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Brite

Truly wearable
multi-channel fNIRS device

Get a quote

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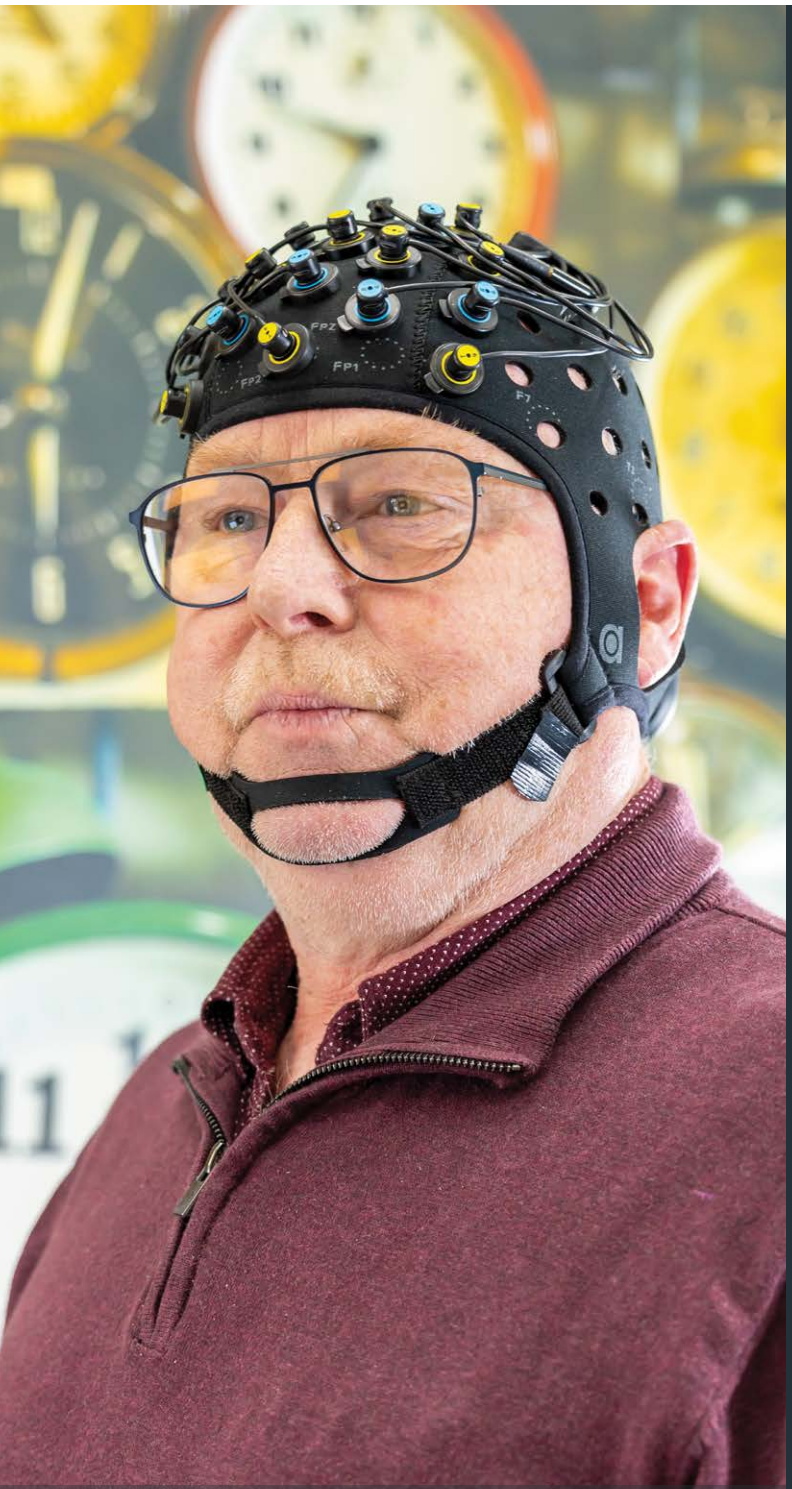
Near Infrared Spectroscopy

NIRS, the technique which the Brite is based on, relies mainly on two characteristics of human tissue. The first is the relative transparency of human tissue for light in the NIR range and secondly, to the oxygenation dependent absorbance of the hemoglobin. Based on these principles, the Brite makes it is possible to monitor the brain activity of your subject:

- Non-invasively.
- Continuously recording and feedback.
- Affordably and no disposables needed.
- Wirelessly, both indoors or outdoor.
- In easy setup for any environment, both indoors or outdoors.

WHAT CAN NIRS DO FOR ME?

- NIRS is used in many fields of research. NIRS measures the relative changes in the concentration of oxyhemoglobin (O2Hb), deoxyhemoglobin (HHb) and total hemoglobin (tHb) in biological tissue.
- Assuming the concentration of hemoglobin in blood is constant (during your measurement), the tHB can be used as a marker for blood volume.



How to describe the Brite?

Wearable...anywhere & by anyone!

Weighing 300 grams and with almost no set-up time, the new Brite enables the study of the brain in almost all settings!

The Brite comes with a great feature: Multi-power gain control. This feature lets the user choose between 4 different power levels or select the auto-power setting. This improves the recording of brain activity across a wide range of ages, skin colors, scalp areas, hair types and cortical optode distances.

Highly-flexible

The flexible optode template feature lets users select specific optode templates (up to 27 channels with the possibility to enable more combinations of channels upon request) according to their preferred layout and cortical area of interest.

Brite also offers flexible interoptode distances. Whether you want to measure shallow or deep, short or long channels from 10 mm up to 55 mm distances are now possible!

Optimized

The Brite comes with ambient light correction. This feature allows the use of the Brite in almost any environment, including outdoor, office, lab, and hospitals.

