



Tobii Pro Spark

Product Description

November 2022





Tobii Pro Spark Product Description

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Please visit [Tobii Connect](#) for updated versions of this document.

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1 Overview of Tobii Pro Spark

Tobii Pro Spark is a compact, high-performance data collection solution that you can take into the field. Use Tobii Pro Spark when your research takes you to locations and to subjects that would otherwise be hard to bring to the lab. You can collect data in classrooms, hospitals, libraries, and other locations where your subjects are easier to recruit.

With sampling frequencies of up to 60 Hz, one eye tracking camera, and two pupil tracking modes (bright and dark pupil), Tobii Pro Spark enables you to adapt your data collection setup to different research populations and scenarios.

Use Tobii Pro Spark for studies on:

- Windows, macOS and Linux laptop and desktop computers
- 27" (16:9) monitors, or smaller
- Real-world setups such as physical objects and social interactions (using the Tripod Stand)
- Projections, simulators, and larger screens (using the Tripod Stand)

Tobii Pro Spark is primarily designed for use in indoor office environments with adult participants.

1.1 Tobii Pro Spark system requirements

Operating system:	Windows 10, Windows 11 macOS 10.15 Catalina and 12 Monterey Linux Ubuntu 20.04
CPU:	1 GHz, 2 cores
RAM:	2 GB RAM memory* *Software for eye tracking research may require higher RAM
Port:	USB port** Type-A or USB Type-C (with included adaptor) **The average power consumption during usage is 2.0W, but the eye trackers power consumption can peak up to 5-6W depending on the use case. For example, when the illuminators first turn on, the consumption can briefly spike (a matter of milliseconds) at around 5-6W. The Tobii Pro Spark officially works with USB 2.0 BC1.2 which can handle spikes up to 7.5W.

1.2 Tobii Pro Spark versions

Tobii Pro Spark is available in only one product version: 60 Hz.

1.3 What is in the Pro Spark Box



#	Item	Additional information
1	Travel case	Stores, protects, and carries Tobii Pro Spark eye tracker and the included accessories
2	Tobii Pro Spark eye tracker	Used for eye tracking
3	Flex mount	Tobii eye tracker mounting kit for curved monitors or monitors that have very slim bezels
4	USB Type-C male to Type-A female adapter plug	Used when the computer has a USB Type-C port
5	Cleaning cloth	For cleaning the surface of the eye tracker
6	Four mounting plates with non-permanent adhesive	Attaches the Tobii Pro Spark eye tracker to the screen bezel
7	USB extension cable	USB 2.0 Type-A extension cable (1m)
	Two cleaning wipes	Removes any dust and grease in the area around the screen before attaching a mounting plate
	Safety and Compliance Declaration	Printed versions of important regulatory information



1.4 How to use the USB Type-C male to Type-A female adapter

Tobii Pro Spark is connected to a computer via a standard USB Type-A interface.

If your computer has a USB Type-C interface, you can use the included USB Type-C male to Type-A female adapter.

1.5 Tobii accessories

Find out more about Tobii products and accessories on [Tobii product page](#).

1.6 Tobii Pro Eye Tracker Manager

Tobii Pro Eye Tracker Manager is free software available on [Tobii Connect](#).

Tobii Pro Eye Tracker Manager helps you manage your screen-based eye tracker. It lets you see which eye tracker firmware and software versions you are running and facilitates updates (where applicable). It provides:

- Drivers and Firmware installation or updates
- Display setup
- Positioning guide
- User calibration
- Gaze visualization¹

¹Gaze visualization in Tobii Pro Eye Tracker Manager lets you quickly evaluate the quality of the eye tracking data. The gaze visualization overlaps data only on the Tobii Pro Eye Tracker Manager screen while Tobii Pro Eye Tracker Manager is open.

