npi
Electronic Instruments
for the Life Sciences
made to measure

35 years

UNIC LAMP USB

npi's first digital amplifier

With all proven features of the universal amplifier **ELC-03XS** controlled by npi's new software.

- Automated capacitance compensation
- Automated series resistance compensation

Recording hardware and software included: **npi E-Phys**

- Program stimulus protocols
- Record traces with up to 250 kHz

Compatible with standard recording hard- and software (e.g. pClamp, PatchMaster, Signal, WinWCP)

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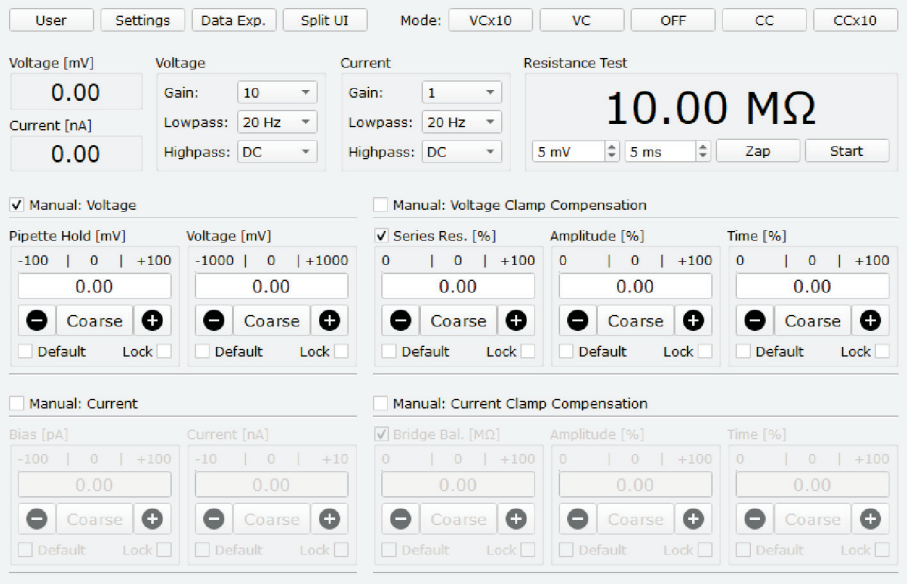
UNICLAMP USB control software



Amplifier control

Displays for voltage, current & resistance

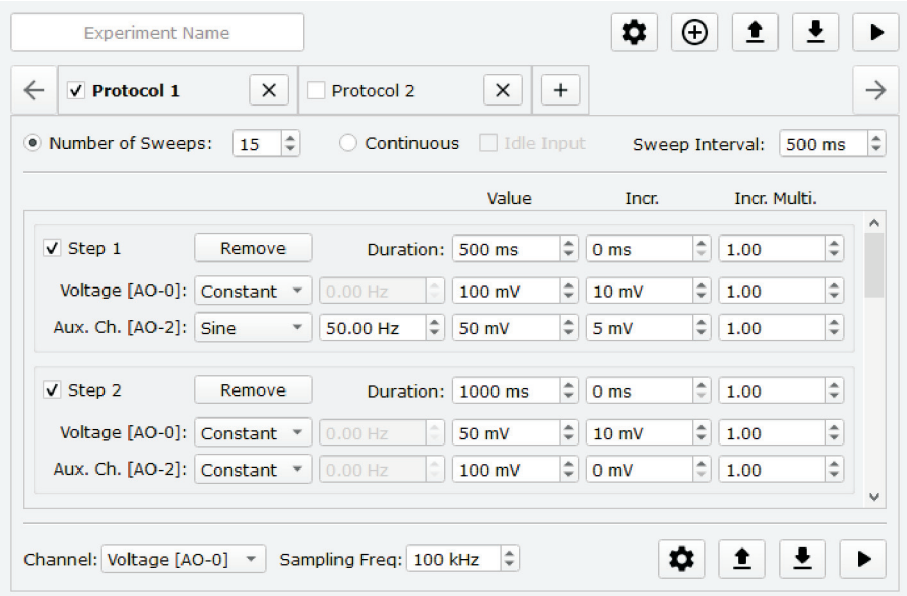
All settings adjustiable as direct input or by scrolling with mouse wheel

UNICLAMP USB control

Intuitive graphic software

Different colors for VC and CC

Store and recall amplifier settings and experimental setup



Experiment control

Pulse protocols in VC & CC

Time & ampl. increments

Different wave forms

Optional I/O box available: analog and digital in- and outputs

Allows control and recording of external devices (light sources, valves, amplifiers, ...)

