

**WEARABLE**   
*Sensing*

**DSI-4**  
Clean. Wireless. Sleep.



## Revolutionizing EEG

State-of-the-art **active** dry-electrode technology

Wireless ambulatory research-grade EEG

Resistant to electrical and motion artifacts

Fast-donning and comfortable for use during sleep

**Positive user-experience for all**

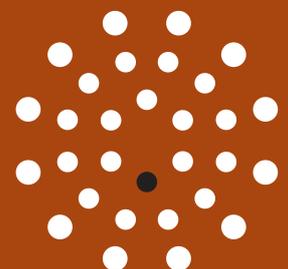
**Recording in natural environments**

**High data integrity**

**Undisturbed sleep**

## Applications

Neuroscience research  
Sleep Research  
Meditation Training  
Neurofeedback  
Brain-Computer Interfaces  
Neuromarketing  
and many more...



[wearablesensing.com](http://wearablesensing.com)

The DSI-4 is a complete, research-grade wireless EEG system designed for rapid application of 4 dry electrode EEG sensors on the forehead. This unique fully-integrated wireless EEG system is embedded in a comfortable adult-sized, headband designed for use during sleep.

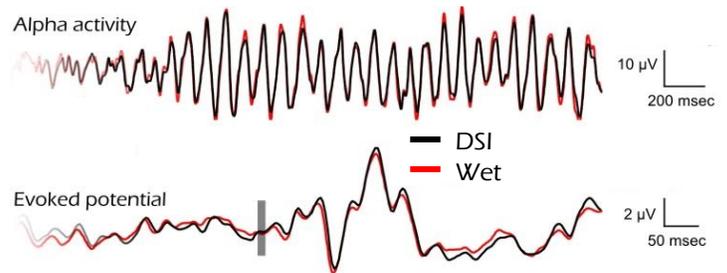
The system comprises ultra-high impedance active Dry Sensor Interface (DSI) sensors that require no skin preparation or conductive gels. The sensors are spring-loaded to provide constant, comfortable contact pressure that mitigates movement artifacts seen during motion and are actively and passively shielded to prevent contamination from electrical artifacts. The adjustable headband is foam padded and washable. The DSI-4 is intended for unobtrusive use during daily ambulatory activities or sleep.



**Comfortable Sleep:** Wirelessly record clean EEG signals during sleep without gel, wires or movement restrictions

### Uncompromising Signal Quality

- Active dry electrode sensor with 2-stage amplification and digitization in headset
- Research-grade EEG signal (>90% correlation with conventional wet electrode systems)
- Patented artifact-resistant electro-mechanical designs suitable for ambulation in naturalistic environments
- Continuous impedance and signal quality monitoring



### Practical EEG

- Fully integrated, complete EEG system in a single device
- Rapid set-up (< 1 min) and clean-up time (< 1 min)
- Adjustable to fit a wide range of head sizes
  - Adult version: 52-62 cm circumference
  - Child version: 48-54 cm circumference
- Comfortable for continuous daily and sleep use

### Powerful Features

- Bluetooth transmission
- Embedded 3D accelerometers
- Removable electronics & machine washable headband
- Compatible with QStates, cognitive classification algorithm
- Compatible with in-ear headphone for auditory stimulation

### Intuitive Software Included

- DSI-Streamer
  - Signal quality metrics
  - Evoked Response Potentials (ERPs)
  - File formats: EDF, CSV (filtered and raw)
- C-based API for Windows/Mac/Linux
- LSL, TCP/IP streaming

### Synchronized Interfaces

- Eye-tracking
- Motion capture
- NeuroGuide / BrainSurfer
- EEGLAB / ERPLAB / BCILAB
- Mensia Neuro RT / OpenVibe
- TEA Ergo CAPTIV
- BCI2000
- E-Prime
- Presentation

### Technical Specifications

- Sensor locations: F7, F8, FP1, and FP2
- Reference: Fz (Common-mode-follower)
- Ground: Fpz
- Positional accuracy: Within 1.5 cm
- Amplifier/digitizer: 16 bits, 4 channels
- A/D resolution: 0.3 µV referred to input
- Sampling rate: 300 Hz (600 Hz option)
- Bandwidth: 0.003-150 Hz
- Gain: 60 x
- CMRR: > 120 dB
- Channel cross-talk: < -70 dB with sensors
- Input impedance (1Hz): 47 GΩ
- Input bias current: < 25 pA
- DC offset tolerance: ± 200 mV
- Maximum input range: 10mV p-p
- Shorted Input Noise (1-50Hz): < 1 µV
- Digital inputs: 4 bits
- Wireless: Bluetooth
- Wireless range: 10 m
- Run-time: > 12 h

