

# SCAN 4.3™

## SCAN Licensing Options

**SCAN Full for Neuroscan Amplifiers** – SCAN Full includes both the Acquire and Analysis components and is the basis for all Neuroscan systems. SCAN software works with both of the Neuroscan amplifiers, providing the same features and options. The new 32-bit format of the SCAN software will actually improve the performance of existing 22-bit NuAmps, and will capture the full resolution of the 24-bit SynAmps<sup>2</sup>. With the price and performance flexibility of the amplifiers that Neuroscan offers, there is an option for every application.

**SCAN Acquire** – Existing Neuroscan users that want to expand their data acquisition capabilities can opt to purchase a SCAN Acquire license. Combined with the SynAmps or NuAmps, this will allow an additional acquisition workstation, whose data can be passed on to another workstation for analysis. Highly active labs then can simultaneously acquire and process data, or a student lab for pilot work can be created.

**SCAN Analysis** – Maximize your analysis, regardless how the data were collected. The advanced features in SCAN Analysis will allow you to process your data with the latest techniques. Whether it is data collected on a clinical system, a basic EEG system or even more advanced research type systems, SCAN will maximize the information contained by allowing you to apply the most advanced analysis to your existing data. Working with data collected from Neuroscan amplifiers, SCAN Analysis adds an additional workstation to enhance your lab's productivity.

**SCAN Data Import/Export** – SCAN will export your data files to and read data from ASCII. Using our simple data import interface, importing data is remarkably easy. SCAN will also import and export files from the European Data File Format (EDF), allowing maximum compatibility with other manufacturers that support this standard. Compumedics\*.raw files and MS Excel files can be imported directly. To support our most advanced researchers, a MatLab exchange program is now also available as part of the Tool Box.

**Operating system requirements:** SCAN 4.3 is fully functional with the Windows 2000 and XP Professional operating systems.

For more information on the SCAN system or to request a demonstration, please contact Neuroscan or visit our website at [www.neuro.com](http://www.neuro.com).

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DWG 5633

### For more information please contact:

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# Scan 4.3™

*Comprehensive EEG/ERP Acquisition and Analysis Software  
for Clinical and Research Applications in Neuroscience*

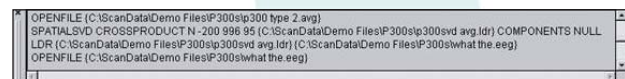
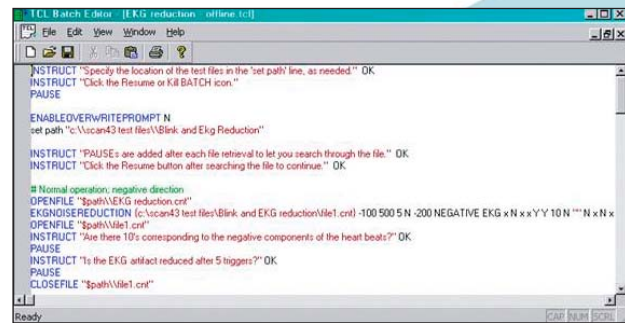


THE REVOLUTION CONTINUES

# Scan 4.3™

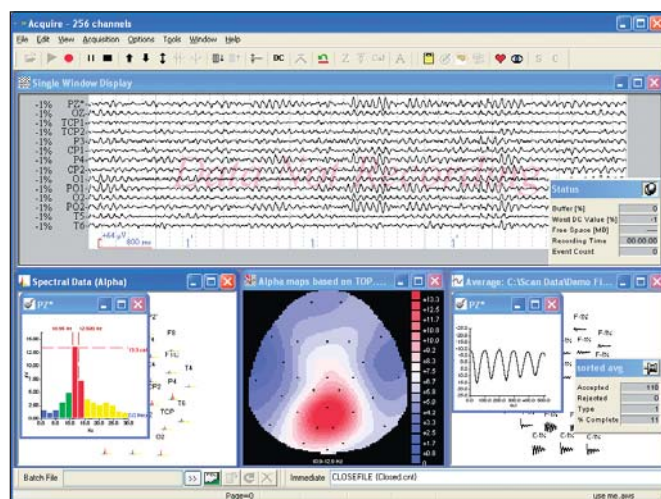
**Comprehensive Solutions:** Neuroscan's Scan 4.3 provides the ultimate in data acquisition and processing capabilities. With more than 25 online features and 50 data processing tools, including Statistical Analysis, Mapping, Spatial Filter, Artifact Reduction (several methods), Principle and Independent Component Analysis, and many more, SCAN provides tools for all research domains, and yet is simple enough for clinical application.

**Processing Automation and Data Mining Options:** TCL batch scripting allows you to automate your data processing, thereby providing consistent application to all files and vast processing power in a text-based script file. Clinical data can be completely processed at the touch of a button and research data can be completely and rapidly re-analyzed. Batch commands are created automatically when you perform menu-driven analyses; these are then easily combined with a built-in batch editor to create comprehensive analysis sequences.



