



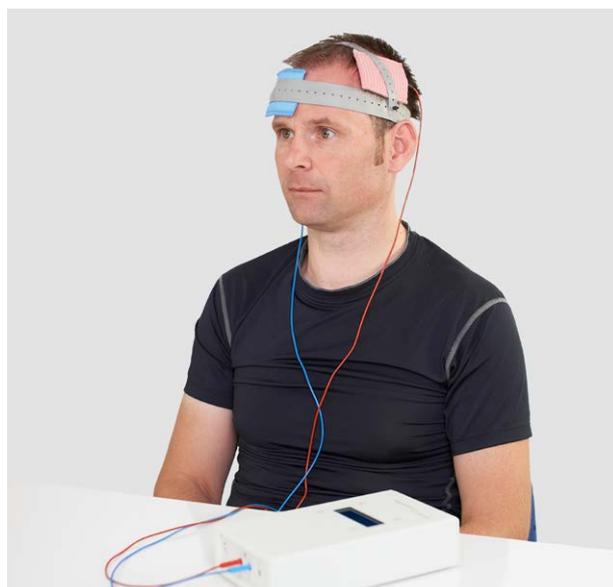
Modulating brain functions with the neuroConn DC-STIMULATOR

Leading technology for transcranial electrical stimulation in neuroscience research

Relevance of tES in scientific research

Non-invasive transcranial electrical stimulation (tES) is known to modulate brain activity in both healthy subjects and patients with neurological or psychiatric disorders. Physiological and functional effects can be demonstrated by using brain stimulation techniques under certain tasks or in combination with neuroimaging methods, such as EEG, MEG and fMRI.

neuroConn, the technology brand of the neurocare group, provides a highly sophisticated and unique range of transcranial electrical stimulators covering all requirements for research. These devices and their applications allow users maximum flexibility and research validity.



Range of DC-STIMULATORS	PLUS	MR	MC	MOBILE
number of independent channels	1	1	1-16	1
each channel programmable	x	x	x	x**
tDCS	x	x	x	x
tACS/tRNS	x	x	x	x**
suitable for EEG-tDCS	x	x	x	-
suitable for EEG-tACS	x	-	x	-
suitable for fMRI-tES	x*	x	x*	-
Laplace-tDCS	x	x	x	-
suitable for double-blind studies	x	x	x	x
trigger input	x	x	x***	-
trigger output	x	x	x	-
remote access	x	x	x	-

* yes with MR-extension

** by manufacturer according to customer requirements

*** via remote access

DC-STIMULATOR PLUS for tDCS, tACS, tRNS

Pioneering technology, integrating tES with neuroimaging techniques

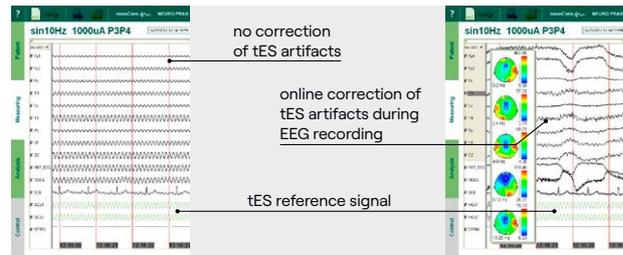
- neuroConn is the pioneer of tACS, tRNS, tDCS-fMRI, EEG-tDCS and EEG-tACS/tRNS. For over 10 years we have developed the technology for these innovative techniques in close cooperation with the leading tES researchers in Germany and worldwide.
- neuroConn DC-STIMULATORs are used in 80% of all publications with tES and in the largest depression and stroke trials worldwide.
- all neuroConn DC-STIMULATORs are approved to the highest safety standards in the medical electrical device industry.



The DC-STIMULATOR MOBILE: safe and comfortable handling, ideal for use in study routines



DC-STIMULATOR MR: tested for 1.5 and 3 Tesla scanners



A globally unique solution for neuroscientists: DC-STIMULATOR PLUS integrates with NEURO PRAX[®] TMS/tES for artefact-free EEG-tACS

Technology for use in double-blind studies

neuroConn DC-**STIMULATOR**s are particularly suited for use in double-blind sham-controlled trials. The DC-**STIMULATOR** MOBILE is the latest innovation, facilitating the handling for researchers and participants in clinical trials whilst ensuring the highest patient safety. The device applies a predefined, unchangeable stimulation sequence under fully-blinded verum and sham conditions. The cloud-based stimulation database allows remote clinician / researcher supervision.

Multi-channel stimulation

The globally unique multi-channel DC-**STIMULATOR** MC allows for computer-controlled, full-band stimulation from independent electrical sources. The device is used for controlled simultaneous tES or sham stimulation of patient groups, multi-channel stimulation of selected regions of the brain and validation of tES with fMRI or EEG.

Simultaneous tDCS/tACS with EEG

tES-EEG is often applied in neuroscience research to evaluate the modulation of oscillatory brain activity and cerebral plasticity during stimulation.

The neuroConn DC-**STIMULATOR** PLUS delivers a galvanically isolated reference signal of the applied stimulation. The full-band DC-EEG device NEURO PRAX[®] TMS/tES uses this signal to eliminate artefacts induced by the stimulation from all EEG channels in real time.

Some research milestones with neuroConn DC-STIMULATOR

- tACS: Antal A. et al., Brain Stimul., 2008
- tRNS: Terney D. et al., J Neurosci., 2008
- MRS-tDCS: Stagg C.J. et al., J Neurosci., 2009
- fMRI-EEG: Moser E. et al., Sensors, 2010
- fMRI-tDCS: Antal A. et al., NeuroImage, 2011
- EEG-tDCS: Sehm B. et al., J Neurosci. Methods, 2013
- EEG-tACS: Schlegelmilch F., Clin Neurophysiol., 2013
- MEG-tDCS: Soekadar S.R. et al., Nat Commun., 2013

neurocare group AG

Albert-Einstein-Str. 3 | 98693 Ilmenau | Germany
T +49 3677 68 979 0
sales@neurocaregroup.com
www.neurocaregroup.com

Combining tES with neuroimaging techniques

Neuroimaging techniques such as fMRI, MRS and PET are capable of precisely identifying cortical activation sites due to their reliable spatial resolution. neuroConn DC-**STIMULATOR**s with MR extension allow for simultaneous tES during neuroimaging. This combination can provide evidence of brain regions affected by the stimulation and how functional interactions between brain regions are modulated.

DC-STIMULATORs - well-established in clinical and neuroscientific research

neuroConn tES technology is applied in leading research centers worldwide, investigating neuroscientific aspects and the clinical application of tES; among these are the pioneers of tES at the Universities of Göttingen, Munich, Boston, London, Oxford, Sydney and São Paulo.



Empowering best practice

Through our global network of scientists, clinicians and engineers, we offer online theoretical courses which can be followed up by a practical training day onsite at neurocare, or by arrangement with your practice or institution.

Start an online course today by visiting www.lms.neurocaregroup.com

Courses for neuroscientists offer in-depth knowledge on the scientific application of neuromodulation and its combinations with neuroimaging techniques. Furthermore, our experts provide technical supervision for your research and support you with their methodological expertise.