3.3 Device Specifications (Technical description)

Number of channels	1
Stimulation modes	tDCS, tACS, tRNS, Analogue Input Mode
Sham mode	Single-blind and Double-blind
tDCS Parameters	
Stimulation current	max ±4 mA (increment 1µA)
Stimulation duration	1-1800s (increment 1s)
Fade-in/out	0-60s (increment 1s)
tACS Parameters	
Amplitude of stimulation current (peak-to-peak value)	max 4 mA (increment 1µA)
Offset	max ±3 mA (increment 1µA)
Stimulation duration	1-1800s (increment 1s)
Fade-in/out	0-60s (increment 1s)
Frequency (carrier)	0.01-600Hz (increment 0.01Hz)
Frequency (modulation)	0-300Hz (increment 0.01Hz)
Modulation index	0-100%
Samples per period	256 (for carrier frequency <300Hz and 128 for carrier frequency ≥300Hz)
tRNS Parameters	
Sample value range	±(200 - 4000)µA (increment 1µA)
Stimulation duration	1-1800s (increment 1s)
Fade-in/out	0-60s (increment 1s)
Noise distribution	rectangular, gaussian
Predefined filters	LP: 100Hz, 250Hz, 640Hz, OFF HP: 50Hz, 100Hz, 250Hz, OFF
Analogue Input Mode Parameters	

Transfer ratio	2mA per V
Current range	±4 mA
Analogue Bandwidth	1kHz (-3dB)
Triggers IN and OUT parameters	
Signal parameters	TTL or 5V CMOS compatible
Other Features	
User programs	1. Creating predefined stimulation programs (PRESET) 2. Directly controlling the protocol through the application interface (API)
Accuracy of current setting	<5% for current <1mA, <1% for current >1mA
Voltage max.	35V
Device rated power	3W
Interface	Touch screen display, control by PC-USB
Digital inputs and outputs	2 digital inputs 3 digital outputs
Analogue Outputs	Main: 0.5V per mA (single ended output) Low level: 2.5mV per mA (differential +,- & GND)
Power supply	Built-in rechargeable battery, total charge typ. 10Ah operating time up to 10h
Mains power adapter (Charger)	Included in the set (Mean Well part number GEM18I05-P1J), 5V/3A DC output 2x MOPP medical safety 80-264VAC 47-63Hz mains input, AC current 0.45A at 115VAC, 0.25A at 230VAC Touch current < 100µA/264VAC
USB	USB micro B plug type, 5V DC, USB 2.0 compatible (12Mbps) (communication only)
Dimensions	150 x 115 x 32mm
Safety control	1. Current density control for a defined electrode; 2. Measurement of impedance (modes: continuous monitoring without stimulation, continuous monitoring with stimulation, single impedance check before stimulation)
Operation of impedance control	Possibility to define a threshold for interrupting stimulation: 10kΩ - 50kΩ Possibility to define user alert threshold: 5kΩ - 15kΩ/off
Electrodes sockets	touchproof DIN42802 1.5mm
Measurement accuracy (stimulation current and voltage)	5%

Type of setting	Parameter name	Starting value of the parameter
General	Electrode shape	Rectangular
	Maximum impedance	10kΩ
	Impedance alarm	On; 8kΩ
	Sham	None
Electrode rectangular	Dimension a	5cm
	Dimension b	5cm
Electrode round	Diameter	2cm
Electrode shape undefined	Surface area	25cm²
tDCS	Amplitude	2mA
	Duration	20min
	Fade In	10s
	Fade Out	10s
tACS	Peak to Peak	2mA
	Frequency	10Hz
	Offset	0µA
	Duration	20min
	Fade In	10s
	Fade Out	10s
tRNS	Amplitude	2mA
	Highpass filter	None
	Lowpass filter	250Hz
	Noise type	Gaussian
	Duration	20min
	Fade In	10s
	Fade Out	10s