iView X™ Hi-Speed 1250

Fastest Video-Based Eye Tracking System

The Challenge

Advanced eye movement research in psychology, neurology, psycholinguistic, physiology, ophthalmology and vision research requires the integration of high-speed eye tracking techniques with an efficient, robust, and easy-to-use measurement process. Therefore, researchers require

- Fast and reliable eye movement measurement
- Easy setup and efficient operation
- Comfortable human interface
- Integrated eye movement analysis functions
- Compatibility with other lab equipment

The Solution

The **iView X™ Hi-Speed 500/1250** system offers the unmatched sampling rate of up to 1250 Hz and processing latencies less than 0.5 milliseconds. The system combines high-resolution camera technology and advanced image processing algorithms with SMI's successful and market-approved head support design while combining subject comfort, operational efficiency, and measurement data quality:

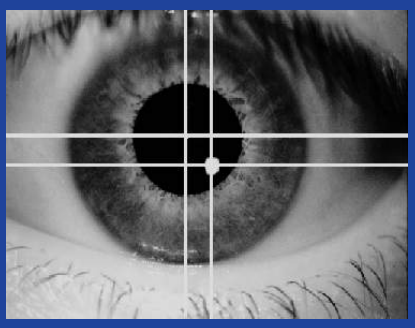
- **Robust and reliable** eye tracking at up to 1250 Hz
- **Adaptive algorithms** with improved auto-setup and built-in validation function
- **High tolerance** for glasses and contact lenses
- **Comfortable design** with ergonomic chin rest and large and unobstructed visual field
- **Monocular and binocular** measurements without any loss in resolution and accuracy
- Streamlined integration with SMI Experiment Suite 360°™ for stimulus delivery and powerful data analysis
- Easy integration with various stimulus packages (e.g. NBS Presentation®, PST E-Prime®, Superlab™)
- **Compatible** with EEG systems

The Results

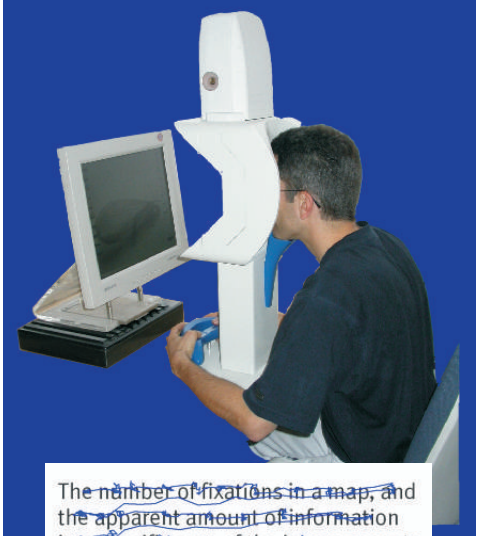
The **iView X™ Hi-Speed 500/ 1250** system records all relevant data and allows for efficient control and analysis:

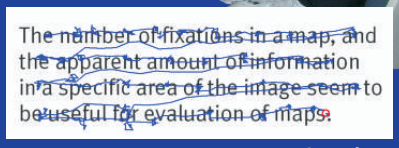
- **Measures** gaze position (x/y) in screen pixels or millimeters
- **Measures** pupil size (relative and absolute dimensions)
- **Performs** automatic on-line analysis of user-defined areas of interest (AOI) within visual field
- **Provides** advanced data analysis (saccade analysis, fixation sequence, area of interest analysis, attention map) with separate **BeGaze™** analysis software
- **Exports** recorded data to ASCII for post-processing using statistical software (e.g. MATLAB®, SPSS®, Excel™)

SMI
SensoMotoric Instruments

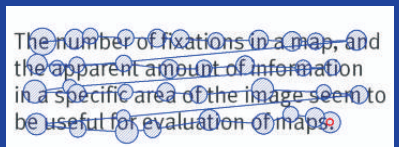


- **Ultimate Speed up to 1250 Hz**
- **Extremely Precise**
- **Lowest Latencies**
- **Mono & Binocular**
- **Out-loud Reading**
- **EEG Compatible**

