



Versatile 64ch EEG

USER GUIDE

Model: E32



V-E64-VER-01-040326-EN

English

This is the user guide for the
Versatile 64ch EEG device from Bitbrain.

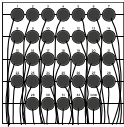
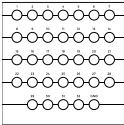
This document will provide information for
the proper setup and usage of the system.

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What is included?

This pack includes all the elements necessary for the operation of the 64-channel Versatile EEG system:

Item	Name / description	Amount
	Synch device for Versatile EEG 64ch Synchronizes two Versatile EEG 32 amplifiers.	1
	64-channel EEG cap + chinstrap - Holds the electrodes in place. - Based on the 10/10 international system.	1
	64 Set of EEG electrodes + connectors - With a total of 64 channel divided into: 1 Set of 16 channels + GND + REF. 3 Set of 16 channels.	1
	Sensor holder Organizes the sensors and cables when not in use, preventing damage.	2
	Sensor sockets Enable placement of the sensors in specific positions on the cap.	65
	Base Holds Versatile EEG 32 amplifiers and the synch device	1

What is included?

Item	Name / description	Amount
	Cable fastening band Groups and organizes the cables during operation.	1
	Synch device battery CR1220 3V Lithium non-rechargeable battery.	1
	REF Sensor Elastic O-Ring Replacements (Clip) Used to replace the elastic o-ring located on the REF sensor clip in case of breakage, wear, or loss.	
	Photodiode EEG (optional) Connected to the auxiliary input, it measures changes in light intensity to synchronize data recording with on-screen stimuli.	
	Bipolar ExG sensors (optional) When connected to one of the ExG inputs, measures biopotentials (ECG, EMG, EOG).	

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.

Warnings about the equipment

- 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.
- 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

- If you are going to store the device for a long period (several weeks or months), it is recommended that the battery should not be 100% charged. This can degrade the battery and result in permanent.
- 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.



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 EEG 64 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.

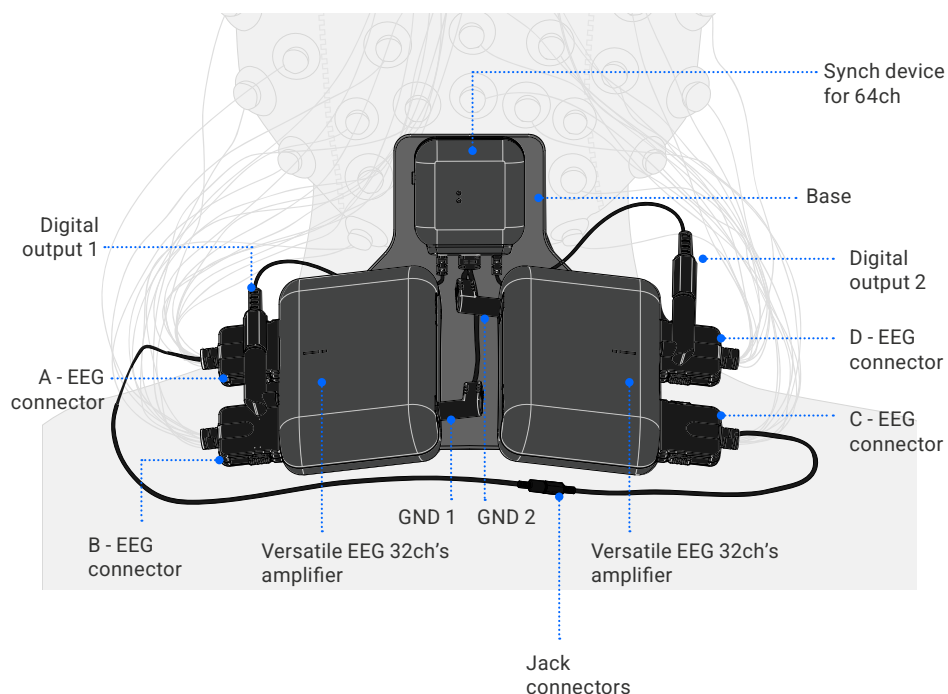
Read the “General Terms and Conditions of Sale and Use for Bitbrain products” before buying a product, in order to understand it fully. You can find the document at <https://downloads.bitbrain.com/documents/terms-and-conditions-eu>

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 64ch EEG

Versatile is an 64-channel mobile semi-dry EEG device. Its water-based EEG electrodes can be placed in any position within 10/20 and 10/10 international system.

