BRAINACCESS® MAXI

developed by ***NEUROtechnology***

Extended Manual

Version 2.0

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Find the latest product information on our website

Welcome to the user manual for the **BrainAccess MAXI device**. BrainAccess is a line of products developed by **Neurotechnology**, designed to make brainwave recording and analysis simple, accessible, and reliable.

In this manual, you will find detailed information about the device, its components, setup instructions, and guidance on how to start recording EEG data.

For further questions not covered in this guide, please contact us at *brainaccess@neurotechnology.com*.

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Safety Notice

Please read these safety instructions and conditions of use carefully before operating your **BrainAccess MAXI** device. Failure to follow these guidelines may result in malfunction, injury, or the voiding of the product warranty.

Proper Use and Handling

- Do **not** handle the device with wet or damp hands, this may cause a short circuit.
- Use the device **only** for its intended purpose of recording EEG signals.
- Do **not** use the device while it is charging.
- Avoid dropping, throwing, or applying excessive force to the device.
- Keep the device in a **dry**, **cool place** and avoid extreme temperatures.
- Do **not** place the device near life-support or other sensitive electronic equipment.
- This equipment is **not intended for use by children** unless supervised by an adult.
- Do **not** open, disassemble, or modify the device. If it does not operate properly, contact *brainaccess@neurotechnology.com*.

Battery Safety

- Keep the device between 5 °C and 40 °C. Prolonged exposure to heat may damage the battery.
- A charger capable of supplying at least 800 mA is sufficient, although using a standard 5 V micro USB charger rated at **1000 mA (1 A) or higher is recommended** for optimal charging efficiency and battery performance.

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Device Disposal

- Do **not** dispose of electrical or electronic devices in regular waste.

  This product must not be disposed of with household waste. In accordance with the **European Directive 2012/19/EU (WEEE**), return the device to an authorized collection facility for environmentally responsible recycling of electronic components and batteries.

- Before disposal, **remove the battery** and dispose of it separately according to local regulations.

  At end of life, to detach the battery, open the device carefully using a screwdriver and disconnect it from the mainboard.

Conformance and Regulatory Compliance

BrainAccess MAXI complies with the essential requirements and other relevant provisions of the following **European Union directives**:

- **2014/53/EU** — Radio Equipment Directive (RED)
- **2011/65/EU and 2015/863** — Restriction of Hazardous Substances (RoHS 2 & 3)

The integrated Bluetooth module and PCB assembly comply with these standards and must be operated in accordance with the manufacturer's specifications.

Important Notice

BrainAccess MAXI is **not a medical device** and is intended for **research, scientific, educational, general wellness,** or **non-clinical development purposes**.

Terms and Conditions for Use

Please read the safety instructions in this manual carefully and keep it for future reference.

The **Neurotechnology Terms and Conditions of Sale and Use** for BrainAccess products are available at *https://www.brainaccess.ai/terms-of-use/*.

Please, review the terms before operating the device.

Legal Notice

BrainAccess devices are intended **solely for research, educational, and development purposes**. They are **not medical devices** and are **not designed, tested, or certified** for medical diagnosis, treatment, therapy, or disease prevention.

Before purchasing or using a BrainAccess product, please review the **Neurotechnology Terms and Conditions of Sale and Use**.

Neurotechnology UAB reserves the right to update this manual and modify its content at any time, without prior notice.

While every effort has been made to ensure the accuracy of the information contained herein, it does not constitute a legal or contractual commitment by Neurotechnology.

To make sure you are using the most recent version of this guide, please refer to the official BrainAccess website at *www.brainaccess.ai.*

