



by **eyeV**

for Windows
- User manual -

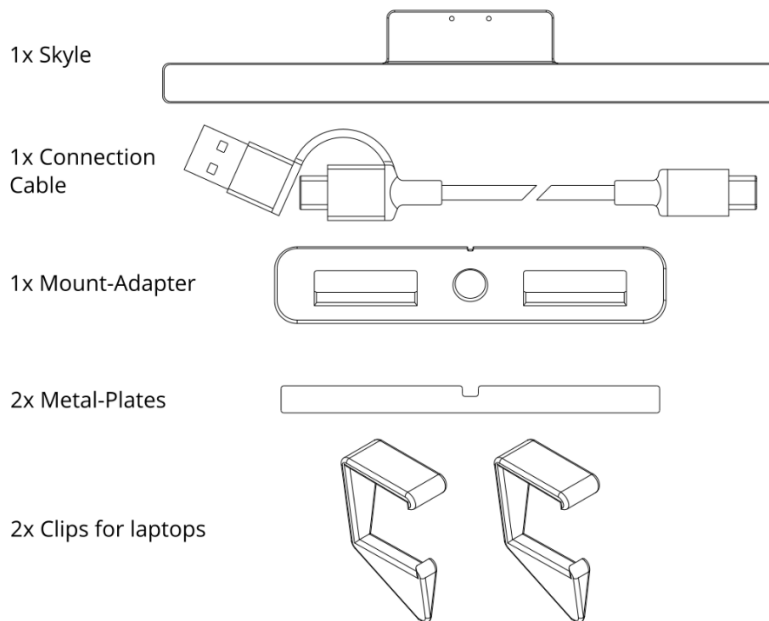
Contents

Skyle for Windows	3
What is in the box	3
Technical Specifications	3
Getting started	4
Assembly	4
Connect the eye tracker	5
Windows Software	6
Installation	6
Overview	7
Click	8
Right Click	8
Scroll	8
Double Click	8
Drag and Drop	8
Cursor Mode	9
Pause	9
Settings	10
Positioning	11
Calibration	12
Positioning	12
Profiles	15
Gaze Selection	16
UI uses Gaze Selection	16
Dwell time and Scroll Speed	16
Calibration Pointer	17
Keyboard Shortcuts	18
Update	19
Advanced Settings	19
Improvement	20
Safety instructions	20

Skyle for Windows

Thank you for choosing Skyle for Windows. Skyle for Windows is an eye tracker designed for Windows based system. With the Skyle control software – Skyle Mouse, the complete PC can be controlled contactless. If you want to integrate Skyle into your own application, you are free to use the public API. You can find it at github.com/eyeV-de.

What is in the box



Software

The Skyle Software for Windows can be downloaded here: eyeV.de/dl/Skyle.msi

You can also find the link in the download area at eyeV.de/downloads

Technical Specifications

Supply voltage	5V DC
Current consumption	0.9 A
Sampling rate	18 Hz (max. 60Hz)
Accuracy	1° - 2°
Eye tracking mode	Binocular
Operating distance	45 – 65cm
Dimensions	282.5 x 42,5 x 39mm (l*w*h)
Device Compatibility	Windows 10 x64

eyeV GmbH reserves the right to make modifications, improvements, corrections, or other changes without further notice to this document and any product described herein.

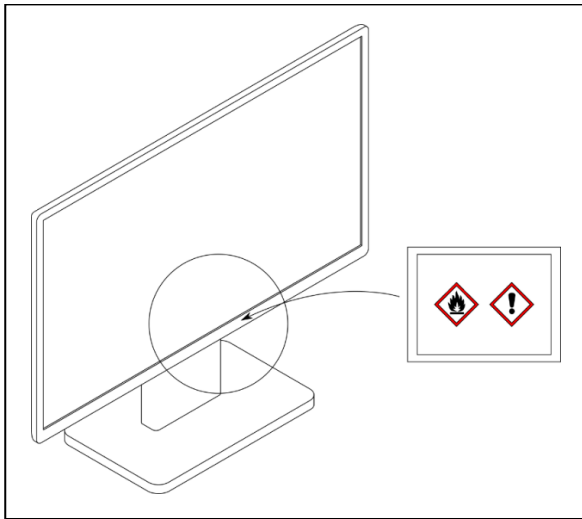
eyeV GmbH products are specifically not authorized for use as critical components in life support devices or applications, where the use can be reasonably expected to result in significant injury to the user.

Getting started

This chapter describes the basic setup of the eye control and the installation of the software.

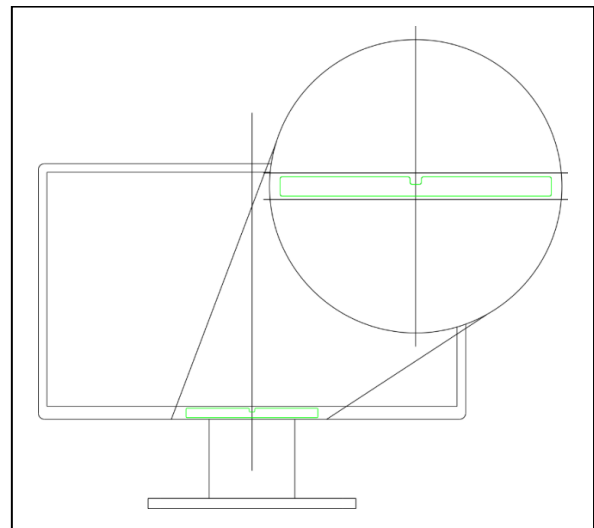
Assembly

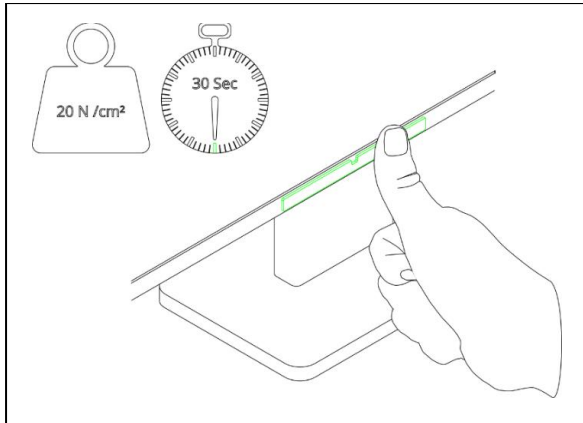
The eye control "Skyle for Windows" is delivered with a magnetic mounting system or a laptop stand. Supported Brackets are also available from Rehadapt (EyeGaze bracket). Skyle can also be attached to brackets with M2.5 screws. Please follow the instructions of the respective holder.



