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SCIENCE BEAM

Electrophysiology Equipment

Technology Provider of Innovative Solutions for Neuroscience

eWave 24 (EEG/QEEG, VEEG/LTM):

Powerful EEG/QEEG/ERP Recording System

eWave is a new technology in EEG/QEEG and brain-mapping systems, available in 24, 32, 64, and 128 channels. have also recorded various biological signals such as EEG, EMG, ECG, and EOG. Due to the wireless nature of this device, portable registration is also possible. This device is also compatible with Neuroguide software; This device also has an ERP, LTM, neurofeedback, and biofeedback capability.

Product Highlights

- Fully integrated into eLife software environment for visualization and real-time analysis.
- 24 DC-coupled wide-range input channels able to record any type of biological signals (EEG, EMG, ECG, EOG, and connected various sensors).
- 24-bit resolution with simultaneous sampling of all channels
- Easy configuration and setup with Smart Box BCI system
- Rechargeable internal lithium battery
- Easy configuration and setup with eBridge Simulink environment
- Simultaneous TMS possible

Hospital EEG (Routine EEG)

24-channel EXG Recording System

eWave is a reliable EEG device for daily routine, providing high-quality signals through state-of-the-art hardware and software design. This device can be used for routine EEG, Event-Related Potential (ERP) data acquisition for medical and research institutions. The eWave device is coming with a user-friendly software environment enabling you to quickly and efficiently record EEG signals from many patients during the day. The flexible and easy-to-use software enables you to use lots of montages, including Laplacian, Bipolar, Banana, Longitudinal, Double Banana, and QEEG, for EEG recording. The Routine EEG package is coming with the eStim, which is a powerful photic stimulator and enables you to detect abnormal epileptogenic sensitivity to flickering light. This wireless and portable system is easy to apply, requiring minimal adjustment time, and records noise-free EEG signals in just under two minutes.

If you are looking for a reliable EEG system for many years,
we recommend eWave24.

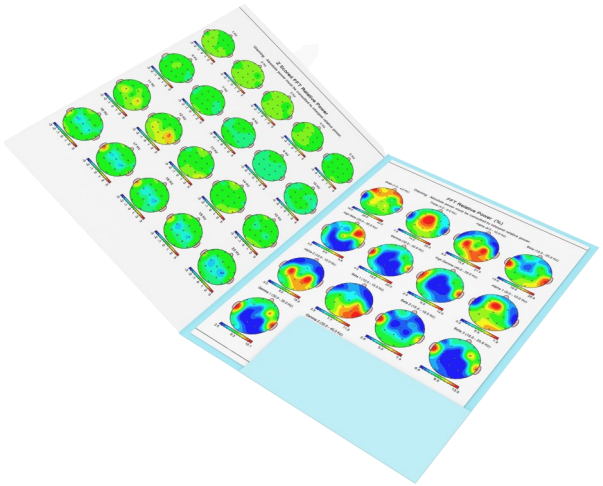
QEEG (Brain Mapping)/EEG

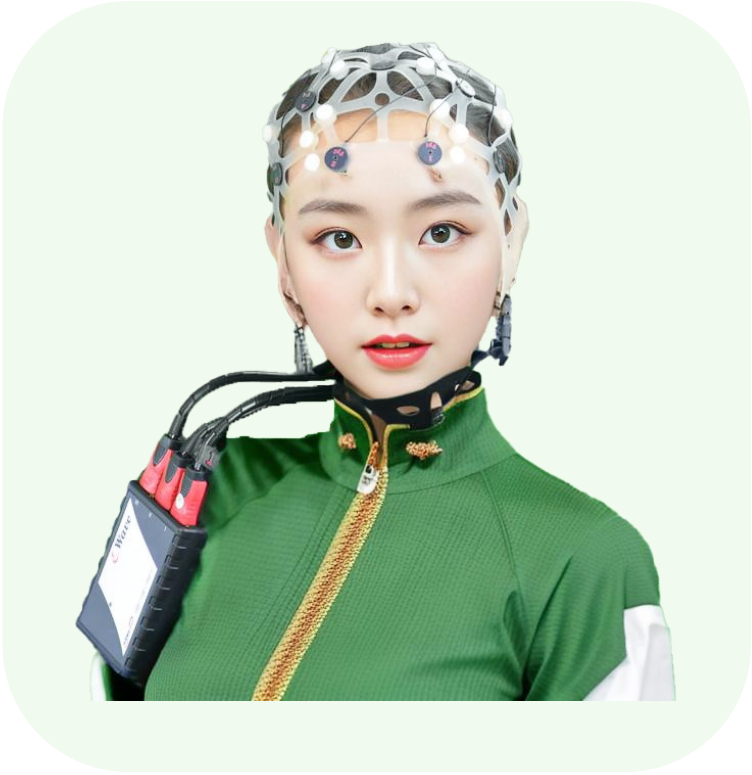
24-channel EXG Recording System

A qEEG (Quantitative Electroencephalogram) is a powerful diagnostic tool that measures the electrical activity of the brain and converts it to Brain maps. This novel approach, which is an extension of the analysis of the visual EEG interpretation, can be used to help you in understanding which areas of the brain are functioning and processing efficiently or not.

