

actiChamp and PyCorder

Increase your neurophysiology research opportunities!

actiChamp: Our all-in-one research amplifier is now available at a great price!

actiChamp is a revolutionary development that integrates high-end components for electrophysiological (EEG/ERP, ExG, BCI, etc.) research in one easy to use, highly versatile, and affordable system.



actiChamp (Product similar to picture)

The actiChamp (active channel amplifier) is a **24-bit battery-supplied** amplifier that can be used with **32, 64, 96, 128 and 160 EEG channels**. **Additional 8 AUX inputs** are integrated in the basic module of the amplifier. The AUX channels can be used with a full range of biosignal sensors, such as **GSR, EOG, EMG, ECG, respiration, acceleration, temperature, blood pulse, photosensor, microphone, etc.**

Thanks to its **high sampling rate** of up to **100 KHz** and **wide hardware bandwidth**, the actiChamp sets new standards for neurophysiology research amplifiers. A simple **plug and play** concept makes it extremely easy to **increase number of channels** by adding modules of 32 channels each up to a maximum of 160 channels.

Upgrading your amplifier with additional channels can be done onsite, in 5 minutes.

actiCAP* electrodes


The electrodes used to record ExG signals with the actiChamp are the actiCAP active electrodes. The state of the art active electrode system features:

- ✓ **Impedance indication**** via noise-free display at each electrode by using 3-color LEDs.
- ✓ Rapid cap mounting and electrode preparation – **fastest to apply active system** on the market. A slit in the electrode housing allows to inject gel and minimize the impedances while the cap and the electrodes are already in place.
- ✓ Plugging electrodes into the cap before the cap is placed on the subject.
- ✓ Mechanically **sturdy, heavy-duty, and water-proof** electrodes and cables.
- ✓ Quick and easy exchange of faulty electrodes
- ✓ **Fully customizable caps** and electrode montages with high-comfort (softer) or high-precision (more durable) cap fabric options.
- ✓ actiCAP electrodes come with a **2-year warranty**.

** US patent pending*

***Kappenman, E. S., Luck S. J. (2010). Psychophysiology, 47 (5): 888-904*

PyCorder:  **python[™]-based open source acquisition software free of charge!**

The PyCorder is a real **open-source** acquisition program, based on the  **python[™]** programming language, for setting up the BrainVision actiChamp amplifier and storing data.

The PyCorder software offers users **unlimited control** of the running processes. Users can intervene at any point in the data acquisition step and configure the PyCorder according to their scientific requirements.

The PyCorder not only allows to modify recording settings, but also permits **user-defined modules** to be integrated depending on the given research application.

Indeed, the **source code** is available to every customer, so that the acquisition software can be improved and adapted to meet individual needs.

PyCorder integrates **seamlessly** with **BrainVision Analyzer 2**, the most popular commercial analysis software for neurophysiology research, but also with **EEGLAB, ERPLAB**, and other mainstream analysis products, making it very simple for you to read and process the data. Also, actiChamp is designed to analyze data in real-time for **BCI/Biofeedback** using any RDA client (e.g. **BCI2000, OpenViBE, BCILAB, BCI2VR, MATLAB®, C/C++, Python**).



Technical Specifications for actiCHamp

Sampling Rates (in combination with BrainVision PyCorder)	100 kHz (16 channels) 50 kHz (32 channels) 25 kHz (64 channels) 10 kHz (96 - 160 channels)
Sampling Rates (in combination with BrainVision Recorder 1.20 and higher)	100 kHz (16 channels) 100 kHz (32 channels) 50 kHz (64 channels) 25 kHz (96 - 160 channels)
Number of EEG channels	32, 64, 96, 128 or 160
Number of AUX channels	8*
Bandwidth (at 100 kHz sampling frequency)	EEG: DC - 8.000 Hz or DC - 20.000 Hz (depending on version) AUX: DC - 20.000 Hz
A/D-Conversion	24 bit, one converter / channel
Input Noise	≈ 2 µVpp (0,1 - 30 Hz) for EEG channels
Input voltage range	EEG: ±400 mV; AUX: ±4.8 V
Common Mode Rejection (CMR)	> 100 dB
Trigger Input / Trigger Output	8 bit / 8 bit
Active Electrodes	yes

* Large variety of different sensors available (including third party sensors).

System requirements for PyCorder

Operating System: Windows® 7 / Windows® 8, 32 or 64 bit; Windows® overall performance index > 5,0
Intel® Core™ 2 Quad processor, 2.4 GHz or compatible
3 GB RAM (for 32 bit OS), 4 GB RAM (for 64 bit OS)
Graphics adapter with 1280 x 1024 pixel resolution and at least 512 MB internal memory

Technical changes can be made without prior notification.
Please visit www.brainproducts.com for up-to-date technical specifications.

Please note:

actiCHamp and PyCorder are intended to be used for research applications only and are not sold, designed or intended to be used as medical devices as defined in EU Directive 93/42/EEC, nor are they intended to be used for other medical applications such as diagnosis or treatment of disease. The entire software is open source and the hardware is freely configurable. Brain Products shall not be liable for any use other than pure scientific and research applications. The actiCHamp hardware has been tested and certified as per the relevant EMC and electrical safety standards. A non-medical CE certificate is available on request.

System Components actiCHamp:

- actiCHamp base module (with eight AUX inputs)
- up to five 32-channel modules (expansion cards that are inserted into the base module)
- rechargeable battery and charger (incl. all required connection cables)
- USB2 cable and trigger cable
- up to five actiCAP electrode branches (each with 32 EEG electrodes and a ground electrode)
- 4 caps with electrode holders
- 2 replacement electrodes per 32 channel module
- 2 flat electrodes (acti32CHamp and acti64CHamp) or 4 flat electrodes (acti96CHamp - acti160CHamp)
- 1 photosensor (basic) with AUX adapter
- extended starter set (gel, nozzle, adhesive rings & more)
- carrying case
- operating instructions
- access to actiCHamp/PyCorder Support Forum

System Components PyCorder:

- open source software (GPL) „PyCorder“
- user manual
- access to actiCHamp/PyCorder Support Forum

actiCHamp user prices (US\$) for US customers:

actiCHamp 32 (32 EEG + 8 AUX)	28,460
actiCHamp 64 (64 EEG + 8 AUX)	39,900
actiCHamp 96 (96 EEG + 8 AUX)	52,900
actiCHamp 128 (128 EEG + 8 AUX)	64,000
actiCHamp 160 (160 EEG + 8 AUX)	77,100



Further information can be obtained from your local distributor Brain Vision LLC or directly from:

Brain Products GmbH
Zeppelinstrasse 7
82205 Gilching
Germany

Tel. +49 (0) 8105 733 84 0
Fax +49 (0) 8105 733 84 505
sales@brainproducts.com
www.brainproducts.com

