



Versatile Bio Amplifier

USER GUIDE

Model: Bio



V-BIO-01-040326-EN

English

This is the user guide for the *Versatile Bio Amplifier* device from Bitbrain.

This document will provide information for the proper setup and usage of the system.

Contents

05 What is included?

06 Sensors

07 Safety information

09 Conventions and symbols

10 Conditions for use

11 Disclaimer

12 Versatile Bio Amplifier

13 Technical specifications

14 Preparing to record data

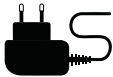
Contents

16 Placing the amplifier

17 Maintenance

What is included?

This pack includes all the elements necessary for the operation of the Versatile Bio Amplifier system:

Item	Name / description	Amount
	Amplifier Powered by an internal battery.	1
	Sensors (customizable) - Monitor biosignals (ExG, RESP, GSR, TEMP, etc.), movement (IMU, GPS) and events. - The amount and type of sensors included depends on the equipment ordered.	
	8GB Class-10 MicroSD Card with SD Adaptor	1
	Elastic adjustable band Enables placement of the amplifier on the arm or waist.	1
	Charger + adapters Charges the amplifier.	1

Sensors

Versatile Bio includes 20 inputs (up to 35 channels) for simultaneous and synchronized data acquisition, compatible with the following sensors:



ExG Input

- EMG: Electromyogram
- ECG: Electrocardiogram
- EOG: Electrooculogram

Digital Inputs

- TTL trigger EXT: Synchronization by pulses with other external devices
- TTL trigger BBT: Synchronization by pulses with other Versatile BIO
- Pedal: 1-bit input trigger
- 1 Button Box: 1-bit input trigger
- 3 button box: 3-bit input trigger
- 7 button box: 3-bit input trigger

Digital Output

- TTL trigger BBT: Synchronization between EEG devices or another Versatile BIO

Analog Auxiliary Inputs

- RESP: Respiratory effort band
- AFS: Air Flow Sensor
- BVP: Blood Volume Pulse
- GSR: Galvanic skin response
- SNORE: Snore sensor
- TEMP: Temperature sensor
- PHOTODIODE BIO: Optical trigger

Digital Auxiliary Inputs

- IMU: Inertial measurement unit
- IMUs Multiplexer: For the connection of up to 6 IMUs per inlet, 12 total units.
- GPS: Global Positioning System

Safety information

Please read the safety information, conditions of use and instructions carefully before using the device. Failure to follow the instructions set out in these documents will lead to the nullification of the product warranty.

Careful usage and handling of the equipment

- Do not handle the device with damp hands, as this could cause a short-circuit.
- Do not use the device for other applications than its intended purpose.
- Do not hit, throw, bite, open or burn the device.
- Avoid falls or collision with other objects.
- Keep the device in a dry place, and do not expose to extreme temperatures.
- This equipment is not suitable for use where children are likely to be present.

Warnings about the equipment

- DO NOT use the device while it is charging.
- DO NOT open the device. If your device does not work properly, contact support@bitbrain.com.
- DO NOT place this device close to life support electronic and electrical equipment.

- The handling and supervision of the equipment shall mandatorily be performed by an adult when the equipment is used to measure biometric data in children.
- If you notice that the device emits strange smells or noises, or that its temperature is excessive, leave it in a safe place and contact support@bitbrain.com.

Warnings about the battery

- Disconnect the charging cable once the battery is fully charged. Otherwise, the battery's life cycle could be reduced.
- If you are storing the device for long period of time (more than one week), it is recommended that the battery not be at 100% charge. This can degrade the battery and result in permanent capacity loss.
- Keep the device in a dry place, between the temperatures of 5°C and 40°C. Prolonged exposure to high temperatures can affect the stability of the battery.

Safety information

Device disposal

Do not throw electrical and electronic devices in the trash! In accordance with European Directive 2012/19/UE on Waste Electrical and Electronic Equipment, they should be disposed of at suitable collection points for environmentally responsible recycling.

Before disposing of appliances at collection points, batteries should be removed and disposed of separately from the electronics to be treated appropriately.

In order to separate the battery from the electronics in preparation for disposal, open the amplifier using a Torx 6 screwdriver and carefully detach it.



Conformity and CE marking

This device is a radioelectrical IT equipment.

The CE marking indicates compliance with the essential requirements of the RED Directive (2014/53/EU).

The Bluetooth module it incorporates complies with this Directive. It is used according the requirements and instructions specified by its manufacturer.