1. Clean the surface of the bottom edge of the screen so that dirt, grease and dust are removed.

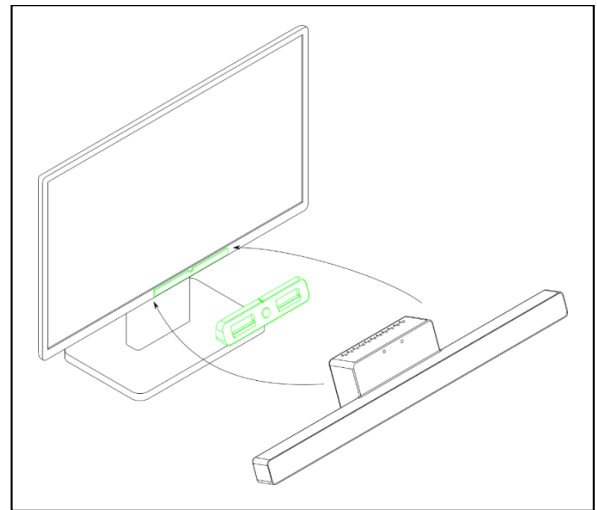
2. Remove the protective film from the adhesive tape of the mounting plate and position it centrally below the monitor.



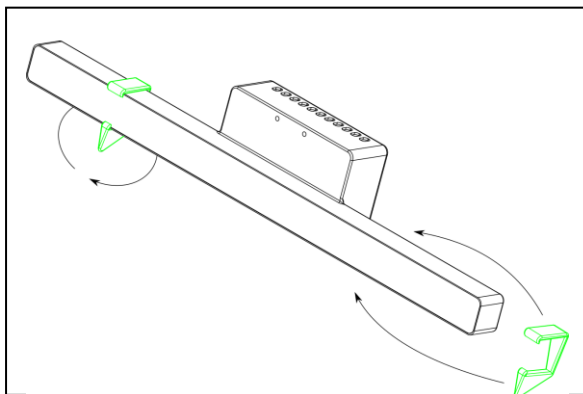


3. Press on the metal plate for about 30 seconds with a contact pressure of 20 N/cm². This corresponds roughly to a strong thumb pressure.

4. a) Now you can attach the angle adapter and your Skyle device to the monitor.



4. b) Alternatively, you can attach the included clamps to the controller to place it on the table or a laptop keyboard. You can adjust the height by turning the brackets around.



Connect the eye tracker

The eye tracker is connected to the windows computer with the supplied cable.

After a few seconds, the LEDs of the controller start to light up. Skyle is now ready for use.

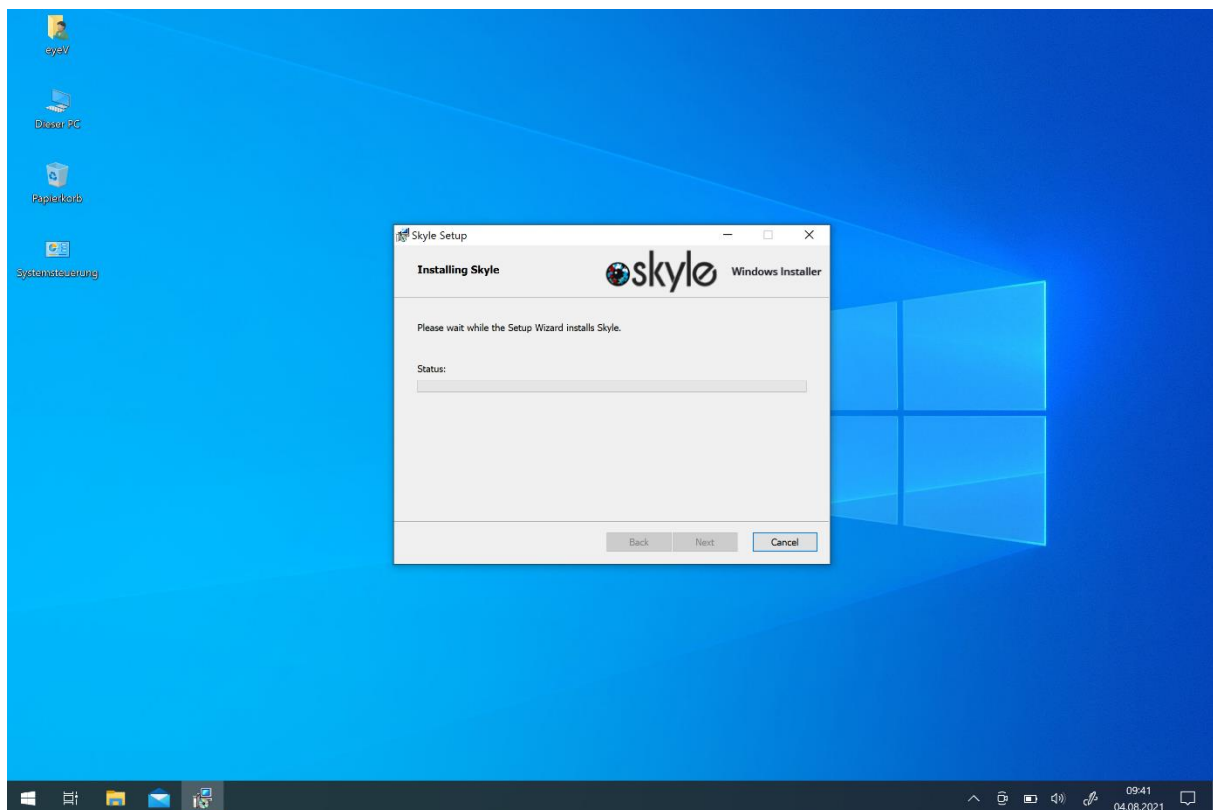
Please note that we cannot guarantee the functionality of the eye tracker when using a HUB.

Windows Software

The software can be used to calibrate the controller, create profiles, or customize the appearance. The Skylø Mouse can also be used to control the PC's mouse cursor without physical contact.

Installation

Download and install the "Skylø" application on your windows system from the link above. This app is required for the user-specific calibration of the eye tracker. The app also offers the possibility to display the camera feed of the eye control to carry out an optimal positioning. The details of the software are described in the following chapters.