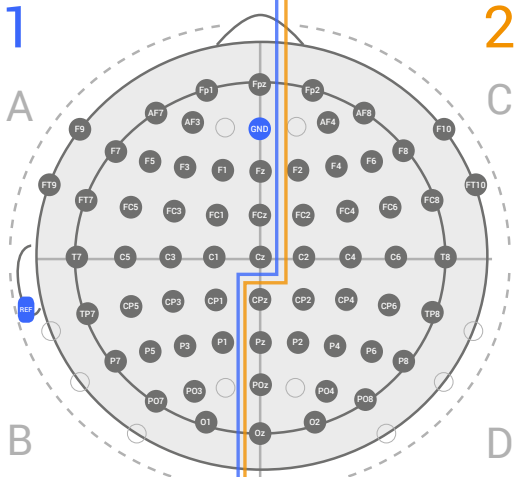
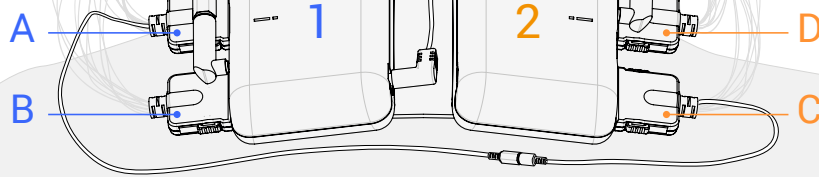
The system uses two 32-channel amplifiers, from the Versatile EEG 32 system, that are synchronized via trigger device. These instructions cover how to set up and synchronize the amplifiers.



Manufacturer's Information

BIT&BRAIN TECHNOLOGIES, S.L.

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



Layout scheme

Base set up

1

1. Attach the trigger device to the hook and loop on top of the base.
 2. Place the amplifiers on the largest hook and loops. EEG inputs should face outward from the center as shown in figure 1.
 3. Connect the central GND connectors of the synchronizer to the charging port connector on both amplifiers.
 4. Connect the side connectors to the digital input connectors on the Versatile EEG 32 amplifiers.
 5. Place the 64ch sensor sets on the cap sensor sockets, following the layout scheme.
 6. Follow the corresponding section in Versatile EEG 32ch's user guide to complete the setup.
 7. Attach the base to the cap, on the back of the neck.
 8. Plug the EEG connectors into each amplifier as displayed in the picture.
9. Connect the male and female jack directly between A and C jack connectors.

▲ **Caution:** Connecting the EEG connector upside down may damage the connector. Always ensure the side labeled '**This Side Up**' is facing upwards before inserting.

Preparing to record data

1

Turn on the two Versatile EEG 32 amplifiers by pressing the **power button** (🔌) until the light blinks. 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.

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.

Preparing to record data

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.

Synch device battery

The device uses a non-rechargeable CR1220 3V Lithium battery. When the red LED turns on, change the battery:

1. Switch off the device.
2. Open the battery chamber using a small Phillips screwdriver.
3. Replace the battery. Be sure to observe the correct polarity.
4. Close the battery cover and tighten the screw.



Maintenance

Disinfecting and cleaning the cap

- Both processes, disinfecting and cleaning, can be done without removing the sensor sockets, but **always remove the actual electrodes** and wiring harness.
- To disinfect the cap, we recommend the use of a specific disinfecting solution, Bomix plus. Dilute 45 ml solution per liter of cold water, and submerge the cap (without the sensors, wiring and amplifier) for 30 minutes.
- Clean the cap after each use. Use warm water with a few drops of soft detergent (we recommend Ivory). Rinse with water and leave it to dry on a flat surface. Do not use aggressive cleaners or shampoo.

Very important

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

Attention!

- Do not use hot sterilization methods (steam), at the risk of damaging cable insulation.
- When not in use, caps and electrodes should be kept in a dry place.

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.

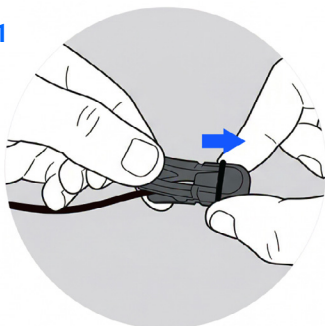
Replacing the REF Sensor Elastic O-Ring

In the event of loss, breakage, or visible signs of wear of the elastic O-ring that secures the REF sensor clip, it can be easily replaced using one of the spare bands included with the device.

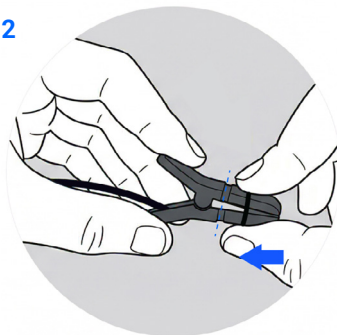
To do so, remove the old O-ring by sliding it outward and insert a new one (with the clip in the closed position) until it is properly seated in the corresponding groove, as shown in the image.

Ensure that the clip opens and closes normally.

1



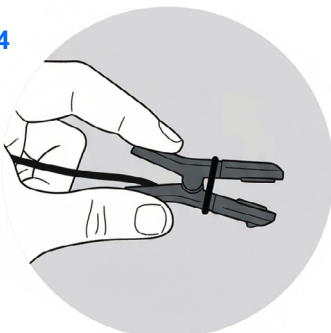
2



3



4





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