



HV Sequencer (Model ER430)



- Up to ± 3000 V* at 150 μ A
- Four channel operation
- Monitor current and voltage
- Serial communication
- Trigger external devices

Description

The HV Sequencer (ER430) is a four channel high voltage power supply especially designed for electro-osmotic flow (EOF) applications using microfluidic chips.

Applications

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

Compatibility

QuadSequencer™ control software is supplied for Windows 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 Micronit Platform, ET225
- C4D Microchip Electrophoresis Platform, ET121

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

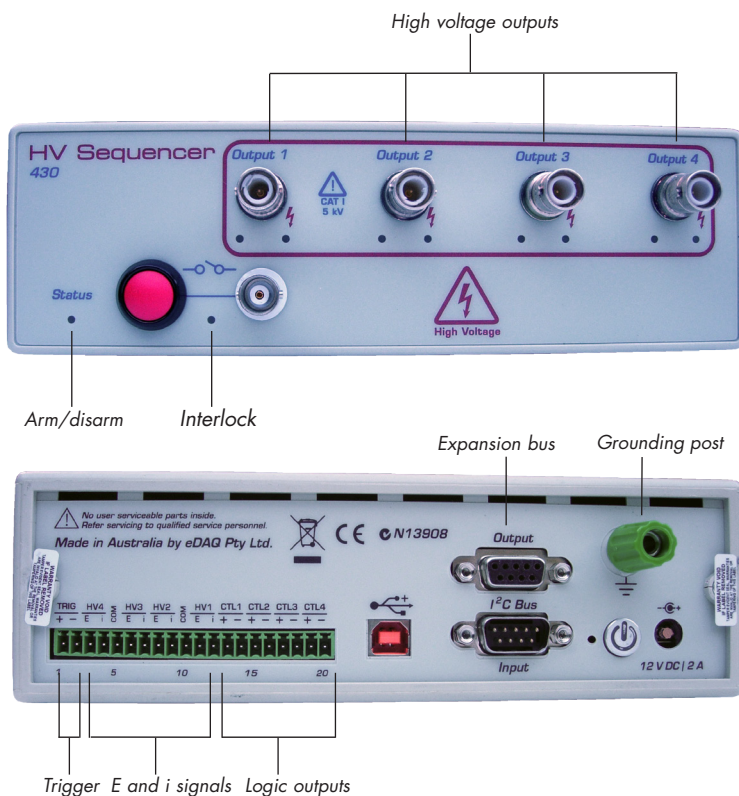
The HV Sequencer comprises four independent programmable high voltage supplies.

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 easy to use QuadSequencer™ software (supplied) creates tables of sequences of voltage levels for applying to the various fluidic ports of the microchip. This provides four synchronised (sub-millisecond timing) high voltage outputs for complex experimental protocols.

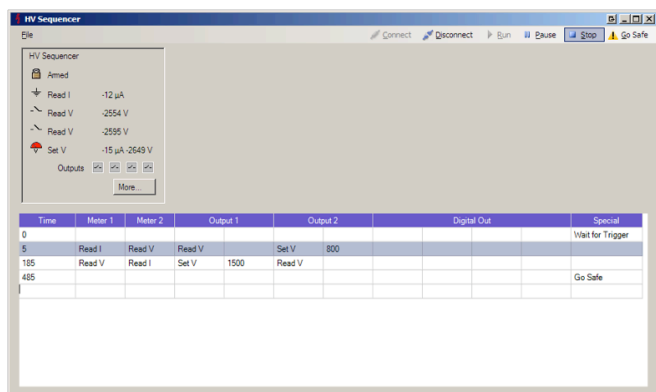
A safety interlock features ensures that the unit can only be armed by conscious action of the user.



Serial Interface

The HV Sequencer can be operated as a 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



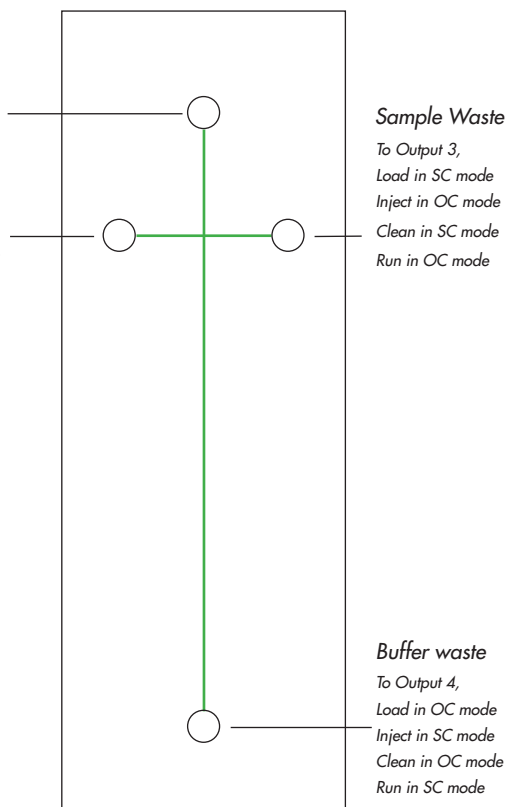
Example window of the Sequencer™ control software

Buffer in

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



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

Specifications

High voltage outputs:	4, SHV connector
Maximum output voltage:	±3 kV per channel
Minimum output voltage:	±300 V
Maximum output current:	150 µA per channel
Ripple:	< 0.2%
Rise/fall time:	< 5 ms (same polarity)
Load regulation	<2% specified for 20-90% full load
Output modes:	OC, open circuit SC, short circuit to ground (current meter) HiZ, high impedance voltmeter SetV, sets voltage (current and voltage reported)
Mode Change:	<100 mS due to relay operations, safety and software latency
Voltage Meter Range	±3000 V per channel @ 100 Megohms input load
Load regulation	<2% specified for 20-90% full load
Current Meter Range	0-25 uA 0-250 uA @1000 Ohm internal resistance

ARM Device:	Enables outputs when ARM Push button is depressed for more than 2 second.
DISARM Device:	Depress ARM Push button momentarily
Interlock:	Continuous closed circuit, BNC connector
Trigger input:	CC or TTL (software selectable) on rear panel
Expansion Ports	
I ² C ports:	Power and control bus for future expansion devices
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:	3 kg (6.6 lb)
Operating voltage:	9 – 16 V DC @ 2 A (12 V nominal)
Nominal power needs:	<24 VA: 9-16Volts @ 2 Amps max supplied by mains powered AC/DC converter (supplied)
Operating conditions:	5-35°C < 80% humidity (non-condensing)

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