1.7 Additional software options

Tobii Pro Lab https://www.tobii.com/products/software/data-analysis-tools/tobii-pro-lab	Tobii Pro Lab is a comprehensive research software platform for eye tracking designed to meet the highest demands on different research scenarios with exact timing accuracy. This software offers an efficient work-flow, making it easy to design experiments, record data, analyze and visualize eye tracking data, and to sync this data with other biometric data streams.
Tobii Pro SDK https://www.tobii.com/products/software/applications-and-developer-kits/tobii-pro-sdk/tobii-pro-sdk	Tobii Pro SDK offers a broad set of tools that makes it simple to develop a variety of niche applications or scripts across multiple platforms, using a wide range of programming languages. This SDK gives the researcher access to the full set of relevant gaze data streams, such as 3D eye coordinates, raw data, pupil data, etc.
Third-party software	This term refers to any application built on Pro SDK.

2 Technical Specifications

2.1 Eye Tracking Specifications

Eye tracking technique	Video-based Pupil Center Corneal Reflection (PCCR) eye tracking with dark and bright pupil illumination modes. ¹ One camera captures images of both eyes for accurate measurement of eye gaze and eye position in 3D space, as well as pupil diameter.
Sampling frequency	60 Hz (default) or 33 Hz
Precision	0.26° RMS (ideal conditions ²)
Accuracy	0.45° (ideal conditions)
Binocular eye tracking	Yes
Eye tracker latency	1 frame (immediate)
Blink recovery time	1 frame (immediate)
Gaze recovery time	50 ms
Data sample output ³	Timestamp Gaze origin Gaze point Pupil diameter
Eye openness data stream	Not available
Eye image data stream	Not available
TTL input stream	Not available
Tracker and client time synchronization	Integrated between the eye tracker time domain and the client computer time domain.

¹ Each data sample is based on a combination of images using both dark and bright pupil illumination.

² Using built in filtering

³ For more information about output data and the supplementary data stream, read the [Tobii Pro SDK documentation](#).

2.2 Setup

Head movement tolerance*	Good. One-camera system provides an accurate calculation of the data and a good level of precision.
Freedom of head movement* (at 50 cm distance)	Width x height: 20 cm x 20 cm (7.9" x 7.9") (At least one eye tracked)
Freedom of head movement* (at 65 to 80 cm distance)	Width x height: 35 cm x 35 cm (13.8" x 13.8") (At least one eye tracked)
Operating distance (mounted on screen)	45 to 95 cm (29" to 37") from the eye tracker
Optimal screen size	27" (16:9 aspect ratio)

* Describes the region in space where the participant can move their head and still have at least one eye within the eye tracker's field of view (track box) at the specific distance.



2.3 Software Compatibility

Software and framework compatibility	Tobii Pro Lab Tobii Pro Eye Tracker Manager Tobii Pro SDK Any application built on the Tobii Pro SDK
Operating system	Windows, macOS, Linux

2.4 Hardware Versions

Single product version: 60 HZ

2.5 Tobii Pro Spark Eye Tracker Specifications

Dimensions	285 x 15 x 22 mm (11.2" x 0.59" x 0.47")
Weight	97 g (3.4 oz.)
Connectors	USB 2.0 Type-A, 80 cm (31") cable (USB Type-C male to Type-A female adapter included in the package)
Data processing	1 Tobii EyeChip™ ASIC with fully embedded data processing
Eye tracking cameras	1 x Tobii EyeSensor™ Modules

3 Safety Declaration

3.1 Mounting Warning



Tobii Pro Spark should be mounted according to Tobii's instructions for approved mounts.

The mounting bracket is designed to stick to a variety of displays, such as monitors and laptop screens. It is also designed to be removed cleanly. Failure to follow the recommended removal instructions can result in damage to both the monitor/laptop and the mounting bracket. Do not mount the eye tracker on monitors placed above the user, as it might fall.

3.2 Emergency Warning



This eye tracker is designed to be used for research purposes only. Due to the low, but possible risk of failure or distraction, the eye tracker should not be relied upon or used in dangerous or critical situations.

3.3 Epilepsy Warning



Some people with photosensitive epilepsy are susceptible to epileptic seizures or loss of consciousness when exposed to certain flashing lights or light patterns. This can happen even if the person has no medical history of epilepsy or has never had any epileptic seizures.