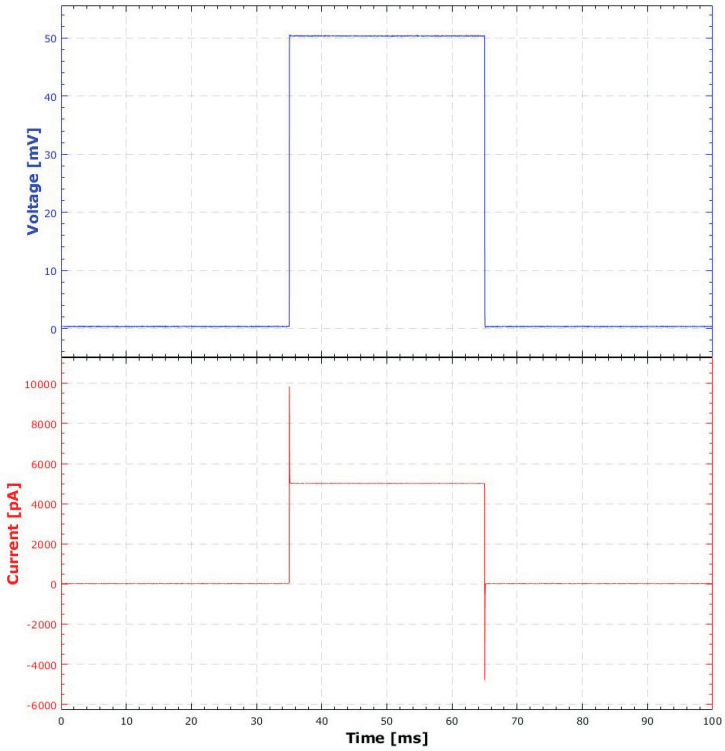
Data recording

Record data with:

250 kHz in one channel

125 kHz in two channels

Data as ASCII, CSV, Matlab

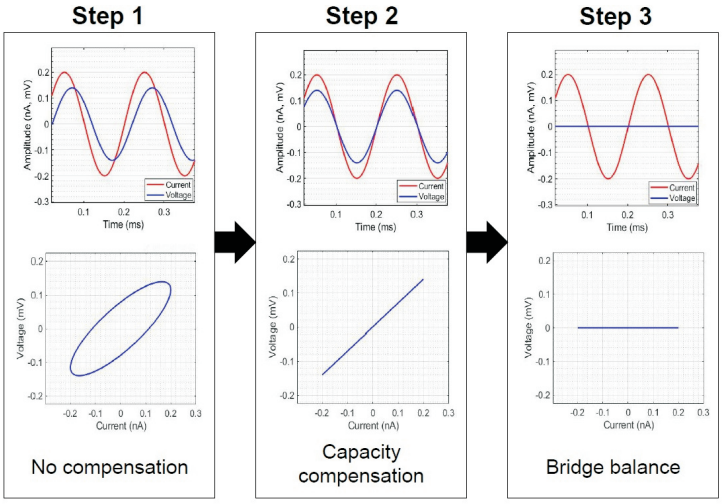


Scope Window

Preview of pulse protocols

Scalable (also automatic)

Lissajous-plots



Automatic compensation of capacity and bridge balance using the phase sensitive method

Ref: Riedemann, T., Polder, H.R. & Sutor, B. Pflugers Arch - Eur J Physiol (2016) 468: 1725. https://doi.org/10.1007/s00424-016-1868-8

