W2100-HS8-ES2-EXT-0.5mA Headstage

Advantages
- The headstage is equipped with two dedicated 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 synchronization of the data with external devices. Use the two dedicated stimulation channels for recording and electrical stimulation simultaneously.

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.

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

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

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.

February 2020
**W2100-HS8-ES2-EXT-0.5mA Headstage**

**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 (w/o antennae)
- **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, @2 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
  - Single Headstage Mode: 40, 40, 25
  - Single Multi Mode: 10, 10, 10

**Stimulation**

- **Output current**: -0.5 mA to +0.5 mA @ ±10 V compliance voltage
  - Rise time (10 - 66 %) current 0 - 100 µA: 1.5 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

---

**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.