Using eWave, you can interpret the information obtained from the qEEG and use it as a clinical tool to evaluate brain function and to monitor changes in brain function due to various interventions such as Neurofeedback or medication.

The eWave system offers deep insights into brain function by measuring and analyzing EEG activity at 19 locations. The eWave device is integrated with the NeuroGuide software.





eWave system (QEEG/Brain Mapping)

The eWave-24 is a strong and multi-module system for measuring and monitoring up to 24 EXG channels of ECG, EMG, EEG, and EOG signals simultaneously.

It enjoys innovative high precision and low noise amplifiers as well as the 24-bit ADC, which provide reliable high-quality signals by 1000 samples per second.

The eWave-24 also offers up to 24 AUX channels for peripheral bio-signals such as skin temperature, GSR, respiration, and BVP/HRV. It also has extra digital inputs for triggers to ERP research applications.

DATA ACQUISITION	
Technology	ARM Cortex 32
Processor	160 MHz
Data Connection	Bluetooth wireless, 1 Mb/s, up to 10 meters
ANALOG TO DIGITAL CONVERTER	
Number of channels	24
ADC resolution	24 bit
Linearity error	7.6 ppm (maximum)
Sample rate	500-1000 samples per second per channel (up to 16000 per channel)
BIO AMPLIFIER	
Amplifier type	Differential; DC
Gain	4
Common mode rejection ratio	75 dB @ 500 Hz
Low cut filter	DC
High cut filter	500 Hz
Input voltage range	2.5 V
Maximum analog input voltage	2.5 V
Input impedance	1000 Giga ohm
Input leakage current	60 pA (typical)
Input capacitance	8 pf
OTHER SPECIFICATIONS	
24 AUX channels	Skin conductance, Temperature, BVP/HR
24 EXG Channels	EMG, EEG, EOG, ECG (8 channels)
Power	Battery (Lithium, 3.7 V), Battery Charger 5 V
Battery Life	15 hours on full charge

eLife software for EEG/QEEG

Acquisition & Analysis Software

- User-friendly environment
- Various montages can be added
- Compatible with different Operating Systems
- Great software for visualization and analysis
- Removing Powerline interference (50 Hz)
- Designing High-pass and Low-pass filters
- Analysis of various bio-signals
- Printing data is possible
- FFT visualization of recorded signals

Loreta and Brain Mapping

Low Resolution Brain Electromagnetic Tomography

Using sensors on your scalp, LORETA generates a visual map

LORETA (low-resolution electromagnetic tomography) neurofeedback uses an algorithm to convert raw surface EEG signals into 3D LORETA images.

