



# AI-X User Guide

Version 9.1



## **AI-X User Guide**

Version 9.1.0

December 8, 2020

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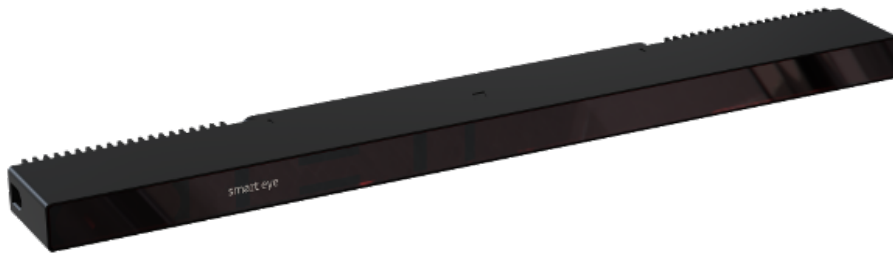
# 1 Introduction

The Smart Eye AI-X is a screen-based high-performance eye tracker. The AI-X design makes it easy to switch between different projects, screens, and situations.

This manual contains useful information about the AI-X eye tracker, ranging from safety and compliance to product care. It also contains information about the mounting procedure and software setup. If any questions or difficulties arises, do not hesitate to contact the support.

## 1.1 Intended use

The AI-X eye tracker is designed for screen-based eye tracking research within marketing, UX and media. The AI-X works well in all indoor illumination conditions, and offers precise and accurate eye tracking on screens up to 24”.



Smart Eye AI-X eye tracker



## 2 Software and System Requirements

### 2.1 System requirements

|                     |  |
|---------------------|--|
| Operating System    | Windows 10 Anniversary Update (version 1607) or newer                |
| RAM                 | 4 GB   |
| CPU                 | Quad core 6th generation Intel Core or Intel Xeon processor or newer |
| Camera Interface    | USB 3.0  |
| Maximum Screen Size | 24" (16:9 aspect ratio)  |

### 2.2 Compatible software

|          |  |
|----------|--|
| iMotions | <a href="http://www.imotions.com">www.imotions.com</a> |
|----------|--|

## 3 AI-X Hardware

### 3.1 What's in the box

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AI-X eye tracker

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Two Chem Pad™ wipes for cleaning the mounting area

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Two mounting brackets with tape

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Safety and setup info note

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### 3.2 Product care

The front glass of the eye tracker needs to be clean in order to ensure optimal tracking. If dirt or dust ends up on the front glass, the eye tracker has to be cleaned in a correct manner.

To clean the front glass use a dry microfiber cloth intended for cleaning cameras, camera lenses, or eyeglasses and carefully wipe the front glass. If unsupported cleaning methods are used the eye tracker might be damaged.