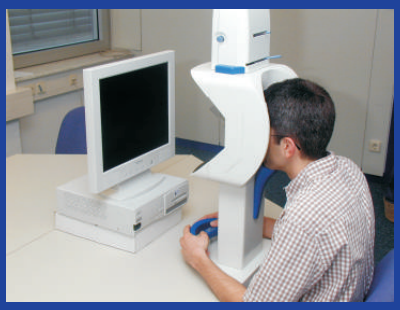




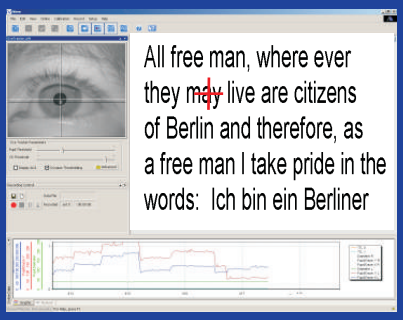
Raw data recorded with iView X™ Hi-Speed



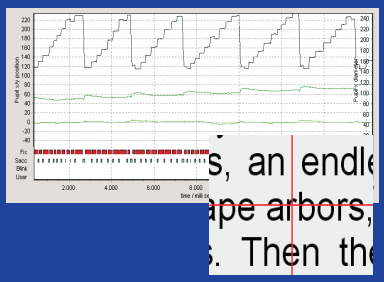
Fixation analysis using BeGaze™



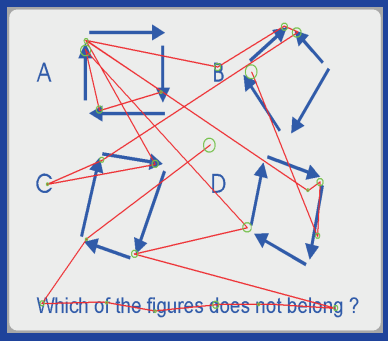
Ergonomic chin rest assures accuracy during long-term recordings



Easy-to-use iView X™ Windows XP user interface



Automatic saccade detection and reading analysis using BeGaze™



Gaze path visualization on user defined areas of interest using BeGaze™

Contact SMI for global distribution network information

Specifications – iView X™ Hi-Speed

Technology

- Non-invasive, video-based eye tracking
- Monocular and binocular dark-pupil tracking, pupil/pupil-CR

Performance

Sampling rate	1250 Hz / 500 Hz (monocular) 500 Hz (binocular)
Tracking resolution	< 0.01° (typ.)
Gaze position accuracy	0.25° - 0.5° (typ.)
Processing latency	< 0.5 msec
System latency	< 2 msec (typ.)
Viewing angle (hor./vert.)	± 30° / 30° (up), 45° (down)

System

Operating System	Windows XP
Workstation	Desktop / Tower PC

Interface

- Genuine SMI ergonomic design with Integrated camera adjustments
- Height-adjustable chin rest (removable for SpeakAloud™ option)
- Easy-to-clean parts
  Head accessible for simultaneous use of recording and stimulation devices (e.g. EEG electrodes, magnetic coils)
- SpeakAloud™ option for out-loud reading with removed chin rest
- BiteBar™ option for superior head fixation

Auxiliary Devices / Communication

- Audio channel recording
- Open communication interface via Ethernet (UDP)
- Easy integration with third-party stimulus and analysis packages such as Presentation®, E-Prime®, Superlab™, MATLAB®, SPSS®, Excel™
- Analog-Out, Digital IO Interface

System Options

- SMI Experiment Suite 360° (incl. BeGaze™ & Experiment Center™)
- Application Programming Interface (API)

Approvals

- CE, EMC, Eye Safety

Other SMI Products

iView X™ HED

A fully mobile, lightweight head-mounted eye tracking system for tracking gaze position in real life environments. Minimal setup, accurate recording, easy to use and extremely versatile.

iView X™ RED

A truly remote, non-invasive eye tracking system for gaze position tracking on a TFT monitor, projection screen, or magazine. Very easy deployment, fully automatic tracking, accurate recordings, analysis software included.

BeGaze™

An advanced analysis software package for fast and comprehensive visualization and statistical analysis. Provides fast and easy access to directly presentable visuals and data.

Experiment Center™

A highly effective and user-friendly software for stimulus presentation including web pages, video clips, and still images. Provides functions for screen content & user input recording.

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