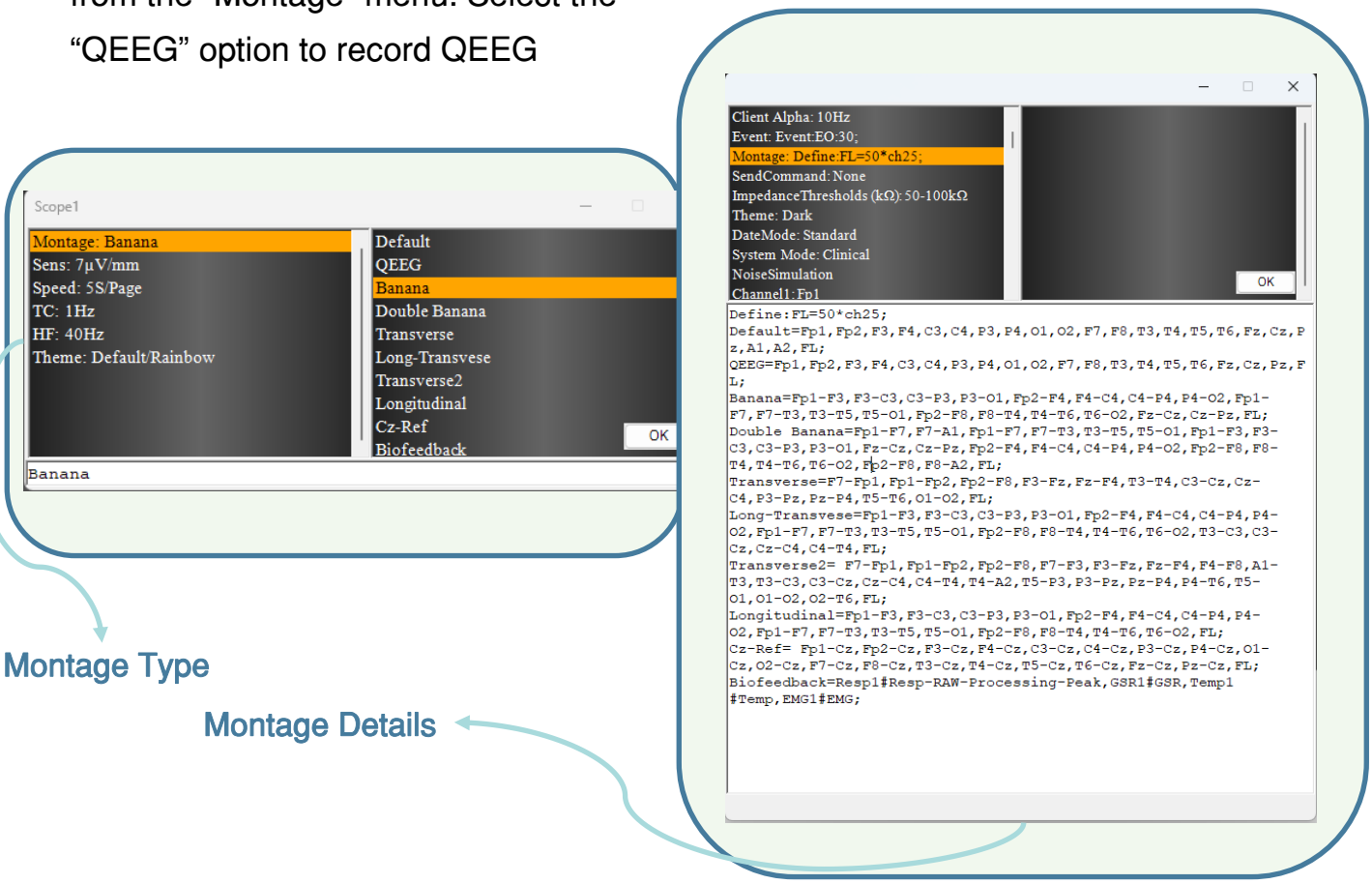
3D Depiction of The Brain

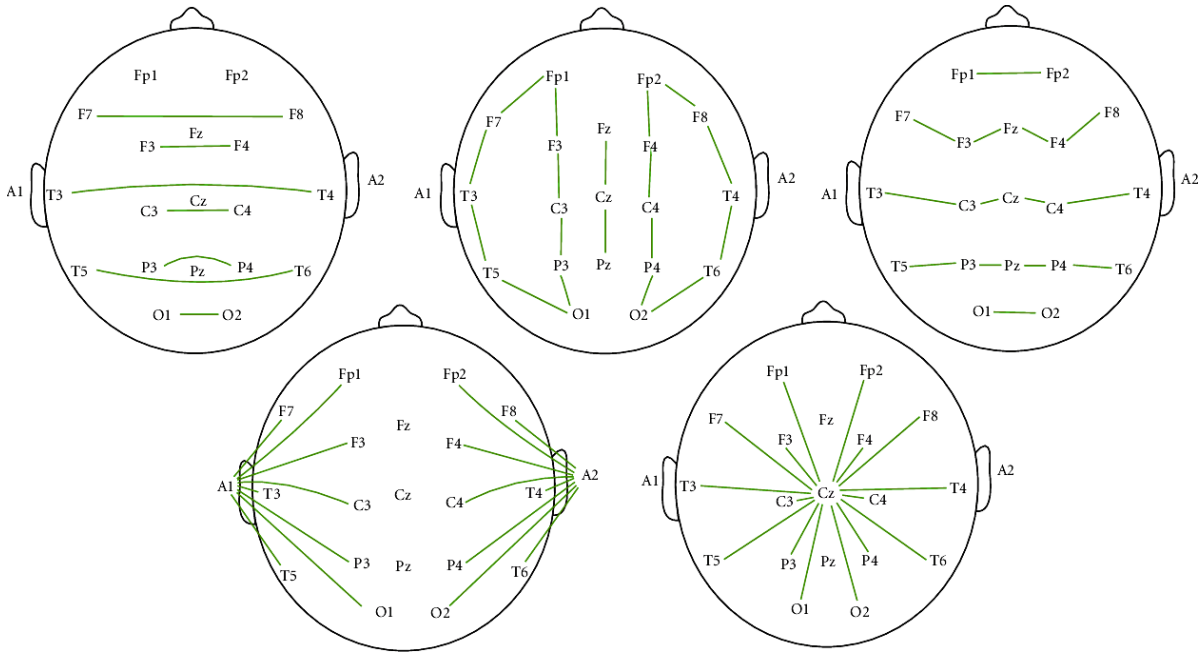
This creates a 3D depiction of the brain, allowing treatment to go beyond surface training and target areas not discovered by surface-level treatment. The brain is more accurately defined in LORETA training. This includes 3D regions like the amygdala, thalamus, hippocampus, cerebellum, and segments called Brodmann areas that cover the whole brain. In addition to the training of the frequency/power of these brain regions, LORETA neurofeedback also helps train something called coherence and phase.

