Telemetry-Systems: Technical specifications

Number of channels
- 4, 8, 16 or 32

Recording only
- 4, 8, 16 or 32

Recording + electrical stim.
- 4, 8, 16 or 32

Recording + optical stim.
- 4, 8, 16 or 32

A/DC Resolution
- 16 bit

Input voltage range
- ± 12.4 mV

Input noise
- < 1.9 µV RMS

Max. sampling rate
- (kHz per channel)

Bandwidth
- 1 Hz to 5 kHz (Adjustable to 0.1 Hz or DC by software)

Distance for wireless link
- 5 m guaranteed (under normal lab conditions)

Inertial Measurement Unit
- triaxial accelerometer, range ± 8 g @ 16 bit digital resolution
- triaxial gyroscope, range 1000 °/s @ 16 bit digital resolution

Software:
- Operating system: Windows 10, 8.1 (64 bit)
- Multi Channel Suite: Version 3.13.5 and higher

Battery (Lithium-Polymer, rechargeable)
- Capacity: 30 mAh
- Weight of battery (cable + battery board): 1.7 g | 1.6 g
- 100 mAh (standard batteries, other capacities available on request)
- Weight of battery (cable + battery board): 3.8 g | 4.2 g
- 200 mAh
- Weight of battery (cable + battery board): 5.6 g | 6.7 g
- 300 mAh
- Weight of battery (cable + battery board): 8.5 g | 9.4 g

Sampling rates (kHz/channel)

<table>
<thead>
<tr>
<th>Type of headstage</th>
<th>Number of selected channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multichannel-HS4</td>
<td>16</td>
</tr>
<tr>
<td>Multichannel-HS8</td>
<td>16</td>
</tr>
<tr>
<td>Multichannel-H16</td>
<td>16</td>
</tr>
<tr>
<td>Multichannel-HS32</td>
<td>16</td>
</tr>
</tbody>
</table>

Product information is subject to change without notice. Products that are referenced in this document may bear other trademarks and/or registered trademarks of the respective owners. The publisher and the author make no claim to these trademarks.

© June 2021
Multi Channel Systems MCS GmbH

Multi Channel Systems
Miniature Telemetry System
Flexible, modular solution—ideal for stimulating and recording neurological activity in vivo

- Lightweight headstages—reduce stress on animal
- Facilitates multi-axis acceleration parameter integration into behavioral studies
- 4, 8, 16 or 32 recording channels—suitable for a vast array of applications and animal models
- Options for electrical and optical stimulation as well as frame-consistent video tracking integration available

multichannelsystems.com • sales@multichannelsystems.com
Americas (+1) 833 668 8632 • Europe, Middle East, Africa (+49) 7121 909 2525 • Asia Pacific (+86) 21 6226 0239
Count on highly accurate and reliable data

This all-in-one telemetry solution allows amplifying, recording, and analyzing in vivo data from 4, 8, 16 or 32 channels. With amplifier bandwidths of 1 Hz to 5 kHz (adjustable to 0.1 Hz or DC by software), sampling up to 40 kHz per channel simultaneously, and a 16-bit resolution, you can count on highly accurate and reliable data.

Superior digital data transmission

The Wireless-System converts the recorded signals into digital data already on the headstage. Excellent signal-to-noise ratios and superior digital data transmission make the system ideal for recording spikes as well as LFP, EEG, ECoG and EOG signals. In combination with a long-range transmission, the digital data transmission permits flexible long-term experiments in large laboratory environments.

Comprehensive System

• Small-sized and lightweight headstage—ideal for small rodents
• Digitized data transmission eliminates noise interference and ensures quality long-distance transmission
• Front-end upgrade offers analog output interface with existing setups
• Part of the W2100 modular amplifier solution suite
• Powerful data acquisition software included
• Headstages feature triaxial gyroscope and accelerometer sensor, for synchronization of movement data
• Options for electrical and optical stimulation and recording—on a single headstage with electrophysiological data
• Part of the 2100 modular amplifier solution suite
• Small-sized and lightweight headstage—ideal for small rodents

Flexible—add different types of headstages to meet your varied research needs

Scalable—run up to four receivers in the same room, without bandwidth interference

Save time—record data from up to eight animal experiments simultaneously with one setup

Conduct simultaneous experiments

• Save—time—record data from up to eight animal experiments simultaneously with one setup
• Scalable—up to four receivers in the same room, without bandwidth interference
• Flexible—add different types of headstages to meet your varied research needs

Video-to-data synchronization

The W2100-System in combination with the W2100-System allows wireless in vivo recording with precise video-to-data synchronization with up to 50 frames per second.

Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC. IR camera options are also available.

Versatile software: Multi Channel Suite

The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

• Multi Channel Experimenter: streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag-and-drop interface enables powerful user-friendly visualization, making it easy to create your virtual experiment.

• Multi Channel Analyzer: amplifies offline analysis. Just import the recorded data and run your in-depth analysis. The Multi Channel Analyzer also supports synchronization data input for behavioral research with freely moving animals. Both the video data and electrophysiological recordings are automatically synchronized, allowing you to easily move through data from one event to the next.

• Multi Channel DataManager: allows data export for further analysis with third-party programs. Data files are exported with a single click into HDF5 (*.H5) (e.g. Matlab, Python, NexExplorer (*n), Sp laid (*.smr), ASCII file (*.txt) or European Data Format (*edf+. or *.emf).

Combine electrophysiology and behavioral studies with Panlab SMART software

The Multi Channel Experimenter and Video Control software packages allow you to record both physiological and video data in parallel. The video is captured in frame to the data acquisition sampling. Just load the captured video into the Panlab SMART software and correlate behavioral events with electrophysiological data.

Battery options and connectors

Headstages with single row and Omnetics connectors provide maximum flexibility. Custom adaptors are also available.

Multiple batteries in different sizes are included to suit your varied experimental conditions. Connected to the headstage either directly (via the battery board), or with a flexible cable allowing positioning of the battery in a relaxed position on the animal’s head. The energy-efficient battery design allows weight-existence optimization in your experimental design.

The external battery concept lets you easily charge back-ups—even while an experiment is being performed, enabling continuous recording. Further maximize battery efficiency using automatic stand-by and infrared remote control features.

--

Battery board

Cable connection

Interface board

The Multiport Interface Board facilitates operation of all MEA- in vitro and in vivo headstages within the entire 2100 amplifier solution suite. This suite includes: MEA2100-HS, Multiet-MEA-HS, CMOS-MEA-HS, MEA2100-Beta-Screen-HS, W2100-HS and MEA2100-HS. This modular amplifier family concept allows flexible experimental design—adaptations with minor hardware upgrades investments.
Multiwell-MEA

Superior digital data transmission
The Wireless-System converts the recorded signals into digital data already on the headstage. Excellent signal-to-noise ratios and fast sampling rates make the system ideal for recording spikes as well as LFP, EEG, EMG and ECoG signals. In combination with a long transmission range, the digital data transmission permits flexible long-term experiments in large laboratory environments.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (* .smr), ASCII file (*.txt) or European Data Format (*.edf+ or emf).\n
**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.

**Video-to-data synchronization**
The W2100-Video System in combination with the W2100 System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

**Bi-directional communication**
Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows a precise frame-by-frame synchronization of video and electrophysiological data. Both systems can run on the same PC, IR camera options are also available.

**Versatile software: Multi-Channel Suite**
The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

**Battery options and connectors**
Headstages with single or Omnisens connectors provide maximum flexibility. Custom adaptors are also available.

**Multi-channel DMatter**
Displays data export for further analysis with third-party program. Data files are exported with a single click into HDF5 (*.h5), MATLAB, Python, NexExplorer (*.xml), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

**Multi-channel Experimenter**
Streamlines data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful graphical visualization, making it easy to create your virtual experiment.

**Multi-channel Analyzer**
Streamlines data analysis and online analysis. The Multi-channel Analyzer also supports synchronized data input for behavioral research with freely moving animals. Both the video and electrophysiological recordings are automatically synchronized; allowing you to easily move through data from one event to the next.
Count on highly accurate and reliable data

This all-in-one telemetry solution allows amplifying, recording, and analyzing in vivo data from 4, 8, 16 or 32 channels. With amplifier bandwidths of 1 kHz to 5 kHz (adjustable to 0.1 Hz or DC by software), sampling up to 40 kHz per channel simultaneously, and a 16-bit resolution, you can count on highly accurate and reliable data.

Superior digital data transmission

The Wireless-System converts the recorded signals into digital data already on the headstage. Excellent signal-to-noise ratios and fast sampling rates make the system ideal for recording spikes as well as LFP, EEG, EMG and ECoG signals. In combination with a long transmission range, the digital data transmission permits flexible long-term experiments in large laboratory environments.

