



Emotiv Beta EPOC Hardware Setup

Purpose

The purpose of this document is to assist Emotiv Beta EPOC™ development partners with their initial experience setting up the Emotiv Beta EPOC neuroheadset.

Safety

The Emotiv Beta EPOC headset is being released for evaluation purposes by informed users who intend to develop applications and provide feedback to Emotiv Systems to help us refine the product for consumer release. As such it has not yet completed full regulatory compliance testing appropriate for a consumer product and although Emotiv Systems has taken all due care, use of the Emotiv Beta EPOC system is at the user's own risk. If you do not wish to accept that risk or have questions, please contact Emotiv on enquiries@emotiv.com or arrange to return the equipment.

Please note the following:

- EVALUATION UNIT ONLY – NOT FOR RESALE
- CHOKING HAZARD – detachable small parts. Keep away from small children.
- DO NOT attach the headset to the charger or USB connector while in use. ALWAYS remove the headset during charging and avoid touching the sensors if fitted. Although unlikely, an insulation failure in the charger or USB source may cause the headset to become live. The headset will automatically enter sleep mode while attached to the charger, so it is not possible to extend use while charging.
- WARNING: Radio emissions may interfere with appliances and medical equipment including heart pacemakers and automated medical dosimetry systems. Use with caution.
- WARNING: Discontinue use if the headset becomes uncomfortable to wear or if skin irritation occurs. Users are advised not to share sets of sensors to avoid cross-infection risks.
- WARNING: Use only approved Contact Lens Saline solutions which contain preservatives and anti-bacterial additives (such as EDTA). Prolonged exposure to ordinary salt water within the hydrator or sensor felt pads may lead to the formation of mold colonies or support microbial populations. Felt pads may be cleaned by soaking in mild bleach solution or household disinfectants and rinsing thoroughly in clean water before rewetting and continued use. Do not use pads which are clearly contaminated.
- Do not hyper-extend the headband or sensor arms. Although the materials are difficult to break they can be distorted by abnormal stretching and may no longer apply adequate pressure at all sensor locations. The unit may recover its utility by manually recompressing the extended part, but we do not guarantee continued operation after mishandling.



In the Box

Included in the Emotiv Beta EPOC kit:

- 1 Beta EPOC neuroheadset
- 1 USB wireless receiver
- 1 Emotiv SDK CD
- 1 Beta EPOC neuroheadset charger or USB charge cable (depending on user location)
- 1 Emotiv Beta EPOC Hydrator unit containing 16 EEG sensor units
- 1 bottle of saline solution



Unboxing and Physical Setup

All of the components of the Beta EPOC neuroheadset are delivered in our standard shipping box.

Inside the box you will find all of the components neatly stored for shipping and storage. Note: Never put the Beta EPOC neuroheadset, or any of its components, back into the packaging until they have dried completely. Make sure the Hydrator unit is sealed and is not leaking. Wipe the seal clean before closing.





Once unpacked, you can see all of the items that are included in the Beta EPOC kit.

Place a small amount of saline solution into the Hydrator unit. Wet the large Hydrator pad. You can also wet the sensor tips directly to speed the process of absorption.



Close up the hydrator and allow the sensors to absorb some of the saline. You can shake or invert the Hydrator box so that the liquid is evenly distributed and absorbed into the felt pads. Note: for user comfort the sensor pads should be damp, not dripping wet.

Next, insert each individual sensor unit into one of the 16 headset sensor sockets. Each sensor should click into place. Ensure that each sensor is locked in place. Note that the sensor location behind the ears is fitted with a soft rubber comfort pad. This should remain in place unless the normal Reference sensors do not contact properly (see below for alternative Reference Sensor location)



The fully populated headset will look like this.

Next, plug the receiver into the USB port on your PC.



Hold the neuroheadset close to the USB receiver, and turn it on using the switch at the rear of the headband. You should see a new steady (although it may flicker) LED on the receiver, which indicates that the headset has properly paired with the USB receiver.

Carefully expand the headset to place it on the subject's head. If any sensors fall out, replace them and ensure they are locked in place.



A view of a properly located Beta EPOC neuroheadset. Note that the front sensors are 2 – 2.5 inches (50-60mm or about three finger widths) above the eyebrows.

The "Reference Sensors" shown here must have good contact with the subject to assess the Contact Quality of the remaining sensors. You may need to press these against the subject's scalp for a short period to establish a good conductive path.



In the event that the Reference Sensors do not make proper contact (all or most sensors "black" on Control Panel screen), the behind ear locations can be used as alternative Reference locations. Swap the Comfort Pads with the Reference Sensors as shown. Also check that all of the sensor pads are damp.



Next Steps

- Run the Emotiv SDK Installer executable found on the Emotiv SDK CD
- Read the User Manual for more detailed setup procedures and code samples. Note: the documentation may occasionally lag behind the actual SDK release, but the core concepts will still be applicable.
- Launch Emotiv Control Panel to interact with the headset and experiment with the detection suites

