



# Advanced EEG and biosignal technologies for real-world monitoring



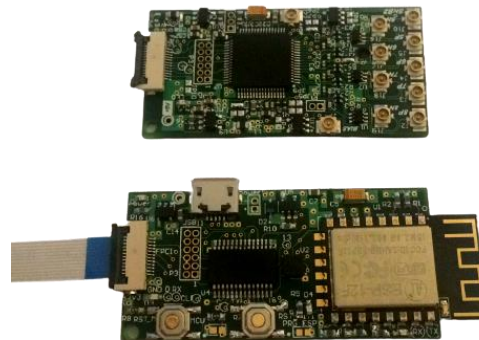
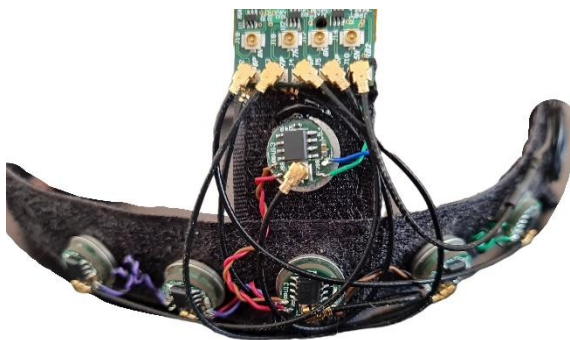
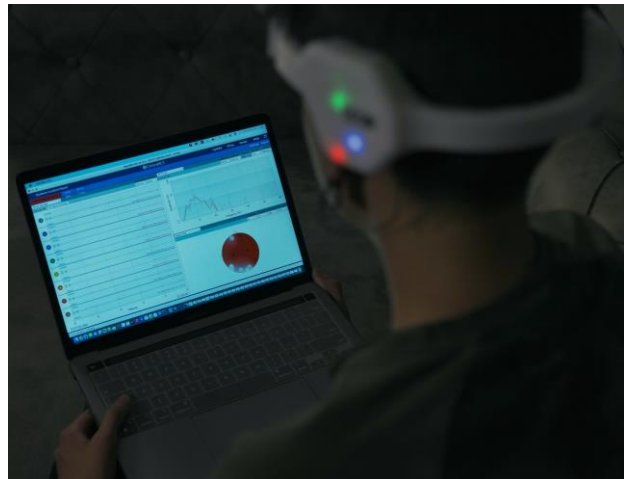
**IEEG Catalogue**





## EEG Definition

An EEG, or **electroencephalogram**, is a test that records the brain's electrical signals by using small metal discs (called electrodes) that are attached to your scalp. Your brain cells communicate with each other using electrical impulses. They're always working, even if you're asleep. That brain activity will show up on an EEG recording as wavy lines. It's a snapshot in time of the electrical activity in your brain. EEGs are used to diagnose conditions like: Brain tumors, damage from a head injury, brain dysfunction from various causes (encephalopathy), Inflammation of the brain (encephalitis), Seizure disorders including epilepsy, sleep disorders, and Stroke. An EEG may also be used to determine if someone in a coma has died or find the right anesthesia level for someone in a coma.



IIEG-8X 10-20 system EEG recorder

## Brain Computer Interface Definition

What does **BCI** mean? A BCI (**Brain-Computer Interface**) is a technology that sends and receives signals between the brain and an external device. Brain-computer interfaces are also called brain-machine interfaces. BCIs collect and interpret brain signals and then transmit them to a connected machine that outputs commands associated with the brain signals received.



A simplified BCI definition might describe the technology as “a direct communication link between the brain and an external device.” This connection is a two-way link (a bidirectional interface). One direction involves a BCI sending brain activity to a computer and the computer translating brain activity into motor commands. Communication can also happen in the other direction – where the computer sends information directly to the brain of the BCI user. This is called active BCI, where there is a direct brain connection, compared to passive BCI, which is non-invasive.

