SMI
SensoMotoric Instruments

60 Hz
Eye Tracking

SMI Eye Tracking Glasses 2.0

Objective insights into real-world visual behavior

- Instant calibrationless setup and live view
- New Recording Unit 2.0 for extra-long mobile tasks (4+hrs)
- Binocular 60Hz eye tracking sampling rate
- Data aggregation without visual markers*
- Virtual reality and mobile EEG options*

* Optional Packages

SMI Eye Tracking Glasses 2.0

SMI Eye Tracking Glasses 2.0

Since its launch, SMI Eye Tracking Glasses (ETG) have revolutionized the way consumer researchers, sports scientists, usability experts and psychologists gain objective insights into real-world visual behavior. The next generation, SMI Eye Tracking Glasses 2.0, comes with an elevated eye tracking sampling rate of 60Hz and a new SMI-ETG Recording Unit 2.0 for extra-long mobile tasks.

Instant setup, fully mobile insights

With its instant calibrationless setup, SMI 's glasses-type eye tracker is a widely appreciated tool which reveals implicit factors of cognition and decision-making by capturing the eye movements of the wearer. Renowned research institutes and global brands use it to test shelf layouts and package designs, assess athletes' performance, evaluate user strategies and to monitor social interaction and rehabilitation.

Reliable binocular eye tracking data

SMI's high quality eye tracking data relies on the binocular tracking technology further refined with SMI Eye Tracking Glasses 2.0. Movements of both eyes are captured by two small cameras on the rim of the glasses. Automatic parallax compensation ensures accurate data over all distances with no need for manual adjustments. With its unique interchangeable eye glasses, SMI Eye Tracking Glasses 2.0 are also perfect for outdoor use.

Scene details in HD quality

The HD scene camera of SMI Eye Tracking Glasses 2.0 runs at 30Hz and features an unprecedented level of detail and a wide dynamic range with high sensivity for low light conditions.

Live observation

SMI Eye Tracking Glasses 2.0 provide full control over your study through live observation of eye movements. Combined with the SMI-ETG Laptop, the free SMI SDK/ API allows real-time data access and easy integration with other mobile technologies, e.g. EEG and GPS.

Data aggregation without markers

SMI Eye Tracking Glasses 2.0 cover the whole process from study design and data recording to efficient analysis. SMI's BeGaze analysis software allows for aggregation of eye tracking data over multiple participants with the unique SMI Semantic Gaze Mapping* technology. The technology works without distracting and cumbersome to place visual markers and is based on a unique SMI fixation detection for dynamic environments. Eye tracking visualizations such as heat maps and statistics can easily be exported for further analysis.

Real 3D experience and 6D head tracking

For applications in virtual environments, SMI Eye Tracking Glasses 2.0 can be combined with SMI 3D Eye Tracking* for realistic 3D user experience and with SMI 6D Head Tracking* for real-time head and motion tracking support via the standard VRPN interface.

Neuro-visual insights with mobile EEG

To reveal individual patterns of attention along with the corresponding emotional states, eye movements captured with SMI Eye Tracking Glasses 2.0 can be synchronized automatically with brain response data recorded with the wireless Emotiv EEG Neuroheadset*.

Learn more at: www.eyetracking-glasses.com

Recording Devices

SMI-ETG Recording Unit 2.0

Based on a customized Samsung Galaxy S4 smartphone, the SMI-ETG Recording Unit 2.0 offers a new level of independent mobility for studies with SMI Eye Tracking Glasses 2.0. The pocket-size device allows a minimum of four hours in-field recording without battery swap or recharge at a weight of only 246g. The advanced interface collects participant properties and questionnaires. The new live feedback of a calibration on the scene video makes it easy to control the quality of recordings even with demanding subject groups.

SMI-ETG Laptop

Choose the SMI-ETG Laptop to design your experiments, e.g. create questionnaires. Benefit from real-time observation of eye movements during data collection and optional live synchronization with mobile EEG data. The SMI-ETG Laptop allows real-time streaming and data access via the SMI SDK and enables 6D head and motion tracking support via the VRPN interface. Data recorded with the SMI-ETG Laptop can be loaded directly into SMI BeGaze analysis software enabling instant Retrospective Think Aloud recordings.

** optional software package*

Workflow

Design/ Prepare

Record

Analyze/ Report

1. Design/Prepare

When designing an experiment, determine participant properties and questionnaires to collect during a study and choose calibration and hardware settings. Set up the SMI Eye Tracking Glasses 2.0 with a participant and perform a calibration/validation. Validate with the instant live feedback on the scene video. For real 3D user experience and 6D head tracking support, add the snap-on for virtual reality studies.