Important

Versatile BIO is a device designed by Bitbrain to measure biometric data for research purposes.

Conventions and symbols

The Following Conventions and Symbols are Used in this Manual:

Conventions:

- **Note:** used to highlight relevant information.
- **Caution:** used to point out aspects that if not observed, may cause damage to the equipment, injury to persons or deviations in the operation of the equipment with respect to its specifications.
- **Warning:** used to inform of a specific action which, if not observed, may cause damage to the equipment, injury to persons or deviations in the operation of the equipment from its specifications

Symbols:

The following symbols are to be found both in this manual and on the labelling of the equipment or its packaging:



This product contains electrical and electronic components and must not be disposed of using the standard waste collection system. Please refer to your local regulations for the disposal of electrical and electronic equipment.



Product complies with CE Marking regulations. See instructions for use.



Direct current.



Power button.

Conditions for use

- Read the device safety information carefully and keep this manual for future reference.
- Read the “General Terms and Conditions of Sale and Use for Bitbrain Products” carefully. You can find the document at <https://downloads.bitbrain.com/documents/terms-and-conditions-eu>

Disclaimer

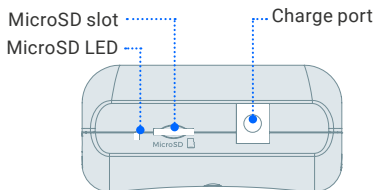
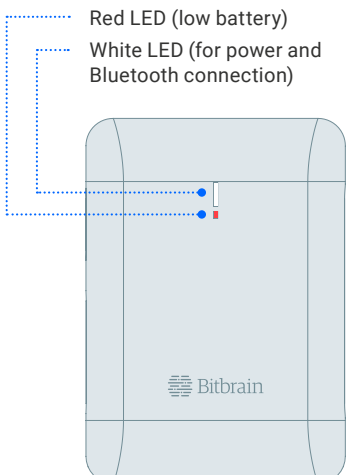
The Hardware equipment included in the Products (EEG, biosensors, indoor positioning systems, eye tracking) are not medical devices, have not been designed or manufactured to offer healthcare services, and are not sold for the purposes of diagnosis, treatment, palliation, medical advice or illness prevention, but for research purposes.

Read the “General Terms and Conditions of Sale and Use for Bitbrain products” before buying a product, in order to understand it fully. You can find the document at <https://downloads.bitbrain.com/documents/terms-and-conditions-eu>

Bitbrain reserves the right to revise this user guide and make any changes to its content that it considers relevant, at any moment and without obligation to notify any person or entity of the changes made. Despite the best efforts made to ensure the accuracy of the information contained within, this should not be interpreted as a commitment from Bitbrain. To ensure that you have the latest version, please visit the Downloads section on the product page at www.bitbrain.com.

Versatile Bio Amplifier

Versatile Bio Amplifier is a mobile and versatile real-time biosignal amplifier, optimized for out of the lab applications that require freedom of movement and high signal quality for the researcher. It can record up to 35 channels (20 inputs).



LED MicroSD status

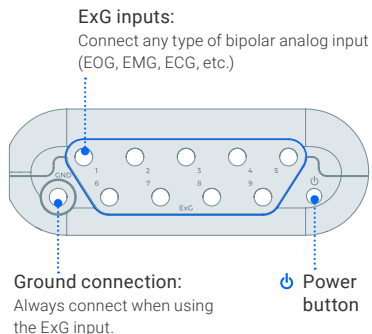
□ MicroSD card inserted

Manufacturer's Information

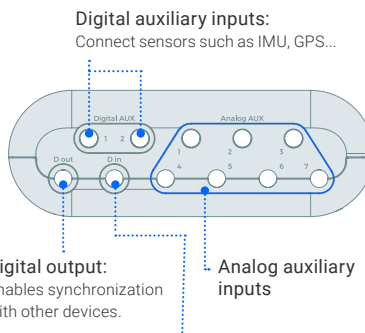
BIT&BRAIN TECHNOLOGIES, S.L.

C/Sta Teresa de Jesús 32, 50006 Zaragoza, España.

ExG Sensors



Auxiliary Sensors



Digital input:

Connects digital inputs from a computer or other devices such as buttons, switches, etc.

