

## W2100-HS8-SR-opto Headstage

### W2100 Headstage equipped with 2-Channel LED Output for Optical Stimulation

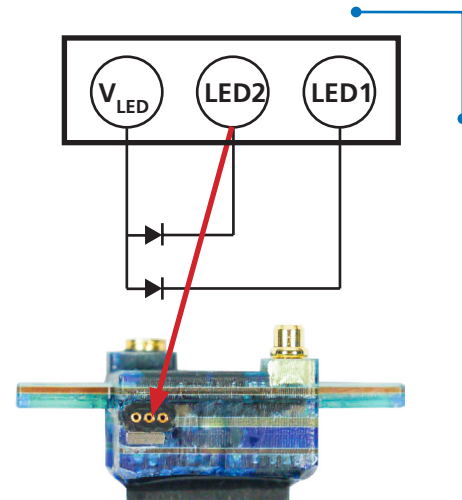
#### W2100-opto-Test

Equipped with two LEDs for testing the W2100-HS8-SR-opto.

**Important: Please use max. 20 mA!**

#### Advantages

- The small-sized headstage provides an interface to connect two LEDs for optical stimulation.
- Small-sized headstage with integrated A/D converter and LEDs for video tracking.
- The W2100-System converts the recorded signals into digital data already on the headstage.
- The signal-to-noise ratio is excellent and most important, independent from the distance between sender and receiver.



#### Connector for optical Stimulation

An additional connector with three pins is available for the optical stimulation via LED: 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 1 mm Pitch: 860-10-050-10-002000 + Magnet-cuboid Maqna QA-3x1x1-N45-N)

#### LED supply: $V_{LED}$ and LED 1 and LED 2.

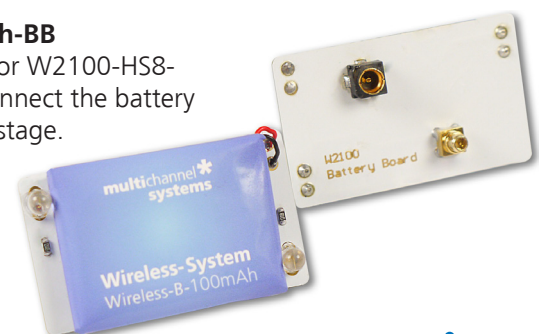
Please see the scheme for the electrical circuit. Connect the W2100-opto-Test or the optrode from TBSI for example, in correct orientation as shown on the picture.

#### 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. Equipped with a connector for a opto probe with two LEDs, the headstage supports optogenetic experiments. A programmable interface provides the synchronization of recording and light stimulation.

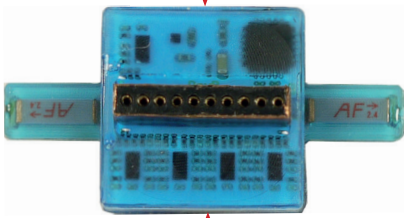
#### W2100-B-100mAh-BB

Standard battery for W2100-HS8-SR-opto. Please connect the battery board to the headstage.



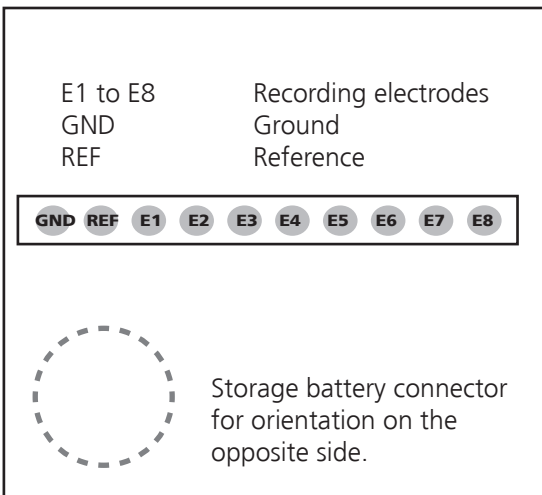
## W2100-HS8-SR-opto Headstage

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



**W2100-HS8-SR-opto** bottom side  
Single row connector for the electrode probe or the ME/W-Signal Generator.

**W2100 Headstage with single row connector**  
Diagram of the bottom side with pin layout. Please orientate the headstage as shown in the diagram.



**Connector for this Headstage single row precision socket**  
(1.27 mm, round pin)  
**Preci-Dip 851-87-010-10-001101**

The connector mates with a standard single row 1.27 mm pin connector such as:  
Preci-Dip 850-10-010-10-001101  
www.fischerelektronik.de: SLR 1 025  
Mill-Max .050" Grid, Series 850, 851, 852, 853 (MMMCS00609-1)

### Technical Specifications

Number of recording channels	8
Number of LED stimulation channels	2
Weight (without battery)	± 4.1 g
Dimensions (W x D x H) w/o antennae	15.5 mm x 15.5 mm x 7.5 mm
Distance for 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 <sub>RMS</sub>

### Sampling rate (max.) in kHz

	Number of channels simultaneously		
	<b>2</b>	<b>4</b>	<b>8</b>
Single Headstage Mode	40	40	25
Multi Headstage Mode	10	10	10

### 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, analysis and export software	Multi Channel Suite Version 1.5.1 and higher