Normal electroencephalography (EEG)

Acquisition & Analysis Software

- Demanded montages must be chosen for optimal display in a Routine EEG recording.
- You can also design new montages in the software.
- To select the montage, right-click on the scope screen and select the preferred option from the “Montage” menu. Select the “QEEG” option to record QEEG





eWave for Neurofeedback

4/6/8 channel EXG Recording System

What is Neurofeedback?

Neurofeedback, which is growing rapidly and becoming more popular, is a non-invasive technique of brain self-regulation. Neurofeedback is direct training of brain functionality, by which the brain learns to function more efficiently. In this method, the information is back to the person and her/his brain gets a reward for modifying its own activity to more appropriate patterns.

Neurofeedback is an effective and safe treatment process that allows patients to achieve long-term success in managing their symptoms. It is often used to treat psychiatric disorders, including ADHD, epilepsy, anxiety, depression, and insomnia, among other mental health disorders. Neurofeedback can also be used non-clinically for peak performance training, baseline data for sports players in case of head trauma/injury, certain sleep issues, memory enhancement, etc.

Neurofeedback can be helpful for :

- Stress
- Anxiety
- Attention Deficits (ADD/ADHD)
- Autism
- Depression
- Migraine
- Addiction
- Enuresis
- Obsession
- Inability to Learn
- Phobia
- Improving Learning
- Enhancing Memory
- Improving Speech and Language
- Improving Focus
- Increasing Alertness
- Achieving Peak Academic Performance
- Maximizing Work and Sporting Performance
- Getting Better Sleep
- Reducing Anxiety/Depression
- Reducing Stress

eWave for Neurofeedback

4/6/8 channel EXG Recording System

eWave is a multi-channel bio-signal amplifier, which has 4, 6, or 8 recording channels. This device provides a wide input sensitivity to record various bio-signals such as EEG, EMG, ECG, and EOG. Furthermore, external body sensors can be connected in order to record various biological signals. eLife Software, which is a user-friendly software that is compatible with the eWave device, is also offered by Sciencebeam company for visualization and analysis of recorded signals.
Enhancing the resolution of the analog to digital converter to 24 bit and having the sample rate of 1000 sample/second for all channels give you a highly precise view of the signals in a wide frequency range (0-500 Hz) Embedding our novel differential amplifier for all channels removes the common-mode noise. Also, DC wide-range low-gain amplifier prevents any possible saturation during movement.

Product Highlights

- 8 channels, 24 bit analog to digital converter
- Highly precise recording data (1 KS/S)
- Wireless transferring data
- Lightweight, portable, and easy to use
- Rechargeable battery, perfectly isolated
- 2 digital input channels, 2 digital output channels
- Empowered with GSR, BVP/HR, skin conductance, and temperature sensors
- Coming with eLife as an accurate and flexible software for data recording and analyzing bio-signals
- Compatible with many games and videos for Neurofeedback therapy
- Coming with a novel tool to control some toys by bio-signals in neuro/biofeedback therapies
- Dimensions (w x h x d): 117 x 66 x 20 mm
- Net weight 138 g

Neurofeedback

eWave for Biofeedback

4/6/8 channel EXG Recording System

What is Biofeedback?

Biofeedback is a self-regulatory technique in which the patient learns to voluntarily control the involuntary functions of the body. This intervention requires specialized equipment to convert physiological signals into meaningful visual and auditory feedback, as well as a trained biofeedback therapist to guide the treatment.

Receiving positive and negative feedback encourages patients to learn conditioning patterns and feedback learning models in the management of many disorders.

Biofeedback can be helpful for :

- Pervasive anxiety
- Phobia and fear
- Hypertension
- Hand sweating
- Tachycardia
- Sleep problems
- Irritable bowel syndrome
- Migraines and tension headaches
- Post-traumatic stress disorders

The biofeedback device is connected to the body by the eWave device through a set called Biosense, which is a set of biosensors that measures biological signals.

Product Highlights

- Up to 8 channels for simultaneous recording of biological signals
- Connectable to various kinds of eWave
- Very precise data capture with very low noise amplifier
- Finger and forehead blood volume pressure (BVP) sensor
- Function-based on diagnostic and therapeutic protocols
- Precise and powerful software for recording and analyzing data
- Equipped with temperature, pressure, respiration and skin resistance sensors
- Equipped with heart rate variability (HRV) recording system
- Cardiovascular sensors, surface EMG (electromyography), and EMG needle
- Ability to use pelvic floor sensors

eWave for EMG Biofeedback

What Is EMG Biofeedback?

