

W2100-System

Technical Specifications

General Characteristics

Operating temperature	10 °C to 50 °C
Storage temperature	0 °C to 70 °C
Relative humidity	10 % to 85 %, non-condensing

Headstage

Dimensions (W x D x H)	W2100-HS4	13 x 13 x 5.5 mm (+ antenna)
	W2100-HS8	15.5 x 15.5 x 5 mm (+ antennae)
	W2100-HS16	15.5 x 15.5 x 5 mm (+ antennae)
	W2100-HS32	15.5 x 15.5 x 6.7 mm (+ antennae)
	W2100-HS8-ES2-0.5mA	15.5 x 15.5 x 5 mm (+ antennae)
	W2100-HS14-ES2-0.5mA	15.5 x 15.5 x 5 mm (+ antennae)
	W2100-HS4-opto	13 x 13 x 5.5 mm (+ antenna)
Weight	W2100-HS4	approx. 1.9 g (+ battery)
	W2100-HS8	approx. 2.8 g with single row connector (+ battery) approx. 3.1 g with Omnetics connector (+ battery)
	W2100-HS16	approx. 2.9 g (+ battery)
	W2100-HS32	approx. 3.7 g (+ battery)
	W2100-HS8-ES2-0.5mA	approx. 3.7 g (+ battery)
	W2100-HS14-ES2-0.5mA	approx. 3.7 g (+ battery)
	W2100-HS4-opto	approx. 1.9 g (+ battery)

Integrated Amplifier

Gain	101
Bandwidth	1 Hz to 5 kHz (0.1 Hz on request)
Resolution	16 bit
Input voltage range	+ / - 12.4 mV
Distance for wireless link	5 m guaranteed (under normal circumstances)

* 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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Sampling rate in
"Single Headstage Mode"

Sampling rate in
"Multi Headstage Mode"

Sampling Rate in kHz/channel	Number of selected channels				
	2	4	8	16	32
W2100-HS4	40	25			
W2100-HS8	40	40	25		
W2100-HS16	40	40	25	25	
W2100-HS32	40	40	25	25	20
W2100-HS8-ES2-0.5mA	40	40	25		
W2100-HS14-ES2-0.5mA	40	40	25	25	
W2100-HS4-opto	10	10			
Sampling Rate in kHz/channel	Number of selected channels				
	2	4	8	16	32
W2100-HS4	10	10			
W2100-HS8	10	10	10		
W2100-HS16	10	10	10	5	
W2100-HS32	10	10	10	5	2

Electrical Stimulation

Output current
W2100-HS8-ES2-0.5mA
W2100-HS14-ES2-0.5mA

Rise time (10 - 66 %) current, 0 - 100 μ A

Optical Stimulation

LED Stimulation channels
LED driving current output

Receiver

Dimensions (W x D x H)
Dimension of antenna
Frequency band
Impedance of antenna
Analog Out only available in **W2100-RE-AO**

Power supply unit (MPU 30)

Input voltage
Output voltage
Max. power
Mark of conformity
European standard

-0.5 mA to +0.5 mA @ +/-10 V compliance voltage

1.5 μ s @ $R_L = 10$ k Ω

2
max. 1A @ max. 3.7 V compliance voltage

250 mm x 83 mm x 25 mm w/o antennae
110 mm x 10 mm (length x diameter)
2.4 GHz frequency band
50 Ohm
68-pin MCS standard connector

90 - 264 VAC @ 47 - 63 Hz
11 - 13 V
30 W
CE, TÜV, cUL
EN60601

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Interface Board „MCS-IFB 3.0 Multiboot“ and connectors

Dimensions (W x D x H)	250 x 83 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
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	± 1250 mV
Gain for analog channels	2 *
Digital signal processot DSP port	20-pin JTAG connector
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 PRA.00.250.CTAC29
Side Panel	
2 Interface board to hedstage 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 10, 8.1, Microsoft 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

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Storage Battery

Storage battery	Lithium polymer, rechargeable				
Recording time of batteries in hours at maximal sampling rate on all available channels		W2100-HS4	W2100-HS8	W2100-HS16	W2100-HS32
30 mAh battery	0.8	0.6	0.4	0.4	
100 mAh battery	2.5	2	1.3	1.2	
200 mAh battery	5	4	2.5	2.3	
300 mAh battery	7.5	6.1	3.8	3.5	

Dimension of battery	30 mAh battery	17 x 11 x 3 mm
	100 mAh battery	26 x 19.5 x 2.3 mm
	200 mAh battery	26 x 20 x 4.5 mm
	300 mAh battery	27.5 x 19.5 x 5 mm

Weight of battery with cable: W2100-B-CA with battery board: W2100-B-BB		W2100-B-CA	W2100-B-BB
	30 mAh battery	approx. 1.5 g	approx. 1.5 g
	100 mAh battery	approx. 3.7 g	approx. 3.8 g
	200 mAh battery	approx. 5.1 g	approx. 6.7 g
	300 mAh battery	approx. 8.1 g	approx. 8.7 g

Recharging Device

Dimensions (W x D x H)	55 mm x 20 mm x 10 mm
Period of charging	1 hour
Power	USB powered