Product Description

Tobii® Technology

Tobii Glasses

Eye Tracker

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Tobii Glasses Eye Tracker

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Product Description for Tobii Glasses Eye Tracker
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Introduction

Groundbreaking new technology and design make it easy to use mobile eye tracking for shopper research, sports research, usability testing, media research, training and evaluation and many other commercial and scientific research areas. Discreet, ultra lightweight design ensures natural user behavior and research validity. Automated data mapping and aggregation, along with system guided procedures, promote supreme process efficiency. Robust eye tracking capabilities can be relied on in uncontrolled situations and a real world environment.

This document describes the technical features and functionality of the Tobii Glasses Eye Tracker:

Basic Operating Principles

Tobii Glasses

- Camera captures what the subject sees
- Sensor communicates with IR markers
- Eye tracking sensor registers the reflection of the eye
- IR illuminators create glints on the subjects's eye
- Microphone picks up subject's comments

Recording Assistant

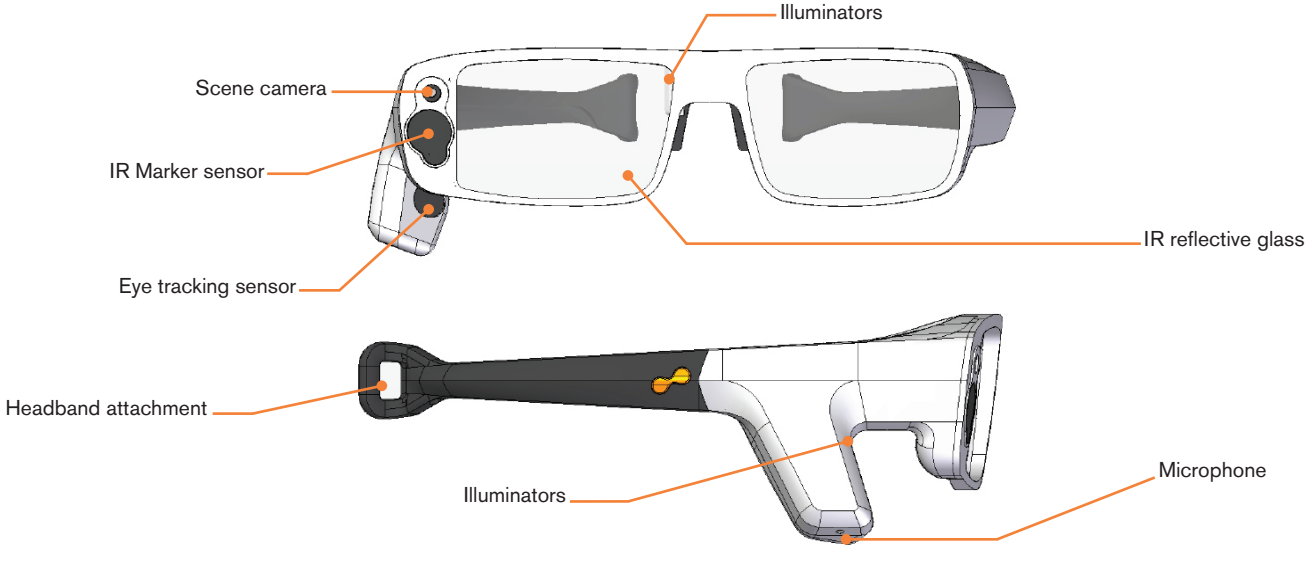
- Records the eye tracking data, AOA snapshot, video, audio, and the positions of the IR markers on a memory card.
- Guides you through the calibration of the subjects to secure reliability and remove any subjective judgment.
- Shows information about eye tracking quality, battery life, etc.

