SMI
SensoMotoric Instruments

NEW: Automated Eye Tracking Data Analysis

SMI Eye Tracking Glasses 2 Wireless

Mobile eye tracking made easy, robust, efficient and versatile

- Mobile eye tracker for real-world research scenarios proven with 100,000+ users
- **NEW** Native, binocular eye tracking up to 120 Hz sampling rate
- Full remote control for wireless live observation, audio feedback and annotations
- **NEW** Low latency synchronization with EEG, motion tracking, VR and other data
- **NEW** Automated analysis of mobile eye tracking data

www.eyetracking-glasses.com

SMI Eye Tracking Glasses 2 Wireless

SMI Eye Tracking Glasses 2 Wireless (SMI ETG 2w) are designed to record a person's natural gaze behaviour in real-time - in a broad range of applications and with outstanding robustness, mobility and ease of use.

Use mobile eye tracking in real-world applications

The glasses come with a small, lightweight SMI ETG 2w smart recorder based on a Samsung Galaxy Note 4. It captures eye gaze data of consumers, athletes, patients and other users allowing them to naturally perform their tasks at hand. The SMI ETG 2w has been proven by best-in-class customers with more than 100,000 participants worldwide.

Record native, binocular eye tracking up to 120 Hz

SMI's high quality eye tracking technology provides native, binocular tracking up to a 120 Hz sampling rate over the whole trackable field of view. Combined with a high definition scene camera and automatic parallax compensation this ensures robust and accurate data over all distances.

Observe and annotate in real-time

With the wireless live capabilities of the SMI ETG 2w, professionals and scientists have full control of a study. From a remote computer or tablet connected via Wi-Fi, operators can collect participant properties, perform a calibration, observe live gaze traces, transmit live audio and add live annotations to a user's behaviour. For enhanced productivity, annotations can be used in SMI BeGaze analysis software to efficiently focus data analysis on relevant sequences of the recorded data.

Synchronize with other data streams

The SMI ETG 2w with mobile connectivity and network time synchronization allows for low latency synchronization with EEG, motion tracking, virtual reality and other data streams - online and offline, with millisecond precision and no compromise on mobility.

Access live data with wireless SDK

The wireless SDK feeds a real-time stream of gaze, pupil data, eye tracking video and audio signals into connected applications. Wireless logging of incoming trigger messages supports synchronization with events in other data streams. To facilitate synchronization, SMI plug-ins are available for standard communication protocols such as Lab Streaming Layer or VRPN.

Be efficient and productive in design, setup, recording and analysis

The SMI ETG 2w covers the whole process from study design, participant setup and data recording to efficient analysis.

The recording software collects participant properties and questionnaires. Live feedback of calibration and live observation of the recording make it easy to control study progress even with demanding subject groups. With its easy and calibrationless setup, the SMI ETG2w is ready to start recordings of a participant within seconds. The smart recorder allows for full mobility even in highly dynamic everyday research tasks.

With SMI BeGaze analysis software qualitative data can be analysed, exported and visualized in the form of heat maps and focus maps, gaze replays, scan paths and bee swarms. Quantitative results are available with more than 100 statistical parameters and as visualizations such as SMI's unique KPI (Key Performance Indicator) and Gridded AOI module.

For efficient synchronization with other data streams, SMI BeGaze exports time stamps of the recorded PC clock as well as of incoming trigger messages for each data sample, thus facilitating analysis of co-registered data.

Automated analysis of mobile eye tracking data

SMI Automated Semantic Gaze Mapping (ASGM) is a web-based automated analysis solution for mobile eye tracking data. It processes studies of any size, eliminates the need for manual mapping, affords faster throughput times, and is highly scalable.

Observe special user groups with snap-on corrective lenses and sun glasses

The magnetic snap-on corrective lenses for mobile eye tracking studies allow to cover the maximum user population. The SMI ETG 2w also comes with insertable sun glasses which ensure robust tracking in outdoor situations.

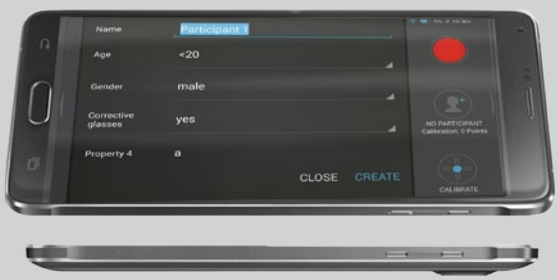
Explore your own applications with unique application modules

The SMI ETG 2w offers flexible application modules, such as:

- snap-on 3D stereo shutter glasses
- optical head and motion tracking modules
- data integration modules for mobile EEG
- cognitive workload assessment
- trigger and trigger messages for synchronization

Learn more: www.eyetracking-glasses.com

NEW Lightweight SMI ETG 2w smart recorder with fully mobile connectivity



The lightweight SMI ETG 2w smart recorder is based on a Samsung Galaxy Note 4. It captures eye gaze data with no compromise on mobility, while offering wireless and local access to the recording interface. All SMI ETG 2w smart recording devices (Android and Windows) come with mobile connectivity functionalities and trigger support for researchers seeking to combine visual attention with biometric data, motion tracking and other external data streams. This is complemented by a wireless SDK with live data streaming.

