

Measuring and Modulating Brain Activity



neuroConn NEURO PRAX[®] TMS/tES

TMS/tES-compatible full-band DC-EEG biofeedback system

NEURO PRAX[®] TMS/tES systems measure physiological signals such as EEG, EMG, and EP simultaneously and synchronously for all channels. Unique amplifier technology captures EEG activity from ultraslow (0 - 0.3Hz) to ultrafast (80 - 1,200 Hz) frequencies. The high amplifier dynamics and the high sampling rate make the NEURO PRAX[®] TMS/tES system particularly suitable for EEG measurement during transcranial magnetic stimulation (rTMS) and transcranial electrical stimulation (tES) with tDCS, tACS and tRNS.

Our high-performance full-band DC-EEG amplifiers are available with 32, 64 or 128 channels. They provide a wide range of optional software-based functions such as the online correction of artifacts caused by muscle and eye movements, topographical analyses, spectral and amplitude mapping and online averaging.

Areas of application/treatments

Biofeedback	DC-EEG biofeedback system, quantitative EEG, cognitive evoked potentials
TMS/MEP	MEP threshold detection, MEP brain mapping (via the TMS navigation system Brainsight [®])
tES/rTMS-EEG	Quantitative EEG analysis and cognitive evoked potentials before, <u>during</u> and after transcranial stimulation, examinations relating to the safety of transcranial stimulation
TMS-EEG	Recording and analysis of cortical and subcortical TMS-EEG activities, examination of the functional connectivity between areas of the brain, examination of TMS-induced modulation of brain rhythms, EEG-triggered TMS stimulation

Moving thought

neuroCare 

NEURO PRAX[®] TMS/tES features

- 32-channel full-band DC-EEG biofeedback system (64, 128 channels)*
 - Channel type (EEG, EMG, ECG) selectable via software
 - Non-referential storage of raw data
 - Specially for measuring during transcranial magnetic stimulation (TMS) and transcranial electrical stimulation (tDCS, tACS, tRNS)
 - Recovery time 3-5 ms after TMS impulse
 - Real-time correction of artifacts from TMS and electrodes
 - Suitable for polygraphy and polysomnography
 - Simple and intuitive user interface
 - EEG mountings and event markers freely selectable
 - Patient database with medication and examination calendar, complete documentation of readings
 - Topographical analysis, spectral and amplitude mapping
 - Connection of external triggers
- * optional

NEURO PRAX[®] TMS/tES specifications

full-band DC-EEG and BIOSIGNAL AMPLIFIER

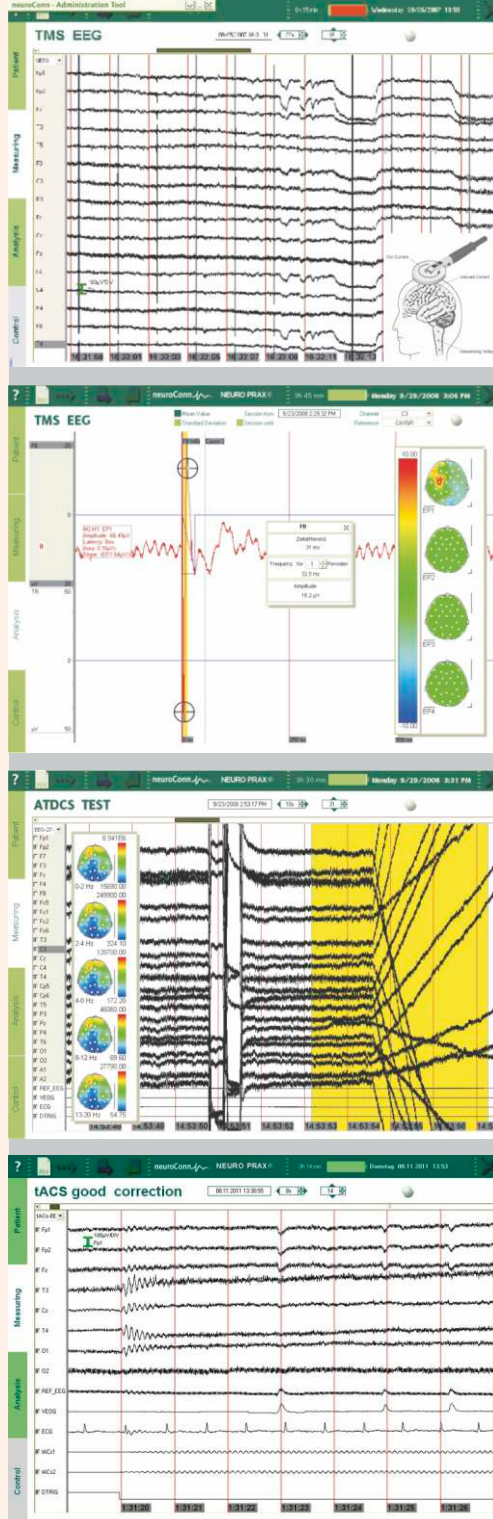
- 32 full-band DC-channels (64, 128 channels)*
 - Input impedance > 10 G W
 - 24-bit resolution per channel
 - Selectable sampling rates of 64 to 4,096 sps
 - Frequency range of 0 to 1,200 Hz @ 4,096 Hz sampling rate
 - Common mode rejection rate (CMRR) > 90 dB @ 50 Hz
 - Dynamic input range approx. ± 219 mV
 - Input noise < 0.9 µV (RMS) @ 0 - 110 Hz at 256 sps
 - Max. power consumption 1.5 W
 - Power supply via built-in rechargeable batteries
 - Continuous operation time > 8h
 - Applied part BF
 - Dimension: 290 mm x 130 mm x 200 mm (W x D x H)
 - Weight: 4.2 kg (incl. batteries)
 - Data transmission via optical fiber
 - Electrode input box, incl. connector cable (32, 64, 128 channels)
- * optional

PANEL-PC

- Powerfull Intel[®] Core™ Duo processor, 1 GB RAM, 160 GB hard disc, USB2.0, ethernet interface (LAN), min. 15" TFT color monitor, keyboard, mouse
- Operating system WINDOWS[®] 7 (and later)
- Dimensions: 420 mm x 365 mm x 170 mm (W x D x H)
- Weight: 11.6 kg (incl. stand)
- Operating voltage: 110-240 V @ 50/60 Hz AC

NEURO PRAX[®] TMS/tES options and system extensions

- Module to correct EEG artifacts (blinking, eye movement, body movement) in real time (not with TMS)
- Module TMS-MEP threshold detection
- Module for cognitively evoked potentials: CNV, P300, ERN, CPT-OX, and readiness potential
- NEURO PRAX[®] TMS/tES examination license from other PCs
- Module for online data access via Ethernet by TCP/IP
- Export module for exporting measured data in other formats
- Module for data access within MATLAB[®]/Simulink[®], LabVIEW[®], C/C++
- Optical trigger input module system extension
- Feedback module system extension (additional monitor)
- Rechargeable battery pack
- Equipment trolley



neuroCare Group GmbH
Rindermarkt 7
80331 München
Germany

T +49-89-215 471 299 5
F +49-89-215 471 299 1
info@neurocaregroup.com
www.neurocaregroup.com

neuroConn GmbH
Albert-Einstein-Straße 3
98693 Ilmenau
Germany



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