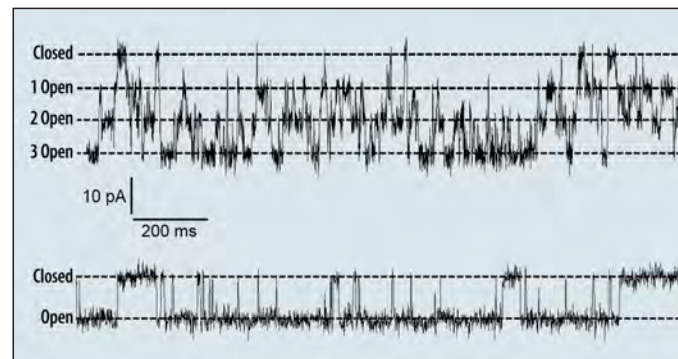


eONE EXAMPLE APPLICATION: Technical University of Darmstadt



eONE DATA FROM EXAMPLE APPLICATION

Kcv (potassium channel) monitoring on a Lipid Bilayer setup



BLM setup and data courtesy of TU-Darmstadt (D)



eONE

Miniaturized One-Channel Amplifier

eONE EXAMPLE APPLICATION: Nanion Technologies GmbH

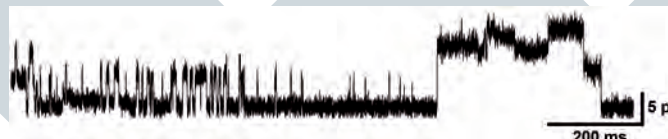


eONE DATA FROM EXAMPLE APPLICATION

Single-channel recordings of different ion channels reconstituted into planar lipid bilayers, formed using GUVs (giant unilamellar vesicles) and the Nanion's Port-a-Patch



Kv1.3 potassium channel



CarO channel



TrPA1 receptor



ELEMENTS, an Italian startup in the microelectronics field, designs and produces high-accuracy miniaturized electronic measurement instrumentation based on custom-made CMOS microchips. The technology enables low-noise, single- and multi-channel signal acquisition for very-low amplitude signals, suitable for different nanosensor applications.

ELEMENTS
Via Martiri della Libertà, 14c - 47521 - Cesena (FC) - Italy
Contact info@elements-ic.com www.elements-ic.com



elements

enabling technologies for Life Science

The world's smallest low-cost current amplifier for nanopores and single-channel electrophysiology applications.

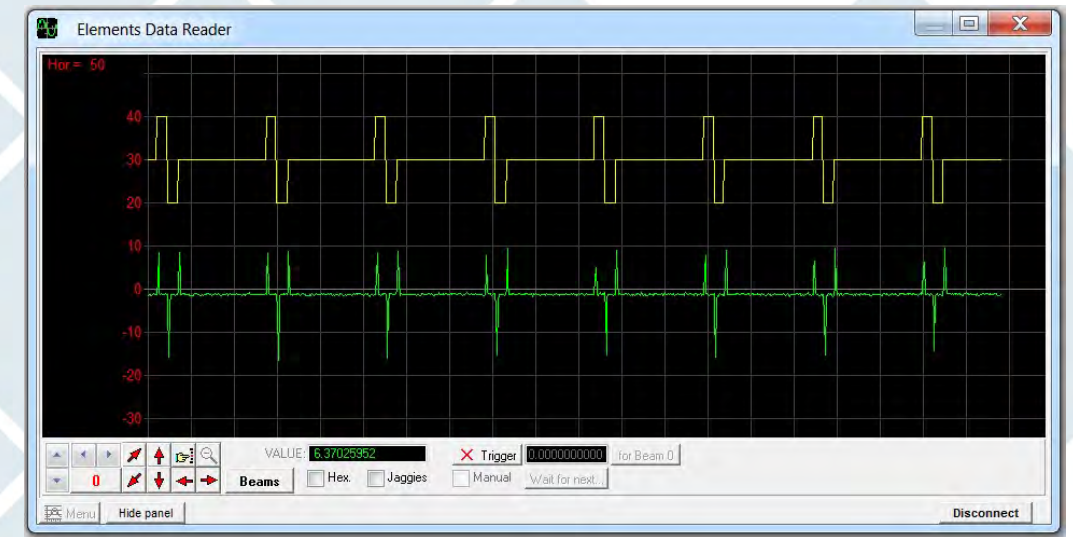
It is suitable for research and educational activities with use bilayer lipid membranes (BLM) or whole cells. eONE is a complete, USB-powered, single-channel acquisition system: it incorporates the low noise amplifier, the digitizer and filters, and the voltage stimulus generator, all in a very small footprint: only 30x15x74mm.