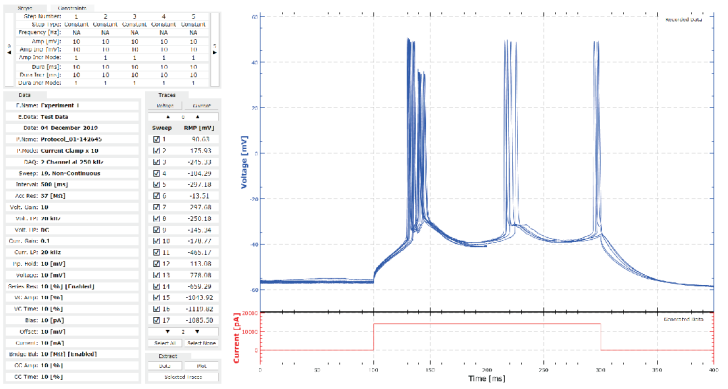
Figure from: Jha et al., Poster at DPG meeting in Ulm, 2019: Universal amplifier with automatic compensation of series resistance and capacitance in whole cell recordings using an active-bridge circuit and phase-sensitive technique

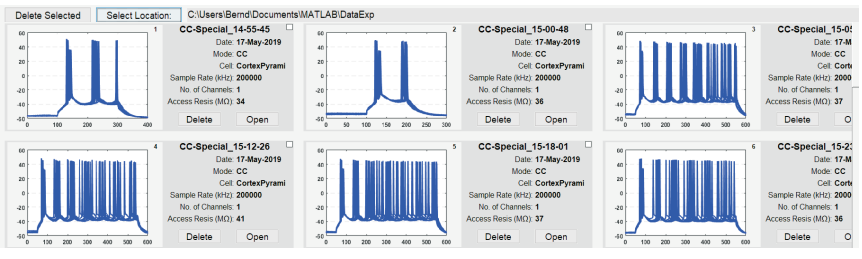
Data display

Selectable number of traces

Meta-data and all amplifier settings

Data analysis

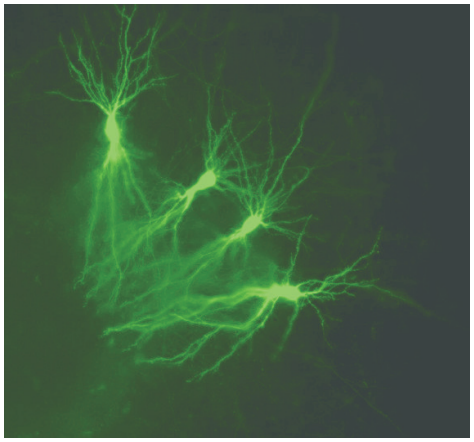




Data explorer

Preview of recorded traces and meta-data

UNICLAMP USB features



Picture kindly provided by Dr. Lessmann and Dr. Brigadski

Single cell electroporation

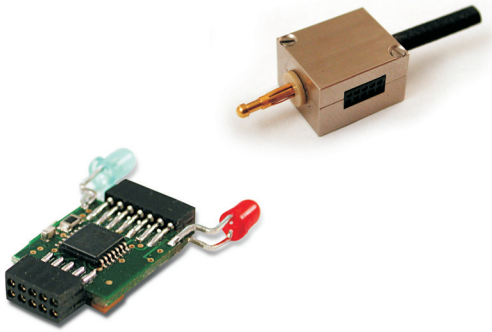
Electroporate and fill cells with DNA

Juxtacellular recording, transfection and dye filling

Ca3 pyramid neurons of the rat GFP labelled *in vitro* in cultured hippocampal slices

Ref.: Daniel J., et al.: (2013) Single-cell juxtacellular transfection and recording technique *Pflugers Arch*

- **Extracellular recording** with high and low pass filters, gain up to 1000
- Precise, "**single-cell" stimulation** with current or voltage (μA range, $\pm$15 V)
- **Intracellular recording** with sharp microelectrodes
- **Patch clamp** recording in **perforated** and **whole-cell** configuration



In vivo recording

Optional miniature headstages

Record with freely moving animals

Juxtacellular labeling in vivo

Software development is part of the PhD thesis of Chaitanya Jha.
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EU - GliaPhD

All hardware is designed and built by npi electronic in Tamm, Germany.

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