EMG biofeedback is a method of retraining muscle by creating new feedback systems as a result of the conversion of myoelectrical signals in the muscle into visual and auditory signals. EMG uses surface electrodes to detect a change in skeletal muscle activity, which is then fed back to the user usually by a visual or auditory signal. EMG biofeedback can be used to either increase activity in weak or paretic muscle or it can be used to facilitate the reduction tone in a spastic one. EMG biofeedback has been shown to be useful in both musculoskeletal and neurological rehabilitation.

The Most important applications of EMG

- Pelvic floor rehabilitation
- Stroke rehabilitation
- Improves Bell's paralysis
- Strengthen muscles
- Sexual disorders
- Muscle spasm
- Bruxism
- Movement problems
- Cerebral palsy CP
- Anxiety and muscle tension
- Chronic pain
- Spinal cord injuries

eWave for EMG Biofeedback

Biofeedback For Pelvic Floor Muscle Retraining

Biofeedback for pelvic floor muscle retraining is a treatment to help patients learn to strengthen or relax their pelvic floor muscles in order to improve bowel or bladder function and decrease some types of pelvic floor pain. It is a painless process that uses special sensors and a computer monitor to display information about muscle activity. This information or "feedback" is used to gain sensitivity, and with practice, control over pelvic floor muscle function. An important part of pelvic floor biofeedback therapy is the consistent practice of pelvic floor muscle exercises at home. With biofeedback, an individual can learn to stop using the incorrect muscles and start using the correct ones.

Who can benefit?

Conditions that can be improved with pelvic muscle retraining include accidental bowel leakage (ABL), urinary incontinence, constipation that involves difficult or painful evacuation, and some types of pelvic floor pain.

The Most important applications of EMG

- Biofeedback, relaxation & muscle re-education purposes
- Relaxation of muscle spasms
- Prevention or retardation of disuse atrophy
- Increasing local blood circulation
- Maintaining or increasing range of motion
- Stroke rehab by muscle re-education
- Immediate post-surgical stimulation of calf muscles to prevent venous thrombosis
- Acute and ongoing treatment of stress, urge, or mixed urinary
- Incontinence where inhibition of the detrusor muscle through reflexive mechanisms may improve urinary control
- Incontinence treatment for assessing EMG activity of the pelvic floor and accessory muscles such as the abdominal or gluteal muscles

Bio sensor for EEG and biofeedback

Biosense

Respiratory sensor

Respiratory control is an important parameter for biofeedback therapy. Changes in breathing depth as well as the number of breaths per minute can be assessed using this sensor, which is placed in the chest or abdomen. This sensor is used to control anxiety spectrum disorders.

Skin temperature sensor

Skin temperature changes measured by a temperature sensor attached to the skin, indicates blood flow and blood pressure and is used to control stress and anxiety

Blood volume pressure sensor

Display the number of blood flow changes in the arteries as well as the heart rate used to control and treat blood pressure, headaches and migraines. This device comes in two types of finger and forehead.

Galvanic Skin Response (GSR)

Increased secretion of sweat glands by stimulating the sympathetic nervous system in various conditions causes a change in skin resistance. This sensor is used to measure dry skin resistance and control disorders such as anxiety, fear or phobia, PTSD, etc.

eLife software for Bio/Neurofeedback

Beneficial software for Neuro-Biofeedback therapy

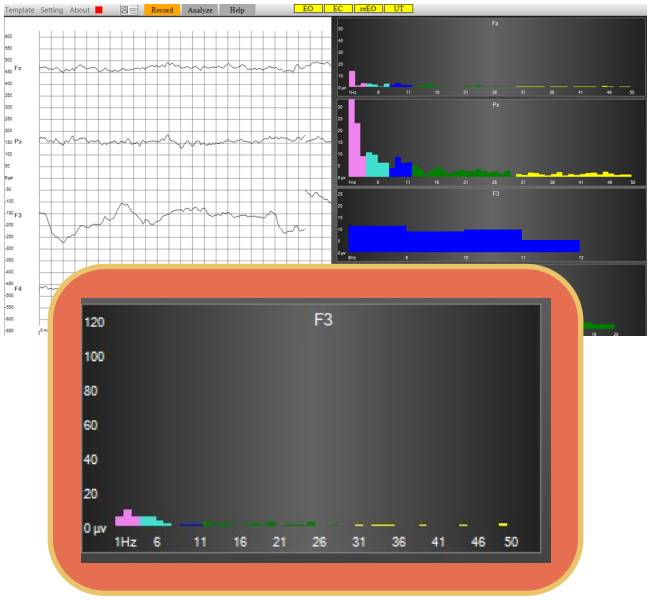
eLife provides you everything needed for Neurofeedback and Biofeedback therapy that comes with lots of protocols to overcome the different kinds of treatment. It is also compatible with our bio-sensors helping you have a rich biofeedback setup.