**Warning!** Do *not* use alcohol to clean the front glass, as it may damage the eye tracker!

## 4 Setup

### 4.1 Software installation

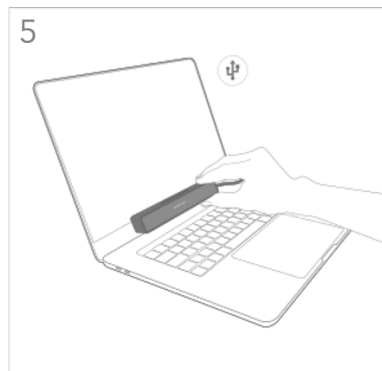
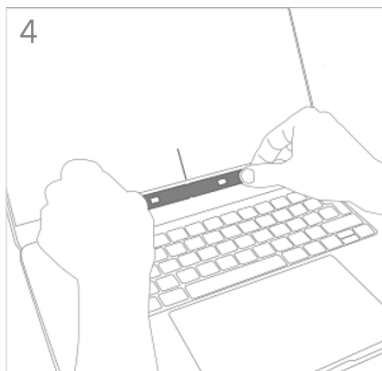
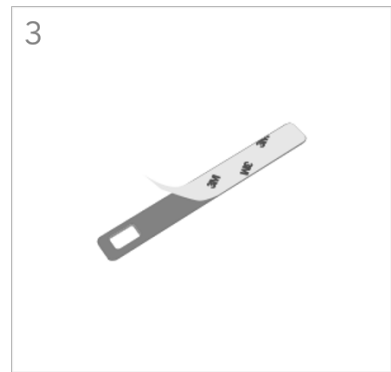
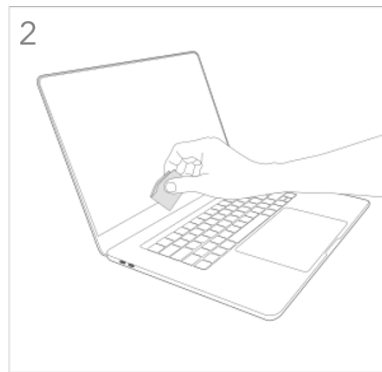
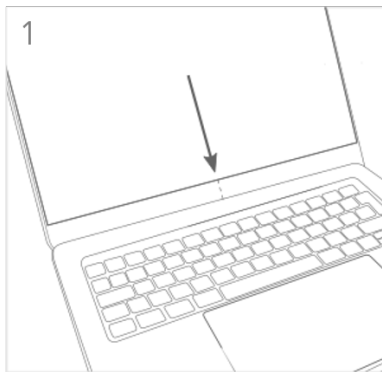
The software Smart Eye Tracker needs to be installed before using your eye tracker. Follow the installation steps below.

1. Launch the Smart Eye Tracker installer by double clicking it.
2. Click the *Install* button to start the installation.
3. A *User Account Control* window will be opened, click *Yes* to continue.
4. A *Windows Security* window will be opened, click *Install* to install eye tracker drivers. The installation may take a while.
5. Click the *Close* button when the installation has finished to exit the installer.

## 4.2 Mounting

The mounting bracket and Chem Pad™ wipe can be found in the box. To mount the eye tracker follow the steps below:

1. Find the center of the lower screen edge by marking manually or by using the center marker in the Smart Eye Setup Tool.
2. Clean the mounting area around the center with the Chem Pad™ wipe.
3. Remove the adhesive tape cover from the bracket.
4. Align the center of the bracket with the center of the lower screen edge. Make sure the bracket is straight. Press and hold for 30 seconds.
5. Attach the eye tracker to the bracket and connect the eye tracker to the computer using the supplied cable. If the cable is of type USB-A, make sure to connect it to a USB 3.0 port on the computer.

