

NON-INVASIVE

Sleep Research, Simplified

The *PiezoSleep*™ system utilizes our proprietary non-invasive sensing technology to simplify monitoring of sleep-wake behavior, breathing, and activity in rodent preclinical models. Imposing no restrictions on the use of food, water, bedding or nesting material, the system is suitable for continuous, around-the-clock monitoring of up to eighty animals simultaneously, and boasts 92% accuracy of sleep-wake classification compared to manual EEG/EMG scoring of sleep¹.

¹ 92% agreement compared to concordant scores in 4 -second epochs by two independent manual raters in 42 C57BL/6 mice

HIGH-THROUGHPUT

How It Works

1. Non-Invasive Sensing

Sensors convert animal movements within the cage into signals that reflect behavior.

2. Precision Data Acquisition

Data acquisition units provide signal amplification, conditioning, and sampling.

3. Automated Sleep Analysis

Software processes data to estimate sleep-wake behavior in up to 80 animals automatically.

SLEEP MONITORING

Automated Analysis

PiezoSleep™ software processes sensor data to classify behavior as sleep or wake in real time. *SleepStats Data Explorer*™ software opens data files generated by *PiezoSleep*™, providing flexible analysis options to summarize experimental results.



Non-Invasive Sleep Disruption



The Qwake family of sleep disruption systems non-invasively detect sleep and apply vibro-tactile stimulation through the cage floor to disrupt behavior. Stimulation is adjustable in frequency, amplitude, and duration.

Research Applications:

- Sleep Biology
- Circadian Rhythms
- Sleep Related Breathing
- Activity Monitoring
- Respiratory Depression
- Gene and Disease Phenotyping
- Closed-Loop Sleep Disruption

Built Around Your Research

Signal Solutions strives to provide the research community tools that overcome barriers surrounding preclinical sleep research by offering customizable hardware, software, and analysis services.

Signal Solutions offers custom hardware and software solutions to suit your research needs!

About Our Company

Signal Solutions, LLC specializes in non-invasive solutions for preclinical sleep research in rodent models.

The *PiezoSleep*™ Behavioral Tracking System integrates sensors, data acquisition hardware, and software to provide a turnkey solution for automated sleep-wake classification.

Our system uniquely enables non-invasive, real-time sleep feedback control to improve experimental models such as targeted sleep disruption, sleep apnea simulation, and optogenetic applications.

The *PiezoSleep*™ system has aided researchers worldwide in areas of gene and disease model phenotyping, drug development, sleep biology, and breath rate monitoring.

About Our Product

Non-Invasive

Our patented sensor technology alleviates the need for surgery and implants required for traditional EEG-based sleep research.

Automated

PiezoSleep™ data collection software automatically records sleep and wake states, saving time by eliminating the need for human scoring of EEG/EMG.

Cost & Time Effective

Automated scoring and lower cost of entry make our complete, turnkey systems attractive for both new and experienced sleep researchers.

Non-invasive solutions for



Sleep Monitoring



Sleep Disruption



Seizure Detection



Breathing



Activity-Health

Interested?

Ask us about our time-limited demo systems so you can see the benefits of our technology in your research.



SIGNALSOLUTIONS

NON-INVASIVE HIGH THROUGHPUT RODENT MONITORING



Signal Solutions, LLC 1.877.SIG.SOLN

www.sigsoln.com