



simplifying **Neurosurgery**

Stereotactic & Functional Neurosurgery

Global leaders for innovative and dependable
microelectrode recording systems

Research Applications

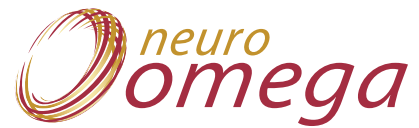
Advance neuroscience research without
sacrificing clinical efficiency

Medical Consumables

NeuroProbe, cannulae, & electrode input cables
for any MER system

Technical Support

On-site and remote case support, training,
maintenance and more



Neuro Omega

The new gold-standard in MER and the latest innovation in neuroscience technology

- | User-friendly built-in EEG montages
- | Integrated research platform
- | Closed loop and 3D stimulation possibilities
- | Expandable channel count

The Neuro Omega is the latest technological breakthrough in MER. Innovative software and hardware implemented in the Neuro Omega make this all-encompassing system ideal for both clinical MER applications and advanced research needs. MER users gain total experimental control while benefiting from Alpha Omega's highest performance, quality and clinical efficacy.

Key Qualities

- > Expandable up to 122 channels
- > Online data streaming to MATLAB and C++
- > Closed loop stimulation control through data streaming or direct-to-processor scripting
- > Unparalleled stimulation capabilities including conditional stimulation, programmable stimulation, and arbitrary wave definition
- > Multi-source, multi-polar stimulation allows for 3D stimulation control
- > Single cable exiting the sterile field for electrode positioning, recording and stimulation
- > Online statistics including evoked potentials
- > Unique dual screen display and customizable workspace
- > Integrated analog and digital inputs and outputs



NeuroOmega Stimulation Foot Pedal

- > A **hands-free solution** for uninterrupted kinesthetic testing while simultaneously controlling the application of stimulation currents
- > Also enables delivering electrical stimulation **from within the Sterile field**
- > A **fully-integrated and simple USB plug-and-play interface** seamlessly connects to NeuroOmega for independent control via software and handheld remote
- > **Waterproof** as well as **compliant with EMC** and electrical **safety standards**

NeuroMic

The NeuroMic is a microphone fully-integrated with our data acquisition systems via a simple USB plug-and-play interface. This enables seamless voice recording fully time-synchronized with electrophysiological recordings, annotations of event like patient feedback and side effects for both clinical and research applications. The data recorded using NeuroMic can also be easily imported into MATLAB for analysis along with electrophysiological recordings.

- > Record physician voice annotations
 - > Record patient voice during kinesthetic testing and speech-related research
 - > Start and stop recording with the click of a button
 - > USB Plug and play solution
 - > Voice recordings are timestamped and synchronized with electrophysiological recordings
- Recordings are saved in a simple WAV audio format

**Alpha Omega Sonus microphonic-free electrodes recommended for speech artifact suppression in electrophysiological recordings*



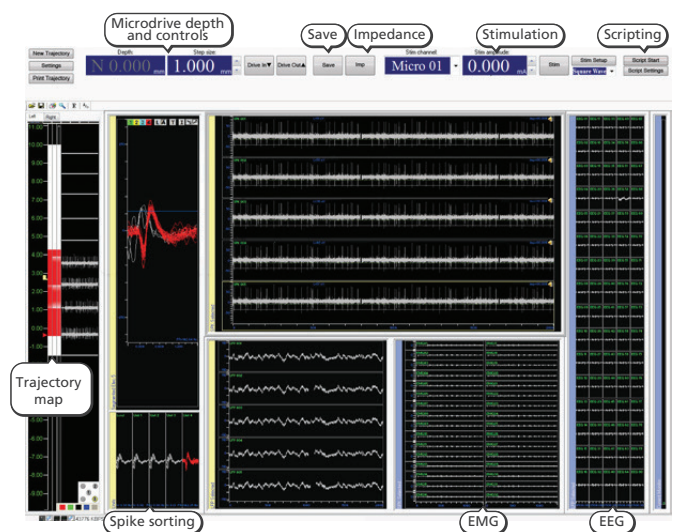
Headbox Module

- > Up to 7 additional modules
- 16 channels per module with referential and differential recording for EEG, EMG, & ECoG
- > Portable and compact
- > Advanced multi-source stimulation capabilities for peripheral nerve and ECoG
- > Medical grade, industry standard touch proof connectors