A person with photosensitive epilepsy is likely to experience similar problems with TV screens, certain arcade games, and flickering fluorescent bulbs. Such people may have a seizure while watching certain images or patterns on a monitor, or even when exposed to the light sources of an eye tracker. It is estimated that about 3-5% of people with epilepsy have this type of photosensitive epilepsy. Many people with photosensitive epilepsy experience an "aura" or feel odd sensations before the seizure occurs. If you feel odd during use, move your eyes away from the eye tracker.

3.4 Infrared Warning



When activated, the eye tracker emits pulsed infrared (IR) light. Certain medical devices are susceptible to disturbance by IR light and/or radiation. Do not use the eye tracker in the vicinity of such medical devices, as their accuracy or proper functionality could be inhibited. Do not stare into the LED lights at a close distance (<15cm).

3.5 Magnetic Field Warning



This eye tracker contains magnets. Magnetic fields may interfere with the function of cardiac pacemakers and implantable cardioverter defibrillators. Maintain a minimum distance of 6 inches (15 cm) between the eye tracker and your heart device.

3.6 Child Safety



An eye tracker is an advanced computer system and electronic device. As such, it is composed of numerous separate, assembled parts. In the hands of a child, some of these parts can become separated from the device, presenting a potential choking hazard or other danger to the child.

Young children should not have access to, nor use of the device or its accessories without parental or guardian supervision.

3.7 Electricity



Do not open the casing of the eye tracker, as doing so could expose you to potentially hazardous electrical voltage. The device contains no user-serviceable parts. Non-compliance will result in loss of warranty! Contact Tobii Customer Care if your eye tracker is not working properly.

3.8 Environment



This eye tracker is designed for use in dry indoor environments. Avoid any exposure to direct sunlight as this will affect eye tracking quality and longer exposure can overheat the equipment. Avoid exposure to any liquids, gels, moisture, rain, sweat or other damp materials and environments. Do not use the eye tracker near water – the device is not water resistant. Keep the eye tracker in a clean and dust free environment. When using the equipment take adequate precautions against dust and dirt. Do not place or use the equipment in places that are subject to extreme temperatures and humidity, such as on top of and or near a heating element, in a hot or damp room, or in a hot automobile.

3.9 Electricity



Only use accessories provided by or approved by Tobii AB.

3.10 Third party



Use of a Tobii eye tracker beyond its intended use or together with third-party software or hardware that changes the intended use is a risk. Tobii AB does not take any responsibility for the consequences of such use.

4 Compliance Declaration

4.1 EU Compliance

CE Statement

CE Tobii Pro Spark is CE-marked, certifying compliance with the essential requirements for health, safety, and environmental protection requirements for the European Single Market. Tobii Pro Spark complies with the following directives:

- 2014/30/EU (EMC) - Electromagnetic Compatibility Directive.
- 2011/65/EU (RoHS) - Restriction of Hazardous Substances Directive.

Other EU Directives and Regulations

Tobii AB and Tobii Pro Spark comply with the essential requirements of the following EU directives and regulations:

- 2012/19/EU (WEEE) - Waste Electrical and Electronic Equipment Directive.
- 1907/2006 EC (REACH) - Registration, Evaluation, Authorization and Restriction of Chemicals.

Furthermore, Tobii AB complies with applicable parts of the Directive 94/62/EC on packaging and packaging waste.

Manufacturer Contact Information

Tobii AB
Karlsrovägen 2D
S-182 53 Danderyd, Sweden

4.2 UKCA Compliance

**UK
CA** Tobii Pro Spark is UKCA-marked, certifying compliance with the essential requirements for health, safety, and environmental protection requirements for the GB market. Tobii Pro Spark complies with the following Statutory Instruments:

- The Electromagnetic Compatibility Regulations 2016. UK Statutory Instruments 2016 No. 1091.
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. UK Statutory Instruments 2012 No. 3032.

