

Textile EEG Ikon Neuroheadband

Wearable EEG based on smart textiles
for real-world neuroscience research



Ikon Neuroheadband

Wearable textile-EEG device with sensors over frontal brain area, that allows brain monitoring anytime, anywhere by anyone.



- **Wearable and comfortable**
Immediate user setup. Made entirely of textile, allowing the user to wear it as a regular clothing accessory without feeling it as a foreign object.

- **Textile sensors**
First device on the market to use fully textile sensors. No saline substances or water are required.

- **Advanced electronics**
Active shielding with optimized DRL to improve SNR and reduce artefacts.

- **Flexible and adaptable**
Adjustable to any head size using velcro straps. Adaptable to any morphology, different hair types and volumes.
- **Connectivity and storage**
Bluetooth LE real-time EEG streaming and local SD storage.
- **Battery**
9+ hours in streaming and in local SD storage.

Some applications



Develop new therapies based on brain-computer interfaces for **cognitive neurorehabilitation**.



Study people's daily activities from a neurological point of view without impacting their lives, due to its comfort, practicality, and simple and fast set-up. **Allows the collection of large amounts of data for research purposes.**

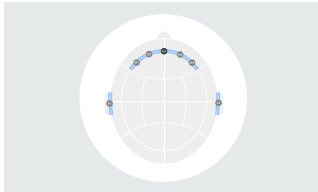


Conduct research in **real-world scenarios** such as education, business or automotive technology.



In combination with other biosensors, it allows **multimodal research** to be carried out easily in different scenarios: e-sports, teaching, meditation, etc.

Technical overview



Layout optimized for prefrontal alpha asymmetry.



Wearable and ultralight (60 g) EEG headset. Quick and easy set-up in many different scenarios.



Reliable textile-EEG monitoring with 24 bits at 256 Hz for 9+ hours. Bluetooth streaming and/or on-board SD storage.



Clean and washable technology that is easy to transport and store without maintenance.

Hardware specifications

Sensors and headset	
EEG channels	Fp1, Fp2, Af7, Af8, A1, A2. Ground in Fpz. Amplifier REF is in FP1; A1 and A2 used for linked ear re-referencing.
Type of sensors/electronics	EEG dry sensors with active shielding and optimized DRL
Head perimeter	52-72 cm
Wireless Amplifier	
Sampling rate/resolution	256 SPS at 24 bits
Bandwidth	DC – 40Hz
Online/real-time impedance check	Yes
Integrated sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer
Input range and noise	± 100 mV, < 1 μ V _{RMS} (0.5 - 30 Hz) @ 256Hz
CMRR / Input impedance	> 100 dB @ 50Hz, > 50 G Ω
Data streaming and store	
Data transmission and range	Low energy Bluetooth 4.2 + EDR with 10 meters in direct sight
Data backup/files	Direct transfer to tablet/phone + data backup on internal SD card/CSV (max 8GB. Class \geq 10)
Power	
Battery	Rechargeable lipo battery. Charging time < 3 h
Autonomy	> 9 h
General	
Weight	Amplifier: 60g Headset: 60g
Maintenance	Washable in washing machine/ Storable like any garment
Warranty	2 years
Certifications	CE (Directive 2014/53) and FCC (part 15)
Bitbrain software kit (included with equipment)	

Software specifications

Bitbrain real-time SDK	In C/C++ for Windows and Linux.
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties and real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPyPe, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB,etc), Python (MNE, etc) and more.
Bitbrain software platforms (optional)	
Bitbrain Viewer Software	Software for data visualization and recording, with large compatibility with real-time I/O and data processing third parties.
Bitbrain Software Development Kit	Software kit consisting of different scripts that allow communication and control of the hardware used. It is a starting point for the development of brain-computer interface applications.

Bundle includes

- EEG headset and amplifier
- Power supply
- Storage base
- Instructions
- Suitcase
- Bitbrain Software Kit
- Pack of wet wipes

Additional services

Installation and Initial Training

Our team provides a training course that includes the installation of your EEG headset and software.

Real-world research and applications



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