

**WEARABLE**   
*Sensing*

 **NEUROSPEC**  
Research Neurosciences

**DSI-24**  
Clean. Mobile. Fast.



## 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 long-term use

Positive user-experience for all

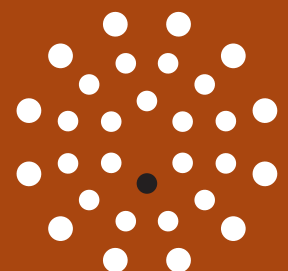
Recording in natural environments

High data integrity

Enhanced efficiency and throughput

## Applications

Neuroscience research  
Neurofeedback  
Brain-Computer Interfaces  
Neuromarketing  
and many more...



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

The DSI-24 is a complete, research-grade, wireless EEG system designed for rapid application of 21 sensors at locations corresponding to the international 10-20 system with 3 auxiliary inputs for additional sensors (EOG, EMG, ECG, etc). The system comprises ultra-high impedance active Dry Sensor Interface (DSI) sensors that function through hair, requiring no skin preparation or conductive gels. The sensors can be individually adjusted to optimize contact impedance. They are spring loaded to provide constant, comfortable contact pressure that mitigates movement artifacts seen during ambulation and are actively and passively shielded to prevent contamination from electrical artifacts.



## Uncompromising signal quality

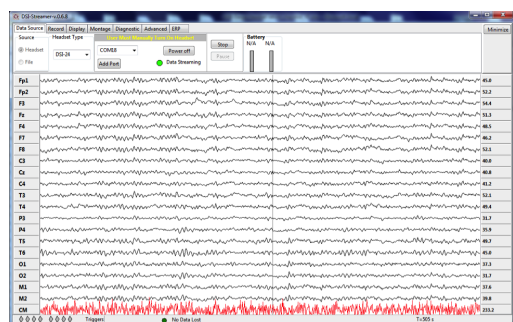
- Active dry electrode sensor with 2 stage amplification and digitization in headset
- Research-grade EEG signal (>90% correlation with conventional wet electrode systems)
- Patented artifact resistant electro-mechanical designs suitable for ambulation in naturalistic environments
- Continuous impedance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

## Practical EEG

- Fully integrated, complete EEG system in a single device
- Rapid set-up (< 5 min) and clean-up time (< 1 min)
- Adjustable to fit a wide range of head sizes
  - Adult version: 54-62 cm circumference
  - Child version: 48-54 cm circumference
- Comfortable for continuous and repeated use

## Powerful options

- 3 channels with mono- or bi-polar inputs for EOG, EMG, ECG, GSR, respiration, skin temperature, etc
- Wireless triggering for synchronization of multiple devices (hyper-scanning) and ambulatory ERPs
- Bluetooth or wired-USB transmission
- Optional internal storage for computer-free recording
- Optional embedded 3D accelerometers

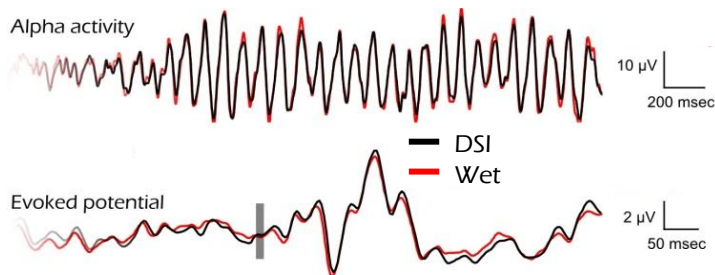


## Intuitive software included

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

## Synchronized interfaces

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



## Technical specifications

- Sensor locations: International 10-20 system  
Fp1, Fp2, Fz, F3, F4, F7, F8, Cz, C3, C4, T3, T4, T5, T6, P3, Pz, P4, O1, O2, A1, A2
- Reference: Common-mode-follower
- Ground: Fpz
- Positional accuracy: Within 1.5 cm
- Amplifier/digitizer: 16 bits, 24 channels
- A/D resolution: 0.317  $\mu$ V referred to input
- Sampling rate: 300 Hz (600 Hz option)
- Bandwidth: 0.003-150 Hz
- Gain: 60
- CMRR: > 120 dB
- Channel cross-talk: < -70 dB with sensors
- Input impedance (1Hz): 47 G $\Omega$
- Input bias current: < 25 pA
- DC offset tolerance:  $\pm$  200 mV
- Maximum input range: 10mV p-p
- Noise (1-50Hz): < 3  $\mu$ V p-p
- Digital inputs: 8 bits
  - Wireless: Bluetooth
- Wireless range: 10 m
- Run-time: > 24 h (plus hot-swap)