Other UK Legislation

Tobii AB and Tobii Pro Spark comply with the essential requirements of the UK regulations regarding WEEE, REACH, packaging, and packaging waste.



UK Importer Contact Information

Tobii UK Limited
1st Floor, Advantage House, 87 Castle Street
RG1 7SN Reading, United Kingdom

4.3 FCC Interference Statement

Tobii Pro Spark has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Tobii Pro Spark generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If Tobii Pro Spark does cause harmful interference to radio or television reception, which can be determined by turning Tobii Pro Spark off and on, the user is encouraged to try to correct the interference using one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between Tobii Pro Spark and the receiver.
- Connect Tobii Pro Spark into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications not expressly approved by Tobii AB could void the user's authority to operate Tobii Pro Spark under FCC rules.

U.S. Responsible Party Contact Information

Tobii Technology, Inc.
12007 Sunrise Valley Dr # 400, Reston
VA 20191, USA

4.4 ISED Statement

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

4.5 Australia and New Zealand Compliance

 Tobii Pro Spark is registered in the Australian National Equipment Registration System.

Tobii Pro Spark is RCM-marked which signifies compliance with the Australian and New Zealand product safety requirement for electrical and electronic equipment according to EESS and radio communication and electromagnetic compatibility according to ACMA

4.6 Japan Compliance

Tobii Pro Spark is VCCI-marked which signifies Tobii Pro Spark is compliant with emission (interference) standards in Japan.



この装置は、クラスB機器です。この装置は、住宅環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCI - B

4.7 Korea Compliance



Tobii Pro Spark is KC-marked which signifies compliance with Korea's product safety requirements for electrical and electronic equipment.

Certificate number:

R-R-TBI-ET5

4.8 Safety Compliance

Tobii Pro Spark complies with the following standards:

- EN IEC 62471:2008, Photobiological safety of lamps and lamp systems.
- EN 62368-1:2014 +A11, Audio/video, information and communication technology equipment - Part 1: Safety requirements.
- IEC 62368-1:2014, Audio/video, information and communication technology equipment - Part 1: Safety requirements.

Including national deviations for Australia, New Zealand, United States, Canada and Japan.

- GB 4943.1-2011, Information technology equipment -Safety - Part 1: General requirements.

4.9 EMC Compliance

Tobii Pro Spark complies with the following standards:

- EN 55032:2015/A11, Electromagnetic compatibility of multimedia equipment. Emission requirements.
- EN 55035:2017/A11, Electromagnetic compatibility of multimedia equipment. Immunity requirements.
- FCC 47 CFR Part 15, Subpart B, Class B.
- ICES-003 Issue 7 Class B, Information Technology Equipment (including Digital Apparatus).
- CISPR32:2015, Electromagnetic compatibility of multimedia equipment - Emission requirements (International standard accepted in AS/NZS and Japan).
- KN32, Electromagnetic interference prevention test for multimedia equipment.
- KN35, Electromagnetic wave immunity test for multimedia devices.

4.10 RoHS Compliance

RoHS compliance for Tobii Pro Spark is achieved by following the standard:

- EN IEC 63000:2018, Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

4.11 Waste Disposal and Recycling

Tobii AB is committed to reducing the environmental impact of our products throughout their lifecycle, from manufacturing to use and disposal. We are a member of various compliance schemes for collection, recycling, and re-using of electronic waste, batteries, and packaging of our products.



Tobii Pro Spark is marked with the crossed-out wheeled bin symbol, which indicates that it must not be disposed of with household waste. You can return your used Tobii Pro Spark to one of the municipality's recycling centers free of charge.

For more information about the WEEE directive and recycling at Tobii, please visit:

[How we run our business](#)

or



5 Product Care

5.1 Operational environment

The recommended range for temperature and humidity during operations is:

- Temperature: 10°C to 35°C (50°F to 95°F)
- Humidity: 20% to 95% (no condensation on the device)

5.2 Transport and storage

Use the provided case when traveling with the eye tracker. For shipping and storage, use the original packing.

