HV Sequencer (Model ER230)

- Up to ±3000 V* at 700 µA
- Dual channel operation
- Monitor current and voltage
- Piggyback units for four channels
- Serial communication
- Trigger external devices

Description

The HV Sequencer (ER230) is a dual channel high voltage power supply especially designed for electroosmotic flow (EOF) applications using microfluidic chips.

Applications

- Microfluidic chip channel electrophoresis
- Electrokinetic chromatography
- Micro reactors/mixers using EOF pumping

Compatibility

Sequencer™ control software is supplied for Windows Vista, XP or later computers. In addition, serial communication via a USB port is supported for users wishing to develop their own sequencing software.

The HV Sequencer is powered from the 12V DC mains adaptor (supplied).

Accessories

Suitable for microchip electrophoresis with:

- C4D Microchip Electrophoresis Platform, ET121
- C4D Micronit Platform, ET122

both of which are supplied with suitable cabling.

Also available is a set of four high voltage cables, SHV connector to bare wire termination (EC230), for attachment to other devices.

Features

The HV Sequencer comprises two independent programmable high voltage supplies, and two metering inputs that can provide a high impedance voltmeter connection or a low impedance current measuring circuit.
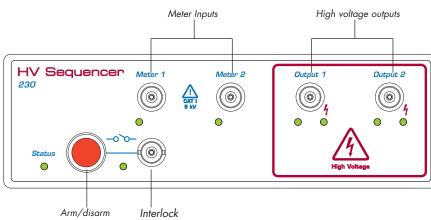
Monitoring of voltage and current are also provided on the high voltage output terminals to quickly identify any problems caused by bubbles and other channel blockages. Feedback control of output voltage provides for accurate and stable operating conditions.
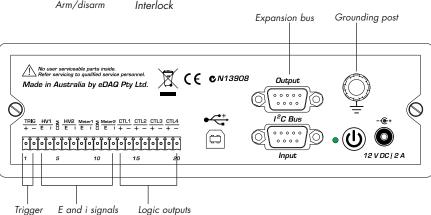
Programmable, rear panel, logic outputs can be used to control external devices.

The system can be expanded by piggybacking a second Sequencer via the I2C back panel connectors. This arrangement provides four synchronised (sub-millisecond timing) high voltage outputs for more complex experimental protocols.

The easy-to-use Sequencer™ software (supplied) creates tables of sequences of voltage levels for applying to the various fluidic ports of the microchip.

A safety interlock features ensures that the unit can only be armed by conscious action of the user.
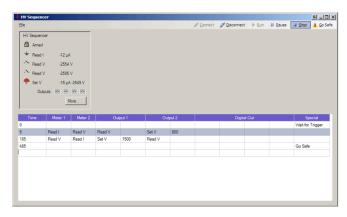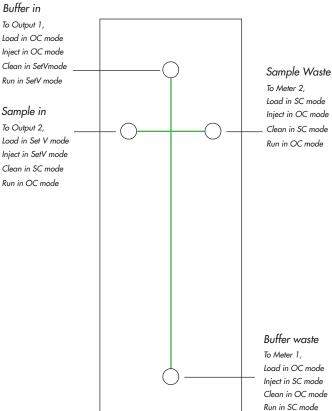
Serial Interface

Multiple units (or piggybacked pairs of units) can be operated as virtual RS232 devices using a serial protocol over a USB connection with custom written software or using packages such as:

- LabVIEW™, www.ni.com
- Connect™, www.labtronics.com/DI/RS232_Software.htm
- WinWedge®, www.taltech.com/products/winwedge.html
- HyperTerminal™, www.microsoft.com

Buffer in

To Output 1,
Load in OC mode
Inject in OC mode
Clean in SetVmode
Run in SetV mode

Sample in

To Output 2,
Load in Set V mode
Inject in SetV mode
Clean in SC mode
Run in OC mode

Sample Waste

To Meter 2,
Load in SC mode
Inject in OC mode
Clean in SC mode
Run in OC mode

Buffer waste

To Meter 1,
Load in OC mode
Inject in SC mode
Clean in OC mode
Run in SC mode

Example window of the Sequencer™ control software

One possible sequence for loading, injecting and running a mixture for separation.

Specifications

High voltage outputs:	2, SHV connector
High voltage meter inputs:	2, SHV connector
Maximum output voltage:	±3 kV per channel *(±5 kV on special order)
Minimum output voltage:	±200 V
Maximum output current:	700 µA per channel
Ripple:	< 0.1%
Rise/fall time:	< 5 ms (same polarity)
Meter modes:	OC, open circuit SC, short circuit to ground (current meter) HiZ, high impedance voltmeter
Output modes:	OC, open circuit SC, short circuit to ground (current meter) HiZ, high impedance voltmeter SetV, sets voltage (current and voltage reported)
Arm:	Depress button for more than 1s
Disarm:	Depress button briefly

Interlock:	Continuous closed circuit, BNC connector
Trigger input:	CC or TTL (software selectable). Rear panel.
Expansion Ports	
I²C ports:	Power and control bus for other HV Sequencers
USB Port:	Can be used as virtual RS232 port with serial communication protocol
Digital (logic) outputs:	CC or TTL (software selectable). Non-isolated.
Physical Configuration	
Dimensions (w x h x d):	200 x 65 x 250 mm (7.9" x 2.6" x 9.8")
Weight:	2 kg (4 lb 6 oz)
Operating voltage:	9 – 16 V DC @ 2 A (12 V nominal)
Nominal power needs:	< 24 VA
Operating conditions:	0 to 40 °C < 80% humidity (non-condensing)

eDAQ Pty Ltd reserves the right to alter these specifications at any time.

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

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