User interface

- > **Trajectory view** with pattern recognition for increased neural activity
- > **10 channels built into the microdrive** for recording and stimulation with micro and macro spike and LFP recordings
- > **Configurable with up to 122 channels** integrated all in one system:
 - ▶ Micro and Macro electrodes ▶ LFP ▶ EEG ▶ EMG ▶ ECoG
- > One click **impedance check** for all channels and electrode types
- > **Flexible stimulation** current ranges for microelectrode test stimulations, peripheral nerve stimulation and other stimulation research requirements
- > Complete **stimulation control** on the basic stimulation parameters and the ability to create unique waveforms
- > **Save data** for post-case analysis in MATLAB or other formats
- > **User-defined Events** allow for easy marking and commenting onto data file



NeuroFortis

Automatic, motorized, washable drive.
Compatible with all Alpha Omega systems

Alpha Omega utilized its 25 years of experience in designing and building OR equipment and reflected this vast experience in the new NeuroFortis Drive Headstage design and manufacturing.

Among the advancements of this new HeadStage:

- > Operated by **remote control** or manually
- > **High-quality material**, durable design and production control for maximum durability in aggressive OR environment
- > Electronic or Manual Compatible with hand or **machine cleaning**
- > **Stands in Robert Koch Institute recommendations** for cleaning and sterilization of medical devices
- > **Pre-assembled with Built-in recording and stimulation capability**
- > New ergonomic knob design for user-friendly and **accurate** manual driving
- > XY stage and 5-hole begun allows **trajectory adjustments** without frame manipulation
- > **Direct implantation** of DBS electrode without backing up drive or removing cannulas
- > **High amplifier input** range allows non-stimulating channels to record throughout stimulation
- > **Lightweight**, low impact on frameless or frame based procedure
- > **Fully compatible with all stereotactic frames**
- > **Precision movement** with an electronic drive



Also Available



Autoclavable,
washable,
manual drive
headstage with
built in digitizer
and amplifier



Autoclavable,
washable,
manual drive

HaGuide

Simple Procedure

HaGuide is the only FDA approved software that can drive through the trajectory in predefined steps to automatically detect STN boundaries as well as the separation between the dorsolateral oscillatory (DLOR) and ventromedial nonoscillatory regions (VMNR)."

Accuracy

HaGuide demonstrates a submillimetric match between surgeon/neurophysiologist and HaGuide for entry and exit of the STN as well as optimal DBS implant depth recommendation based on hundreds of trajectories of leading Neurosurgery centers in USA, Europe and Asia.

Efficiency & Time Saving

Usage with leading Implanters has demonstrated Efficiency and Saving time. HaGuide allows performing MER session within up to 10 minutes.

Alpha Omega together with **Prof. Bergman, Prof. Israel** and their colleagues developed **HaGuide**, a real time software solution designed to provide power spectral density (PSD) graphs

Peer reviewed abstracts

“After thirty years of experience with microelectrode recording in different settings, I decided to test HaGuide in some surgeries. HaGuide is the ultimate advising tool for interpreting microelectrode.”

- **José Luis Relova**, MD, PhD, Santiago Clinic Hospital

ASSFN 2016 abstract

“A semi-automated software for estimating subthalamic nucleus boundaries and assisting optimal target selection for deep brain stimulation implantation surgery”

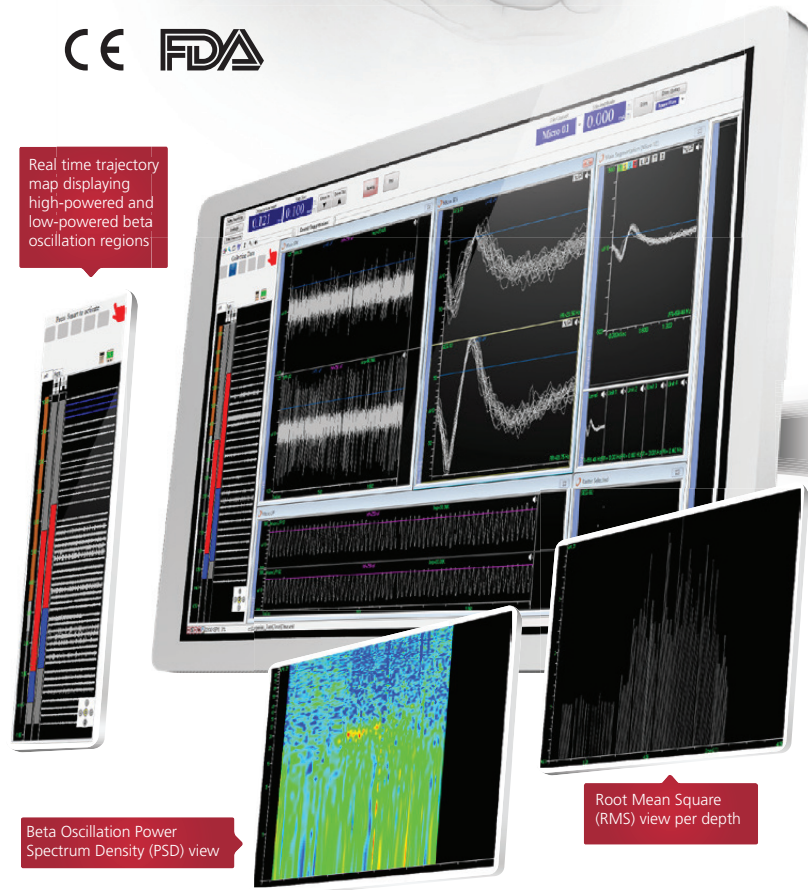
Conclusion: These data demonstrate that the software can reliably and accurately estimate entry into and exit from STN, and select the optimal track for DBS implantation.