Online FFT Power of a different frequency

eLife provides you with a scope and a text panel to show the raw signal also its FFT power in your desired bands.

You can select one or multiple bands and see their corresponding quantities in the text panel.

By default, this panel shows the latest file that you have already recorded. However, you can change the analyzing file and other properties in the setting table.



Playing Video, Movie, Music, or Game

Biofeedback For Pelvic Floor Muscle Retraining

The Game components enable clients to play video, music, movie, flash, or game.

It plays based on the client's brain waves reflected on bar panels and according to the adjustments that you have specified.

Using this component, you can choose your desired game or movie. You also can modify the logic or rules of the game set to overcome the specific mental disease.

eLife

14 Reasons to Choose eWave System for Neurofeedback and Biofeedback

1: High-Quality Signal: The eWave system and the benefit of up-to-date electronic knowledge, this device utilizes the most powerful analog to digital converters (24-bit) and in addition to having a low cost, high input resistance and it has the highest technical quality.

2: Specification: High resistance, beautiful appearance and packaging make the eWave a standout among brands. It is highly resistant to blows and has successfully met all IEC standards.

3: Most modern Neurofeedback System: economic justification eWave is designed with the latest technology in the world.

4: Unlimited Biomedical Signals: Using eWave allows you to take unlimited muscle, brain, and heart registration without any need for extra sensors on EEG, ECG, EMG, ECoG. These two sensors are among the most expensive biofeedback sensors.

5: Real Channel Number: The number of eWave recording channels 2 or 4 and 8 are exactly the same as the device purchased. While many brands. For example, procomp2, unlike its name, has only one EEG recording channel and you need to purchase a sensor to activate the second channel – it also has no heart and muscle sensors and must be purchased separately.
As long as eWave2 has 2 channels for simultaneous recording of brain, muscle, and heart, it can connect to other sensors

6: Research: ScienceBeam as eWave System Provider has a history of nearly two decades in Iran and has published more than 2000 internationally accredited articles on equipment produced by ScienceBeam.

7: Modern Neurofeedback Therapy Technology: One of the unique features of eWave is the #SCP signal recording or slow cortical potential – this method of neurofeedback therapy is being developed in Europe and the cost of devices capable of doing so many times greater

8: Biofeedback Sensors: Blood Pressure-Volume Sensor, Temperature Sensor, Skin Position, Heart Rate, and Muscle Variability on the Surface and Pelvic Floor – All of these Sensors are Compatible with eWave rugby sense

9: Sophisticate Software: with unlimited ability to build clinical Q-based treatment protocol or brain mapping. Possibility to add unlimited videos and music – eLife Development of hybrid Neuro and Bio protocols, automatic eliminating artifact system, online and offline access for cognitive research

10: Cost-effective: According to the technical specifications of eWave device, the price of this product is quite an economical market.

11: Full support service: 18 months full warranty inclusive, device and all accessories, and 10 years after-sales service.

12: Accessories: eWave as has a Neurofeedback CAP gives you many times the need to evaluate and treat expensive 10-20 glue.

13: Training: ScienceBeam Institute Training Dept. is one of the most active neuroscience training centers in Asia – ScienceBeam has held more than 20 international workshops all over the world, celebrated hosting 500 domestic neurofeedback workshops -the teachers and lecturers are all with medical experience and the workshop is held in a very practical way. Training courses, debugging and retraining are also held.

14: Robotic System: eWave is the only commercial neurofeedback device capable of controlling Robots.

Specifications, EEG signal recording cap:

Accessory for EEG/Neurofeedback: eCap

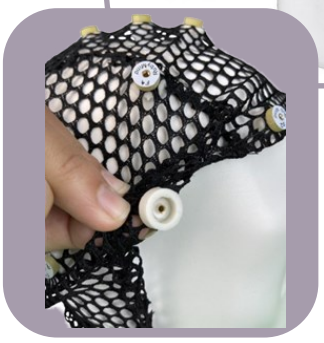
ScienceBeam offers a variety of eCaps in order to provide fast and consistent brain wave recordings.

eCaps are designed by ScienceBeam to provide maximum comfort with minimum mounting time.

eCaps can be used with chin straps to provide a more accurate and consistent recording.