2. Record

You have two options to record the scene video and eye tracking data with SMI Eye Tracking Glasses 2.0. Use the SMI-ETG Recording Unit 2.0 for fully mobile data collection. Choose the SMI-ETG Laptop for live observation and real-time data access via the SMI SDK as well as for SMI 6D Head Tracking support and synchronization with mobile Emotiv EEG data.

3. Analyze/Report

Watch your scene videos with gaze overlay in SMI BeGaze analysis software. Use SMI Semantic Gaze Mapping to efficiently quantify and visualize consolidated eye tracking data taken from multiple participants on target areas. Export statistics and visualizations like heat maps and key eye tracking metrics (KPIs).

	SMI-ETG Laptop 	SMI-ETG Recording Unit 2.0 
Design/Prepare		
Define experiment & questionnaires	√	x
Collect participant properties and questionnaires	√	√
View eye videos/assess tracking	√	√
Calibrate & validate with live feedback on scene video	√	√
Record		
Quick Run[1] & Experiment Run[2]	√	√
Gaze data at 60Hz and 30Hz	√	√
Audio	√	√
Live observation during recording	√	x
Data access/streaming via SMI API/SDK	√	x
Analyze		
Videos with gaze overlay	√	√
Instant RTA	√	x
Offset correction	√	√
SMI Semantic Gaze Mapping[3]	√	√
Product Options		
SMI 3D Eye Tracking with active shutter glasses[3]	√	√
SMI 6D Head Tracking support via VRPN interface[3]	√	x
SMI Mobile EEG for synchronization of Emotiv EEG data[3]	√	x

[1] Quick Run: Standard settings are used, data is stored separately for every participant.
[2] Experiment Run: Customized settings are used, data is stored in one experiment folder for all.
[3] Optional package

Technical Data

SMI Eye Tracking Glasses 2.0

Human interface design	Non-invasive video based glasses-type eye tracker
Glasses	Weight: 68g, size: 173 x 58 x 156 mm, head width (ear-to-ear): 138 -180 mm, Estimated age: 4+
Calibration	Instant gaze cursor with 0,1 and 3-point calibration modes (pre-recording), validation on SMI-ETG Laptop and SMI-ETG Recording Unit 2.0, offline gaze correction
Eye tracking principle	Binocular eye tracking with automatic parallax compensation; Pupil/CR, dark pupil tracking
Temporal resolution	60Hz and 30Hz binocular
Gaze position accuracy	0.5° over all distances, parallax compensation
Tracking distance	40cm - ∞
Gaze tracking range	80° horizontal, 60° vertical
HD scene camera	Resolution: 1280x960p @24 fps; 960x720p @30 fps; Video format: H.264; Field of view: 60° horizontal, 46° vertical HDR (high dynamic range) mode with high sensitivity for low light
Eyewear compatibility	Works with contact lenses
Audio	Integrated microphone
Online communication	Online scene video with gaze position, pupil diameter/position, tracking status, eye image Online interfacing via SDK (Ethernet & WLAN)[1]
Digital data access	Network connection (Ethernet/UDP)
Norm compliance	CE Declaration of Conformity; EN55022:05/2008 (class A); EN55024:10/2003; Eye Safety EN62471:2008; IP Class: 20

[1]SMI-ETG Laptop only

Recording Devices

	SMI-ETG Laptop	SMI-ETG Recording Unit 2.0
Dimensions	305 x 206 x 34 mm (length x width x height)	135x 69 x 23 mm (length x width x height)
Weight	1300g	246g
Options	- parallel LPT adapter - backpack - SMI API/SDK	-
Recording time	2hrs+ without battery change[2]	4hrs+ without battery exchange[2]
Storage capacity	180hrs+ recording	10hrs recording

[2]when display is turned off

Optional Packages

SMI 3D Eye Tracking [3]	Snap-on with active 3D shutter glasses, 3D receiver
SMI 6D Head Tracking [3]	Snap-on with passive head tracking targets, VRPN interface, standard target definition
SMI Semantic Gaze Mapping [3]	Available with SMI Mobile Video Analysis Software
SMI Mobile EEG Package [3]	Plugin for iView ETG and SMI BeGaze analysis software for synchronization of Emotiv EEG data
SMI RTA Package	Add-on software package for Retrospective Think Aloud (RTA) recordings

[3]for details please request special flyer