Flexible SMI ETG 2w Packages

SMI offers packages for SMI ETG 2w tailored to specific uses. The packages range from live observation to quantitative data aggregation with SMI Semantic Gaze Mapping. Please inquire for special Virtual Reality and Motion Tracking packages. The 120 Hz tracking mode for the SMI ETG 2w is available as an upgrade module and comes with additional Windows smart recording devices.

SMI ETG 2w Packages [1]	SMI ETG 2 Observation	SMI ETG 2 Wireless Observation	SMI ETG 2 Wireless Analysis	SMI ETG 2 Wireless Analysis Pro
Recording/Observation				
Gaze video recording	√	√	√	√
Wired live view	√	√	√	√
Wireless live view and control	x	√	√	√
SMI ETG 2w smart recorder	x[2]	√	√	√
SMI Software Development Kit (SMI SDK) with wireless live data access	x	√	√	√
Trigger and annotation message recording	x	x	√	√
Analysis				
Qualitative using SMI BeGaze analysis software Evaluate single user gaze videos, include behavorial live annotations and live audio, perform Retrospective Think Aloud, create customized gaze videos, analyze fixation data and raw data	x	x	√	√
Quantitative Aggregate multiple participant gaze and behavioral data onto reference images with the SMI Semantic Gaze Mapping [4] module and combine both in SMI advanced visualizations and statistics	x	x	x	√
Automated Automated aggregation of multiple participant gaze data onto reference images with SMI Automated Semantic Gaze Mapping	x	x	√[6]	√
Compatibility of Modules				
SMI 120 Hz Upgrade module [3] Native, binocular 120 Hz eye tracking module including Windows smart recording devices	x	x	√	√
SMI 3D Stereoscopic Vision module [1 4] Snap-on shutter glasses for realistic 3D user experience	x	x	√	√
SMI Optical Head Tracking module [1 4] Real-time head/motion tracking support via VRPN	x	x	√	√
SMI Mobile Emotiv EEG module [4] Synchronize data of the Emotiv EEG Neuroheadset	x	x	√	√
SMI Cognitive Workload module [4] Combine data with the patented Index of Cognitive Activity (ICA)	x	x	√	√
Multi-user SMI Semantic Gaze Mapping module Multi-user SGM license not bound to network connection	x	x	x	√
SMI Corrective Lenses module [4] Snap-on corrective lenses for people wearing vision correction spectacles	√	√	√	√
SMI Trigger module [5] PCI Express card with parallel port for hardware trigger	x	x	√	√

[1] special Virtual Reality and Motion Tracking packages available
[2] recording on customer PC/laptop meeting SMI specifications
[3] for ETG 2.5 and higher, to be used with Windows recording devices only
[4] for details see special flyer
[5] requires Windows laptop with PCI Express interface
[6] additional costs apply

Technical Data[1]

SMI ETG 2w

Human interface design	Non-invasive video based glasses-type eye tracker; Insertable sun glasses included
Glasses weight	47g
Calibration	Calibrationless gaze tracking; 1-/3-point calibration; Offline calibration correction
Validation	Live validation of gaze tracking quality
Parallax compensation	Automatic parallax compensation
Sampling rate	60 Hz native, binocular 120 Hz native, binocular [2]
Gaze tracking accuracy	0.5° over all distances (typ.)
Gaze tracking range	80° horizontal, 60° vertical (typ.)
Scene camera	Resolution: 1280x960p @24 fps; 960x720p @30 fps; HDR (high dynamic range) mode with high sensitivity for low light
Scene camera field of view	Field of view: 60° horizontal, 46° vertical
Eyewear compatibility	Works with contact lenses and most vision correction spectacles; Snap-on corrective lenses from +/- 4 diopter available
Audio	Integrated microphone [1]
Wireless control	Online scene video with gaze cursor, tracking status, eye images; Wireless live control, live audio and live annotations via Wi-Fi connected Windows device Wi-Fi standard 802.11 a/b/g/n/ac
Interfacing	VRPN interface Real-time data streaming with SDK (raw and fixation data, pupil measurements etc.) Wireless logging of incoming trigger messages and PC clock Hardware trigger via PCI Express card with parallel port [3] Wi-Fi standard 802.11 n; GigabitLAN 802.3 a/b
Norm compliance	CE Declaration of Conformity; EN55022:05/2008 (class A); EN55024:10/2003; EN62471:2008; IP Class: 20

SMI ETG 2w Smart Recorder (Android)

Dimensions	153x 78 x 8.5 mm (length x width x height)
Weight	176g
Options	Wireless control via Wi-Fi connected Windows device
Recording time	up to 120+min. without battery exchange[4], up to 360 min. with power extensions[4]
Storage capacity	20hrs recording

[1] some specifications refer to package options
[2] upgrade module, only with Windows smart recording device
[3] with SMI ETG subnotebook or laptop meeting SMI specifications
[4] wireless may reduce battery run time

Contact information

SensoMotoric Instruments GmbH
Warthestr. 21
14513 Teltow
Germany

Phone: +49 (0) 3328 - 3955 - 10
Fax: +49 (0) 3328 - 3955 - 99
E-mail: sales@smi.de

SensoMotoric Instruments Inc.
236 Lewis Wharf
Boston, MA 02110
USA

Phone: +1 - 617 - 557 - 0010
Fax: +1 - 617 - 507 - 8319
E-mail: sales@smivision.com

SensoMotoric Instruments Inc.
5 3rd Street
San Francisco, CA 94103
USA

Phone: +1 - 617 - 557 - 0010
Fax: +1 - 617 - 507 - 8319
E-mail: sales@smivision.com

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