

imagent™

Functional Brain
Imaging System



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Imagent provides a balance between temporal and spatial resolution for the study of superficially located areas of the human brain. It detects changes in the blood oxygenation levels and perfusion of activated brain areas based on the use of near infrared light.

Key Features

- Frequency-domain measurements providing the average intensity, the amplitude and the phase of the signal
- Up to 512 optical channels
- Up to 50 Hz measurement rate
- External triggering and synchronization options (two instruments can be used simultaneously)
- MRI compatible sensors
- Real-time exporting of data (serial port or TCP/IP)

Measured Physiological Quantities

- EROS (Event Related Optical Signal)
- Functional hemodynamic imaging (head & muscle)
- Absorption, scattering and hemoglobin concentration on an absolute scale (head & muscle):
 - oxy- and deoxy-hemoglobin concentration
 - total hemoglobin concentration (perfusion)
 - oxygen saturation
 - tissue absorption and scattering coefficients

Interface To External Instruments

- Four-channel analog input unit
- Compatible with Brainsight™ by Rogue Research
- Interfaceable to FASTRAK® by Polhemus

Instrument Specifications

Modulation Frequency: 110 MHz standard (Up to 400 MHz)
 Frequency Response: Up to 400 MHz
 Light Sources: Up to 64 laser diodes emitting at 690 nm and 830 nm (Custom wavelengths upon request)
 Detectors: Up to 32 PMTs
 Sensors:

- All fiber optically coupled to subject
- Patches for adults & infants
- Full head for adults
- Up to 10 m long fibers

External signal input: Analog – 4 channels;
 Digital -8 channels

Serial communication: 1 channel
 Software Operating System: Windows 7 (32-bit)
 Electrical Requirements: 110-240 V, 50/60 Hz
 Dimensions: 46 cm x 43 cm x 23 cm
 Weight: Main unit - 20 kg

Software Specifications

Data Acquisition

- Real-time calculation and monitoring of tissue optical properties
- Real-time calculation and monitoring of hemodynamic concentration parameters
- Real-time display of data for each optical channel
- Integration of user supplied real-time calculation library

Data Analysis

- Graphical display of optical data time traces
- Calculation of changes in Hb, HbO and Phase
- High pass and low pass filtering
- Separation of files into blocks of data related to episodes of repeated events
- Data is compatible with several GNU licensed software packages for further image construction and analysis



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