Device Overview

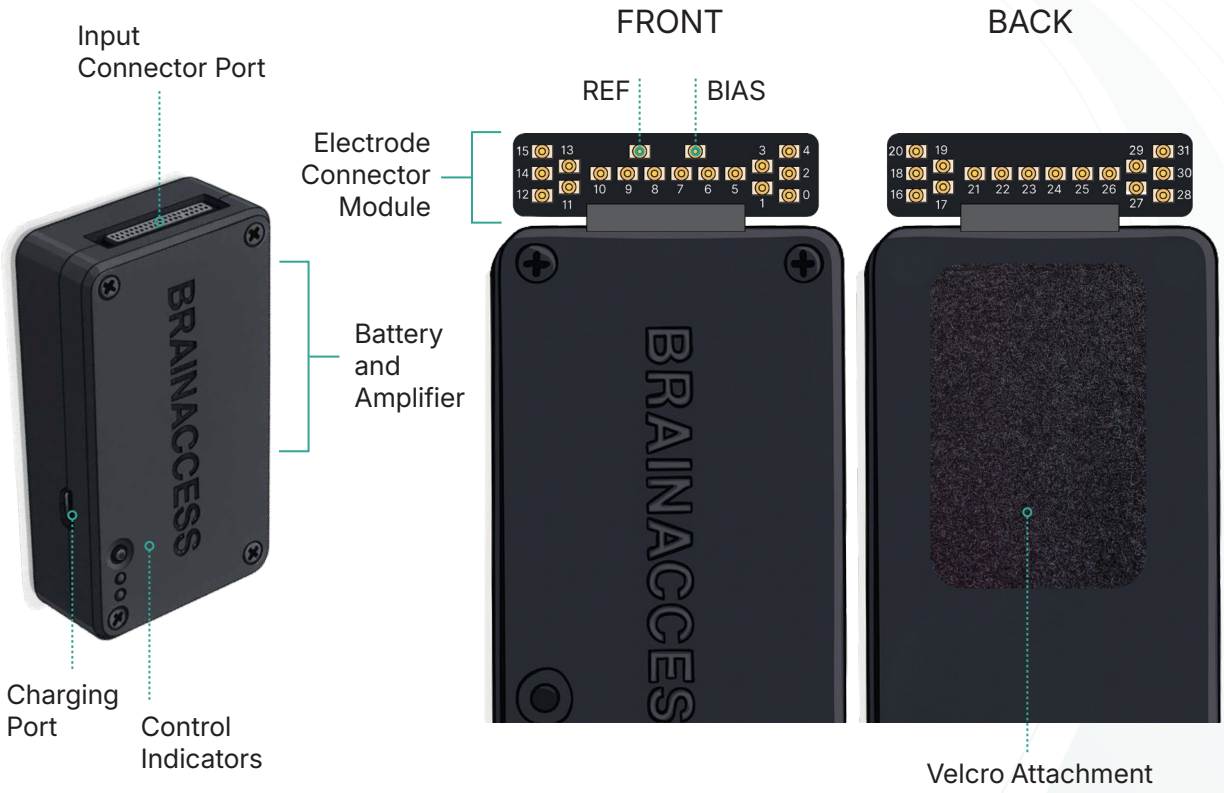
BrainAccess MAXI is a 32-channel electroencephalograph with a common reference channel. Its compact size, Bluetooth connectivity, and long battery life make it a truly portable device.

Physical Description

The compact EEG amplifier is designed for flexible use with BrainAccess EEG caps and electrodes. It features a lightweight plastic enclosure and ports and LED indicators for straightforward setup and operation (Figure 1).

The device **serial number** is printed on the back of the device.

Figure 1: Device Overview



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Input Connector

The device features a **dedicated multi-pin input connector port**, visible as the rectangular opening on the side of the enclosure. This is where the **Electrode Connector Module** is inserted to attach the EEG electrode cables.

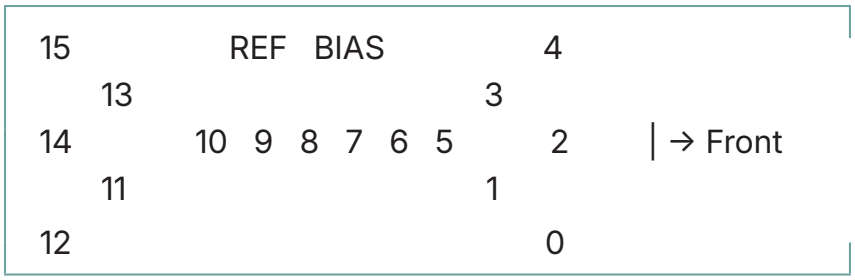
When connected, this module allows the BrainAccess device to receive EEG signals from the electrodes placed on the cap.

