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

Intergated Stimulus Generator

Output current	± 1.5 mA @ ± 16 V complicance 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 Digial 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

MEA2100-System

Technical Specifications

Rear Panel

1 16 Bit Digital In / Out	68-pin MCS standard connector
1 8-Channel Analog In	10-pin connector (2.54 mm grid), dual row standard IDC
2 Analog Inputs	Lemo connector, EPL 00250 NTN
Signal input range for analog channels	± 2500 mV
Gain for analog channels	2 *
1 Digital signal processor DSP port	20-pin JTAG connector (1.27 / 2.54 mm grid), dual row
2 USB 3.0 ports	USB 3.0 super speed cable (type A - micro B)
Power supply	MPU 30, PWR DC 0.85 x 2.75 mm
Ground	Common jack 4 mm, banana plug
1 Audio output	Stereo jack 3.5 mm

Side Panel

2 Interface board to headstage connectors	External power over serial ATA (eSATAp)

Power Supply Unit (MPU 30)

Input voltage	90 - 264 VAC @ 47 - 63 Hz
Output voltage	11 - 13 V
Max. power	30 W
Mark of conformity	CE, TÜV, cUL
European standard	EN60601

Software

Operatring 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 (Madlab, 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.