

Diadem 12ch EEG

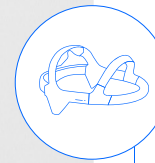
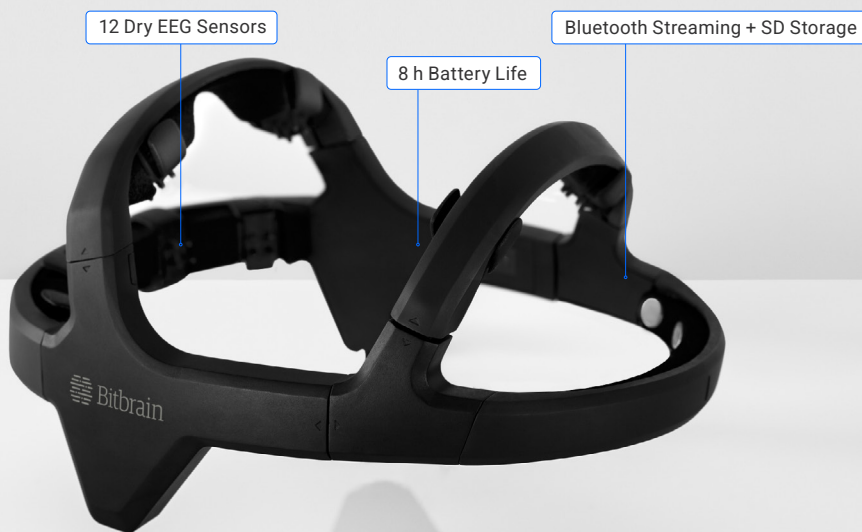
Wearable EEG for deep insights in
cognitive and emotional research



Diadem 12ch EEG

Wearable EEG for deep insights in cognitive and emotional research

Lightweight, portable dry-EEG device with frontal and posterior sensors, designed for comfortable, reliable recordings in natural environments.



Dry EEG sensors

No need to apply electrolytic substances or saline solutions.

Advanced electronics

Active shielding with optimized DRL to improve SNR and reduce artifacts.

Wearable and comfortable

Fast and simple to set up. Participants forget that they are wearing it in a few minutes.

Flexible, adaptive Design

Adjustable arcs and sensor adjustments ensure the device adapts to head shape and hair volume, maintaining reliable contact in every recording.

Discover how **Bitbrain technology** is applied across various research fields.

For the online version, [click here](#) or scan the QR code if you're viewing the printed version.



Use Cases



Real-World Cognitive Insights

Evaluate and improve real-life workspaces by measuring workload, attention, or stress levels in natural conditions.



Measuring Customer Behavior

Evaluate the natural human behaviour of customers when interacting with marketing and communication materials, or new experiences.



Advancing Neurorehabilitation

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

HARDWARE

SENSORS AND HEADSET		DATA STREAMING AND STORAGE	
EEG channels	12xEEG (Fp1, Fp2, AF7, AF8, F3, F4, P3, P4, PO7, PO8, O1, O2) + REF(A1) + GND(Fpz)	Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight
Type of sensors/electronics	Dry sensors with active shielding, and optimized DRL	Data files	CSV, EDF
Head perimeter	530–610 mm		
WIRELESS AMPLIFIER		POWER	
Sampling rate/resolution	256 SPS at 24 bits	Battery	Rechargeable LiPo battery; charging time <3 h
Bandwidth	DC – 40Hz (3rd-order LPF)	Autonomy	> 8 h
Online/real-time impedance check	Yes (relative contact impedance)		
Integrated sensors	Integrated IMU (9 axis): Accelerometer, gyroscope and magnetometer	GENERAL	
Other inputs	1x digital input (1 bit), 1x optical trigger	Weight	120g
Input range and noise	±100 mV; <1 µV RMS (0.5–30 Hz@256 Hz)	Warranty	2 years
CMRR/Input impedance	>100 dB@50Hz, >50 GΩ	Certifications	CE (Directive 2014/53)
Data backup	Yes (removable microSD card, up to 8GB, Class ≥ 10)		

SOFTWARE

BITBRAIN CORE RESEARCH SOFTWARE (INCLUDED WITH EQUIPMENT)		BITBRAIN EXTENDED RESEARCH TOOLS (LICENSED)	
Bitbrain SennsLite Real-time visualization, recording, and synchronized data across Bitbrain devices. LSL-compatible for third-party real-time I/O (BCI2000, OpenVibe, NeuroPype, Medusa). CSV and EDF export for Python (MNE), MATLAB (EEGLAB/FieldTrip/BCILAB), and more.	Bitbrain SDK SDK in C for maximum performance and portability enabling Python integration. Compatible with Windows OS and Linux (x86).	Bitbrain SennsLab Synchronization software for experimental design and data collection, integrating 35+ sensor modalities (EEG, eye-tracking, biosignals). Compatible with third-party software via TCP/IP and CSV export.	Bitbrain SennsMetrics Data analysis tool for emotional, cognitive, and behavioral metrics. Data are recorded with SennsLab, processed through SennsCloud, and analyzed and visualized in SennsMetrics.

BITBRAIN LABORATORIES

Human Behaviour Research Lab

Multimodal platform integrating Bitbrain EEG, biosignals, and Tobii eye-tracking with synchronized data acquisition, analysis, and visualization software, delivering cognitive, emotional, and behavioral biometrics.

- Diadem 12ch EEG
- Ring Biosignal GSR BVP
- SennsLab & SennsMetrics Software
- Tobii Pro Spark
- Tobii Pro Glasses

Technical Overview



» **Wearable and ultralight (120g) EEG headset.** Quick and easy set up anywhere, and under any circumstances.



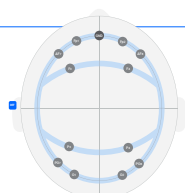
» **Reliable dry-EEG monitoring** with 24 bits at 256Hz for 8+ hours. Bluetooth streaming and/or on-board SD storage.



» Clean technology that is **easy to transport and store.**

SENSOR LAYOUT

Layout optimized for frontal alpha asymmetry, occipital alpha -ERD/ERS, P300, N400 and CVN, among others.



BUNDLE INCLUDES

- EEG headset and amplifier
- Charger and adapter
- Headband stand
- 8GB Class-10 MicroSD card with SD adaptor

**We invite you to explore our
scientific publications section.**

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