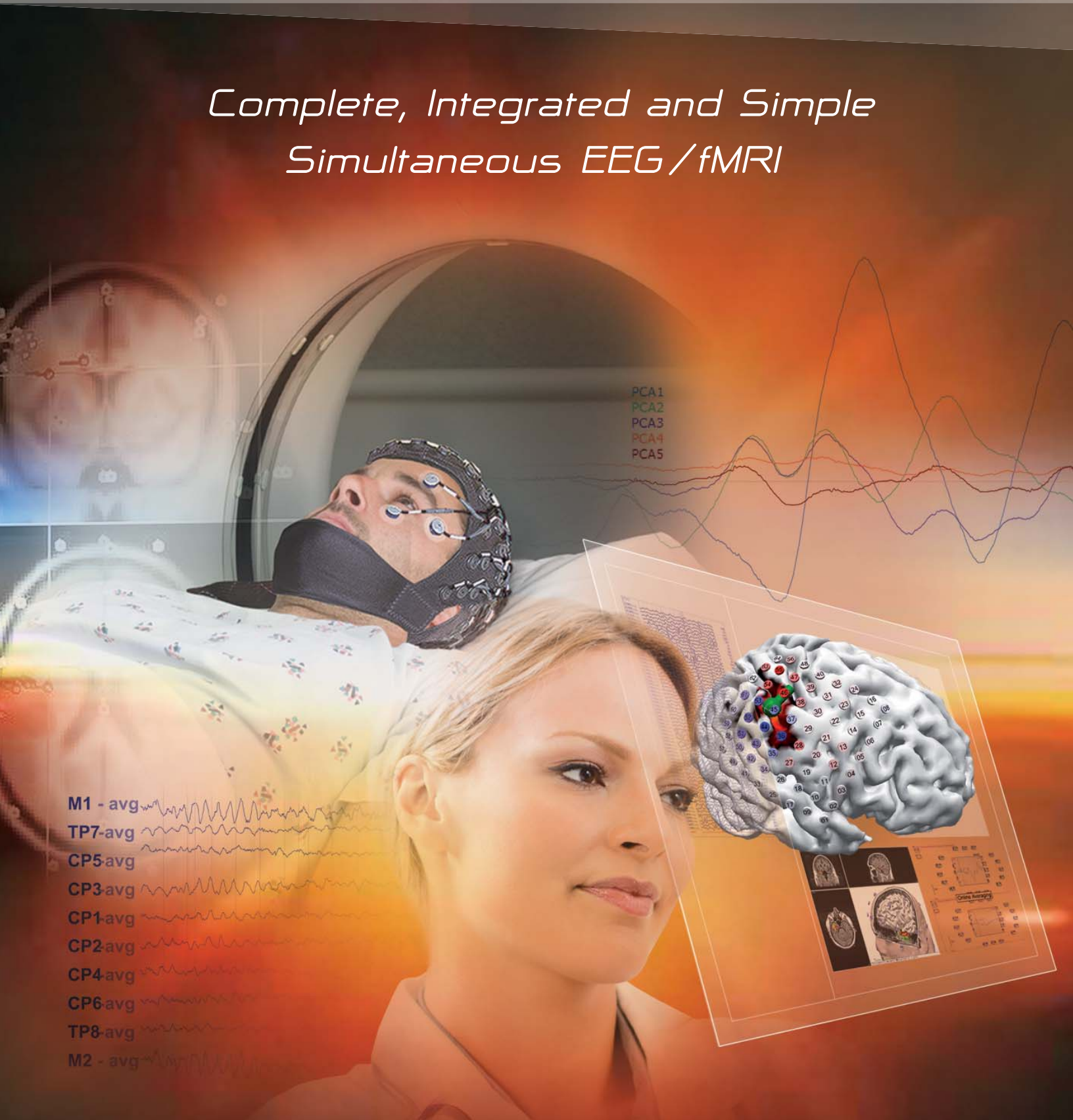
COMPUMEDICS NeuroScan™

™MicroMagLink

Complete, Integrated and Simple Simultaneous EEG/fMRI



MicroMagLink™

Finally, a sophisticated but simple system to record high quality EEG and ERP simultaneously with fMRI.