IR markers

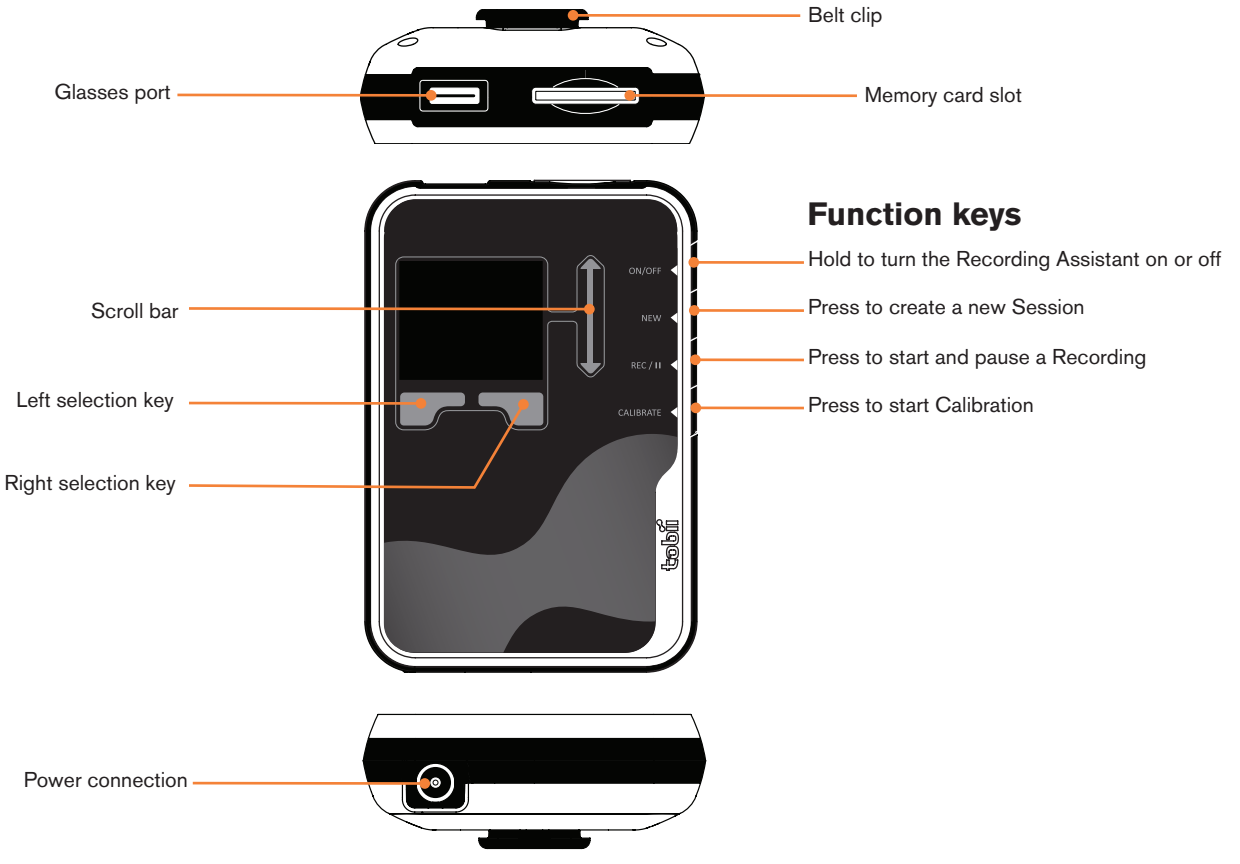
- Communicate with the Tobii Glasses using invisible infrared light.
- When placed in an IR Marker Holder it defines [1]AOAs around the research site.
- When used without the holder it functions as a calibration reference point. The calibration can be done by holding the marker against any flat surface.

[1] An Area of Analysis (AOA) is a marked area that can be used to aggregate gaze data for quantitative analysis and to make visualizations such as gaze plots and heat maps using data from multiple participants. An AOA can also be seen as a defined virtual plane, placed over an area that will be analyzed and can contain smaller AOI's (Areas Of Interest) to be used for producing visualizations or statistics. This virtual plane is marked by at least 4 IR Markers placed on or around the area of analysis. AOA's are recognized by Tobii Glasses using IR Markers in combination with the IR Marker sensor in the glasses. By making a photo or "Snapshot" of an AOA, Tobii Studio can overlay the aggregated gaze data from multiple participants on this image.

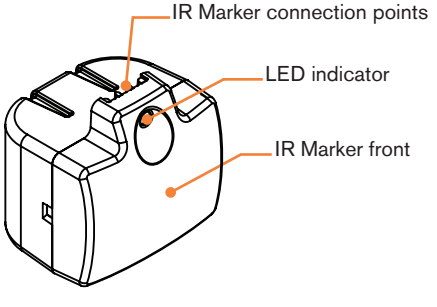
Tobii Glasses



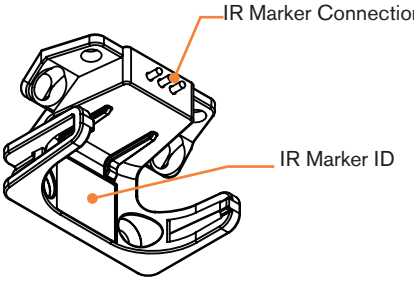
Recording Assistant



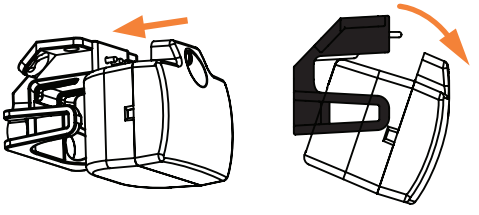
Tobii IR Markers and Holders



IR Marker



IR Marker Holder



Placing and removing the IR Marker from the Holder

IR Markers are essentially devices that communicate their location to Tobii Glasses using Infra Red light. When the IR Markers are connected to a IR Marker Holder it sends out an unique IR Marker ID to the glasses. This unique ID is determined by the IR Marker Holder and is used to define the AOA's. Tobii can supply up to 120 different unique ID's for IR Marker Holders.