**Integration and Online Processing:** Scan 4.3 works with the SynAmps, SynAmps<sup>2</sup> and NuAmps, providing complete data acquisition control. Online capabilities include averaging, mapping, filtering, remontaging, artifact removal, PCA and ICA component estimation, and source localization. Multiple recording formats (acquisition of continuous data, epoched sweep data, or averaged data), Impedance testing, and Audio are among the other features.

New software architecture includes 32 bit data acquisition to fully exploit the capabilities of the NuAmps and the SynAmps<sup>2</sup>. Enhanced acquisition and analysis functions are possible with the addition of Tool Box 2003, including PCA/ICA and Advanced Artifact Rejection as well as a direct data port to MatLab.



## The Ultimate in Data Acquisition & Processing Capabilities

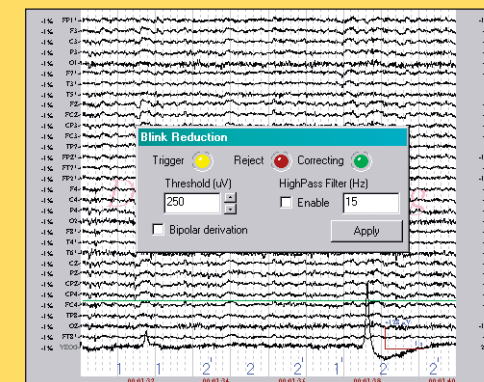
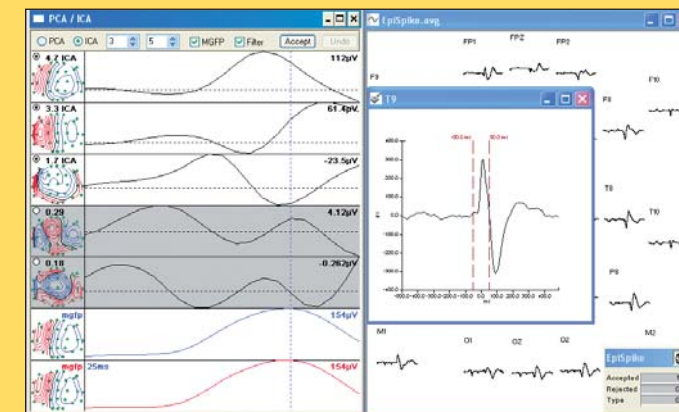
**Solutions:** Below are some sample tools that are provided for each of the specific areas listed. These represent just a few of the features that are available.

### Sensory Neuroscience

**Auditory** – The SCAN software with SynAmps/SynAmps<sup>2</sup> amplifiers allows you to record very short latency ABRs, as well as all MLRs and MMNs. Online Fsp statistical analyses determine when significant signals are emerging.

**Visual** – In addition to accurate measurement of VEPs, also included are PCA/ICA and Source analyses to identify the specific components and dipole source solutions.

**Somatosensory** – Deblocking features in SCAN with SynAmps/SynAmps<sup>2</sup> systems let you acquire data free from stimulus artifact. All sensory EPs can be mapped as 2D or 3D representations.



### Cognitive Neuroscience

**Language Processing** – From detection of differences in speech sounds (the mismatch negativity), to semantic (N400), and syntactic (P600) incongruity in the auditory or visual modality, unique event coding and the online display of multiple sorted averages provide powerful options for investigating language processing in adults and children.

**Attention** – Combined with sorted averaging, online independent components analysis (ICA) can be used to objectively identify and measure neurophysiological responses associated with attentional vigilance and target detection such as the contingent negative variation (CNV) and the P300.

**Memory** – A variety of paradigms (e.g., spatial location, serial position recall) can be used to generate neurophysiological responses to investigate normal and impaired memory processes from registration, to recognition and recall.

**Oscillatory Beta and Gamma Band Activities** – Induced (non-stimulus locked) and evoked components of the fast cortical oscillations that have been correlated with higher order cognitive processing as well as perceptual binding evaluated and the strength of associations between cortical areas can be estimated in user-defined frequency bands using the event-related band pass and event-related coherence transforms in the Scan Analysis software.

In all of these cases, you will typically have a stimulus presentation system, such as STIM, with unique coding to identify the various stimuli and responses. The SCAN software allows you to sort sweeps on the basis of the various stimuli and responses, and then create averages for each. This provides virtually unlimited flexibility for analyzing permutations of, for example, P300 paradigm studies.

### Applied Neuroscience

**Schizophrenia** – From the relatively small, fast P50 component, to the larger, slower P300, the SCAN software provides all the tools needed to investigate these phenomena.

**Epilepsy** – Epileptic spikes can be back-averaged and combined with Source and Curry for multimodal neuroimaging analyses.

**Learning Disorders / Attention Deficit Disorder** – Paradigms can be constructed to assess sensory gating processing (P50) to higher order cognitive manifestations of these impairments in children and teens.

**Alzheimer's Disease** – Altered cortical function in Alzheimer's disease has been assessed using the Neuroscan suite of neurophysiological tools.

**Sleep** – Online spectral analysis can be used to determine sleep stages. Frequency based rejection or retention of data can be used to limit analysis to the spectrally-identified sleep stage of interest.