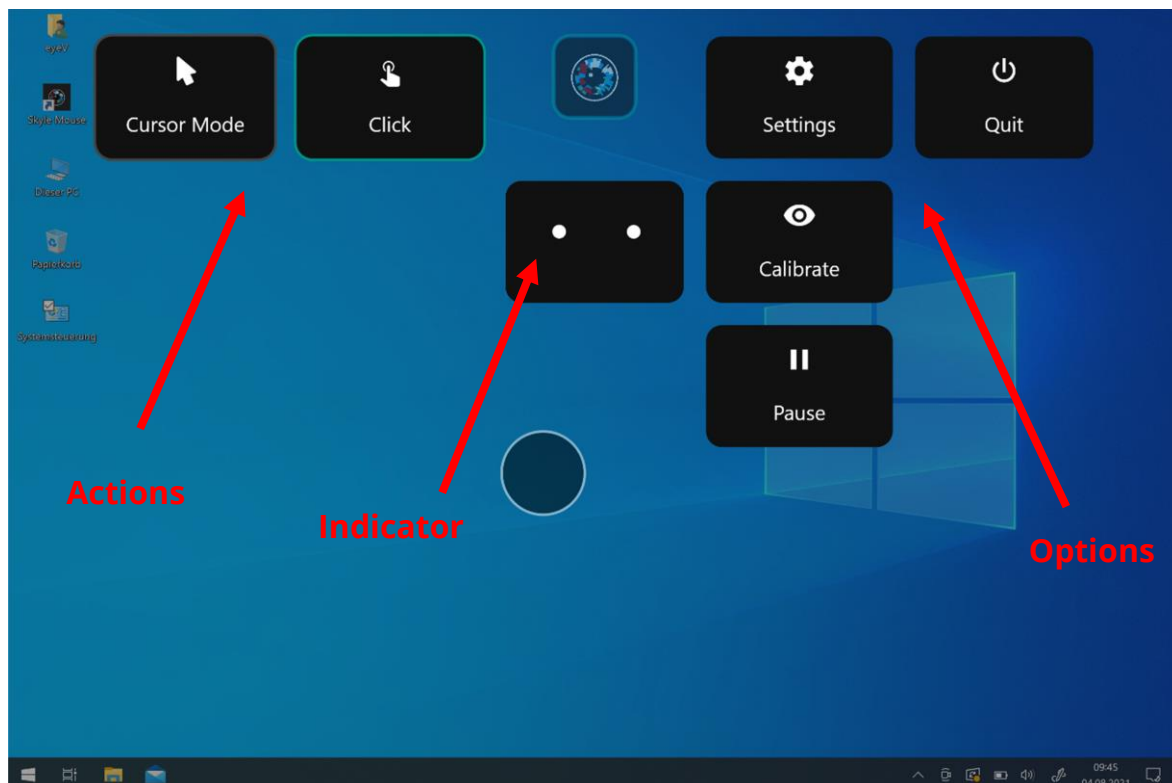
Overview

After the application is installed and launched, the cursor moves with the eye movements and the (eye)-icon of the „Skyle Mouse“ changes color from red to green.

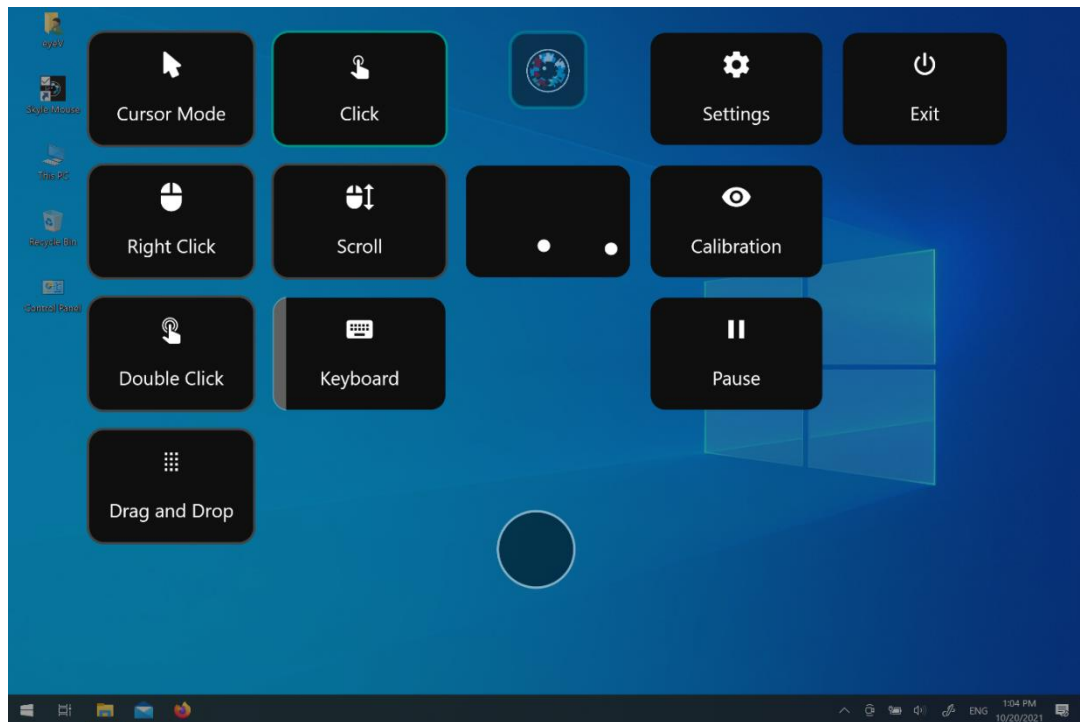


Any actions can be performed by dwelling (look at a location for a defined time to trigger an action). If the user fixes a point, the cursor becomes smaller until it disappears. Then a selected action will be executed.

The dwell control duration can be adjusted in the settings. By clicking on the (eye)-icon in the top middle, you get more actions and options. In this menu you will also find an indication about the detection of the eyes.



More actions appear once the default eye control profile is selected. How to change the profiles is described in the chapter "Profiles".



Most actions are abstractions of the usual input devices, such as mouse and keyboard.

Next to the setting options and the calibration, there are two other actions which can only be activated by an external input device and not by the dwell control.

Click

The single click is enabled by default. If a single click is performed, it is like clicking the left mouse button of the computer mouse.

Right Click

Right-click corresponds to a tap on the right computer mouse. This can be used to open context menus.

Scroll

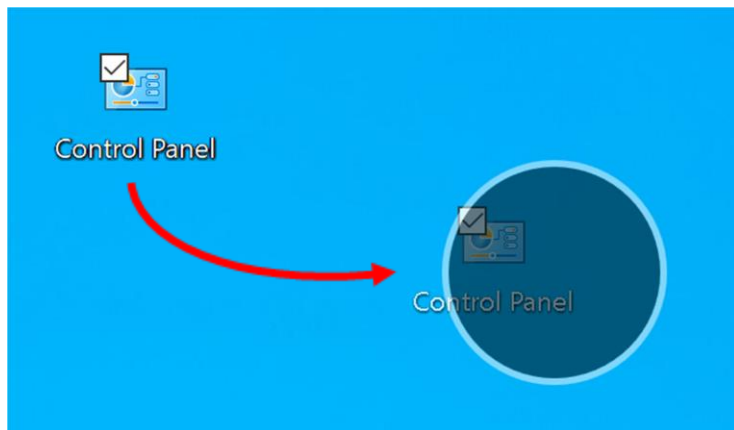
If the scroll action is selected, the open document is scrolled by looking at the bottom or top of the screen. "Scroll" corresponds to the middle mouse wheel.