Comprehensive System

- Small-sized and lightweight headstage—ideal for small rodents
- Digitized data transmission eliminates noise interference and ensures quality long-distance transmission
- Frontend upgrade—offers analog output to interface with existing setups
- Part of the 2100 modular amplifier solution suite
- Powerful data acquisition software included
- Headstages feature triaxial gyroscope and accelerometer sensor, for synchronization of movement data
- Options for electrical and optical stimulation and recording—on a single headstage
- Synchronize data with external devices using additional inputs

Flexible—add different types of headstages to meet your varied research needs

Scalable—run up to four receivers in the same room, without bandwidth interference

Save time—record data from up to eight animal experiments simultaneously with one setup

Conduct simultaneous experiments

- Device bandwidth: 1 kHz to 5 kHz (adjustable to 0.1 Hz or DC by software), sampling up to 40 kHz per channel simultaneously, and a 16-bit resolution, you can count on highly accurate and reliable data.

Video-to-data synchronization

The W2100 Video System in combination with the MEA-System allows wireless in vivo recordings with precise video-to-data synchronization with up to 50 frames per second.

Bidirectional communication between a high-quality USB 3.0 camera from IDS and the telemetric system allows precise frame-by-frame synchronization of videos and electrophysiological data. Both systems can run on the same PC. IR camera options are also available.

Versatile software: Multi Channel Suite

The telemetric system comes with the powerful and easy-to-use Multi Channel Suite software, which consists of three programs. Regular updates including new functionalities are complimentary.

Multi Channel Experimenter: streamlined data acquisition and online analysis (data displayed in real-time). An intuitive drag’n’drop interface enables powerful and intuitive visualization, making it easy to create your virtual experiment.

Multi Channel Analyzer: amplifies offline analysis. Just import the recorded data and run your in-depth analysis. The Multi Channel Analyzer also supports synchronous data input for behavioral research with freely moving animals. Both the video data and electrophysiological recordings are automatically synchronized, allowing you to easily move through data from one event to the next.

Multi Channel DataManager: allows data export for further analysis with third-party programs. Data files are exported with a single click into HDF5 (*.h5) (e.g. Matlab, Python, NeuroExplorer (*), Spike2 (*.smr), ASCII file (*.txt) or European Data Format (*.edf+ or *.emf).

Electrical and optical stimulation

Optical as well as electrical stimulation patterns can be designed freely via the included Multi Channel Experimenter software. The headstages offer an additional output to connect either LEDs (optical stimulation) or wires for electrical stimulation. Choose from a variety of LED colors to suit your application needs.

Battery options and connectors

Headstages with single wire and Connectors concepts provide maximum flexibility. Custom adapters are also available.

Multiple batteries in different sizes are included to suit your varied experimental conditions. Connect to the headstage either directly (via the battery board), or with a flexible cable allowing positioning of the battery pack to relieve strain on the animal’s head. The energy-efficient battery design allows weight- and energy-efficient optimization in your experimental design.

The external battery concept lets you easily change back-ups—even while an experiment is being performed, enabling continuous recording. Further maximize battery efficiency using automatic stand-by and infrared remote control features.

Combine electrophysiology and behavioral studies with Panlab SMART software

The Multi Channel Experimenter and Video Control software packages allow you to record both physiological and video data in parallel. The video is captured in frame-to-frame acquisition sampling. Just load the captured video into the Panlab SMART software and correlate behavioral events with electrophysiological data.

The Multi Channel Experimenter and Video Control software packages allow you to record both physiological and video data in parallel. The video is captured in frame-to-frame acquisition sampling. Just load the captured video into the Panlab SMART software and correlate behavioral events with electrophysiological data.

The Multi Channel Experimenter and Video Control software packages allow you to record both physiological and video data in parallel. The video is captured in frame-to-frame acquisition sampling. Just load the captured video into the Panlab SMART software and correlate behavioral events with electrophysiological data.
Miniature Telemetry System

Flexible, modular solution—ideal for stimulating and recording neurological activity in vivo

- Lightweight headstages—reduce stress on animal
- Facilitates multi-axis acceleration parameter integration into behavioral studies
- 4, 8, 16, or 32 recording channels—suitable for a vast array of applications and animal models
- Options for electrical and optical stimulation as well as for frame-consistent video tracking integration available