Accurate

The Brite offers improved data accuracy. This allows to measure a wider range of OD ~ [0.01 up to 8.00], which results in increased system sensitivity. Additionally, upon request, you could get a Brite with 24 bits of data transfer, which provides higher-resolution data visualization and export.

Measures oxy-, deoxy-, and total hemoglobin concentration changes.

Easy analysis of your data with our superior analysis software; OxySoft.

Truly wearable & flexible for a wide range of participants & any cortical area of interest.

Compatible with other techniques, such as EEG and tES.

Applications

The Brite is a one of a kind NIRS device used by researchers all over the world for a variety of applications, such as:

- Brain oxygenation monitoring
- Sports science
- Functional studies
- Hyperscanning, and more

One or Dual

Combining two Brite systems can easily be done because OxySoft can connect multiple devices simultaneously. Therefore the data is perfectly synchronized and reported within one measurement file.

UP TO 54 CHANNELS

The Dual Brite allows to measure brain activity from up to 54 channels on one participant. This makes it perfect for measuring multiple brain areas at the same time.

Hyperscanning (monitoring multiple subjects at the same time) is also possible. Hence the Brite is ideal also for studies on human interaction.

Supporting features

SHORT SEPARATION CHANNELS

The Multipower gain control of the Brite allows to easily switch a channel from a standard distance (i.e. 30 mm) to a shorter one (i.e. 10 mm). Interested in having more short separation channels (SSC) without sacrificing many standard channels? Then upgrade to the Short separation channel splitter, which enables you to have 4 additional SSC's.

EEG & TES COMPATIBILITY

You can combine transcranial electrical stimulation (tES: tDCS, tACS, tRNS) & electroencephalography (EEG) with NIRS in one single headcap. Such combination allows clinicians and researchers to measure both cortical electrophysiological (EEG) and hemodynamic activity (fNIRS) before, during and after transcranial electrical stimulation in real-world settings.

3D DIGITAZION & SYNCHRONIZATION

Polhemus devices are well-known in the neuroscience world for precise digitization of sensor positions. Using the Polhemus Viper in combination with the Brite, you can measure the exact locations of the optodes on your participant's head within OxySoft. With our OxySoft 3D extension you will benefit from a purely integrated solution, which guides you through the digitization process.

What's in the box?

Brite research package

Brite
Laptop
License key & bluetooth dongle
Battery charger

OxySoft, data analysis software
Neoprene headband/headcap
User guide
Support in setting up your research

Technical specifications

TECHNOLOGY	Continuous wave Near-InfraRed Spectroscopy (NIRS) using the modified Beer-Lambert law
RELATIVE MEASURES	Oxy-, deoxy-, and total hemoglobin concentration changes
CHANNELS	Up to 27 with one Brite, or up to 54 channels with dual Brite
SHORT SEPARATION CHANNELS	Short channels at 10 mm with multipower gain control
MULTIPOWER GAIN CONTROL	Choose between 4 different power levels to improve your recordings or select the auto-power setting
INTER-OPTODE DISTANCE	10 to 55 mm
TRANSMITTERS	10 LEDs, each with 2 wavelengths
RECEIVERS	8 photodiodes
WAVELENGTHS	Standard 760 and 850 nm, custom wavelength possible
AMBIENT LIGHT CORRECTION	Proprietary algorithm to filter out ambient light
OPTODE HOLDERS	3 available heights to improve skin contact
DIMENSION	Battery housing: 85x85x30 mm. Headcaps available in multiple sizes: kids version (from 2 years old) and adults (XS - XL)
TOTAL WEIGHT	300 grams including battery and headcap
ENVIRONMENT	Operating temperature: 10 - 35 °C
INDICATORS	Power, measuring, battery status, bluetooth
POWER	Up to 3 h, charging with powerbank possible
SAMPLE RATE	Up to 150 Hz*
ORIENTATION SENSOR	6-axis motion sensor: 3x Accelerometer (x, y, z); 3x Gyroscope (x, y, z)
DATA COLLECTION & STORAGE	Online, offline 100+ hours, automatic back-up of data
DATA ANALYSIS SOFTWARE	OxySoft: including 3D NIRS analysis software and lab streaming layer (LSL)
OPERATING SYSTEM	Windows 10 and Windows 11 (beta)
EVENTS	Online, offline or PortaSync
ELECTROMAGNETIC COMPATIBILITY	No interference with TMS, EEG, EMG, ECG
HARDWARE SYNC OPTIONS	PortaSync, parallel cable, serial cable, LabStreamer
SOFTWARE SYNC OPTIONS	LSL, DCOM (e.g. Matlab, E-prime, Presentation)
NIRS + OTHER MODALITIES	We deliver the following packages: Brite + Enobio EEG package (8 channels and other options available) Brite + TMSi EEG package (32 channels and other options available) Brite + tES (STARSTIM)

**Can only be achieved when using a limited number of channels. When using the full set of optodes, sample rates of 25, 50 and 75 Hz can be achieved, depending on the configuration.*

References to wireless fNIRS

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NIRS devices

OxyMon

Our most advanced NIRS system for brain and muscle tissue measurements. OxyMon is proficient to measure oxy-, deoxy-, total hemoglobin concentration changes.

PortaLite MKII

Truly *lite* & advanced oxygenation monitoring device that measures local tissue saturation index (TSI), as well as oxy-, deoxy- and total hemoglobin concentration changes.

OctaMon+

Completely wearable 8 channel fNIRS that measures oxy-, deoxy- and total hemoglobin in a non-invasive and truly portable way.

PortaMon

The gold-standard research device for the measurement of muscle oxygenation which measures TSI, as well as oxy-, deoxy- & total hemoglobin.

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