COMPUMEDICS NeuroScan™

Nothing surpasses the MicroMagLink RT System for simultaneous EEG/fMRI data acquisition.

Neuroscan is proud to offer the MicroMagLink system; the next generation technology for simultaneous EEG/fMRI data acquisition – ***made simple***. The MicroMagLink is based on the concept that often the simplest solution is best. The MicroMagLink keeps all active electronics outside the MRI chamber; all that is placed in MRI chamber is a special electrode cap, a cable, and a fiber optic pulseometer to provide timing for ballistocardiogram suppression. By keeping the active electronic components in the control room, we provide the best possible signal amplification without any compromises.

The MicroMagLink system consists of a precisely engineering electrode placement system with cabling that includes inline RF filtering to ensure that all signals recorded inside the MRI are uncontaminated by any sources outside the shielded MRI chamber. Using our SynAmps RT amplifier, data sampling rates up to 20,000 kHz per channel are possible. But with the inherent capability of SynAmps amplifiers to synchronize internal clocking to external sources, data sample rates as low as 500 Hz may be sufficient to provide high quality suppression of gradient sequence artifact.

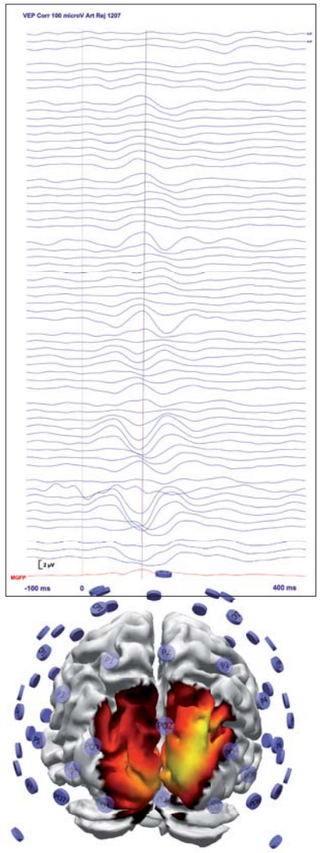
Following ASTM standards, MicroMagLink electrodes have been engineered and tested to comply with required standards for heating, displacement and torsion up to 3 Tesla. With a single attachment to the penetration panel, the MicroMaglink may routinely be installed and removed quickly. This portability allows a single MicroMaglink to be easily deployed to any magnet in your MRI facility, or used to collect EEG simultaneously with MEG.

The MicroMagLink is integrated with the Curry NeuroImaging Suite, which now includes a data acquisition module for capturing EEG data recorded in the MRI. By incorporating data acquisition into the Curry platform, all stages of EEG/ERP data recording and analysis, including source reconstruction, and co-registration with MRI, fMRI and other neuroimaging modalities are handled in a single platform. An advanced set of signal processing methods can be employed both online and offline to suppress both gradient and ballistocardiogram artifact.

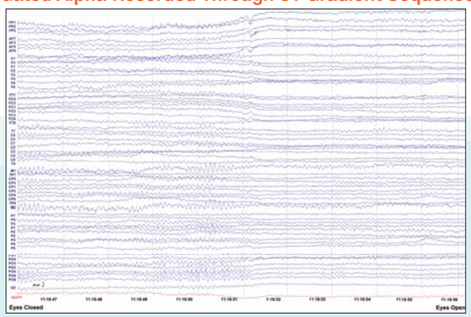
With the MicroMagLink System, recording and analyzing simultaneously acquired EEG and fMRI data has never been simpler.

Go to ***www.compumedicsneuroscan.com*** for more information and a sample of peer-reviewed publications.

