g.NAUTILUS FNIRS

WIRELESS BIOSIGNAL ACQUISITION

g.Nautilus fNIRS is a wireless EEG and fNIRS (functional near-infrared spectroscopy) acquisition system. fNIRS can assess the oxygenation status and hemodynamics of the brain non-invasively. The oxygenation depends on how the brain reflects light, which changes as brain areas become more active. Researchers can thus infer brain activity in real-time based on changes in blood oxygenation and other factors. The fNIRS measures oxy-, deoxy- and total hemoglobin. The EEG instead measures the electrical activity of the brain and provides high temporal resolution, unlike fNIRS.

The system combines both signals in a single device, which sets a new standard of usability. In combination with g.tec's active electrode technology, users get top-quality EEG recordings from 32/16/8 EEG channels and 8 fNIRS channels within a few minutes.

- g.Nautilus fNIRS 8/16/32, with g.SCARABEO electrode system plus 8 fNIRS channels

PRODUCT HIGHLIGHTS

- Combined fNIRS and EEG measurements with a single wireless system
- g.SCARABEO gel based EEG electrodes
- LED based fNIRS sensors for the forehead and for central positions
- Flexible solution: position the electrodes as you wish
- 32/16/8 channel wireless EEG with 3-axis accelerometer
- 24 bit accuracy at 500 Hz sampling rate for EEG
- 10 Hz sampling rate for (8 channel) fNIRS
- A new benchmark in usability
- The only wireless system with active technology
- g.tec's unique internal impedance check
- 10 hours continuous EEG recording and 2–3 hours charging (32 channel version); 1.5 hours (high power LED)–8 hours (low power LED) of fNIRS recording
- Wireless digital transmission, range: 10 meters indoor
- Full integration into g.tec's software environment
- Used for research applications only

TECHNICAL SPECIFICATIONS

Weight	< 140 g without electrode/optode grid
Size	78 (L) × 122 (W) × 40 (H) mm
Color	BLACK
Sensitivity	±2.25 V, ±1.125 V, ±750 mV, ±562.5 mV, ±375 mV, ±187.5 mV (software selectable)
Interface	Wireless 2.4 GHz ISM band
Digital inputs	8 digital trigger inputs at Base Station
EEG Supply	Built-in lithium-ion battery, runtime > 10 h, inductive charging according to the QI standard of the Wireless Power Consortium
fNIRS Supply	Exchangeable lithium-ion battery
Amplifier type	Real DC coupled
32 × ADC	24 Bit (1,024 MHz internal sampling per channel)
Noise level	< 0.6 µV RMS between 1 and 30 Hz (at highest input sensitivity)
Input channels	Up to 32 mono-polar / 16 bi-polar channels with GND and REF (software selectable)
Input impedance	DC > 100 MOhm
Safety class	II