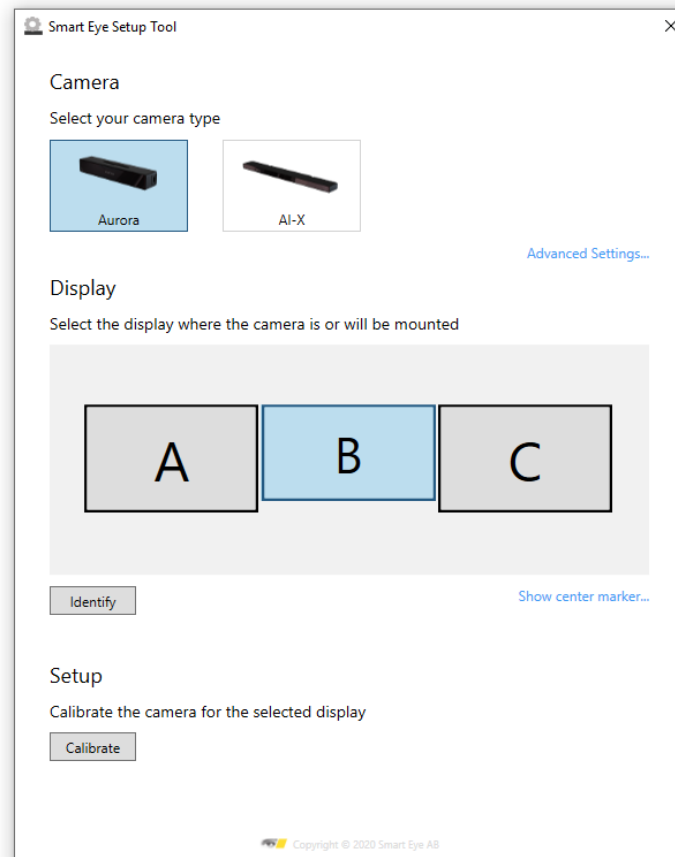




### 4.3 Camera calibration

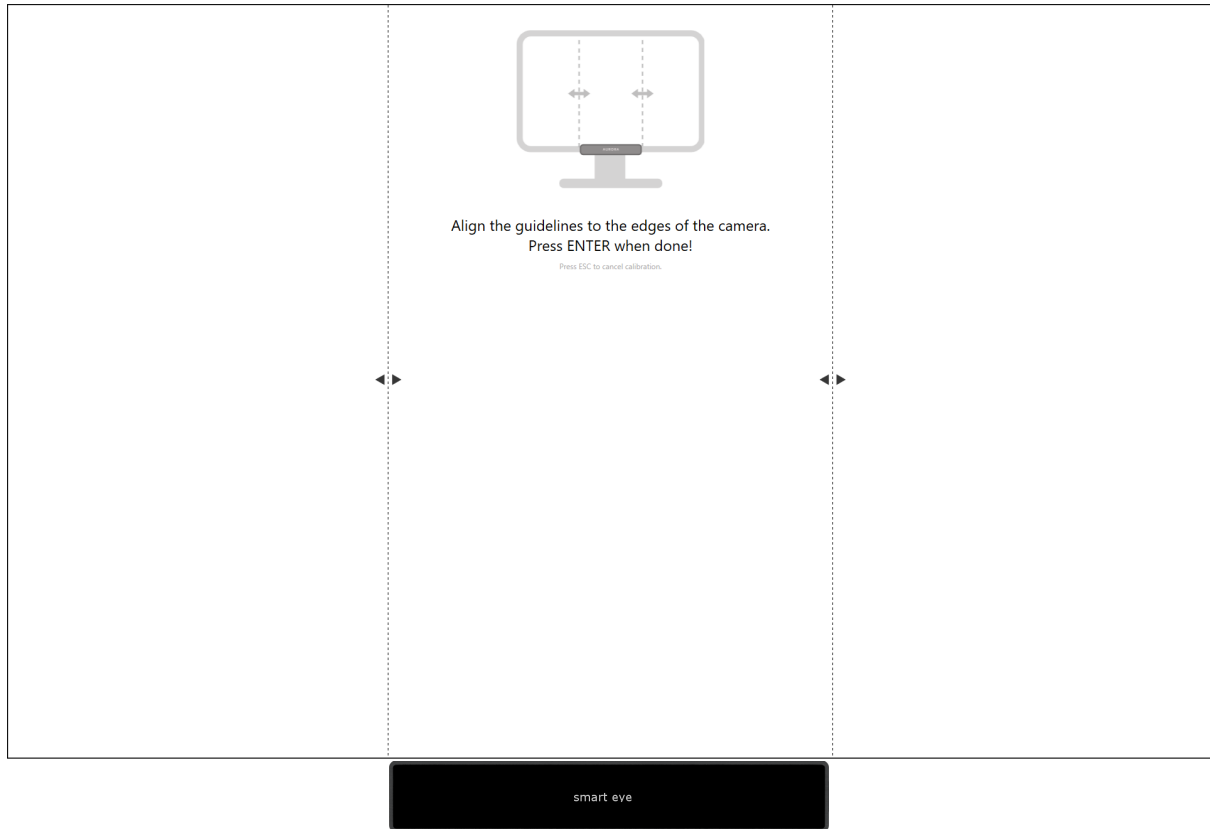
Please note that the Smart Eye Setup Tool sometimes uses the word *camera* instead of *eye tracker*. In this context the words are synonyms.

