

made to measure

ELC-01MX

The “Swiss Army Knife” for Electrophysiology



Features:

- ⇒ Records **extracellular** AC oder DC coupled
- ⇒ Allows precise, **single cell stimulation** with current or voltage
- ⇒ Suitable for **juxtosomal filling** of cells with dyes or DNA in **loose-patch** configuration
- ⇒ Records and stimulates **intracellular** in CC or VC mode
- ⇒ **BRIDGE balance** for cancelling the electrode artifact
- ⇒ Available with **differential headstage** for recordings *in vivo*
- ⇒ Suitable for **amperometric** or **voltammetric** investigations with carbon fiber electrodes
- ⇒ Suitable for **iontophoresis** as well



ELC-01MX

Technical Data

Headstage:

Input voltage range: ± 12 V
Operating voltage: ± 15 V
Enclosure: 23 x 70 x 26 mm, grounded
Headstage connector: 8-pole DIN connector
Electrode connector: BNC with driven shield
Ground connector: 2.4 mm connector
Reference electrode connector: SMB connector (optional)
Input resistance (CC): $> 10^{13} \Omega$ (internally adjustable)
Current range: ± 120 nA max.

Electrode parameter controls:

BIAS range: ± 100 pA, current adjustable with trim potentiometer
OFFSET range: ± 100 mV, ten-turn control
CAPACITY COMPENSATION range: 0 - 30 pF ten-turn control

Bridge balance:

0 - 100 M Ω , adjustable with ten turn control

Electrode resistance test:

Sensitivity: 1 mV / M Ω , by application of square current pulses ± 1 nA
Display: 3½ digits, XXX M Ω , activated by spring-loaded switch

Bandwidth and speed response:

Full power bandwidth (rise time (10% - 90%))
 > 30 kHz ($R_{EL} = 0$)
 $< 10 \mu$ s ($R_{EL} = 100$ M Ω)
 $< 5 \mu$ s ($R_{EL} = 5$ M Ω)

Outputs:

Output impedance: 50 Ω
Max. voltage: ± 12 V
Current output: BNC connector, sensitivity V / nA
Current output sensitivity: Rotary switch, range: 0.1, 1, 10
Current display: 3½ digits, resolution 10 pA

Potential output x1: BNC, sensitivity 1 mV/mV
Potential output: BNC, range 10, 100, 1000
Potential low-pass filter: 3-pole BESSEL filter
attenuation: -18 dB/octave,
corner frequency: 2 kHz
Potential high-pass filter: 1-pole filter
attenuation: -6 dB/octave,
corner frequencies (Hz): 1, 10, 50, 100, 500

Inputs:

Input impedance analog: 100 k Ω
Input range: ± 12 V
Input impedance digital (TTL): 10 k Ω
Input range (TTL): 0-5 V, LO: < 0.8 V, HI: > 1 V
Current stimulus input via BNC connector, sensitivity: 10 nA / V
Step gate input via BNC connector (TTL)
Gated stimulus with ten-turn control of holding current, resolution: 10 pA, range: ± 100 nA or with ten-turn control of holding potential
in VC mode: resolution 1 mV, range ± 1 V
in VCx10 mode: resolution 10 mV, range ± 10 V
Polarity selectable by toggle switch
Voltage command input via BNC connector, sensitivity: /10 mV

Digital displays:

Display mV / M Ω : 3½ digits, XXXX mv or XXX M Ω
Display current: 3½ digits, XX.XX nA

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