Opening NEW FRONTIERS in clinical and research MEG

Innovative Functional Advantages

LifeSpan functional imaging from pediatric to adults
- Patented two MEG-in-one system with dual-helmet dewar
- Dual helmet simultaneous EEG/MEG data acquisition fully implemented
- Dual adult or pediatric helmet options available

Zero-loss Helium recycling
- 24/7 operation with no down time
- Minimized operating costs

Interference-free high-density EEG up to 256 channels

Powered by CURRY neuroimaging platform, the world’s standard software for MEG/EEG analysis

Real-time video archiving
Full cloud-integration

CURRY is the European Epilepsy consortium’s standard analysis platform

Pending FDA clearance

DUAL HELMET MEG
**ORION LIFESPAN™**

**Key Advantages**

- Patented Dual Helmet Rotating Adult/Pediatric Dewar
- 2-MEG Systems in 1 MSR / Maximizes Footprint
- Increased Patient Population/Maximize Return on Investment
- Facility to Record From Both MEG Helmets Simultaneously, Fully Enabled

**Integrated 32-0 High Sensitivity Recycling**

- Minimizes Cost
- Minimizes Size
- Extensive Pre-Surgical Planning
- Clinical MEG Standard
- World/Industry Standard Source Analysis
- Clinical MEG Standard

**CURRY™ Software Fully Integrated**

- Simplified user interface
- Pre-integration of EEG, MEG, with MRI, CT, CT, SPECT, PET, DTI
- CURRY integrated with STAC, including sidestream cerebrovascular information
- Integrated source analysis only
- Individualized head models for MEG, EEG and functional imaging including both individual Hem and FEM
- Complete Dias, CDP, stats module
- User-friendly pre-surgical planning module
- Maximum memory access for rapid processing of large data files
- 32-0 channels available
- synchronized to MEG Acquisition

**Software and Hardware Advantages**

- Enhanced connectivity with other hardware
- Suitable for all applications (research, clinical)
- Requires a high-performance 64-bit processor
- Maximum memory access for rapid processing
- User-friendly pre-surgical planning module
- Complete dipole, CDR, statistics modules
- BEM and FEM
- Integrated synchronized video
- Complete epileptology analysis module
- Full suite of preclinical platform tools
- Fully integrated with other imaging systems

**CURRY™ Acquisition and Analytics Software Platform Advantages**

- Synchronized to MEG Acquisition
- Patented SQUID Sensing System
- Enhanced connectivity with other hardware
- Suitable for all applications (research, clinical)
- Requires a high-performance 64-bit processor
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**NeXus 360 full cloud-integrated environment**

- Access and store your data in a proven secure and scalable cloud solution
- Achieves collaborative research and clinical MEG, HIPPA (patient data security compliance)
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**Magnetoecephalography (MEG) and CURRY - A long history together**

The CURRY Neuroscan platform and MEG has a history stretching back over 30 years. CURRY was first conceived as a product in the late 1980’s when Philips Electronics investigated the feasibility of developing its own MEG hardware platform. Ultimately, the hardware platform was not released commercially, but the software development, along with its core engineering architects, Dr. Manfred Fuchs and Dr. Michael Wagner, continued. When Philips sold its MEG business, CURRY and the development team were purchased by Neuroscan. At that time, the MEG-based CURRY platform appealed more to the research community rather than to the clinical market. By 1995, studies were published describing the application of CURRY for cortical localization of auditory, visual, and tactile stimulation, based on evoked EEG and MEG activity. Importantly, “novel developments” and “new approaches to detailed localization of specific sensory discharge” were as well as demonstrated for the functional critical areas of the brain controlling language and memory using CURRY and associated with other hardware and software such as Sherlock, Manta™).

The migration of CURRY from the UNIX to Windows platform in 2003 facilitated a rapid expansion of the use of CURRY in both the research and clinical arena.