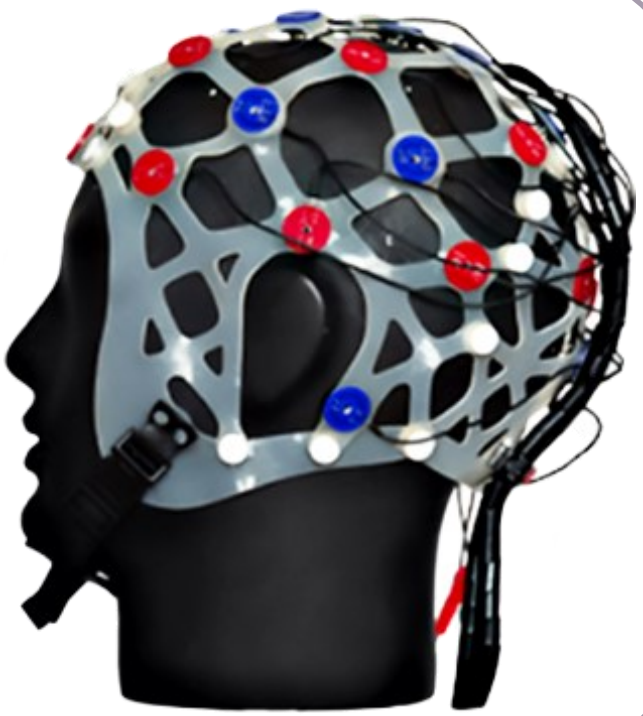
eCap Marker :

- Washable cap
- Long-term use without signal saturation
- Minimum mounting time for multi-channel recording
- Flexible material
- Reduce movement artifacts and electromagnetic interferences.
- No need to abrade the skin, injecting a small amount of gel is sufficient



eCap Marker consists of 19, 32, or 64 labeled standard positions (based on 10 -20 and 10-100 international systems) for EEG recordings. That is a Fabric cap that is flexible and robust.

eCap Flex :



- 19, 32 or 64 or 128 channels
- Ability to record EEG and fNIRS simultaneously
- Ag electrode material
- Has 3 bipolar channels
- Silicon Material

eCap Flex consists of 19, 32, or 64 or 128 labeled standard positions (based on 10-20 and 10-10 international systems) for EEG recordings. That is a silicone cap that is flexible and robust.

eCap Dry :

- 19, 32, or 64 channels
- Dry electrodes
- Silver(AG) electrode material
- Has 3 bipolar channels

eCap Dry consists of 19, 32, or 64 labeled standard positions (based on 10-20 and 10-10 international systems) for EEG recordings. That is a Silicone cap that is flexible and robust.

More Attractive Neurofeedback with eToy

Accessory for EEG/Neurofeedback: eToy

The first toy model of Neurofeedback

Sciencebeam offers a novel fantastic tool to control some toys for Neurofeedback therapy. Our novelty can accelerate

eToy:

- Bluetooth connection
- Can be used in neurofeedback and muscle biofeedback
- It has an internal battery and can be recharged via a USB charger

Accessory

Transcranial Direct Current Stimulation

eStim2:TDCS

tDCS is a form of neuromodulation that uses constant, low direct current delivered via electrodes on the scalp. It is designed to help patients with brain injuries or psychiatric conditions and major depressive disorder. tDCS is considered a safe, non-invasive brain, stimulation (IBS) with minimal risks of injury.

It transfers weak electrical current (0-2 mA) to specific regions of the brain via electrodes on the scalp, by either using the positive,e electrode or the negative electrode; to increase cortical activity, change neural activity and cortical excitability. tDCS is a safe, cost-effective small-size wearable device that, unlike rTMS, can be used at home.

eStim2:

- Portable
- Two separate channels
- Provides sham stimulations
- High quality
- LCD display
- Ability to pause and restart the session
- Support and after-sale services
- Special eMarker cap for accurate and fixed
- placement of electrodes
- Ability to continuously monitor the im-pedance
- of the electrodes for high safety

Transcranial Direct Current Stimulation

eStim2:TXCS

Central Pain Syndromes:

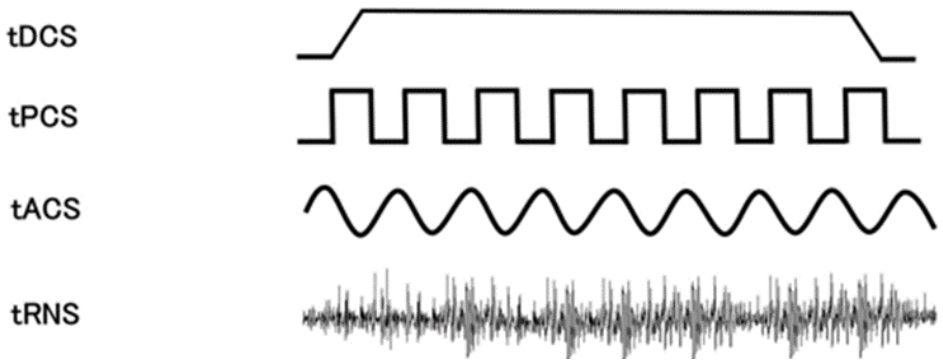
Research has shown tDCS assists those who suffer from fibromyalgia, spinal cord injury, phantom limb, and chronic post-stroke pain, by improving motor recovery, motor skills, and motor learning.

