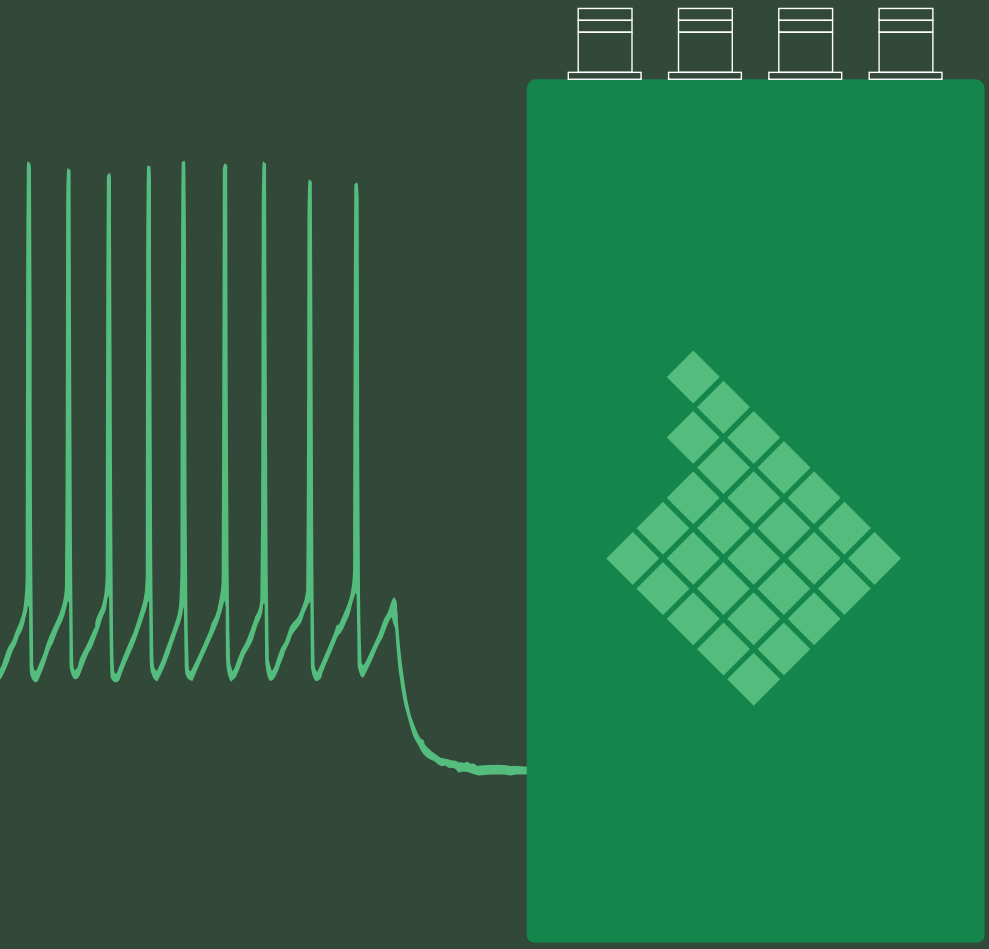
elements
Enabling technologies for Life Science



MultiPatch

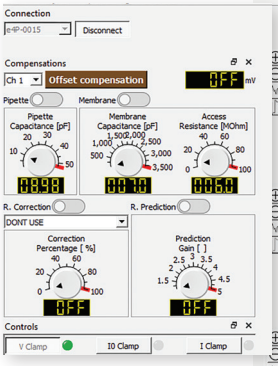
The Patch Clamp Multi-Channel Amplifier supports up to 8 simultaneous patch clamp recordings, with each channel independently configurable for voltage or current clamp modes. Low-noise cables connect the core unit to the patch pipette holders, ensuring optimal signal-to-noise ratio in any setup. It is available in two models, offering 4 or 8 channels.

Technical specifications (voltage-clamp)

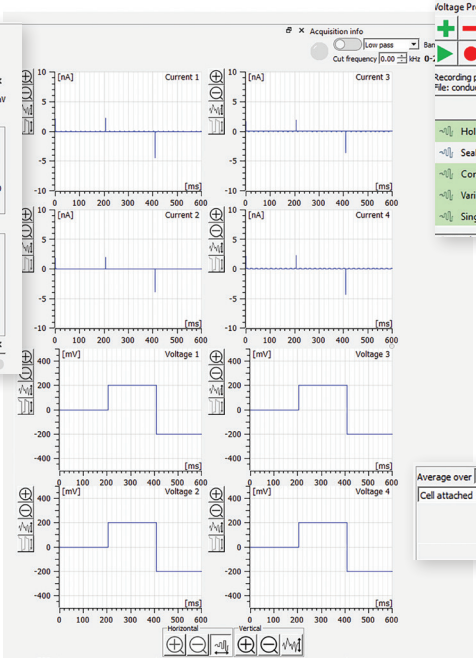
Open input noise (rms): 0.89pA @ 2.6kHz
Current ranges: ±10nA (Gain 200MΩ, BW 2.6kHz), ±40nA (Gain 50MΩ, BW 19.2kHz), ±400nA (Gain 5MΩ, BW 80kHz)
Voltage pulse generator range of ± 500 mV (res. 0.125mV)
Digital filters: cutoff frequencies in the range between 1.25 kHz and 40 kHz
C-fast – C-slow – R-series
Max sampling rate: 160 kS/s
C-Fast compensation range: 0.2 - 52.8 pF
C-Slow compensation ranges: C in 0.3 - 269 pF, τ in 0.5 - 1280µs
R series correction ranges: in 0.4 - 25.6 MΩ
R series prediction ranges: R in 0.2 - 51.2MΩ, τ in 2 - 512µs