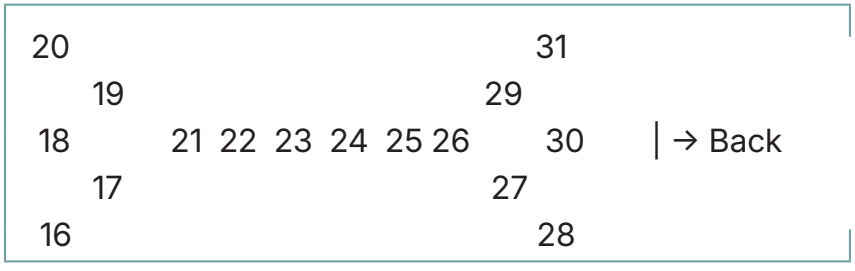
- The Electrode Connector Module (Figure 1) plugs securely into this port.
- It includes **gold-plated contacts** to ensure a stable and low-noise connection.
- Each contact corresponds to a specific **EEG channel, reference (REF), or bias (BIAS) input**.
- The connector is available in configurations compatible with **16-channel (MIDI)** or **32-channel (MAXI)** EEG systems.

The design ensures:

- **Fast setup** – plug-and-play insertion without screws.
- **Signal integrity** – shielded cables minimize electromagnetic interference.
- **Durability** – gold-plated contacts prevent corrosion and wear.

Below is the connector layout for the 32-channel configuration:





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- **0-15** – EEG channel inputs (front side)
- **16-31** – EEG channel inputs (back side)
- **REF** – Reference input
- **BIAS** – Bias input

This layout corresponds to the physical orientation shown in **Figure 1**.

Reference and Bias Inputs

Input	Label	Description
Reference Input	REF	Provides the reference for EEG measurements. In standard BrainAccess CAP configurations, this is connected to the Fp1 electrode.
Bias Input	BIAS	Actively drives the system ground to reduce common-mode noise from the environment (e.g. mains power interference). Typically connected to **Fp2**. The bias signal is computed from one or more EEG channels, which can be selected in the BrainAccess software under **Bias/Feedback Channels**. For optimal performance, select only channels with stable, low-noise signals.

Compatibility Note:

The input connector is mechanically and electrically compatible **only with the Electrode Connector Module, dry electrodes, cables, and accessories** supplied by Neurotechnology. Use of non-approved third-party cables or adapters may result in mechanical damage, poor signal quality, or device malfunction and the **voiding of the product warranty**.

For custom cable configurations or additional replacements, please **contact BrainAccess support** at *brainaccess@neurotechnology.com*.

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⚠ Handling Precaution:

Insert and remove cables **gently** by holding the **plastic connector housing**. Never pull by the wires. Avoid frequent or unnecessary connection and disconnection cycles, as this may cause **mechanical wear** or **damage to the input pins**. Misalignment or excessive force may permanently damage the connector and is **not covered under warranty**.

Accelerometer

An integrated **3-axis accelerometer** allows recording of head or body movements when the amplifier is attached to the EEG cap, providing synchronized motion data alongside EEG recordings.

Hook-and-Loop Fastener Attachment

A hook-and-loop (Velcro®) pad is located on the back of the device, allowing secure attachment to the BrainAccess EEG cap or other compatible surfaces.

Controls and Indicators

The user interface (Figure 2) is minimalistic and includes:

Power Button

- Press and hold for a few seconds to **turn the device on or off**.
- The device will **vibrate** to confirm the action.

Two LED Indicator

1. **Connection LED (Blue):**
   - After powering on, this LED displays a **breathing blue light**, indicating that the device is active and searching for a connection.
   - When a **Bluetooth connection** is successfully established with a computer, the LED changes to a **solid blue light**.

2. **Power LED (Red):**

   This **LED** indicates the **battery and charging status**.

   - **Fast blinking red:** Battery level below 15%.
   - **Breathing red**: Device is charging.
   - **Red off (while charging)**: Device fully charged.

Charging Port

- The device's battery can be charged via the micro USB port using standard **5 V chargers** (such as mobile phone chargers).
- The charger should provide **at least 800 mA (ideally 1 A)**.