### Portable and wireless EEG system

IEEG-8/16X is a portable **dry/wet-EEG system designed for real-world applications** that require **great comfort** and unobtrusiveness for the user, as well as an **agile setup** and **outstanding signal quality** for the researcher. Developed with **8 or 16 dry or wet electrodes** over different areas of the brain (the location of the electrodes can be changed). Its high-performance active shielding and stable mechanical design provide outstanding robustness and signal quality, even with movement or during long recording periods.

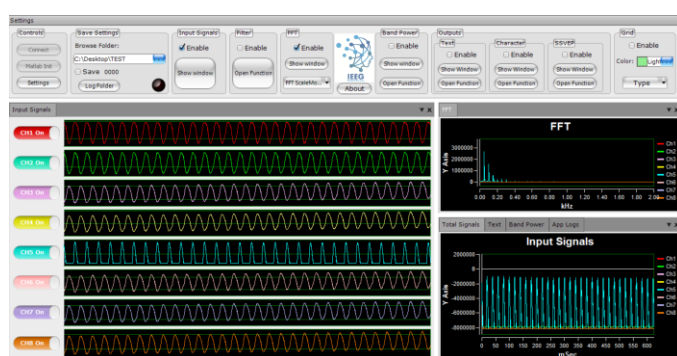


**IEEG-8X headset optimized for the estimation of basic emotional and cognitive states with 8 dry-EEG sensors over pre-frontal and occipital brain areas.**

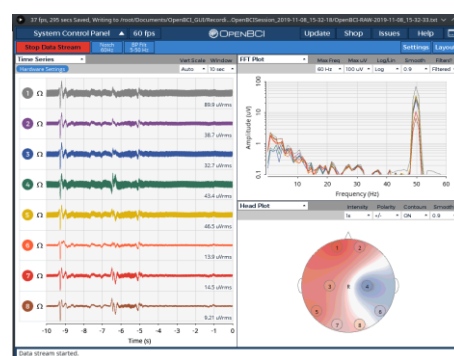




This dry electrode EEG technology can be easily self-placed in less than 3 minutes by the final user by technical or non-technical experts. This feature, combined with great comfort and reliability, **is opening the door to neuroscience research in real-world applications and real-life brain-computer interface products** operated everywhere by final users, families, or assistants. **IEEG-8/16X** comes with **IEEG Software Kit** for EEG signal acquisition, processing, and programming, which has extensive compatibility with real-time I/O and third-party data processing (LSL, MATLAB, Python, OpenVibe, OpenBCI, etc.).

