



Neuroscan Platform Solutions
for Research in Epilepsy

Platform Solutions



NeuroScan provides state of the art systems for the acquisition and analysis of EEG and ERP data. Our systems are integrated platforms, designed to allow uncompromising solutions for seamless recording and analysis of EEG data across a variety of domains. NeuroScan has developed multiple hardware and software systems that combine to build the ideal platform for a particular area of research. Because of this flexibility, the components and the platforms they build are not limited to any specific area of research, providing flexibility to move from recordings in one area to another often and with the same configuration.

Infinite possibilities,
research unleashed



Platform Solutions for Research in Epilepsy

As the leader in EEG and ERP systems, Neuroscan is pleased to provide a comprehensive solution for research in epilepsy. Combining the SCAN software, the SynAmps RT amplifier and the CURRY 6 software, Neuroscan not only provides the necessary system to perform routine clinical recordings, but the extended capabilities of recording Event Related Potentials, ultra-high density recordings and extended frequency-range recordings. Additionally, grid and surface recordings can be done with the same system and simultaneously as needed.

Core Components

Using SCAN, SynAmps RT and CURRY 6 systems, Neuroscan provides for the following capabilities:

SynAmps Highlights

(See spec sheet for full details)

- > 64 to 500+ monopolar channels
- > 4 to 16 bipolar channels
- > 2 to 8 high level channels
- > DC to 3500 Hz bandwidth
- > 1 GOhm Input impedence
- > Surface or Grid electrodes
- > Remarkable low input noise: <math><0.5\mu\text{V}</math> RMS DC to 200Hz

SCAN Highlights

(See spec sheet for full details)

- > Real-time spectral analysis
- > Real-time artifact reduction
- > Real-time averaging
- > Automated data processing
- > PCA/ICA Decomposition
- > Spatial Filtering
- > Topographic Mapping in 2D and 3D

CURRY Highlights

(See spec sheet for full details)

- > Automated Cortical Surface Rendering
- > Dipole, Deviation and Current Density Source reconstruction
- > Individualized Boundary Element Models (Based on MRI)
- > Advanced and automated MRI, CT co-registration
- > Electrode and grid visualization, over or on cortical surface
- > 3D rendering of MRI and CT with continuous visualization
- > Talairach or user defined coordinate system

Core Component Applications

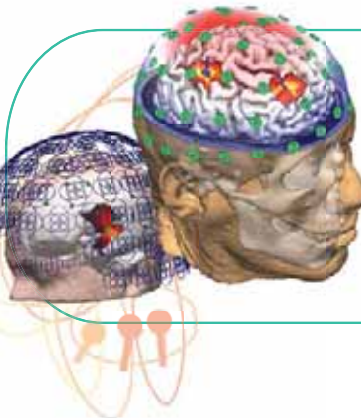
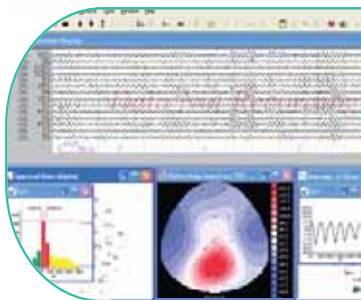
This combination of systems provides a unique solution for research in epilepsy. The ability to record with high sampling rates, and thus extended high frequency range, allows evaluation of spike spindles. The system is also capable of recording event related potentials (ERPs) on all channels, providing a complete solution for cortically or sub-cortically generated activity associated with cognitive function.

Customized automated data processing can minimize various artifacts in the data and assist with reading. Event detection is also provided working from user defined event morphology; the system will seek out similar events that meet a user defined classification. Events can also be easily mapped and subjected to source reconstruction to facilitate the visualization of data and determination of each event's significance.

Grid and surface recordings can be directly compared, as can fMRI activations and the results of EEG and ERPs. Co-registration of the functional and structural data allows you to identify areas of cortical involvement for standardized reporting or for export into surgical navigators and planning tools. User defined coordinate systems are supported, as well as standard Talairach space. Built-in report generation is also provided allowing for source solutions and images to be exported and filed with the subject records.

Core System Configuration:

The SynAmps RT, SCAN and CURRY software can all be run from a single computer platform. This computer can be a desktop or laptop with Windows XP Pro. The SynAmps RT contains its own medical grade isolation transformer that will support the amplifier, computer and monitor. The system will support all types of electrodes, including scalp surface (both cap based and individually placed) and grids, depth and micro-electrodes.



Optional and additional components:



MagLink RT

MagLink is a patented transmission system to record EEG in the MRI. MagLink RT eliminates the placement of unnecessary electronics and amplifiers near the bore of the magnet, where they can disrupt the magnetic field. MagLink's passive technology is transparent to the MRI and allows full bandwidth acquisition even at the high sampling rates necessary to sample accurately the gradient artifact as well as the ongoing EEG. Utilizing the MagLink to transmit the EEG signals outside of the shielded room allows the highest quality electronics to be used in the amplification and digitization of the signals.



Quik-Cap

Neuroscan has developed the Quik-Cap cap based electrode system for fast and accurate placement of electrodes. The Quik-Cap sold with SynAmps RT systems use only the sintered Ag/AgCl electrodes to ensure the highest data quality over the entire lifespan of the cap. The fit and durability of the Quik-Cap have been re-engineered and optimized ensuring that comfort, accuracy of electrode placement and overall quality meet Neuroscan's high standards.



STIM 2

STIM2 is a stimulus generation and experimental control tool that provides both a library of standard auditory and visual tasks and the ability to easily develop custom tasks. No programming is needed, only a simple spread sheet needs to be filled out, yet considerable flexibility is provided, with integrated "mode" commands. The STIM 2 Complete system also takes care of the timing issues associated with Windows OS. Using proprietary hardware and configurable audio and video cards, STIM 2 Complete, ensure accurate trigger timing and stimulus presentation.

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