Note: *The device cannot be used while charging.*

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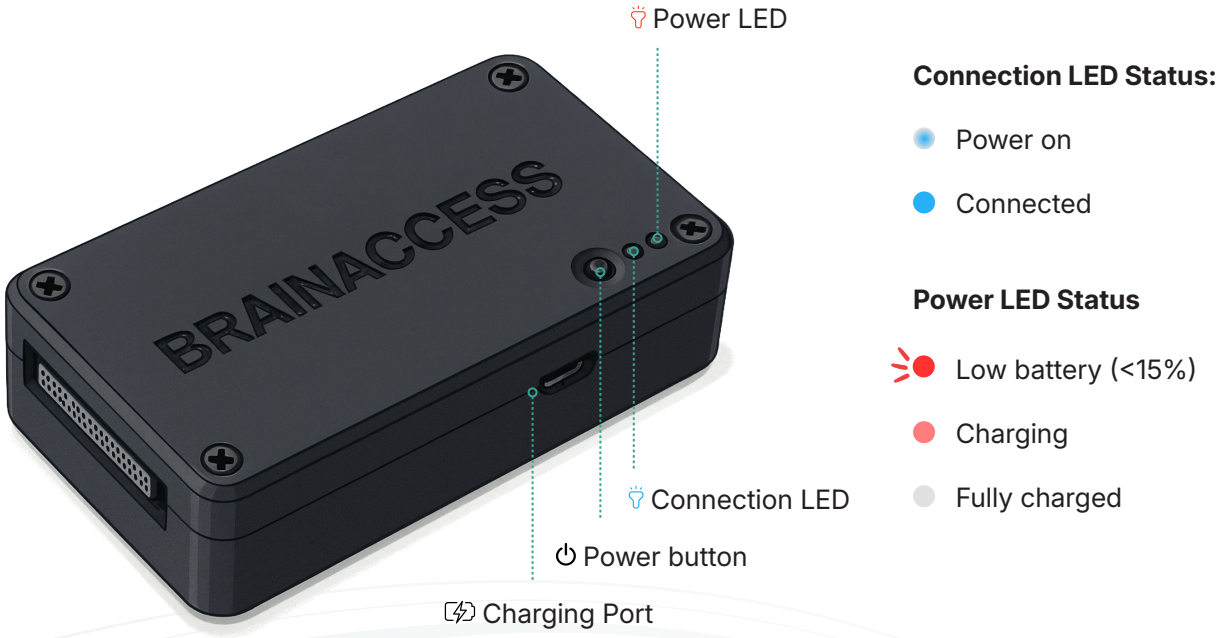
Figure 2. Controls and Indicators



Technical Specification

Connectivity	
Type	Bluetooth 4.2 (BLE)
Range	Up to 10 m with our Bluetooth adapter
EEG data	
Number of channels	32 (with a common reference channel)
Sampling frequency	250 Hz
Input resolution	24 bit
Analog gain values	1, 2, 4, 6, 8, 12
Input voltage range	4500 mV / gain value (w.r.t. reference channel)
Input Connector	Har-Flex 2 × 20, 1.27 mm
Battery	
Type	Li-Po
Capacity	2200 mAh
Operating time	Up to 9 hours *
Charging time	3-5 hours
Charger input	5 V, 1 A recommended (800 mA min)
Charger connector	micro USB
Mechanical	
Mass	85 g
Dimension	92×50×23 mm
Regulatory	
Usage	Research and education only
CN code	9031.80.80.00
Accelerometer	
Number of axis	3
Sampling frequency	250 Hz
Range	± 2 g
Resolution	10 bits

* *Battery life is estimated during uninterrupted EEG data streaming.*

System Compatibility

This device is intended for use exclusively with **BrainAccess EEG acquisition systems** and related accessories. It is mechanically and electrically compatible with **BrainAccess EEG caps** and **dry-contact electrodes**, including **Neurotechnology's gold-plated dry electrodes and Datwyler SoftPulse® electrodes**.

Use of non-approved accessories may result in degraded performance and is not supported by the manufacturer.

This device is generally distributed as part of the **BrainAccess MAXI kit**, which includes the following components:

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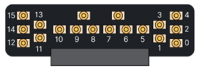
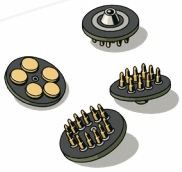
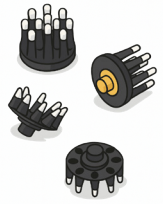
	Component	Description
	BrainAccess MAXI (EEG device)	32-channel EEG acquisition unit
	Electrode Connector Module	Single connector that allows the BrainAccess device to receive EEG signals from the electrodes placed on the cap
	BrainAccess CAP	EEG cap
	Neurotechnology's Dry Electrodes & cables	34 gold-plated dry-contact electrodes; 32 spring-based electrodes and 2 flat-pad electrodes
	USB Bluetooth adapter	Wireless communication interface for data transmission
	BrainAccess Software Suite	BrainAccess Board (desktop), BrainAccess Mobile App (Android), BrainAccess SDK (API)
	**Optional:** Datwyler SoftPulse® electrodes	Upon request, clients can select additional soft electrodes made of a conductive elastomer body with a silver/silver-chloride (Ag/AgCl) contact

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Electrode Configuration

The **BrainAccess MAXI kit** comes pre-assembled and ready to use. The electrode positions are illustrated below in **Figure 3**.