Technical specifications

Nominal voltage	3.7V
Nominal power	1000mW
Battery life	>8h
Charging time	<3h
Sampling rate	256 SPS at 24 bits
Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight
Data backup	Yes (removable μ SD card. Max 8 GB, class ≥ 10)
Dimensions	Amplifier: 105x76x37mm.
Weight	170g.
Charging connection	Barrel plug connector (Charger provided)
Certifications	CE (Directive 2014/53)

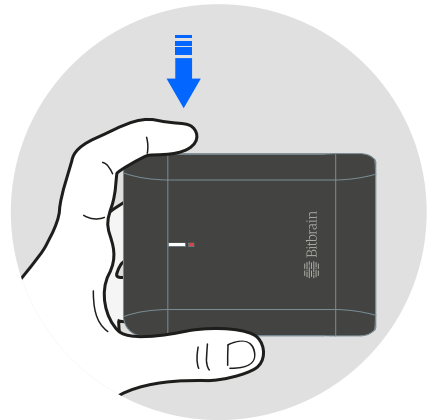
Preparing to record data

1

Turn on the amplifier by pressing the **power button** (🔌). The wireless connection LED will flash until the connection is established with the software. The LED will then stay on. When the battery device is low, the battery indicator LED will turn on.

IMPORTANT:

Do not use the device while charging. A low battery can adversely affect the quality of the recorded signal and it is recommended to charge the system before starting a recording.



Preparing to record data

2

This equipment sends data using Bluetooth wireless technology.

The data can be saved on:

- **The computer with which the device is paired.** Note that if the device loses Bluetooth connection with the computer, this can lead to a loss of data.
- **MicroSD Card.** In this mode, the wireless signal will continue being sent, so data can still be seen and recorded in real time on the computer while simultaneously being saved on the memory card.

Pairing

Be sure the computer has a Bluetooth adapter version 2.1 or higher. The first time you use the device, you will need to pair it. This can be done from "Settings > Devices" on Windows.

The name of the device in the list of Bluetooth interfaces corresponds

to the serial number (S/N), which you can find printed on the label on the amplifier.

Data backup with MicroSD

1. Insert the MicroSD card provided into the slot on the display.
2. Enable the "SD card record" option on the software to save data to the card.

The files saved are recorded in .sdf format. To convert them to .csv format, use the "Import record" function on the software.

IMPORTANT:

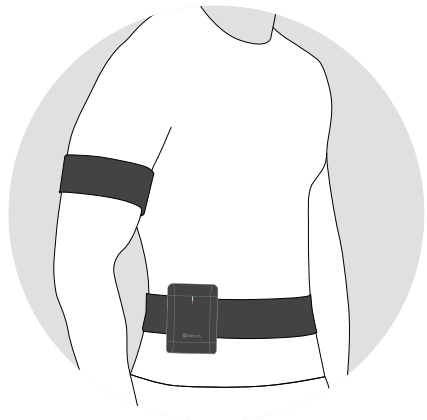
We recommend using a Class 10 or above Micro SD card with capacity of 8GB. Using another type of memory card that does not meet these specifications could cause loss of data.

Placing the amplifier

1

Optionally place the amplifier on the user:

1. Fasten the elastic to the arm or waist:
 - Use the short or medium length to attach the band to the arm.
 - Use the long band to fasten it to the waist. The smaller bands can be used to extend the long band if needed.
2. Attach the amplifier to the band via the Velcro patch.



Maintenance

Cleaning and disinfecting the amplifier:

- To clean the amplifier, we recommend gently wiping down the device with a slightly dampened cloth with water or a small amount of alcohol.
- To disinfect the amplifier, we recommend using Clinell Universal Wipes:
 1. Use the wipes in such a way that all surfaces of the amplifier stay damp for 1 minute. Wipe gently without applying excessive pressure – this could release liquid that could cause internal damage to the device.
 2. In the area of the inputs, always wipe with them face-down to ensure that no liquid gets into the inside of the device.

Very important

- Do not use strong or abrasive disinfectants to clean the product.
- Read carefully the instructions on the use of a disinfectant solution. When selecting a cleaning product, confirm its effectiveness and compatibility with the material.

Storage

- Keep the product in its original packaging while not in use.
- If you are storing the device for long period of time (more than one week), it is recommended that the battery not be at 100% charge. This can degrade the battery and result in permanent. capacity loss.



Europe

Zaragoza, Spain

C. Sta Teresa de Jesús, 32, 50006
Zaragoza
+34 931 444 823



More info

Email

info@bitbrain.com

Help Center

help.bitbrain.com