1. Run the Smart Eye Setup Tool. The Smart Eye Setup Tool is found in the Windows Start Menu.



Smart Eye Setup Tool

2. Select your camera type.
3. Specify on which screen your camera is mounted (if you have a single screen setup, this step is not necessary). Click the *Identify* button if you are not sure which screen your camera is mounted to. To be able to identify your screen a unique letter will be displayed on each screen connected to your computer.
4. Click the *Calibrate* button. The calibration window will be opened in full screen mode on the screen that your camera is mounted to.



Calibration window

5. Calibrate your camera by aligning the dashed lines to the edges of the camera. Confirm the calibration by pressing *Enter*. Once confirmed, the calibration is saved, and the Smart Setup Tool can be closed.

## 5 Support

In this section you will find information about troubleshooting and support.

### 5.1 Troubleshooting

This section presents solutions to problems that you may encounter when using the eye tracker. If your problems persist or if you don't find any solution here, please contact support.

#### **I can't install Smart Eye Tracker.**

Make sure you have admin rights on the computer where you attempt to install Smart Eye Tracker.

#### **The laptop goes to sleep when I connect the eye tracker to the bracket.**

The eye tracker contains a magnet to make sure it attaches to the magnetic holder. Some laptop models also have a magnet in the lid to make sure the computer sleeps when the lid is closed. Change the setting so the computer stays awake even when lid is closed. This setting is found in the *Power Options* menu in the *Control Panel*.

#### **There seems to be problem with the connection to the eye tracker.**

Try unplugging the eye tracker and plugging it in again.

#### **The framerate is low or fluctuates.**

Make sure that the computer is connected to a power source and that a high performance Windows power plan is used. The power plan can be set in the *Power Options* menu in the *Control Panel*. Create a new power plan and make sure the high performance option is chosen.

### 5.2 Customer support

If you need any help or support with your eye tracker, please contact your sales representative or retailer.

## **Appendix A Safety and Compliance**

### **A.1 Compliance**

The statements in this section apply to the AI-X eye tracking device.

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|                   |           |
|-------------------|-----------|
| Safety standards: | IEC 62368 |
|                   | IEC 62471 |

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|                            |                                |
|----------------------------|--------------------------------|
| Declaration of conformity: | EU Directive 2014/30/EU (EMC)  |
|                            | EU Directive 2011/65/EU (RoHS) |

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### **A.2 Operating Temperature**

The AI-X eye tracker has been tested at normal operating conditions during a 24 hours period with an ambient temperature of 25 degrees. After approximately one hour of use the device reaches a stable temperature which is maintained until the tracker is turned off. The maximum temperature on the outside of the device was 36 degrees during the test. The AI-X eye tracker is designed with a good margin to operate at a temperature of 36 degrees and neither the function nor the lifespan of the product is adversely affected. The temperature 36 degrees is not harmful to the user, although the device may be experienced as unexpectedly warm to the touch.

## Appendix B Technical Specifications

|                                    |   |
|------------------------------------|---|
| Sampling Rate                      | 60 Hz   |
| Headbox (Freedom of head movement) | 35 x 30 cm at 65 cm distance  |
| Operating Distance                 | 45 - 85 cm  |
| Accuracy                           | 0.5 degrees (typ.)  |
| Precision                          | 0.1 degrees (typ.)  |
| Output Data                        | Gaze point, pupil diameter, time stamp<br>All outputs as binocular data with associated quality index |
| Blink Recovery Time                | 1 frame (immediate)   |
| Gaze Recovery Time                 | 1 frame (immediate)   |
| Latency                            | 25 ms from camera exposure  |
| Eye Tracking Principle             | Dark pupil and corneal reflection   |
| Maximum Screen Size                | 24" (16:9 aspect ratio)   |
| Operating Environment              | Indoor (all illumination conditions)  |
| Size                               | 268 x 13 x 32 mm (width x height x depth)   |
| Weight                             | 147 g   |
| Cable Length                       | 2 m   |
| Camera Interface                   | USB 3.0   |
| Mount Type                         | On screen (with mounting plate)   |
| Operating System                   | Windows 10  |