Simple Procedure

Accuracy

Time Saving

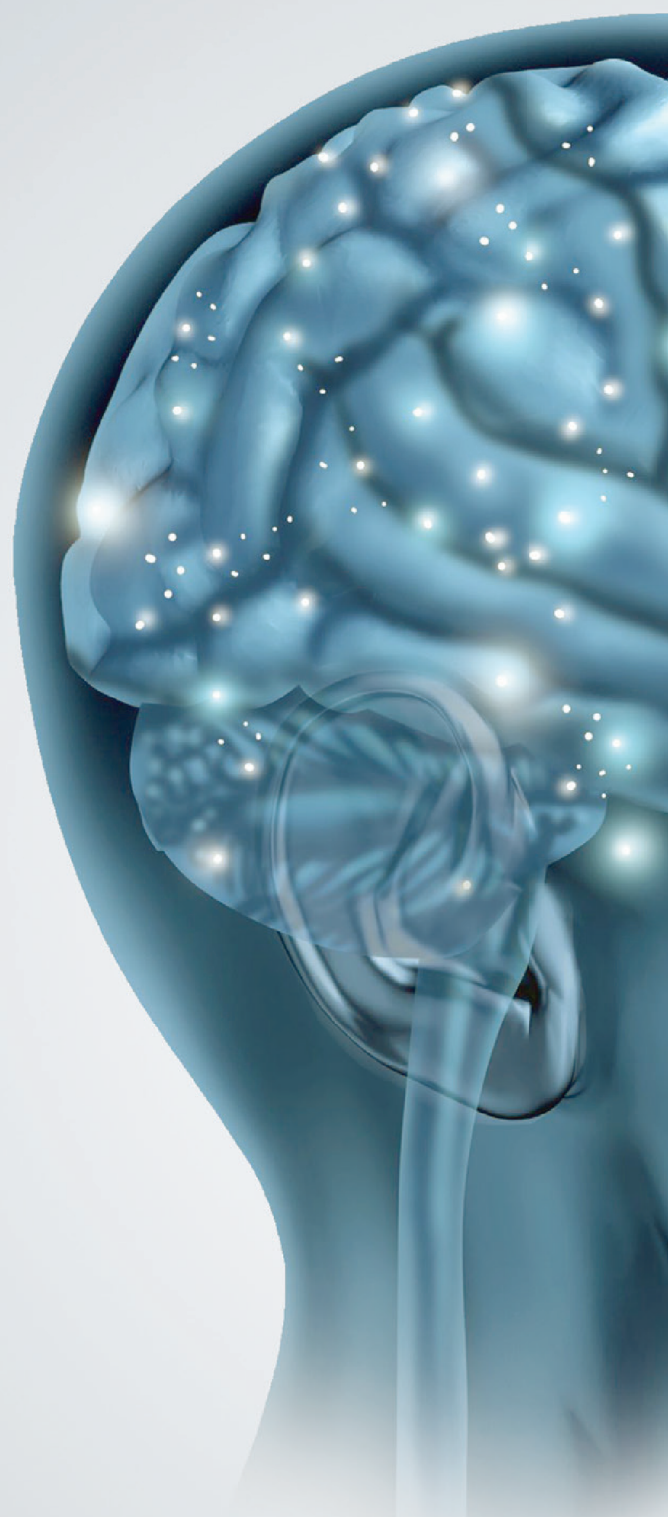
Efficiency



WSSFN 2017 abstract

“Automated navigation system for detection of the subthalamic nucleus reduces deep brain stimulation surgery time”

Conclusion: Automatic navigation (AN) is safe and has a high level of reliability. Results of an MER track can easily be displayed in an inbuilt, user friendly & graphical form..



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