Double Click

Double-click to open documents or run programs.

Drag and Drop

As the name tells us, this action contains two states. If this action is activated and triggered by dwell, it corresponds to a left mouse click that is held down.



Files are snapped to the mouse cursor and can be released at another position.

Cursor Mode

The **cursor mode** attaches the operating system's cursor directly to the Skylе gaze cursor instead of setting it only when an action has to be performed.

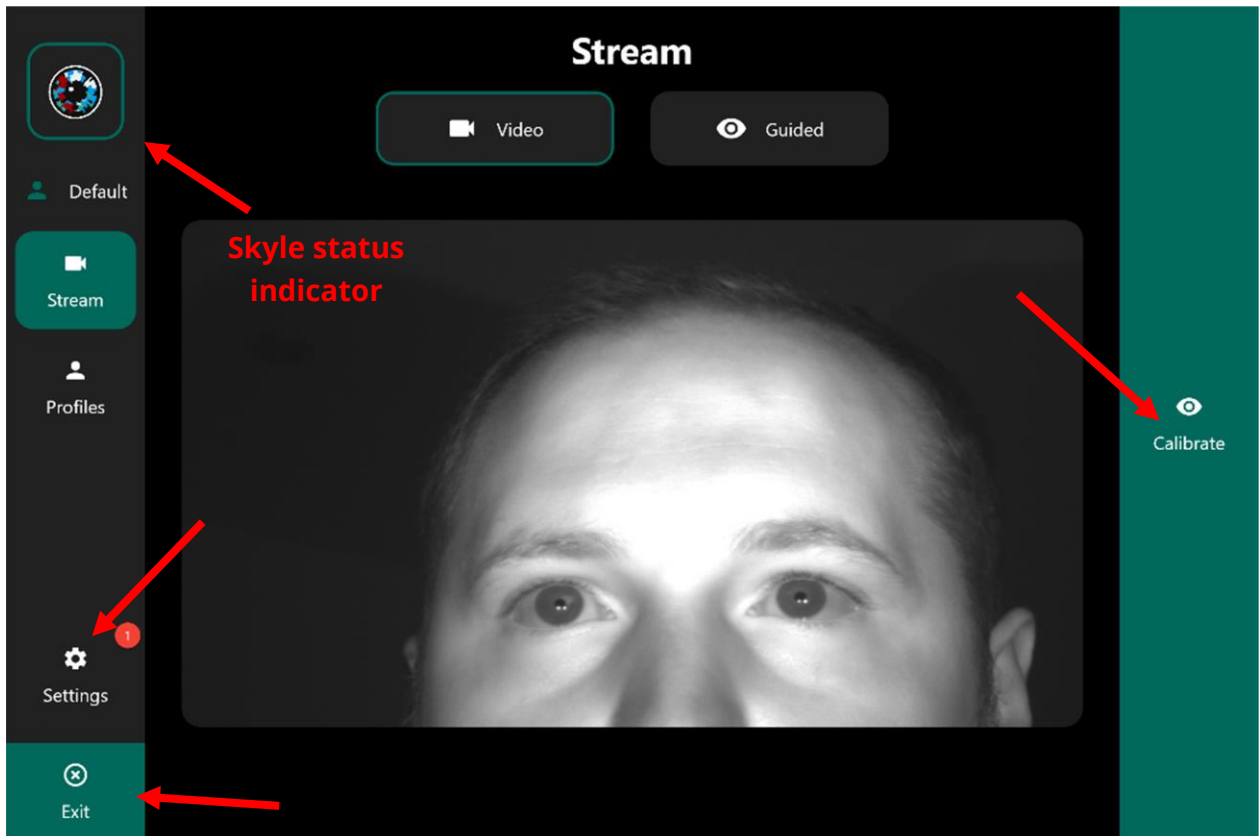
This can be helpful when using applications where the animated cursor can be distracting or where no dwell animation needs to be visible.

Pause

If the gaze cursor is temporarily not required, it can be deactivated by an external input device by pressing the pause button for a longer period of time. The eye tracking can be switched on again by clicking the Resume button that is visible afterwards.

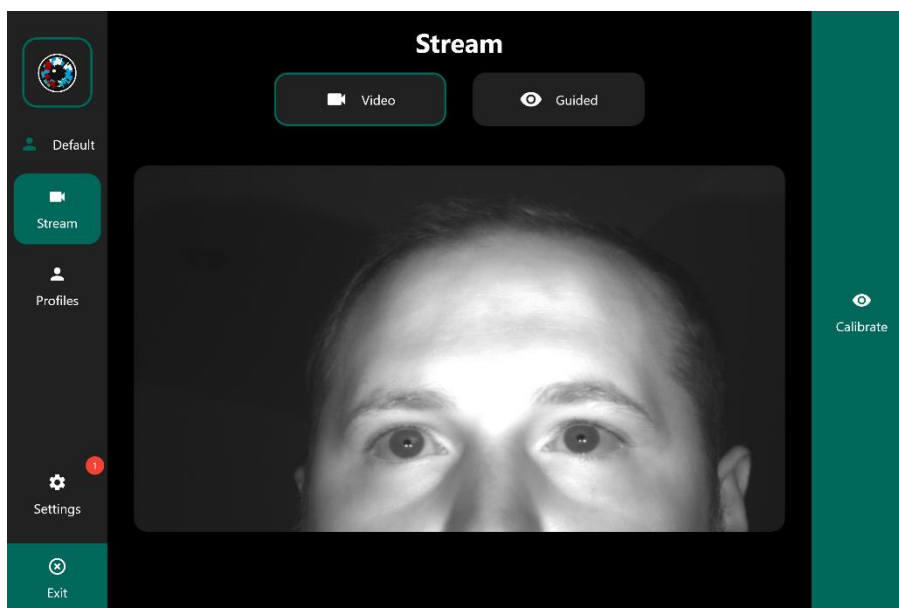
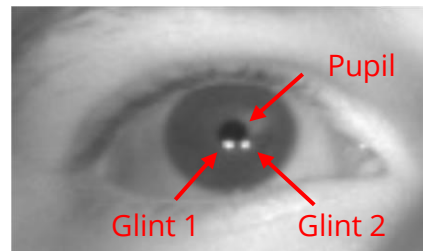
Settings

You can also access the settings via the "Skyle Mouse" menu. The settings is a full screen application. Via "Exit" you can return to the desktop and operate your PC again. All important settings can be made here, and the stream can be viewed for correct positioning. All settings are explained in more detail in the following sections.