If you require a customized electrode layout, please contact BrainAccess support at *brainaccess@neurotechnology.com* prior to purchase.

Please **note** that custom configurations may not always be possible and may incur additional fees.

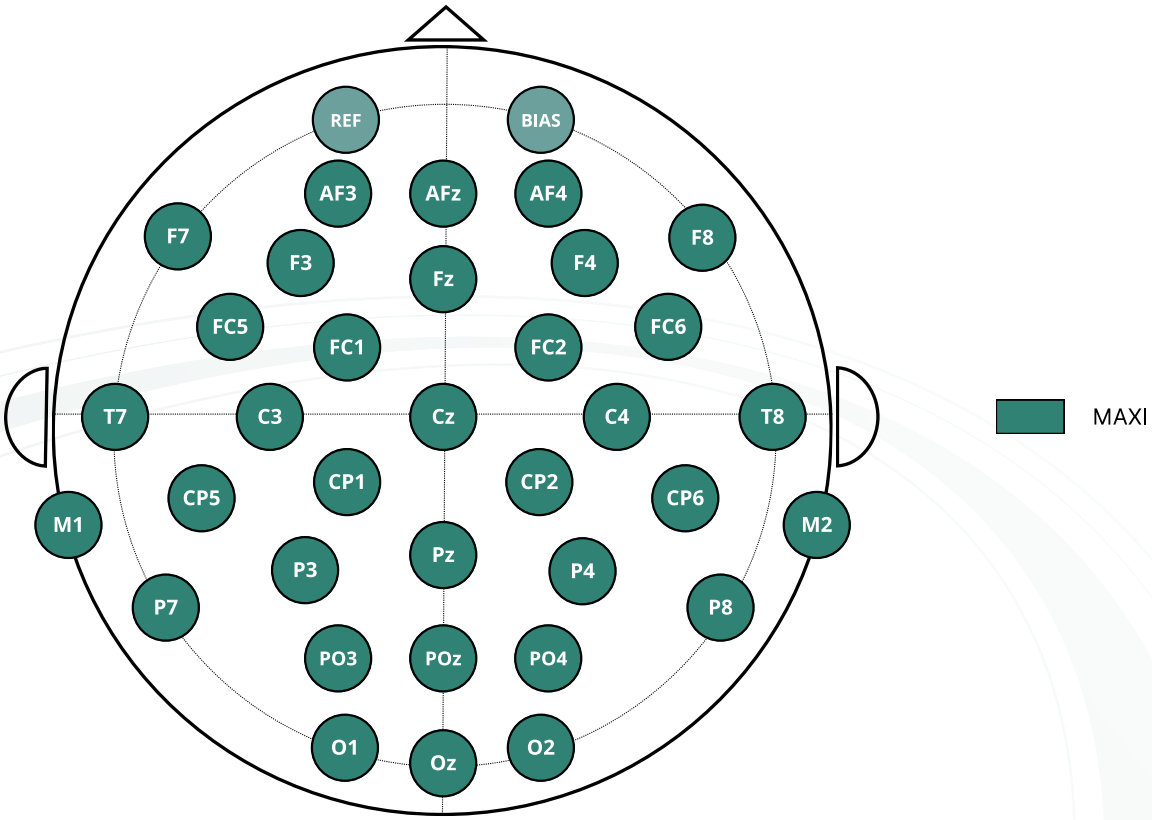

Figure 3. Electrode positions used in the BrainAccess MAXI Kit are shown in teal. This full-coverage layout follows the international 10–20 system and provides high spatial resolution for advanced EEG research and multi-channel analysis.

For complete system setup, electrode installation, safety information, and maintenance procedures, refer to the following documents as well:

- BrainAccess EEG Cap – Extended Manual (MAN-CAP-01)
- BrainAccess Electrodes & Cables – Extended Manual (MAN-ELEC-01)

All referenced documentation is available at: *https://brainaccess.ai/documents/*.

How to Connect and Record EEG Signal

For Beginners

Connect via PC

1. **Plug in the Bluetooth adapter.**

   Insert the provided **USB Bluetooth adapter** into your computer. The required drivers should install automatically.

   If your computer already has a built-in or other compatible Bluetooth adapter, you can skip this step.

2. **Download the BrainAccess Board application.**

   If you haven't done so already, download the free **BrainAccess Board** software from our website: *https://brainaccess.ai/download/*.

