W2100-HS8-ES2-EXT-2.0mA Headstage

Advantages
- The headstage is equipped with two external channels for electrical stimulation.
- The signal-to-noise ratio is excellent and most important, independent from the distance between sender and receiver.
- The headstage is additionally equipped with a triaxial gyroscope and a triaxial accelerometer by default.

Applications
The W2100 headstage is the ideal solution for the measurement of spikes, LFP, EEG, ECG, EMG, and ECoG. Additional inputs to the interface board allow the synchronisation of the data with external devices. Use the two dedicated stimulation channels for recording and electrical stimulation simultaneously.

Gyroscope and Accelerometer
The W2100 headstage is equipped with triaxial gyroscope and accelerometer sensors, which allow synchronisation with electrophysiological data.

External Connectors for Electrical Stimulation
Connectors for external stimulation (Stim 2 + Stim 1)
Connector from Mill-Max 1 mm Pitch 861-13-050-10-002000 + Magnet cuboid Maqna QA-3x1x1-N45-N on the headstage mates with Mill-Max 860-10-050-10-002000 + Magnet cuboid Maqna QA-3x1x1-N45-N.

Adapter for External Stimulation
The adapter for external stimulation has to be connected magnet to magnet to the headstage. Please solder a connection wire to the pads provided on the adapter.

W2100-HS8-ES2-EXT top side
Please use the connector for the storage battery in the lower right for orientation of the headstage.

W2100-HS8-ES2-EXT-B-300mAh-BB
Standard battery for the W2100-HS8-ES2-EXT. Please connect the battery board to the headstage.
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Technical Specifications

- Number of recording channels: 8
- Number of stimulation channels: 2
- Weight (without battery): ± 3.8 g
- Dimensions (W x D x H): 15.5 mm x 15.5 mm x 7.5 mm
- Distance of wireless link: 5 m and more under normal conditions

Amplifier

- Bandwidth: To avoid aliasing effects, the low pass depends on the sampling frequency.
  - High pass: 1 Hz (0.1 Hz on request)
  - Low pass: 400 Hz, 800 Hz, 1 kHz, 5 kHz
  - @ Sampling rate @ 1 kHz: 400 Hz, 800 Hz, 1 kHz, 5 kHz, 10 - 40 kHz
- Gain: 101
- Input Impedance: 1 GΩ || 10 pF
- Resolution: 16 bit
- Input voltage range: ± 12.4 mV
- Input noise: < 1.9 µV RMS
- Sampling rate (max.) in kHz: Number of channels simultaneously 2 kHz, 4 kHz, 8 kHz
  - Single Headstage Mode: 40 kHz, 40 kHz, 25 kHz
  - Single Multi Mode: 10 kHz, 10 kHz, 10 kHz

Stimulation

- Output current: - 2.0 mA to + 2.0 mA @ ± 10 V compliance voltage
- Rise time (10 - 66 %): 2.8 µs @ RL = 10 kΩ

Inertial Measurement Unit

- Gyroscope, triaxial: ± 8 g @ 16 bit resolution
- Accelerometer, triaxial: 1000 °/s @ 16 bit resolution

Software

- Operating system: Windows® 10, 8.1 (64 bit)
- Data acquisition and analysis software: Multi Channel Suite Version 1.5.1 and higher

Storage battery connector on the opposite side for orientation.

Connector for this Headstage Omnetics A79039-001

This Omnetics mate with Omnetics such as:
- Through Hole: A79038-001 (NPD-18-DD-GS)
- Horizontal Surface Mount: A79040-001 (NPD-18-AA-GS)
- Vertical Surface Mount: A79042-001 (NPD-18-VV-GS)
- Cable: A79044-001 (NPD-18-WD-18.0-C-GS)

Important: To handle the headstage, please touch the body, but not the antennae.