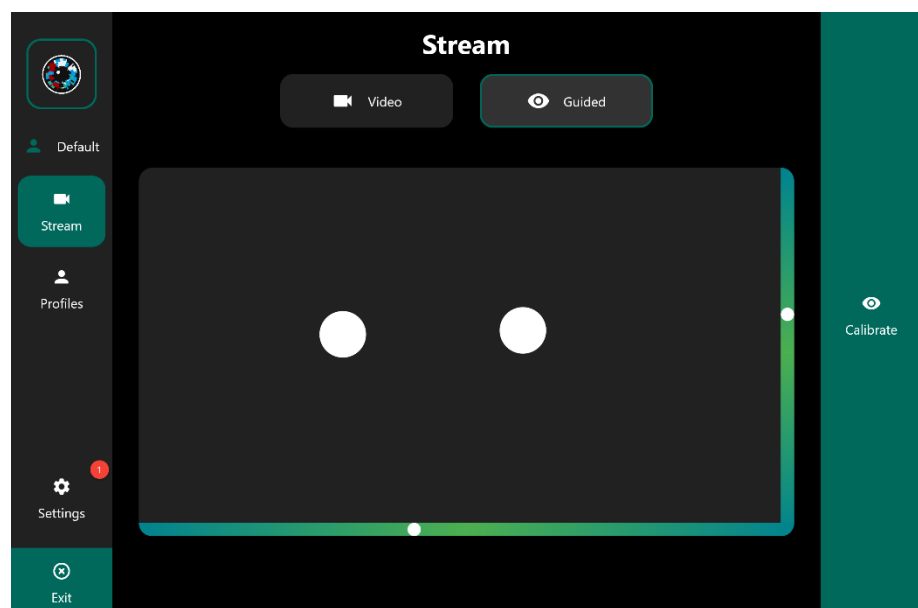


Positioning

If the eye tracker is ready for use, eye movements are converted into mouse positions. If not, make sure that the user is positioned correctly. This means that the built-in camera must recognize your eyes completely. To do this, open the settings that you can access via the Skylе Mouse (eye icon). The pupil and the two white reflections in the eye must be clearly visible and sharp. The optimal position is when the user is positioned parallel to the screen surface and the eyes are centered on the video stream. The recommended distance is ~60cm.

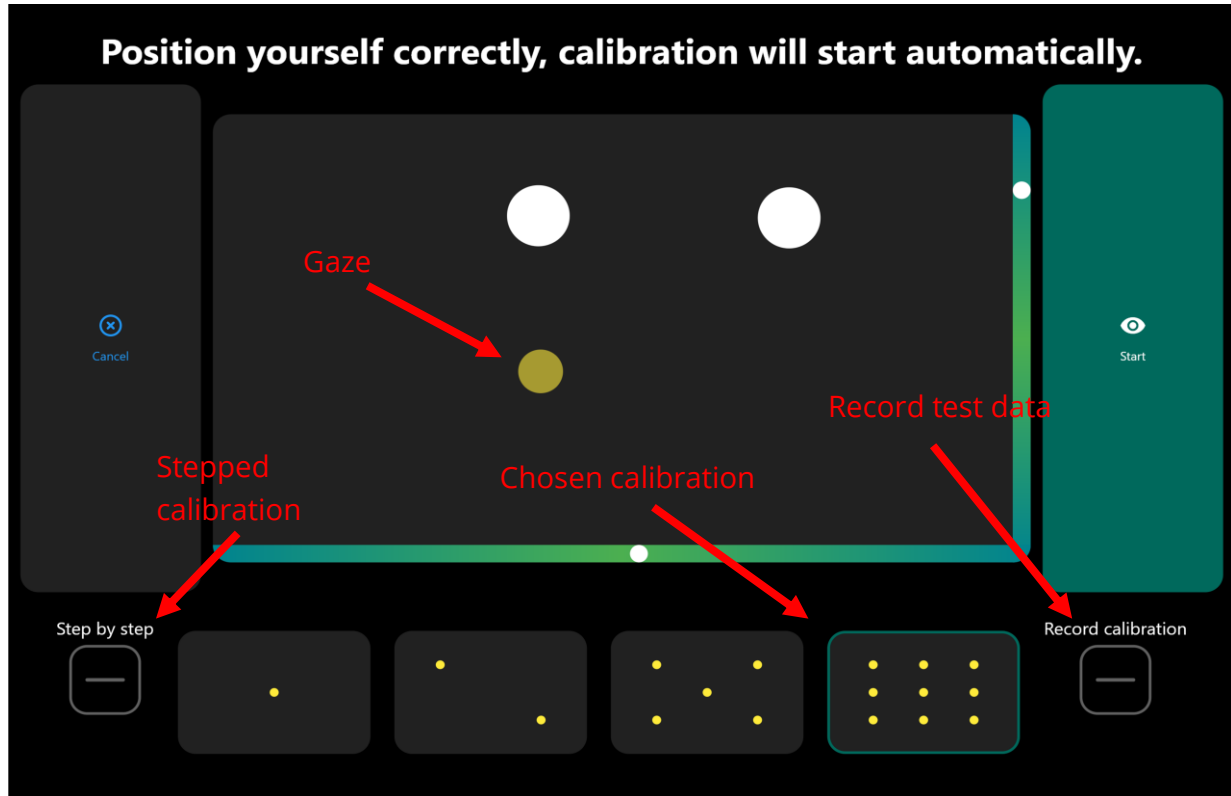


The video stream is turned on by default, but it can also be turned off or toggled so that only a simplified display with assistance is shown.



Calibration

Each eye is unique and must therefore be calibrated to control the tablet. The calibration can be started directly on the start page of the app

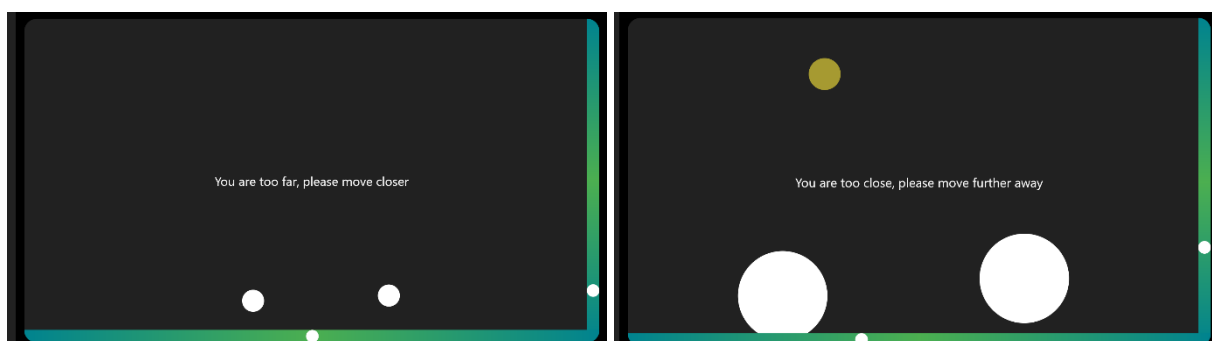


Before a calibration is started, it is possible to select how many points are to be used for the calibration. A higher number of points takes longer, but usually achieves more accurate results.

