iView X™ MRI-LR

Eye Tracking Solution for fMRI Applications Compatible with Projector-Based Stimulation

SMI SensoMotoric Instruments

The Challenge

The ability to measure and analyze eye movements during visual stimulation is vitally important for the exciting new areas of research conducted using fMRI. This requires

- Fast and reliable measurement of eye movements
- Seamless integration with existing projector setups
- Compatibility with high field magnets
- Full integration with other research equipment
- Portable equipment for use in several magnets
- Analysis functions for eye movement classification

PLEASE ASK FOR AN UP-TO-DATE REFERENCE LIST !

The Solution

The **iView X™ MRI-LR** system brings SMI's sophisticated eye tracking technology into the demanding fMRI environment.

The iView X™ MRI-LR is a highly mobile system that

- Provides truly remote eye movement monitoring, data recording and transmission functions
- Perfectly integrates with various projector setups, scanners and head coils
- Uses elaborate Faraday shielding and fibre optics to avoid any interference with high field magnets
- Can be deployed in and removed from the magnet room within minutes
- Uses a unique Λ–design mirror box (pat. pend.) customized to provide maximum viewing angle
- Provides digital and analog interfaces for easy integration with stimulus software and scanner

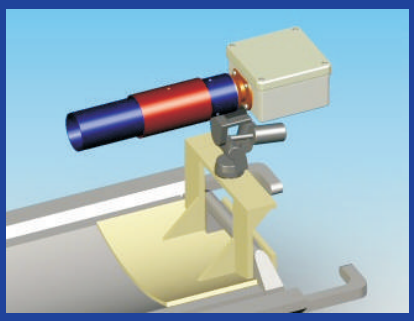
- **Reliable**
- **Easy to use**
- **Accurate**
- **Mobile**

The Results

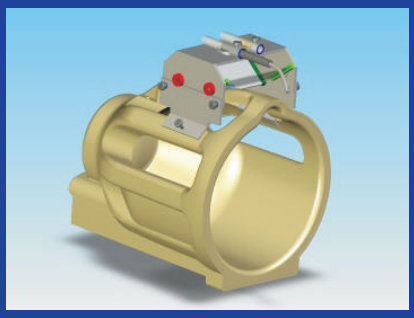
iView X™ MRI-LR collects all relevant eye movement data and allows for fast and accurate control and analysis:

- Reliable measurement of horizontal and vertical gaze position and pupil size
- Real-time data streaming and AOI control for synchronization with stimulus software
- Integrated data analysis (e.g. scan path, fixation sequence, area of interest analysis) can be printed in high quality or exported for documentation purposes
- All recorded data and results are available for further post-processing

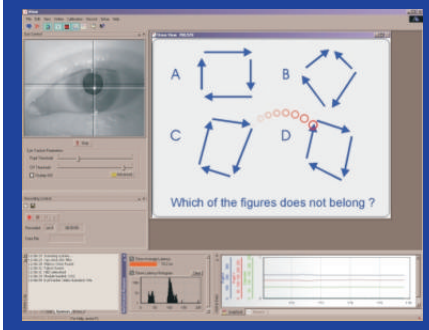
Eye image with pupil and corneal reflex centers identified



Eye camera with Faraday shielding on table mount at foot end of patient bed



Customized mirror box with integrated IR illumination mounted on head coil



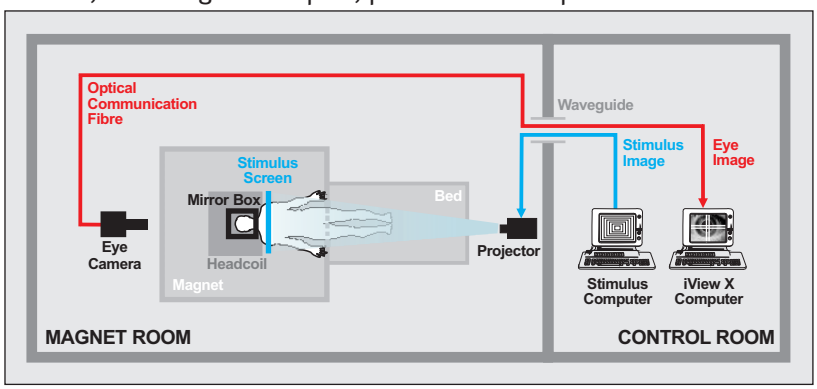
On-line feedback for eye movement and gaze position during experiments

Contact SMI for global distribution network information

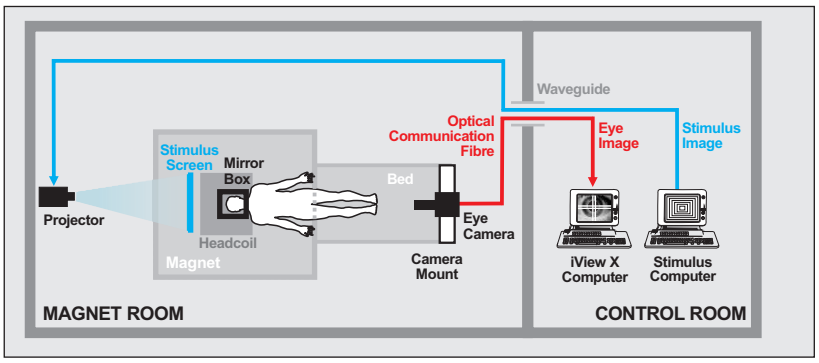
System Setup

The flexible concept of the iView X™ MRI-LR system allows for integration with scanner & projection system in two different ways:

- **Projecting from the foot end:** The eye camera is mounted on a mobile, non-magnetic tripod, placed at the top end of scanner:



- **Projecting from the top end:** The eye camera is fixed to a table mount customized to fit the foot end of the patient bed:



Specification - iView X™ MRI-LR System

Technology

- Non-invasive, video-based eye tracking
- Monocular; Pupil/Pupil-CR; dark-pupil

Performance

- Sampling Rate: 50/60 Hz
- Tracking Resolution: 0.1° (typ.)
- Gaze Position Accuracy: 0.5° - 1° (typ.)
- Working Range: ± 15° hor/ ± 10° vert (typ.)

Operating System

- Windows XP
- Dedicated workstation

Interface

- Dimensions [mm]
  - Eye Camera: 80H x 500W x 120D
  - Mirror Box: customized to head coil
- Power Supply (magnet room): 110-230VAC
  - Optional: Rechargeable battery
- Supported Scanners: Various (contact SMI for info)
- Supported Head Coils: Various (contact SMI for info)

Approvals

- CE, EMC, Eye Safety

SensoMotoric Instruments Inc.
75 Arlington Street, 5th Floor
Boston, MA 0211
USA

SensoMotoric Instruments GmbH
Warthestr. 21
14513 Teltow/Berlin
Germany

www.smivision.com

TÜV CERT DIN EN ISO 9001:2000 Zertifikat: 01 100 055126