



- Turns your computer into a precision data recorder
- No programming required – plug and play installation
- Powerful on-line and off-line analysis
- Continuous recording up to 2000 samples/s
- Independently selectable input ranges ±10 mV to ±10 V
- 16 bit A/D resolution
- Analog output* for pulse and waveform generation
- Trigger input TTL or contact closure

Description

The Mini-corders are used for the collection, display and analysis of signals from many types of laboratory instruments. It connects to your computer via USB, and is supplied with Chart and Scope software.

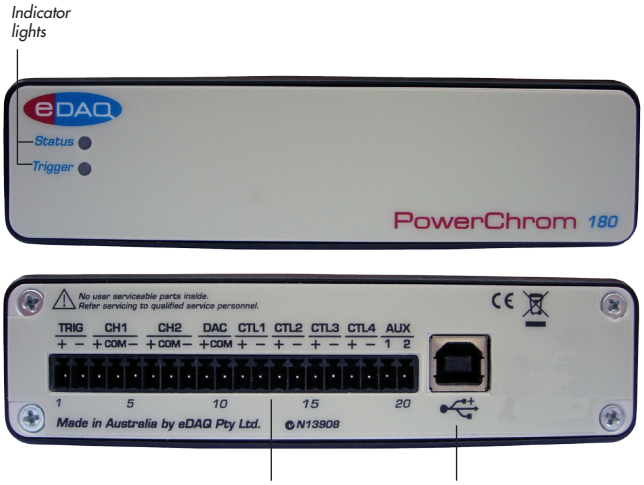
Applications

The Mini-corders are ideal for the recording and analysis of experimental signals in physical science applications. Absolutely no programming is required and the powerful on-line and off-line analysis functions allow results to be quickly extracted from the recorded data. The system can be used to replace paper based chart recorders and data acquisition cards in applications such as electrochemistry, kinetics, chromatography, acoustics, optics, materials testing, engineering, and thermal analysis.

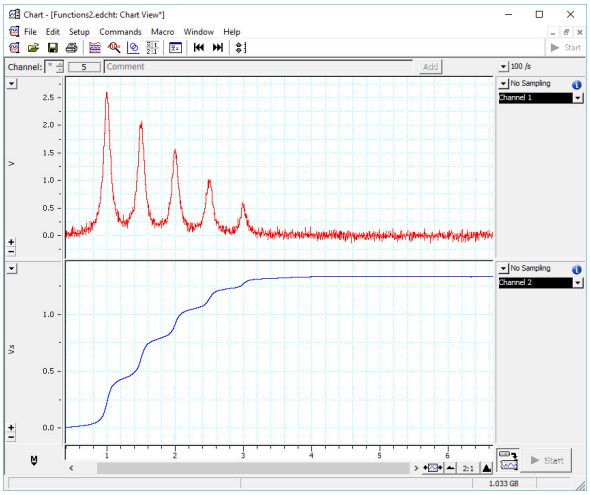
Hardware

The ER180C has two analog input channels, and has analog and digital outputs. The ER181C has one analog input channel and has no analog/digital outputs.

The signals are recorded using a 24 bit sigma–delta convertor with 32 bit internal number handling, on any of the gain ranges selected. Thus you signals will be recorded well beyond the inherent resolution of your detectors.



PowerChrom 180 front and back panels



Data displayed with Chart software

The system comprises PowerChrom hardware unit and Chart® software. Power and interfacing are provided by USB connection to the computer. Detectors and other accessories are connected via a simple screw terminal strip.

A trigger input is available. The ER180C also includes four electrically isolated contact closure controls for controlling external devices.

Software

Chart™ and Scope™ software packages are shipped with every Mini-corder. They are compatible with Windows XP or later computers.

Chart™ – lets you use you computer as a multichannel* strip chart recorder, polygraph and digital voltmeter.

Scope™ – lets you use your computer as a two-channel* storage oscilloscope, or XY plotter.

Specialist software and analysis extensions are also available for use with Mini-corder units.