Positioning

Please make sure that the positioning is correct. If you are too close or too far away, this will be displayed. The bar on the right and bottom indicate whether the user is centered both horizontally and vertically.

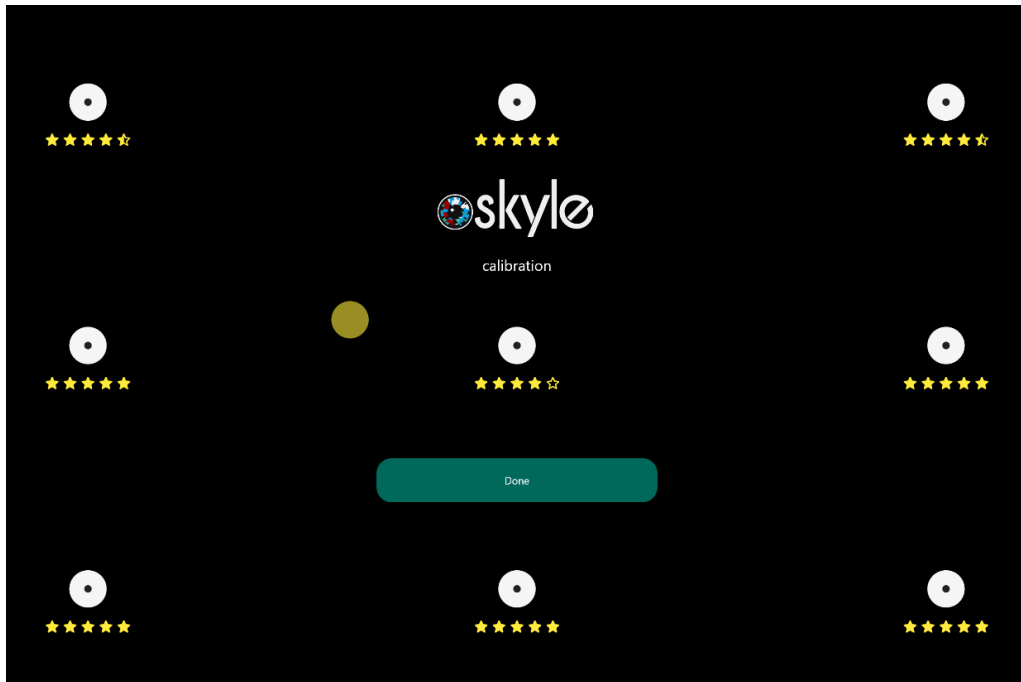
Calibration starts automatically as soon as a correct position is kept for a certain time.





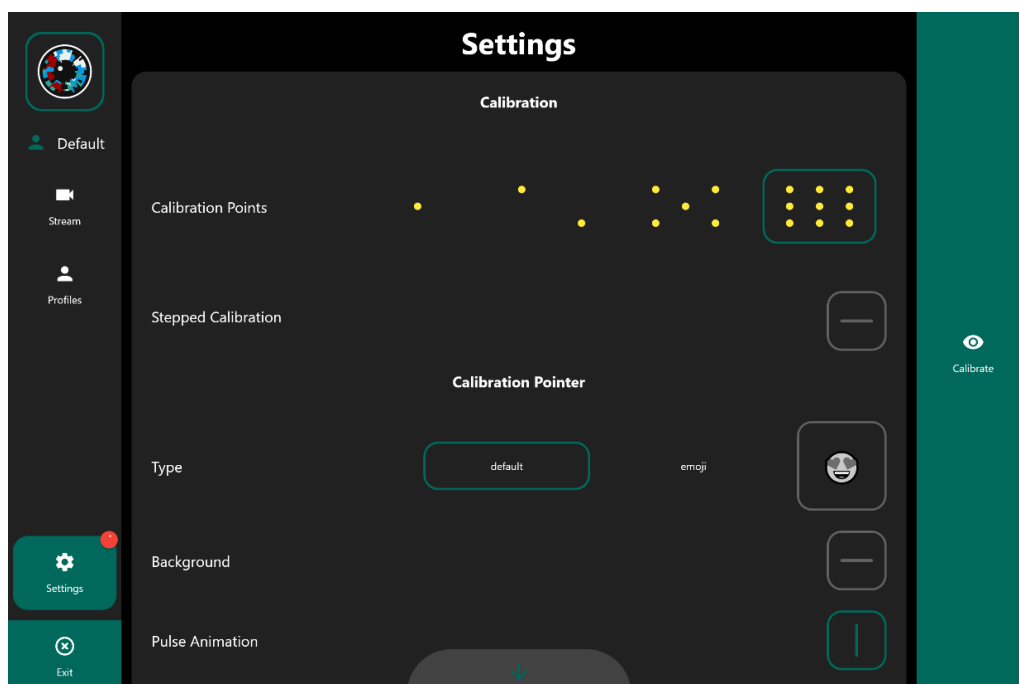
Once this is done, the cursor jumps to 1-9 different positions which the user must focus on. Please focus the center of the circle. The appearance of the cursor can also be customized in the app settings.

Once the calibration is finished, these points are displayed on the screen. Please check in this step if the accuracy is satisfactory or repeat the calibration. When nothing is detected, the calibration will end after a timeout of 100 seconds and uses the previous calibration profile.



In the app

settings (Settings -> General) you can switch the standard calibration method between a 1-, 2-, 5- and 9-point calibration. Depending on the calibration, this may result in a loss of quality.



Additional features of calibration.

Step by Step Calibration


The calibration can also be done step by step, for example when an external push button, touch gestures or a mouse are connected or executed on the PC. To do this you can activate this option in this step.


Help to improve the eye tracking algorithm


If "Record calibration" is activated, test data is uploaded after completion of a calibration. These are used to improve the eye tracker.

[< Back](#)

Record a sample calibration to improve eyetracking

 We are constantly working on the improvement of the Eyetracker. You can support us by sending us sample images captured by the eyetracker.

 Your participation is voluntary and takes place on the basis of your express consent. Please read our privacy policy carefully before proceeding. (this is the link)

 If a new update is available, we will inform you personally or through the app regarding the update.