The benefits associated with CURRY’s ability to integrate MEG with EEG and co-registered high temporal resolution imaging data with structural neuroimaging data including MRI, CT, PET, SPECT and fMRI accompanied the adoption of the software for both research and clinical applications. Early clinical adopters, such as Dr. John Ebersole, supported and championed the benefits of source localization tools such as CURRY, contributing to the development of specific source analysis techniques for EEG and MEG.

For a long time CURRY has been the industry standard software platform for clinical MEG community, particularly for those assessing epilepsy. This has culminated in the adoption of CURRY as the standard analysis platform for the European Epilepsy Consortium. For the CURRY team, integrating CURRY with the Medelec MEG hardware represents a full circle of development. With long-term future development plans for both hardware and software, CURRY MEG will offer a continuous growth of features facilitated by the fully integrated platform supporting multi-modal neuroimaging of EEG, MEG, including co-registration and source reconstruction from a single provider.

**Features collaborative research and clinical MEG, HIPPA (patient data security compliance)**

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### SQUID gradiometer

**SQUID sensor type:** Double relaxation oscillation SQUID (DROS) with largest voltage output

**Material:** Based on reliable Nb/AlOx/Nb junction technology

**Feedback:** External feedback to eliminate inter-channel crosstalk

**Heater:** Integrated Pd thin-film heater to remove trapped flux

**Pickup coil:** High-balancing first-order axial gradiometer 2:2 winding, 188 mm diameter

**Average sensitivity:** Better than 3.0 fTrms/√Hz (@ 100 Hz)

### Dewar

**Dewar structure:** Horizontal dewar with two helmets for adult and pediatric

**Dewar positioning:** 180 degree rotation to switch between adult and pediatric position

**Tail thermal gap:** < 20 mm

### SQUID electronics

**Flux-locked loop:** DC bias, direct readout (no modulation)

**Control:** Automatic control of SQUID operation using interference-free optical fiber-based control

**Bandwidth:** DC to 2 kHz based on sampling rate

### Data acquisition workstation (1) / data processing workstations (2)

**A/D conversion:** Max 10 kHz/channel, DC-2 kHz maximum passband for MEG and EEG, 24 bit resolution

**Synchronized EEG acquisition, 32-256 channels**

**Computer:** Workstation computers/32-inch color LCD monitor Nvidia graphics card (3D Vision)*

**CPU:** 3 GHz, Intel i7 Windows-based

**Mass data storage:** (1 terabyte SSD main drive & secondary drive)*

**Real-time archivable synchronized MEG/EEG and video**

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### Head position monitor

- 4 circular coils integrated with EEG Cap

### Patient monitor

- 1 CCD camera and 1 LCD monitor

### Communication

- Voice communication using a noise-free microphone and speaker

### Magnetically shielded room

- 2-layer mu-metal and 1-layer aluminum

### Software function (CURRY NEUROIMAGING SUITE)

- System control of SQUID operation, FLL (offset voltage, integrator)
- Real-time display of MEG signals/EEG Signals
- Signal processing of baseline correction, digital filtering, artifact suppression, manual/automated event marking
- Dipole and CDR source modeling
- Pre-surgical planning

### Stimulus delivery

- STIM2 with auditory, visual, tactile stimulation
- NDI KRIOS camera-based electrode/sensor digitization

### Measurement accessories

- Head position monitor:
  - 4 circular coils integrated with EEG Cap
- Patient monitor:
  - 1 CCD camera and 1 LCD monitor
- Communication:
  - Voice communication using a noise-free microphone and speaker

### Magnetically shielded room

- Structure: 2-layer mu-metal and 1-layer aluminum
- Inner dimensions: 4 m (L) x 3 m (W) x 2.4 m (H), may be modified upon site evaluation
- Wall thickness of 200-250 mm
- Door: No door threshold (equal height with measurement room)
- Shielding factors: 40 dB @ 0.1 Hz, 70 dB @ 10 Hz
- Illumination: Low-noise DC lighting

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* Delivered systems will have equal or better specifications.

Specifications subject to change without notice.

Please contact your Compumedics Neuroscan representative for the latest technical information, product availability and pricing.

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