** for the ER180C only*

Specifications

Analog Inputs				
Number of input channels:	2 (for ER180C) and 1 (for ER181C)			
Input configuration:	Single-ended or differential			
Range settings:	±10, ±5, ±2, ±1 V ±500, ±200, ±100, ±50, ±20, ±10 mV			
Maximum input voltage:	±35 V			
Input impedance:	~2 MΩ differential input ~1 MΩ to common			
Low pass antialias filter:	500 Hz, 3rd order Bessel			
DC offset:	< ±0.5 mV/°C after 5 minute warm up			
DC drift:	< 0.5 µV/°C RTI (typical)			
CMRR (differential):	better than –106 dB @ 1 Hz better than –140 dB @ 50 or 60 Hz			
Channel crosstalk:	better than –140 dB @ 100 Hz			
Noise (rms):	Range	@1 /s	@10 /s	@100 /s
	10 V	10 µV	20 µV	50 µV
	1 V	1 µV	2 µV	5 µV
	100 mV	0.1 µV	0.2 µV	0.5 µV
	10 mV	0.1 µV	0.2 µV	0.5 µV
Sampling				
ADC resolution:	24 bit sigma–delta converter			
System resolution:	1 nV			
Sampling rates:	1/min to 2000/s (Chart/Scope software)			
Microprocessor and Data Communication				
CPU:	MicroChip PIC32MX695F512H			
Data communication:	USB 2.0 or 1.1 compliant			

Output Amplifier	
Output configuration:	Single-ended
Maximum output:	10 V @ 5 mA
Output impedance:	0.1 Ω typical
Output range:	±10 V
Output resolution:	16 bits (0.3125 mV)
Instrument Connection Port	
Type:	20 pin male connector, 3.5 mm spacing. Screw terminal adaptor supplied.
Trigger	
Trigger input signal:	CC or TTL, non isolated.
TTL:	High: 4 V (7 V maximum) Low: 0.5 V. Active low.
Contact closure resistance:	< 100 Ω
Digital Output Controls (ER180C only)	
Outputs:	4 contact closures, optically isolated
Maximum switching:	50 mA @ 50 V
On resistance:	20 Ω
Physical Configuration	
Dimensions (w x h x d):	130 x 35 x 170 mm
Weight:	0.5 kg
Power Requirements:	USB compatible (cable supplied)
Operating conditions:	0 to 35 °C 0 to 90% humidity (non-condensing)
eDAQ Pty Ltd reserves the right to alter these specifications at any time.	

Pin Out Specification

Pin	Name	Function	Pin	Name	Function
1	TRIG+	Contact closure or TTL	11	CTL1+	Contact closure 1
2	TRIG–	Contact closure or COM	12	CTL1–	Contact closure 1
3	CH1+	Detector 1, signal +	13	CTL1+	Contact closure 2
4	COM	Common	14	CTL1–	Contact closure 2
5	CH1–	Detector 1, signal –	15	CTL1+	Contact closure 3
6	CH2+	Detector 2, signal +	16	CTL1–	Contact closure 3
7	COM	Common	17	CTL1+	Contact closure 4
8	CH2–	Detector 2, signal –	18	CTL1–	Contact closure 4
9	DAC+	Analog output (< ±10 V)	19	Aux 1	Reserved for testing
10	COM	Common	20	Aux 2	Reserved for testing
For the ER181R, pins 6 to 20 have no function. Do NOT use.					

Ordering

The Mini-corder systems include the ER18X recording hardware unit and Chart software.

The ER18X hardware is available in six configurations:

- ER180R, ER181R: for chromatography data, includes PowerChrom software.
- ER180C, ER181C: for general purpose data recording, includes Chart software.
- ER180F, ER181F: for flow injection analysis data, includes Chart software and FIA/Event Manager extensions.

WARRANTY: eDAQ Hardware units are supported by a three year warranty

Document Number: M-ER180C-ER181C–1018
Inventory Number: EDID-00787-MAD