3. **Launch BrainAccess Board.**

   Once opened, the application will automatically **scan for nearby devices**.

   If your device is powered on, it will appear in the list, identified by its **serial number** (printed on the back of the device, behind the rear channels).

4. **Connect to the device.**

   Select your device and click **Connect**. You will then be able to **stream, visualize, and record EEG data** directly through the application.

5. **Learn more.**

   For a full tutorial on how to use BrainAccess Board and explore all available features, visit: *https://www.brainaccess.ai/software/brainaccess-board/*.

Connect via Mobile App

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The **BrainAccess Mobile App** allows you to collect EEG data directly from your BrainAccess device using an Android smartphone or tablet.

The app can stream data over Wi-Fi to other applications or store it locally on your mobile device for later analysis.

1. **Download the app.**

   Install the **BrainAccess Mobile App** from the **Google Play Store** (Android 9.0 or higher required).

2. **Turn on your device.**

   Power on the **BrainAccess MAXI** and wait a few seconds for it to become discoverable.

3. **Select your device.**

   Open the mobile app and choose your device from the **drop-down list**.

4. **Connect and start streaming.**

   Tap **Connect** to begin streaming EEG data. You can choose to either **record locally** or **re-stream** the data via Wi-Fi.

5. **Learn more.**

   Explore additional instructions here: *https://www.brainaccess.ai/software/brainaccess-mobile-app/*.

For Advanced Users

The **BrainAccess SDK** allows full control of BrainAccess devices and direct access to EEG data without using the graphical interface. It is intended for developers and researchers who wish to integrate BrainAccess hardware into custom applications or processing pipelines.

BrainAccess SDK Overview

The SDK is a collection of libraries for device control, data streaming, and EEG preprocessing. It can be accessed through C or Python APIs, enabling flexible integration into your own software environment.

Core Library

The **BrainAccess Core** library provides a low-level interface to BrainAccess electroencephalographs.

It allows you to:

- Configure recording channels and device parameters
- Monitor device status in real time
- Stream EEG and auxiliary data using a callback-driven acquisition model
- Manage multiple devices simultaneously through a single Bluetooth adapter

C and Python API

The SDK supports both **C** and **Python** programming environments.

Comprehensive API documentation, example scripts, and integration guidelines are available on our website: *https://www.brainaccess.ai/software/brainaccess-sdk/*.

Maintenance

When not in use, store the device in its **original packaging** or in a clean, dry environment at room temperature. Avoid exposure to moisture, dust, direct sunlight, or extreme temperatures.

If the device will not be used for an extended period, **maintain the battery at 50–70%** charge and recharge it every 3-6 months to preserve battery health and extend service life.

Important: Instructions for cleaning, handling, and storage of EEG caps and dry-contact electrodes are provided in their respective manuals:

- BrainAccess EEG Cap – Extended Manual (MAN-CAP-01)
- BrainAccess Electrodes & Cables – Extended Manual (MAN-ELEC-01)

Please refer to these documents for detailed maintenance guidelines.

All referenced documentation is available at: *https://brainaccess.ai/documents/*.

Warranty

Neurotechnology UAB warrants the **BrainAccess MAXI device** against defects in materials and workmanship for a period of **one (1) year** from the date of purchase, under normal consumer use conditions.

If the product fails during normal and proper use within the warranty period, **Neurotechnology** will, at its discretion, **repair or replace** the product. The company's liability under this warranty does **not cover any incidental or consequential damages**.

This warranty does **not apply** in cases of:

- Improper setup, operation, or maintenance
- Accidents, physical damage, or misuse
- Modifications or repairs not authorized by Neurotechnology
- Normal wear and tear
- Any events or circumstances beyond Neurotechnology's control

The warranty is **void** if the product's **serial number has been altered or removed**, or if the **casing has been opened, tampered with, or repaired by unauthorized personnel**.

Support

If you experience any issues or have questions about your **BrainAccess** product, please contact **Neurotechnology** for assistance.

Technical support related to hardware or connectivity problems — such as device malfunction, charging issues, power or Bluetooth connection failures — is provided free of charge.

Requests for consulting, experimental setup, data analysis, or custom application development may be subject to additional service fees.

BRAINACCESS®
developed by ***NEUROtechnology***

Compatible Accessories

BrainAccess Cap

Electrodes & Cables

Other EEG Systems

BrainAccess HALO

BrainAccess MINI

BrainAccess MIDI

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