Telemetry-Systems: Technical specifications

<table>
<thead>
<tr>
<th>Number of channels</th>
<th>Recording only</th>
<th>Recording + electrical stim.</th>
<th>Recording + optical stim.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>12.5 x 12.5 x 5.5</td>
<td>2.1 g</td>
<td>1.7 g</td>
</tr>
<tr>
<td>8</td>
<td>15.5 x 15.5 x 5.2</td>
<td>3.0 g</td>
<td>2.5 g</td>
</tr>
<tr>
<td>16</td>
<td>15.5 x 15.5 x 5.2</td>
<td>6.0 g</td>
<td>5.0 g</td>
</tr>
<tr>
<td>32</td>
<td>15.5 x 15.5 x 9.2</td>
<td>9.2 g</td>
<td>8.5 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery (Li-ion, Polymer)</th>
<th>Capacity</th>
<th>Weight of battery / headstage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>30 mAh</td>
<td>1.7 g</td>
</tr>
<tr>
<td>100 mAh (optional)</td>
<td>3.8 g</td>
<td>4.2 g</td>
</tr>
<tr>
<td>200 mAh</td>
<td>5.6 g</td>
<td>6.7 g</td>
</tr>
<tr>
<td>300 mAh</td>
<td>8.5 g</td>
<td>9.4 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sampling rate (kHz/channel)</th>
<th>Number of selected channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>124</td>
<td>20</td>
</tr>
<tr>
<td>248</td>
<td>20</td>
</tr>
<tr>
<td>496</td>
<td>20</td>
</tr>
<tr>
<td>992</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bandwidth</th>
<th>1 Hz to 5 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance for wireless link</td>
<td>5 m guaranteed</td>
</tr>
<tr>
<td>Inertial Measurement Unit</td>
<td>triaxial accelerometer range 8 g ± 10 bit digital resolution</td>
</tr>
<tr>
<td></td>
<td>triaxial gyroscope range 1000 °/s ± 16 bit digital resolution</td>
</tr>
</tbody>
</table>

Software:
- Operating system: Windows 10, 8, 7 (x64) (English and German versions supported)
- Multi Channel Suite: Version 3.13.5 and higher
Miniature Telemetry System

Flexible, modular solution—ideal for stimulating and recording neurological activity in vivo

- Lightweight headstages—reduce stress on animal
- Facilitates multi-axis acceleration parameter integration into behavioral studies
- 4, 8, 16 or 32 recording channels—suitable for a vast array of applications and animal models
- Options for electrical and optical stimulation as well as frame-consistent video tracking integration available

Telemetry-Systems: Technical specifications

Number of channels
4, 8, 16 or 32

Number of channels | Recording only | Recording + electrical stim. | Recording + optical stim. | Recording + virtual reality
--- | --- | --- | --- | ---
4 | 15.5 x 15.5 x 5.5 | 2.1 | 2.1 | 2.1
8 | 15.5 x 15.5 x 5.5 | 3.6 | 3.6 | 3.6
16 | 15.5 x 15.5 x 5.5 | 5.1 | 5.1 | 5.1
32 | 15.5 x 15.5 x 5.5 | 6.6 | 6.6 | 6.6

Dimensions [W x D x H] (triaxial antenna, height: battery)

Battery (Lithium-Polymer, rechargeable)
- Battery type and approx. weights
- (Standard batteries, other capacities available on request)
- Battery life (until recharge)
  - e.g. 8 channels at 25 kHz with 100 mAh battery: approx. 2 hours

A/DC Resolution
16 bit

Input voltage range
+ 5.0 V

Input noise
< 1.9 µV RMS

Max. sampling rate
25 kHz per channel (in single headstage mode)

Bandwidth
1 Hz to 5 kHz (Adjustable to 0.1 Hz or DC by software)

Distance for wireless link
5 m guaranteed (under normal lab conditions)

Inertial Measurement Unit
- triaxial accelerometer, range ± 8 g @ 16 bit digital resolution
- triaxial gyroscope, range 1000 °/s @ 16 bit digital resolution

Software:
- Operating system
  Windows 10, 8.1 (32-bit) (English and German versions supported)
- Multi Channel Suite
  Version 3.13.5 and higher

- Lightweight headstages—reduce stress on animal
- Facilitates multi-axis acceleration parameter integration into behavioral studies
- 4, 8, 16 or 32 recording channels—suitable for a vast array of applications and animal models
- Options for electrical and optical stimulation as well as frame-consistent video tracking integration available