Micro-Leads

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Ordering Information

Contact us for quotes and customization options, including custom connectors, sizing and wiring.

www.microleadsneuro.com

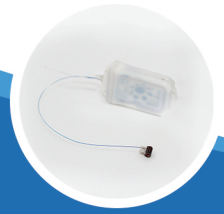
Implantable Neural Stimulation & Biopotential Telemeters for Small and Large Animals

Overview

• Implantable Stimulation and Biopotential Telemeters provide continuous neuromodulation with physiological and neural readouts from conscious rodents and large animals.

• The Telemeters enable measurements of physiological functions from conscious and freely moving animals, overcoming the study limitations of tethering and anesthesia.

• Implantable telemeters also reduce the animal recovery time and cohort loss associated with tethering.



Functional Battery Life

• Continuous stimulation using under-cage wireless charging pad or wearable recharger.
• 4-8 hours of battery run-time without the charging pad (ex. physiology chamber).

• Fail-safe operation with less than 1 °C package temperature rise.
• Built-in electrode impedance measurements.
• Wide-range of Nerve-cuff electrode and surface electrode options.
• Seamless integration with Labchart, BioPAC, NI DAQMX, analog output option.

Multi-Channel Sensing and Recording Telemeter

• Ch0/1: Biopotential Recording of EEG, ECG, EMG, etc. (±5 mV input range).
• Ch2/3: Configurable Stimulation & Electroneurogram (ENG) recording. (C2-Stim/C3-ENG, C2-Stim/C3-Stim, C2-ENG/C3-Stim).

Electrode Impedance Measurement

• Measures connected electrode impedances from 100 Ω to 1 MΩ.

Compatibility

• Analog output option with seamless analog integration with Labchart, BioPAC, NI DAQMX, or other electrophysiology systems with analog inputs.

Stimulation Parameter Range

• 2-channels of stimulation (1 waveform, each channel ON/OFF, on-the-fly updating of stimulation parameters with software interface)
• Amplitude: ±20 μA - 5mA bi-phasic pulses in 20 μa steps.
• Pulse widths: 10 μs - 2.5 ms pulse widths.
• Pulse repetition: DC-1 kHz pulses.
• Continuous pulses: 1-50 kHz nerve blocking (10 kHz steps).

Recording Performance

• Electroneurogram (ENG) Sensing of Peripheral Nerve Activity.
• Noise floor 1.0 μVRMS, 1-5 kHz, 20 ksps, 16 bits.
• Biopotential Sensing of EMG, EEG, ECG.
• Noise floor 2.5 μVRMS, 1-10 kHz, 10 ksps, 16 bits.

Device Size

• 45 x 11 x 22 mm / 11 cc / 10 g.
• Package life: 3 months.
• Battery size: 200 mAh.

Software Features

• Graphical interface for stimulation and recording.
• Ability to communicate with different animals using a single GUI instance.
• Task Scheduler for sequenced stimulation: (ex. light-dark cycle) in a vivarium .
• Optional Matlab/Python API for closed-loop operation (computer-in-the-loop).