The DC-Stimulator MC is a stimulator for use in scientific research that provides a stimulation using weak direct or alternating current (transcranial Electrical Stimulation tES) within non-invasive interventional Neurophysiology. The electrical charge and current density applied through a constant current source are far below the threshold for releasing a stimulus. Depending on the duration, the used current, the current density, and the frequency the stimulation has a modular effect on existing neuronal elements by either activating or inhibiting cortical activity.

The multi-channel DC-STIMULATOR MC allows computer-controlled, full-band stimulation from independent electrical sources using any desired signal type in the range of 0-1,000 Hz and currents of between 50-4,000 µA with a freely adjustable phase. The DC-STIMULATOR MC can also be used during functional magnetic resonance imaging (fMRI) and, in addition, can be combined with the NEURO PRAX® TMS/tES allowing full-band DC-EEG to be recorded during multi-channel tES.

Areas of Application/Treatments

- **Research, hospitals and surgeries**
  - Controlled, monitored and simultaneous tDCS/tACS/tRNS stimulation or sham stimulation of patient groups / multi-channel tDCS/tACS/tRNS stimulation
- **Analysis and stimulation of the ROI**
  - Software-controlled, multi-channel stimulation of selected regions of the brain and validation of tES with the help of functional magnetic resonance imaging (fMRI)
- **Analysis and stimulation**
  - Development and evaluation of user-specific stimulation sequences

**Moving thought**
DC-STIMULATOR MC Features

- 4/8 programmable, micro-processor-controlled constant current sources using independent channels (16 channels*)
- For transcranial direct current stimulation (tDCS), transcranial alternating current stimulation (tACS), cranial electrical stimulation (CES), galvanic vestibular stimulation (GVS) and transcranial random noise stimulation (tRNS)
- 4/8 channels, capable of alternating current, bipolar stimulation possible (16 channels*)
- Medical panel pc for the use and programming of stimulation modes and stimulation sequences
- Various types of stimulation can be selected and combined, continuous stimulation, cyclic switching on and off of stimulation, sinusoidal stimulation (up to 1,000 Hz)
- Import of any stimulation sequences into the software to control the DC-STIMULATOR MC with customer-specific signal sequences*
- High safety standard through multistage monitoring of the current path
- External trigger input*  

  * optional

DC-STIMULATOR MC Specifications

- Currents and wave forms of up to ±4,000 μA
- AC current adjustable up to 8,000 μA (peak-to-peak)
- Frequencies of up to 1,000 Hz selectable and phase freely adjustable
- Freely selectable application duration
- 16-bit D/A conversion
- Time resolution < 1 ms (sample rate 24,000 sps)
- Recording of stimulation sequences with 8,000 measurements/second
- Max. 1 % relative direct current fault tolerance
- Max. 0.02 % direct current fluctuation
- Current variance during stimulation < 0.02 %
- Voltage limit of 30 V
- Power supply via external medical power supply unit
- Dimensions: 420 mm x 395 mm x 170 mm (W x D x H)
- Weight: 4.2 kg

fMRI Add-on for DC-STIMULATOR MC

- Use of the DC-STIMULATOR MC in fMRI
- No interference of the fMRI images during EPI sequence

DC-STIMULATOR MC Option

- Trigger Out to control external devices
- Remote control of the DC-STIMULATOR MC*
- Generation of arbitrary wave forms
- Stimulation via ROI as well as modeling of the current flow

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