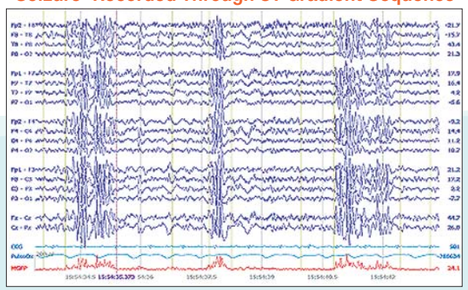
Contrast Reversal Visual Evoked Potential Through 3T Gradient Sequence



Gated Alpha Recorded Through 3T Gradient Sequence



Seizure Recorded Through 3T Gradient Sequence



Architecture

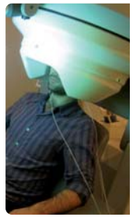
- **Simplicity of design** allows for easy installation and portability
- **Validated to ASTM standards** in MRI systems up to 3 Tesla
- **User selectable sampling rates from 500 Hz-20 kHz**
- **EEG digitization occurs outside MRI chamber**, preserving data quality without compromises for MRI-compatible active electronics
- **Both ECG and pulseometer signals are recorded by the system**, for optimal suppression of ballistocardiogram artifact
- **SynAmps RT DC-coupled recordings** ensure fast recovery from artifacts AND no expensive batteries required!
- **Inherent SynAmps RT support for external clock control allows synchronization with MRI**, improving real-time & offline artifact suppression, with A/D sampling rates as low as 500 Hz in some cases
- Includes **CURRY 7 NeuroImaging Platform's advanced signal processing, source reconstruction, & multi-modal co-registration capabilities**
- **Multiple, advanced algorithms** for gradient and BCG artifact suppression that are user selectable and modifiable
- **On-line artifact suppression** allows observation of corrected continuous EEG or average ERPs in near real time.

Applications

EEG/Evoked Potentials - The applications for simultaneous EEG/fMRI are continuously expanding, whether the goal is convergent analysis or simply providing millisecond resolution timelines to fMRI paradigms. The MicroMagLink is compatible with most stimulus presentation systems providing a TTL or synchronization pulse output, enabling acquisition of ERPs and fMRI simultaneously.

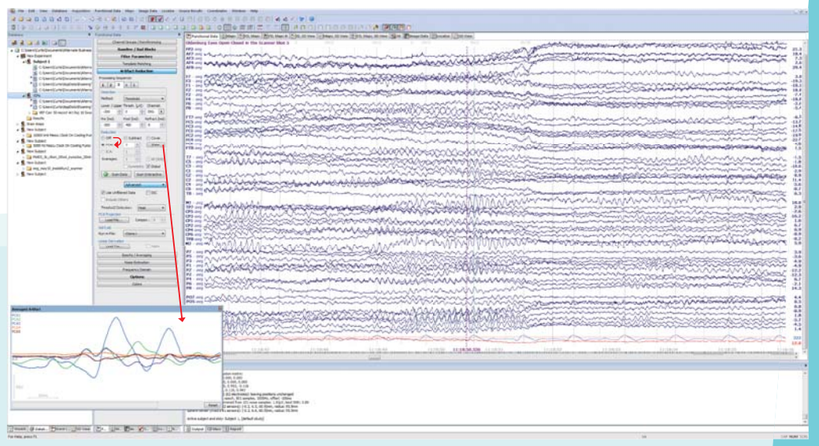
Sleep - Record your sleep EEG in the MRI with the MicroMagLink, then review it with Compumedics Profusion Sleep software.

Epilepsy - While still in the investigational stage, simultaneous EEG/fMRI recordings with epilepsy populations are demonstrating that the quality of EEG data recorded simultaneously during an fMRI measurement is now approaching that of what can be obtained in EEG recordings away from the MRI. EEG recordings can be used to both mark the time of onset of seizures during fMRI recordings as well as provide independent evaluation of the site of origin of activity. Other investigations have pushed the envelope even further, obtaining EEG recordings from sub-dural grids during fMRI acquisitions.



Simultaneous EEG/MEG - MEG systems often include the capability of recording EEG simultaneously. However, there can be limitations with the built-in EEG technology, including limited bit-depth for sampling the EEG, as well as restrictions on the number of EEG channels. The MicroMagLink can be used to record EEG simultaneously with MEG, without compromising the quality of the MEG signal. Appropriate RF Filtering and installation of the core component of the MicroMagLink prevent this extraneous electrical interference from compromising the MEG recordings.

