BRAIN PRODUCTS
Solutions for neurophysiological research

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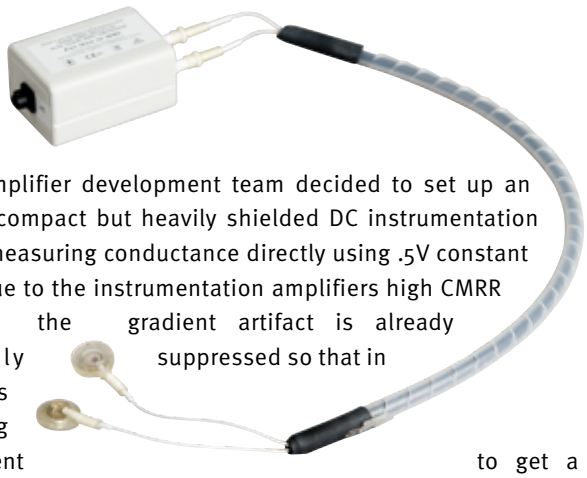
New Product

Brain Products launches long awaited GSR module for fMRI

by Dr. Robert Störmer, Technical Support



Skin conductance (SC) has for decades been one of the most employed measures in psychophysiologic research. As sensitive parameter for emotional and cognitive states, stress and pain SC has also been widely used in psychiatric research. With growing availability of EEG for functional MRI, we've seen increasing demand for the established psychophysiologic parameters in addition to EEG and functional imaging. At the very top of the wish list came EDA/GSR. The initial market survey revealed that there are already some so called MRI compatible GSR devices on the market: These consist in essentially MR incompatible amplifiers, placed in the control room with electrodes stretched to reach the subject though a wall breakthrough.

Based on our EEG/fMRI expertise, we are convinced that the concept of short resistive electrode wires matches safety requirements better than the competitive products. As we are a EEG company, we know about EMC and noise problems caused by galvanicaly connected devices located outside the scanner room. Based on this considerations we started the development of a competely RF poof sensor for use inside the scanner.

Our MR amplifier development team decided to set up an extremely compact but heavily shielded DC instrumentation amplifier measuring conductance directly using .5V constant voltage. Due to the instrumentation amplifiers high CMRR properties, the gradient artifact is already remarkably suppressed so that in many cases smoothing is sufficient to get a laboratory-like GSR signal. The sensor interfaces with the bipolar BrainAmp ExG MR via the ExG AUX interface box and the GSR is recorded synchronously with the EEG.

EMC and IEEC 60601-1 are confirmed by external testing laboratories. The new sensor has been extensively tested in various 3T scanners. The first publications have already been submitted.

It is now possible to add the GSR sensor to your already existing BrainAmp ExG system and record GSR in laboratory-like quality even during functional MRI.

Product Development

BrainVision Recorder

by Dr. Robert Störmer, Technical Support

The Recorder's main module as well as all amplifier specific components have undergone a general overhaul during the last months. This includes fixes, general usability enhancements, Vista x32 support and driver adjustments.

Recorder main module, all amplifiers:

- Added: Toggling of display filters online
- Added: Parameter of AUX-channels stored in header file
- Added: Vista x32 supported USB interfaces (BrainAmp family, V-Amp)
- Added: Confirmation prompt before workspace is saved
- Fixed: Workspace now correctly displayed for Asian OS
- Fixed: Offset of AUX-channels corrected
- Fixed: Trigger debouncing for very low sampling rates
- Fixed: Montages support >64 Channels

V-Amp / FirstAmp driver:

- Fixed: Marker offset at 20kHz and other minor changes

BrainAmp driver and ACC:

- Added: 250Hz low pass for BrainAmp AUX-channels (MR!!)
- Added: SyncBox status logged on-change, SyncStatus indicator
- Added: BrainAmp DC-Correction by TTL trigger
- Fixed: Impedance view now shows correct electrode identifier for bipolar channels
- Fixed: Correct electrode labels for bipolar impedance readings (vhdr)

QuickAmp driver (New Recorder Version for QuickAmp will be released later):

- Fixed: Some multiprocessor PCs caused QuickAmp to stop in very rare cases
- Fixed: No administrator privileges needed any more

The complete installation package is available for registered users from our website.