MEA2100-System

Technical Specifications

General Characteristics
Operating temperature 10 °C to 50 °C
Storage temperature 0 °C to 50 °C
Relative humidity 10 % to 85 %, non-condensing

Headstage
Dimensions (W x D x H) 250 mm x 151 mm x 25 mm
Weight ± 1200 g
Type of headstage MEA2100-HS32 for 32-electrode MEAs
MEA2100-HS2x32 for two 32-electrode MEAs
MEA2100-HS60 for 60-electrode MEAs
MEA2100-HS2x60 for two 60-electrode MEAs
MEA2100-HS120 for 120-electrode MEAs
MEA2100-HS256 for 256-electrode MEAs

Integrated Amplifier
Number of analog recording channels 32, 60, 120 or 252, depending on the type of the headstage
Data resolution 24 bit (16 bit, if operated with MC_Rack)
Signal input voltage range MC_Rack: from ± 4.9 mV to ± 500 mV
Multi Channel Experimenter: ± 500 mV ± 250 mV with MEA2100-HS256
Bandwidth DC to 10 kHz, software controlled
Sampling frequency per channel up to 50 kHz, software controlled
Input impedance 1 GΩ || 10 pF

Integrated Stimulus Generator
Output current ± 1.5 mA @ ± 16 V compliance voltage
Output voltage ± 10 V @ ± 20 mA max. compliance current
Stimulation pattern MC_Rack: rectangle (biphasic, monophasic, pulse trains)
Multi Channel Experimenter: almost arbitrary patterns
Number of stimulation channels 3 independent stimulation patterns per 60 channels
2 independent stimulation patterns with MEA2100-HS256
Resolution 16 bit
Time resolution 20 µs

Integrated Heating Element
Temperature sensor type Pt 100 (with four wire connection, compatible with TCX)
Accuracy ± 0.1 °C

Interface Board „MCS-IFB 3.0 Multiboot“ and Connectors
Dimensions (W x D x H) 250 mm x 83 mm x 25 mm
Weight 300 g
Front Panel
4 Digital inputs Lemo connector, EPL 00250 NTN
4 Digital outputs Lemo connector, EPL 00250 NTN
2 Auxiliary channels (not in use) Lemo connector, EPL 00250 NTN
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Rear Panel
1 16 Bit Digital In / Out
1 8-Channel Analog In
2 Analog Inputs
Signal input range for analog channels
Gain for analog channels
1 Digital signal processor DSP port
2 USB 3.0 ports
Power supply
Ground
1 Audio output

68-pin MCS standard connector
10-pin connector (2.54 mm grid), dual row standard IDC
Lemo connector, EPL 00250 NTN
± 2500 mV
2 *
20-pin JTAG connector (1.27 / 2.54 mm grid), dual row
USB 3.0 super speed cable (type A - micro B)
MPU 30, PWR DC 0.85 x 2.75 mm
Common jack 4 mm, banana plug
Stereo jack 3.5 mm

Side Panel
2 Interface board to headstage connectors
Power Supply Unit (MPU 30)
Input voltage
Output voltage
Max. power
Mark of conformity
European standard

External power over serial ATA (eSATAp)
90 - 264 VAC @ 47 - 63 Hz
11 - 13 V
30 W
CE, TÜV, cUL
EN60601

Software
Operating system
Microsoft Windows ®
Windows 10, 8.1, and Windows 7 (32 or 64 bit),
English and German version supported

Data acquisition and analysis software
Multi Channel Experimenter
Version 1.5.1 and higher
Multi Channel Analyzer
Version 1.5.1 and higher
MC_Rack
Version 4.1.1 and higher

Data export software
Multi Channel DataManager
Version 1.6.1 and higher, HDF5 (Matlab, Python,
NEX (NeuroExplorer), CED (Spike), ASCII
MC_DataTool
Version 2.6.3 and higher
Axion binary file, ASCII, binary file

* Important: In MC_Rack software the scaling of the analog channels is not correct
for a factor of 2, because the gain of the analog channels is not considered.

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