## Solutions You Can Trust for Your Neuroscience Applications

**Implantable Telemetry Devices from DSI**

DSI’s PhysioTel™ implants are designed for acquiring data from conscious, freely moving laboratory animals — providing stress-free data collection while reducing risk of infection. PhysioTel implants are offered in various sizes to support a range of research models, including mice, rats, dogs and non-human primates (NHP).

### Category: Sleep
- Insomnia
- Narcolepsy
- Restless Leg Syndrome
- Sleep Apnea

### Example Methods:
Sleep scoring through frequency and amplitude analysis of EEG and EMG. Video is also used to distinguish between REM and wakefulness.

### Category: Seizure
- Epilepsy
- Traumatic Brain Injury
- Brain Cancer
- Chemical Defense

### Example Methods:
Seizure detection based on EEG amplitude and morphology assessment, skeletal muscle EMG, and video for confirmation of convulsive activity.

### Category: Affective Disorders
- Depression
- Bipolar Disorder
- Anxiety

### Example Methods:
Frequency and amplitude based EEG analysis and video for behavioral analysis.

### Category: Movement Disorders
- Ataxia
- Dystonia
- Essential Tremor
- Parkinson’s Disease

### Example Methods:
Skeletal muscle EMG and video for confirmation of tremor activity.

### Category: Neurodegenerative Disorders
- Alzheimer’s Disease
- Amyotrophic Lateral Sclerosis (ALS)
- Dementia
- Huntington’s Disease

### Example Methods:
EEG may be collected from the surface of the brain and also from deep brain regions. EEG data is then analyzed using frequency and amplitude based methods.
Large Animal Telemetry

Get the data you need by recording any combination of up to four biopotential channels (typically EEG, EMG, or ECG), plus temperature and activity with the PhysioTel™ Digital L03 and L04.

**PhysioTel™ Digital – The best choice for you and your test subjects**
- Social housing compatible with a wide range of enclosures
- Automated configuration eliminates human errors and provides a fast study start-up
- Encoded animal ID ensures traceability and GLP compliance
- Remote programming for convenient, safe, and easy device battery management

Small Animal Telemetry

Experience the versatility of recording any combination of two biopotential channels (typically EEG and EMG), plus temperature and activity with the PhysioTel™ HD-X02 and HD-S02.

**PhysioTel™ HD – Focus on what matters: Data**
- Enhance data security with Animal ID: have confidence that the data collected is from the intended animal.
- Reduce study setup time with Auto-Calibration: Save time with auto-calibration and eliminate human error during manual entry of offsets.
- Maximize battery life with Battery On-Time Counter: Dynamic battery life updates to assist with efficient study planning and re-use of implants.

<table>
<thead>
<tr>
<th>Species</th>
<th>Large Animal</th>
<th>Rat</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implant Model</td>
<td>L04</td>
<td>L03</td>
<td>4ET</td>
</tr>
<tr>
<td>Biopotential Channel Number</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Bandwidth for EEG (Hz)</td>
<td>Ch. 1-3: 0.5-100</td>
<td>Ch. 4: 0.5-50</td>
<td>0.5-100</td>
</tr>
<tr>
<td>Battery Life (Days)</td>
<td>95*</td>
<td>90^</td>
<td>90</td>
</tr>
</tbody>
</table>

*Bandwidth for ETA-F10 or CTA-F40 for ECG or EMG applications is 1-200 Hz. When recording EEG, there is a higher source impedance compared to recording ECG signal because there is less surface area of electrode in contact with target tissue. This phenomenon only affects ETA-F10 and CTA-F40.

^Warranted battery life for China is 85 days for L03 and 90 days for L04.
Hardwired Solutions

DSI’s hardwired solutions provide continuous EEG, EMG, EOG, etc. during neuroscience studies with small animals. Tethered solutions allow monitoring of up to 12 EEG/EMG channels per animal.

- Commutator systems easily connect to DSI’s robust hardware platform. Typical hardwired solutions include screw electrodes, head stage pedestals, tethers/springs, and commutators.
- Touch-proof connectors allow signals to come from the commutator to DSI’s Ponemah™ software using one of several DSI hardware options.

Neuroscience Software Solutions

NeuroScore™

NeuroScore is a versatile, streamlined solution that combines easy-to-use tools, efficient data processing, and accurate data analysis to reduce time to results. Analysis tools such as Fast Fourier Transform (FFT) periodograms, and power bands are helpful for various EEG studies.

- Confirm sleep stages, seizure events and other behavior with video in NeuroScore.
- Video data acquired in Ponemah is synchronized with physiologic data from telemetry and displayed in NeuroScore.

Ponemah with Noldus Video

DSI has partnered with Noldus to offer scientists a better video experience. By integrating the Noldus Media Recorder and DSI’s Ponemah Physiology Platform, scientists have an easy method for synchronizing physiologic data with video data. Synchronize up to eight video cameras with physiologic signals for better interpretation of your data. Compatible with DSI’s telemetry and hardwired solutions.