A small, easy-to-use, USB plug'n play system for acquiring very-low-current signals!



eONE Elements Data Reader (EDR)

A user-friendly software interface provides digital control of the system, and displays data acquisition in real time. Input current ranges, bandwidth, voltage stimulus, and automatic electrode voltage offset compensation can all be easily selected and modified.



Data can be stored in different formats (pClamp®, Matlab®, text).

eONE VERSIONS

It is available in three versions: Base, Voltage Protocol (VP) and High Speed (HS).

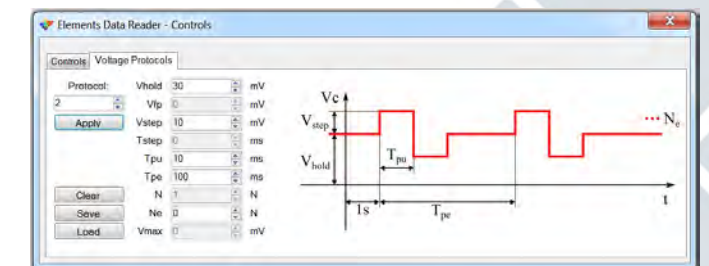
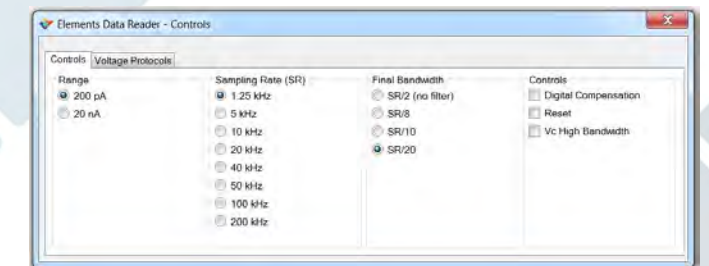
BASE	VP	HS
The low-cost and high-performance solution. Suitable for educational activities and lab experiments. Max bandwidth: 10 kHz Constant voltage Res & Cap estimator	The intermediate solution, including a complete set of fully programmable Voltage Protocols for electrophysiology experiments. Max bandwidth: 10 kHz Programmable Voltage Protocols Res & Cap estimator	The top-line solution, with High Speed acquisition rate in addition to the voltage protocols, making it suitable for research and nanopore analysis. Max bandwidth: 100 kHz Programmable Voltage Protocols Res & Cap estimator

eONE FEATURES

Noise	- 100 fA rms @ 1 kHz (gain 2.25 GΩ) - 380 fA rms @ 10 kHz (gain 2.25 GΩ) - 3,2 pA rms @ 100 kHz (gain 2.25 GΩ)	Input Connector	SMB
Input Current Ranges	± 20 nA (gain 22.5 MΩ) ± 200 pA (gain 2.25 GΩ)	Ground connector	2 mm banana plug
Max Sampling Rate	200 kHz	PC interface	USB 2.0 plug n' play - mini B connector
Filters	Digital	Software interface	Elements Data Reader, LabView® VI
ADC resolution	14bit	Data output format	Text, pClamp®, Matlab®
Voltage Stimulus Signal Range	±380mV, 1mV step resolution	Size & Weight	30 x 15 x 74 mm - 40 g
Offset compensation	± 128mV	Power Consumption	850 mW

The software interface is modular:

- The EDR interface enables full system control, ensuring complete and easy-to-use data recording.
- The EDR Voltage Protocol add-on enhances the capability of the system, enabling automatic stimulus generation by means of 7 programmable protocols corresponding to typical electrophysiology experiments.
- eONE can also be controlled by dedicated Labview VIs, allowing the system to be integrated into more complex measurement setups.



EDR is currently available for Windows and is coming soon for OS X.