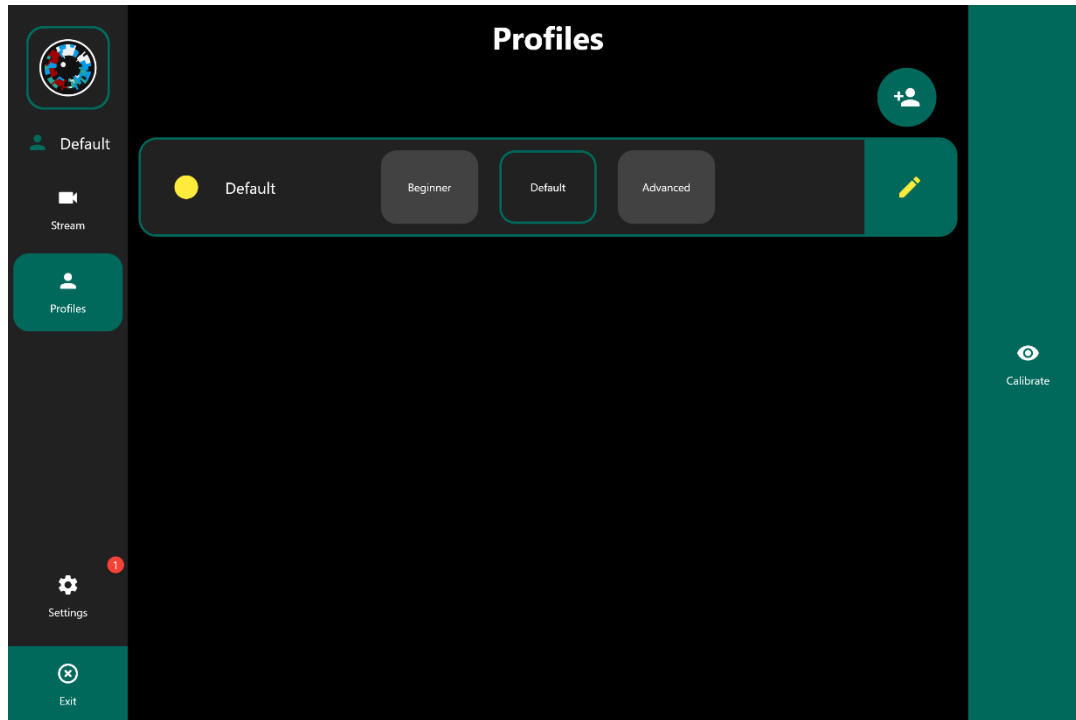
Your age: ☐ < 16 ☒ > 16

Do you want to transmit images of yourself to us in the following or do you perform this function for another person visible on the images? ☒ Own images ☐ Images of another person

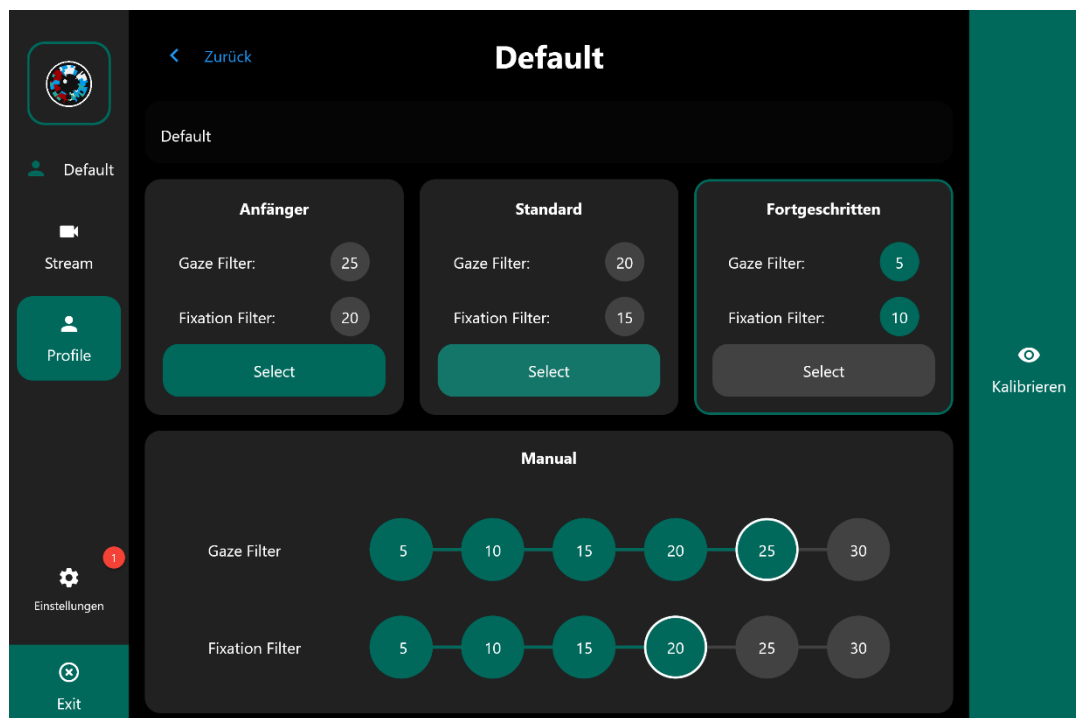
Next

Profiles

On the app's home screen, you have direct access to your profiles. Profiles can not only be used to adjust the filter settings and sensitivity, but calibrations are also stored in the respective profiles.



The fixation filter describes the filtering when a fixation takes place and when such a fixation is aborted. The gaze filter, on the other hand, describes the general filtering of gaze data.