Technical Specifications

Tobii Glasses beta release	
Eye tracking technique	Pupil Centered Corneal Reflection, Dark pupil
Eye tracking	monocular, right eye
Data rate	30 Hz
Firmware	Embedded
Calibration procedure	System guided with 9 points
Post calibration	Yes
Calibration validation	Yes
Sound recording	Yes
Automatic data mapping	Yes, with IR Markers
Parallax compensation tool	Yes, featured in Tobii Studio
Ingress protection	IP class 20

Glasses	
Material	Plastic, rubber, glass
Color	Metallic silver, black
Lenses	Hot mirror glass, IR reflective coating
Microphone	Integrated
IR leds	4
Nose pad	Rubber, interchangeable
IR Marker Communication	Integrated sensor
Scene camera video format & resolution	MJPG2000, 640x480 pixels @30 fps
Scene Camera snapshot format & resolution	JPEG 1.3 Mega Pixels
Scene camera lens aperture and focal length	F2.8 - 4,31mm
Scene camera recording angle/ visual angle	56 degrees horizontal 40 degrees vertical
Cable length	1100 mm 43,5“
Frame dimensions (hight x width x depth)	56 x 175,1 x 157,2 mm 2,2 x 6,9 x 6,2”
Weight	75 g 0.17 lbs

Recording Assistant	
Display	OLED, 160 x 128 pixels
Controls	Touch sensitive & rubber push keys
Storage media	SD HC card (Tobii approved only)
Maximum card size	4 GB
Maximum file size per recording	2GB
Maximum recording time	60-70 minutes
Main battery	Rechargeable Li-Polymer (Varta Ezpack, 3, 7V 2260mAh)
Main battery life	up to 70 minutes
Clock battery	CR1220, 3V
Clock battery life	1 month (without the main battery)
Connectors	Tobii proprietary glasses and power (+5V, 2.0 A) connectors
Dimensions (length x width x depth)	123 x 83 x 32,5 mm 4.84 x 3.27 x 1.3”
Weight	200 g 0.44 lbs

IR Markers	
Color	Black
IR Marker range	60-250 cm 23.6-98.4”
Tolerated angles of IR markers	90-150 degrees (depending on viewing distance)
Battery	Integrated with an RGB LED indicator
Battery duration of IR-markers, in active mode & stand-by	240 minutes 14 days
Charging time	0-100%: max. 7 hours
Dimensions (height x width x depth)	27 x 29 x 24 mm 1,1 x 1.1 x 0,9”
Weight	31g 0,07lbs

IR Marker Holders	
Mounting	screw hole and mounting tape surface
Unique IDs	120
Dimensions (height x width x depth)	22 x 35 x 18 mm 0,9 x 1.1 x 0,7
Weight	4g 0,01lbs

Tobii Glasses Packages - Features and Content

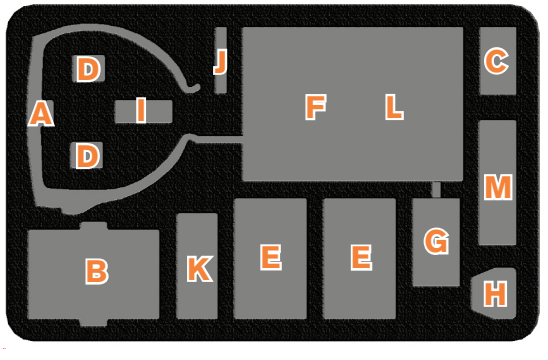
Hardware package

Items/Features	Glasses Base	Glasses Smart IR*
Tobii Glasses	▪	▪
Recording Assistant	▪	▪
AOA-Track automatic data mapping		▪

* The package includes 30 IR markers. Additional markers can be bought separately.

Tobii Studio software editions

Features	Tobii Studio Professional	Tobii Studio Enterprise
Replay with gaze data	▪	▪
AOA-Track automatic data mapping		▪
Eye tracking data visualization		▪
Statistics tool		▪
Data export functionality	▪	▪
Manual parallax compensation tool	▪	▪

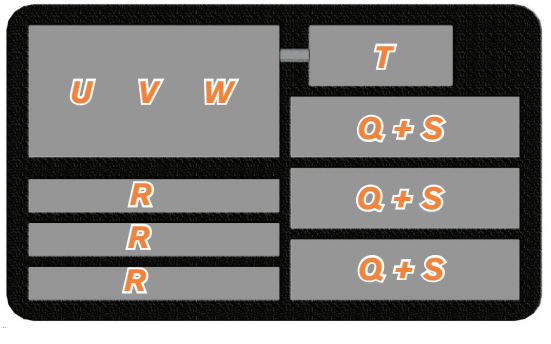


Tobii Glasses Case

A. Glasses
B. Recording Assistant (with 1 battery)
C. Recording Assistant Batteries (3)
D. IR Marker (for calibration) (2)
E. Battery charger(2)
F. Battery charger cable (2)
G. AC power supply
H. Wall socket adapter
I. Memory cards 4GB (3)
J. Memory card reader
K. Nose pads (4)
L. Headband
M. Micro fiber cloth

Inside the case pocket:

- Tobii Glasses User Manual
- Tobii Glasses Field Guide
- Smart IR/Total Pack Field Guide



Optional:

IR Marker case ***(with Smart IR / Total Pack)***

Q. IR Markers (30)
R. IR Marker Holders (30)
S. IR Marker charger (3)
T. AC power supply
U. AC power cable
V. AC power splitter
W. Mounting tape