Sequential Artifact Suppression: For Simple Suppression of Gradient Noise and Ballistocardiogram



See More and Do More

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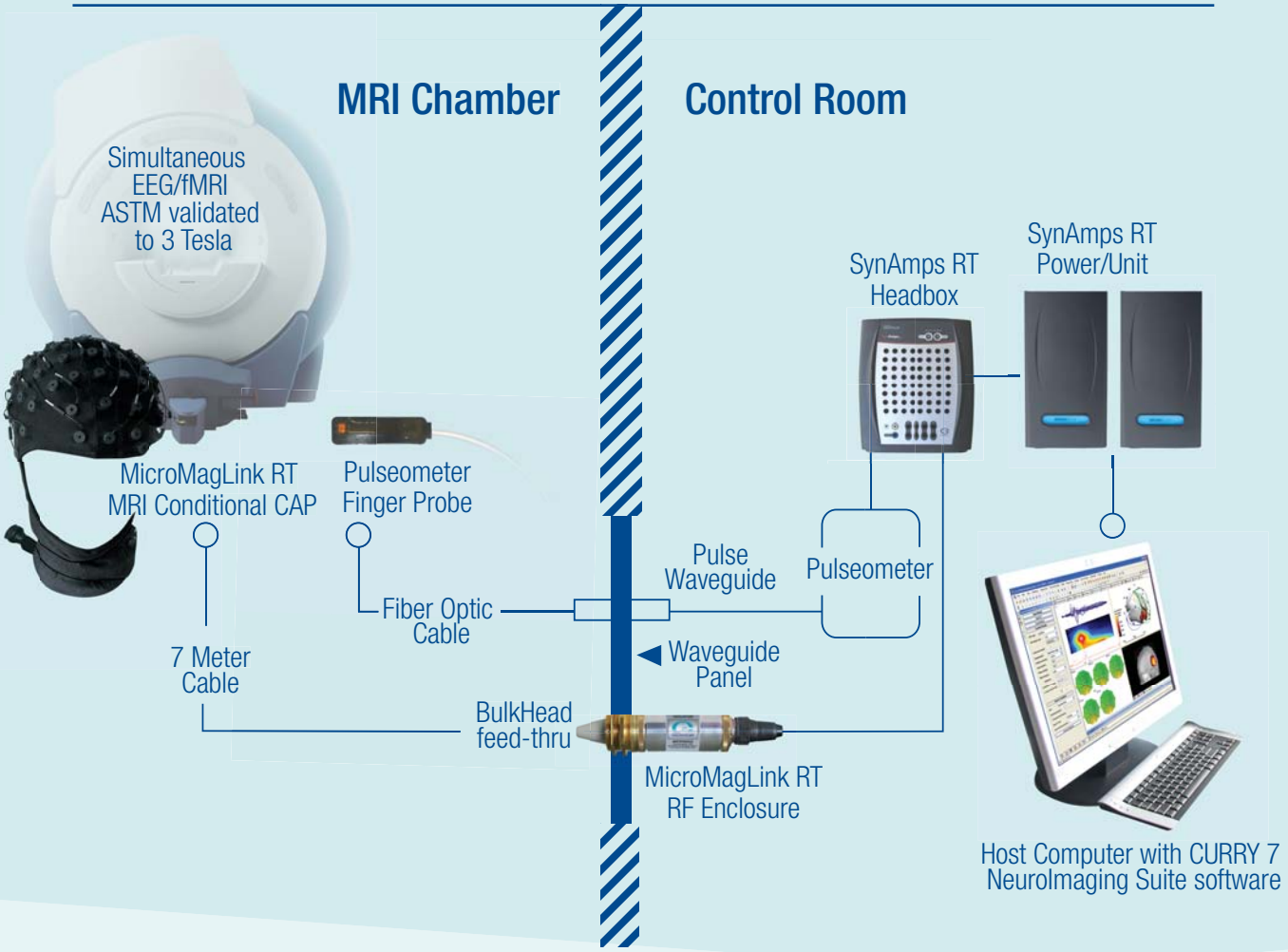
System Setup



COMPUMEDICS®

See More and Do More

www.compumedicsneuroscan.com
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AF999 Version1

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2 DECADES of ADVANCED BRAIN RESEARCH