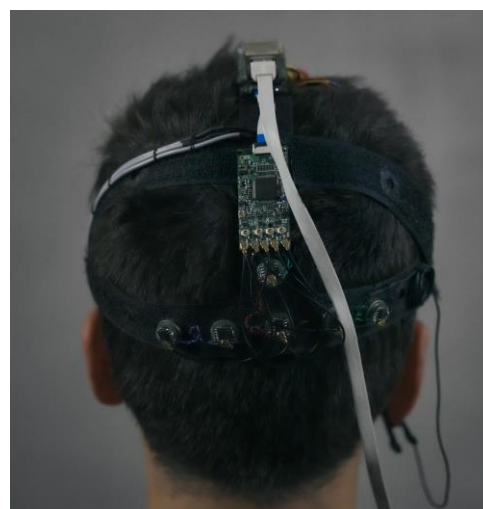


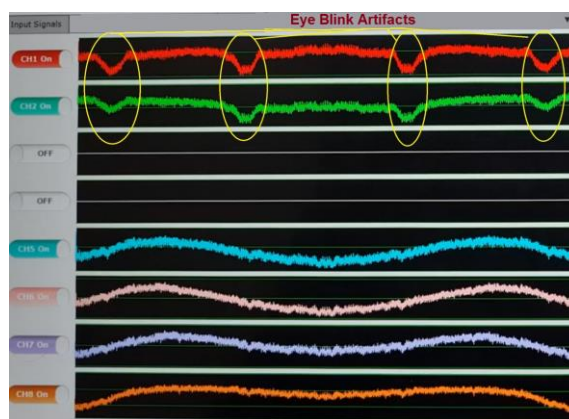
BCI Studio



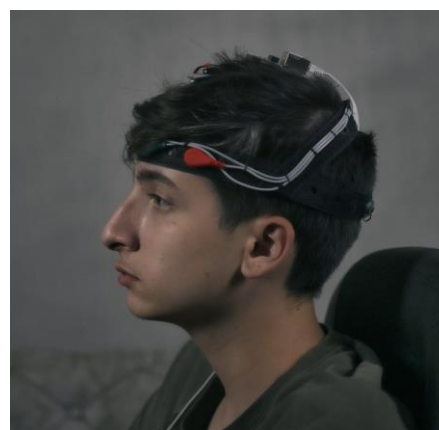
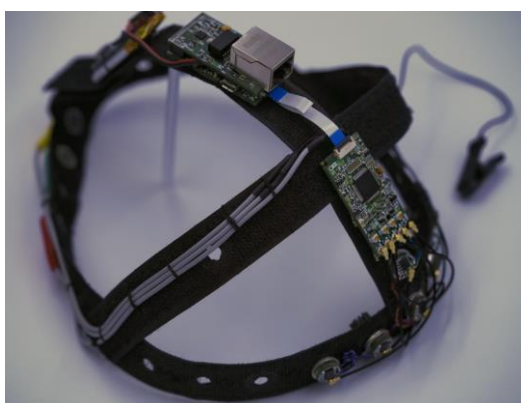
OpenBCI GUI

Clean, quick, and easy set up by non-technical personnel in just a few minutes. This dry-EEG system does not require expenses on consumables (jars of gels, syringes, shampoo, etc.), and there are no additional maintenance costs. It comes with an intuitive, robust software platform for signal acquisition with visual cues to assure quality montage and EEG monitoring.





The effect of blinking and sampling the alpha signal by displaying it in the frequency domain.



IIEG-8/16X headset optimized for the estimation of basic emotional and cognitive states with 8/16 dry-EEG sensors over pre-frontal, frontal, parietal and occipital brain areas.

## APPLICATIONS



BCI-based Wheelchairs



BCI Research



SSVEP Speller



BCI GAMES



BCI-based Robot



BCI-based hospital bed





## Technical specifications

<i>Hardware</i>	<i>IEEG-PRO</i>	<i>IEEG-16A</i>	<i>IEEG-8A</i>	<i>IEEG-8B</i>
<i>EEG channels</i>	32/64/128/...	16	8	8
<i>Resolution</i>	24 bit	24 bit	24 bit	24 bit
<i>Sampling rate (KSPS)</i>	0.25~16	0.25~1	0.25~1	0.25~16
<i>CPU frequency</i>	1200MHz	50MHz	50MHz	480MHz
<i>Data transmission</i>	LAN(UDP)	WIFI (2.4GHz)	WIFI (2.4GHz)	LAN(UDP)
<i>Integrated sensors</i>	accelerometer	accelerometer	accelerometer	×
<i>GUI</i>	BCI Studio/MATLAB	OpenBCI GUI	OpenBCI GUI	BCI Studio/MATLAB
<i>Type of sensors /electronics</i>	Dry & wet electrodes	Dry & wet electrodes	Dry & wet electrodes	Dry & wet electrodes
<i>Active Shielding</i>	✓	✓	✓	✓
<i>Change the gain of input channels</i>	✓	✓	✓	✓
<i>Noise</i>	<1μVRMS	<1μVRMS	<1μVRMS	<1μVRMS
<i>CMRR</i>	>100 dB	>100 dB	>100 dB	>100 dB
<i>Input voltage</i>	9~12v	3.7~5v	3.7~5v	3.7~5v
<i>Dimension</i>	-	23*50*17mm	23*50*13mm	23*50*26mm
<i>PCB layers</i>	6	6	6	6
<i>Electrode connector</i>	U. FL or etc.	U. FL	U. FL	U. FL
<i>Data backup</i>	Computer .mat file or etc.	SD Card .txt file	SD Card .txt file	Computer .mat file
<i>Warranty</i>	2 years	2 years	2 years	2 years
<i>Price (USD)</i>	Contact Us	1499\$	949\$	949\$