

NEURO PRAX[®] TMS/tES

Measuring and Modulating Brain Activity

for neuroscience applications



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 - 0.3 Hz) 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 [®])
TMS-EEG	quantitative EEG analysis and cognitive evoked potentials before, during and after transcranial stimulation, examinations relating to the safety of transcranial stimulation
tES/rTMS-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

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

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

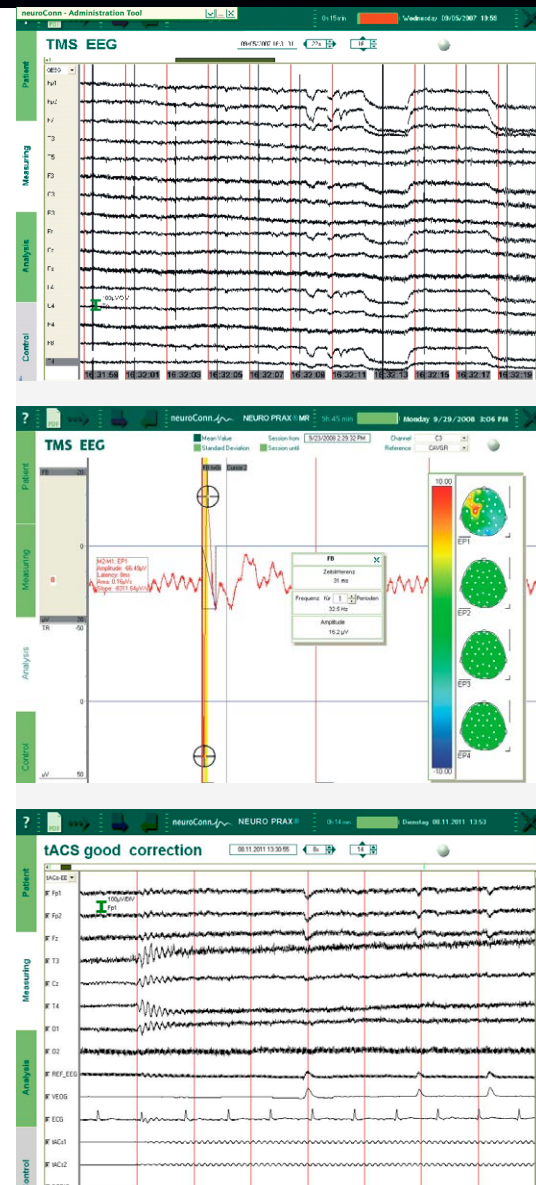
NEURO PRAX® TMS/tES Specifications

Full-band DC-EEG- and biosignal amplifier

- 32 full-band DC-channels (64, 128 channels)*
 - input impedance > 10 G
 - 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 μ V (RMS) @ 0 - 110 Hz at 256 sps
 - max. power consumption 1.5 W
 - power supply via built-in rechargeable batteries
 - continuous operation time > 8 h
 - applied part BF
 - dimensions in mm: 290 x 130 x 200 (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

- powerful Intel™ Core Duo processor, min. 1 GB RAM, 160 GB hard disc, USB 2.0, ethernet interface (LAN), min. 15" TFT color monitor, keyboard, mouse
- operating system WINDOWS® 10 (and later)
- operating voltage 100-240 V @ 60/50 Hz AC
- dimensions in mm: 420 x 365 x 170 (W x D x H)
- weight: 11.6 kg (incl. stand)



neurocare group AG
Rindermarkt 7
80331 Munich, Germany
info@neurocaregroup.com
Tel.: +49-89-356 4767 0
www.neurocaregroup.com



neuroConn GmbH
Albert-Einstein-Str. 3
98693 Ilmenau, Germany



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