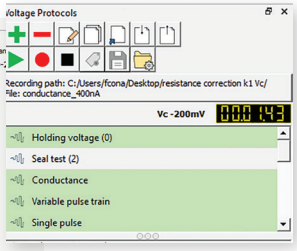
Technical specifications (current-clamp)

Noise (rms): 6.6µV @ 5 kHz
Current stimulus ranges: ±2nA (res. 0.5pA); ±8nA (res. 2pA)
Voltage range: ±250 mV
Pipette neutralization (3 - 285.2 pF range)
True-zero current mode

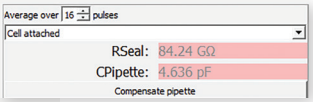


Pipette capacitance, cell capacitance, and R series are always under control through compensation settings.





Define data collection with a wide set of acquisition tools and commands.



Cm, Rs, amd Rm can be continuously monitored during recording.

Software interface

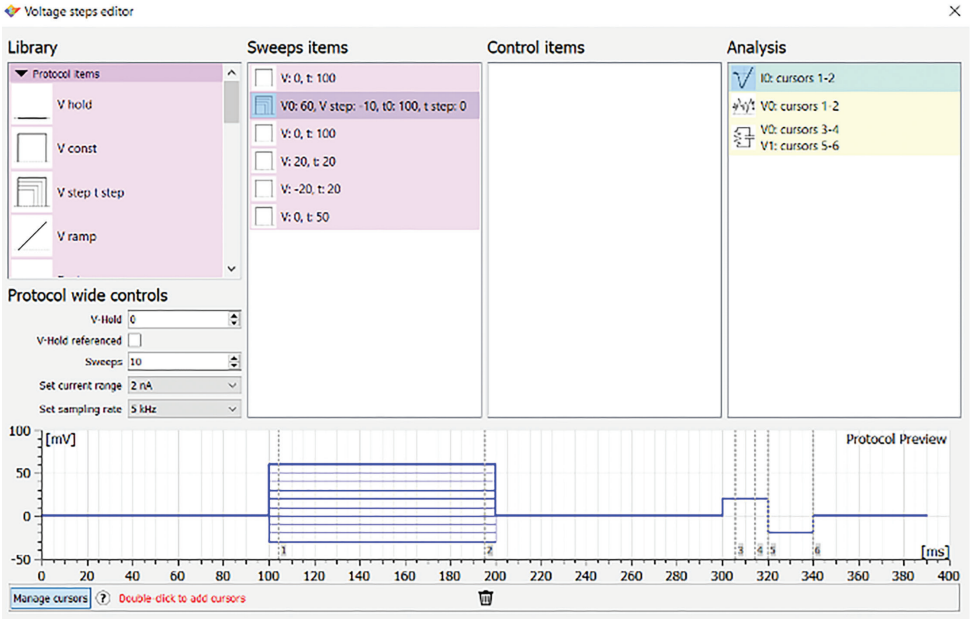
MultiPatch is operated through a free and user-friendly interface developed and released by Elements for easy and fast control of the amplifier unit. Data recordings are compatible with third party analysis software.

Features

- Customizable user-friendly Windows interface
- Real-time display of voltage, and current digitized data
- V-clamp, I0-clamp, and I-clamp modes
- Customisable voltage and current protocols
- Automatic or manual control of compensation settings
- Real time monitoring of cell membrane parameters (e.g. Cm, Rm and Rs)
- Resting potential recording in true-zero current mode
- Real-time data analysis in voltage-clamp mode (I/V graph, histograms, PSD, etc.)
- Real-time action potential waveform analysis (AP threshold detection, AP frequency, AP slope, etc.)
- Possibility to use arbitrary waveforms, such as a recorded cellular response, as stimuli
- “Store sweep” tool to easily compare data during the recording
- Digital LabBook
- Data output saving format: .abf, with more coming soon
- Available for Windows

Voltage protocol editor

The voltage protocol editor is designed to easily set up all the various aspects of data acquisition, ranging from the acquisition mode, the sampling rate, the gain, the shape of the command waveform and much more.



Customized Applications

Elements 4-channel patch clamp amplifier is available with a standard software interface, allowing quick and easy setup and measurements. In addition, it is possible to fully customize the entire setup to specifically meet your application's requirements and needs. Inquire about our customization services to find-out more, about this unique option!

elements
Enabling technologies for Life Science

Elements S.r.l.
Viale Europa 596 – 47521 Cesena – Italy
e-mail: info@elements-ic.com
www.elements-ic.com