Attention, Memorization, and Learning:

tDCS aids with attention improvement, memory boost, and learning ability. It could also expand brain calculation speed as well as vocabulary learning ability.

Mood Swings, Sleep Disorders, Depression:

tDCS is designed to modulate sleep quality and improve sleep disturbances symptoms like insomnia. It is also a mood regulator and assists patients with mood swing problem. Additionally, tDCS helps with symptoms related to cravings, addiction, and eating disorders. Those who suffer from addiction or food-related disorders can benefit from this neuromodulation-based approach.



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Specifications:

- Number of channels: 2
- Treatments modes:

tDCS, tACS, tPCS, tRNS

- Intensity: 1 to 2 mA
- Starting time: 1-60 MS
- Session duration: 1-60 minutes
- Maximum output current: 2 mA
- Dimensions: CM 3*9.8*9.8
- Download info: FIFO Memory: 24 KB
- Power supply: Rechargeable lithium battery

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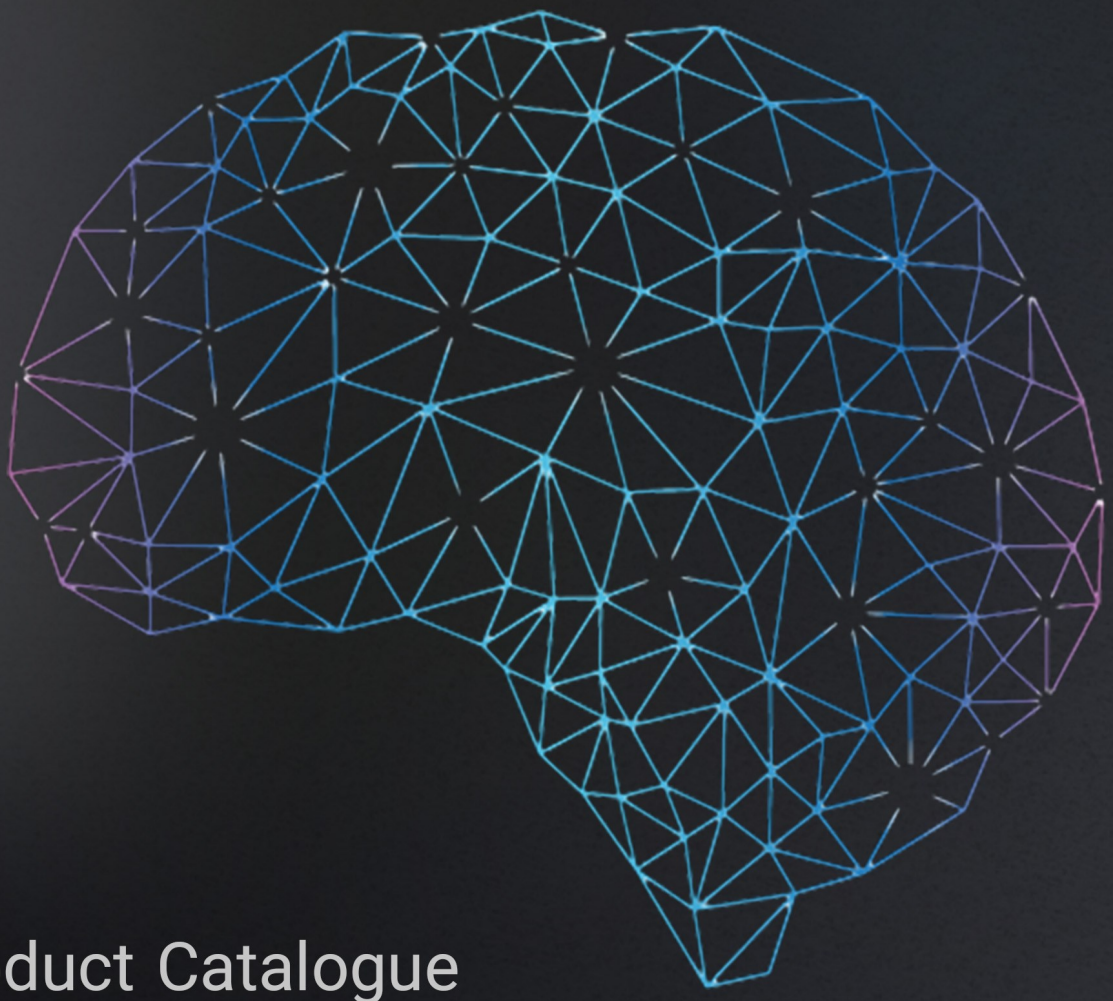
Electrophysiology Equipment

Technology Provider of Innovative Solutions for Neuroscience



Product Catalogue

EEG/QEEG
Neurofeedback
Biofeedback
tXS