For transportation and storage, the recommended range for temperature and humidity for the device is as follows:

- Temperature: -40°C to 70°C (-40°F to 158°F)
- Humidity: 20% to 95% (no condensation on the device)



Tobii eye trackers are not waterproof or water resistant. The eye tracker should not be kept in excessively humid, damp, or wet conditions. Do not submerge the eye tracker in water or in any other liquid. Be careful not to spill liquids on the device.

5.3 Cleaning

- Before cleaning your Tobii eye tracker, unplug its USB cable and electrical cable if there is one.
- Use the included cleaning cloth and clean the eye tracker's front gently.
- Avoid getting moisture in openings on the device.
- Do not use window cleaners, household cleaners, aerosol sprays, solvents, alcohol, ammonia, or abrasives.



Scratches on the front surface of the eye tracker may impair its performance.

5.4 Disposing of the Eye Tracker

Do not dispose your eye tracker in general household or office garbage containers. Follow your local regulations for the proper disposal of electrical and electronic equipment.

5.5 Limitation of Liability

Except where prohibited by law, Tobii AB is not liable for any loss or damage arising from the use or misuse of a Tobii eye tracker or the mounting plate, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including warranty, contract, negligence, or strict liability.



Appendix A Support, Training, and Warranty

A1 Customer Support

If you need help, please contact Customer Care at [Tobii Connect](#). In order to receive assistance as quickly as possible, make sure you have access to your Tobii Pro device and, if possible, an Internet connection. You should also be able to supply the serial number of the device, which you will find on a sticker on the back or bottom of the device.

A1.1 Get help online

Many questions can be answered by visiting [Tobii Connect](#). It contains the latest information about contacting Customer Care, helpful articles and FAQs, links to downloads, and much more. Log in or register to see information about your account and to reach our Customer Care team.

A2 Training and Education Services

If you are new to eye tracking or want to extend your knowledge about eye tracking research, find out about our interactive online sessions, onsite trainings, and consultations on [Training and Education Services](#). In addition, [Tobii Academy](#) is our hub for continuous learning. This e-learning portal is designed to make it easy to conduct eye tracking studies by delivering an experience suited to all types of learning styles in an online platform.

A3 Warranty information

Read more online about [Tobii Pro Care and Tobii's eye tracker warranty](#) (PDF download).

Appendix B Limitations and Considerations

B1 Intended Use



Tobii eye trackers are intended to be used in research activities about human behavior including eye movements, in a dry and dust free indoor environment. The product should only be used as described in this User Manual. Please read the User Manual and other supplied documentation thoroughly before using the product.

B2 Light Conditions



Tobii recommends that eye tracking studies be performed in a controlled environment. Sunlight should be avoided since it contains high levels of infrared light which will interfere with the eye tracker system. Sunlight affects eye tracking performance severely and longer exposure can overheat the eye tracker. This eye tracker is not designed for exposure to (direct) sunlight. Eye tracking generally does not work in strong direct sunlight.

Shielding the eye tracker adequately from the sun may prevent sunlight from interfering with eye tracking.

B3 Eye Lashes



Long eyelashes can be obstructive when the participant's eyes are less open, especially if the participant is wearing mascara. In rare cases, eyelashes may completely block the view of the participant's pupils, making eye tracking impossible.

B4 Droopy Eyelids



Droopy eyelids or otherwise obstructive eyelids can block the view of the participant's pupils. In rare cases, such eyelids may completely block the view of the participant's pupils, making eye tracking impossible.



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Support for Your Tobii Pro Device

Get Help Online

Visit [Tobii Connect](#) for help with your eye tracker. It contains concept articles, FAQs, troubleshooting, and tutorials, as well as how to contact Customer Care and a link to our e-learning platform Tobii Academy.

Contact Your Solution Consultant or Reseller

For questions or problems with your product, contact your Tobii sales representative or authorized reseller for assistance. They are most familiar with your personal setup and can best help you with tips and product training.

Visit tobii.com/contact.