Gaze Selection

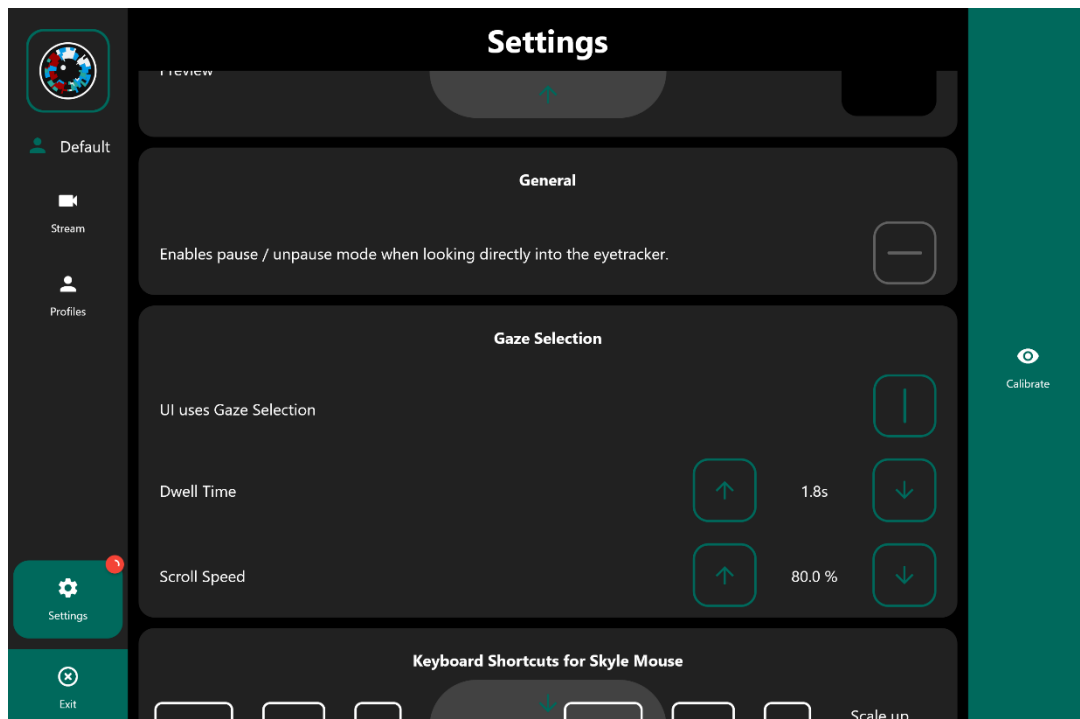
These settings affect the behaviour of the dwell control.

UI uses Gaze Selection

„UI uses Gaze Selection“ setting enables or disables the use of a dwell control. This feature cannot be disabled by dwell and only if no eyes are detected.

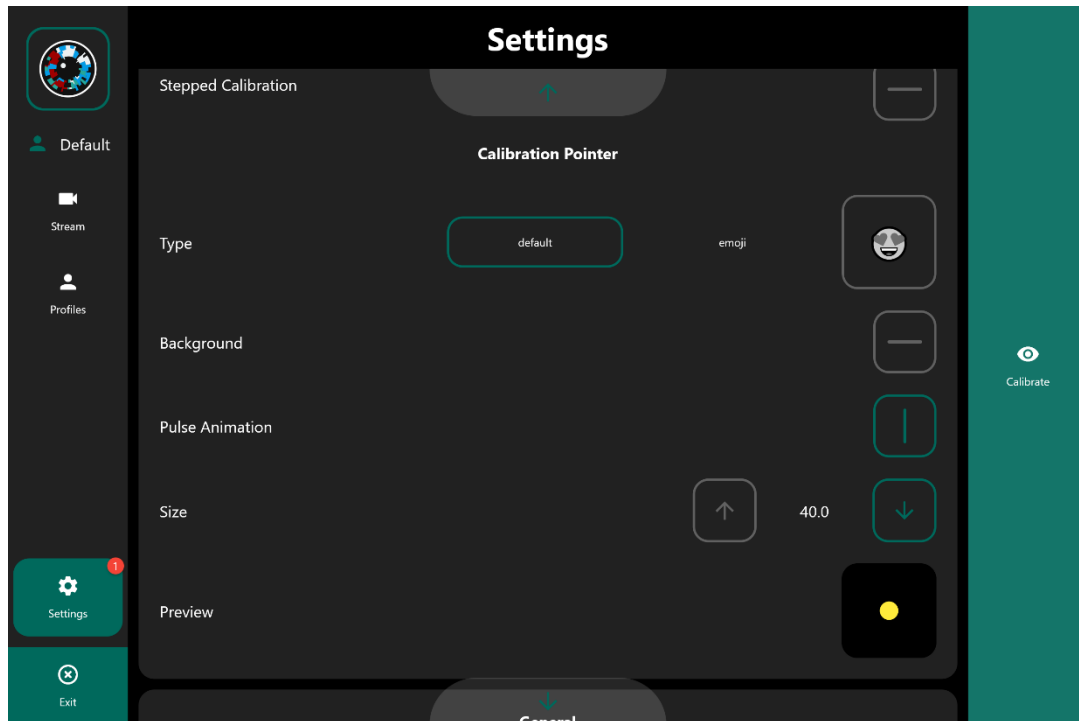
Dwell time and Scroll Speed

The dwell time determines the time until an action is executed. The scroll speed determines the speed of the scrolling.



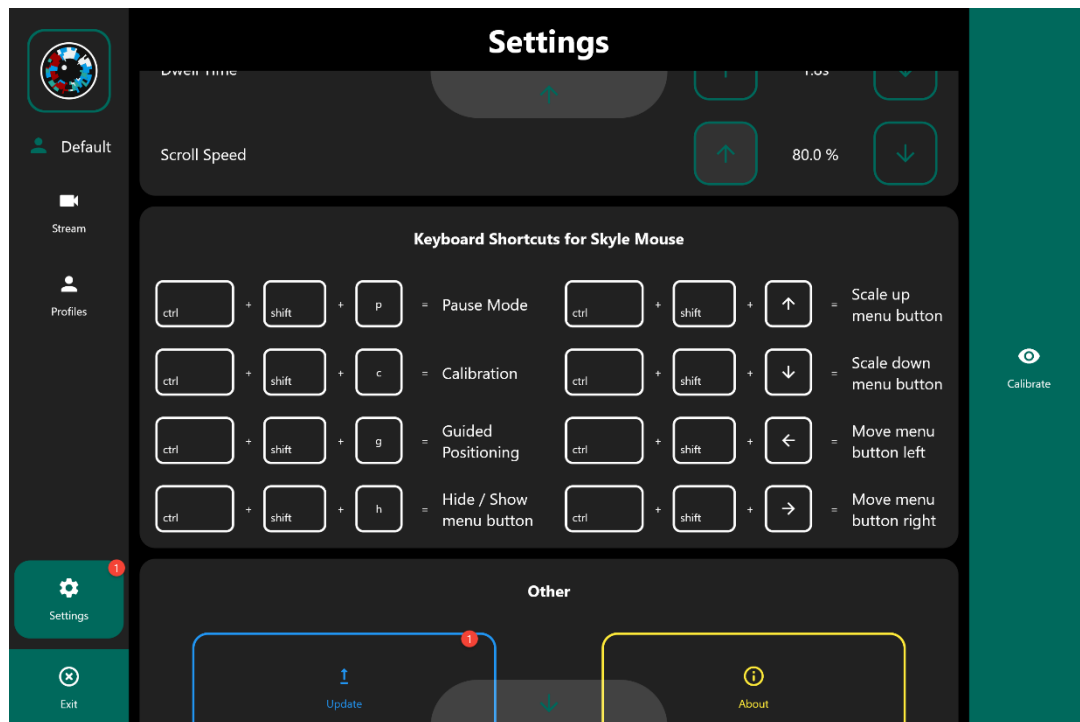
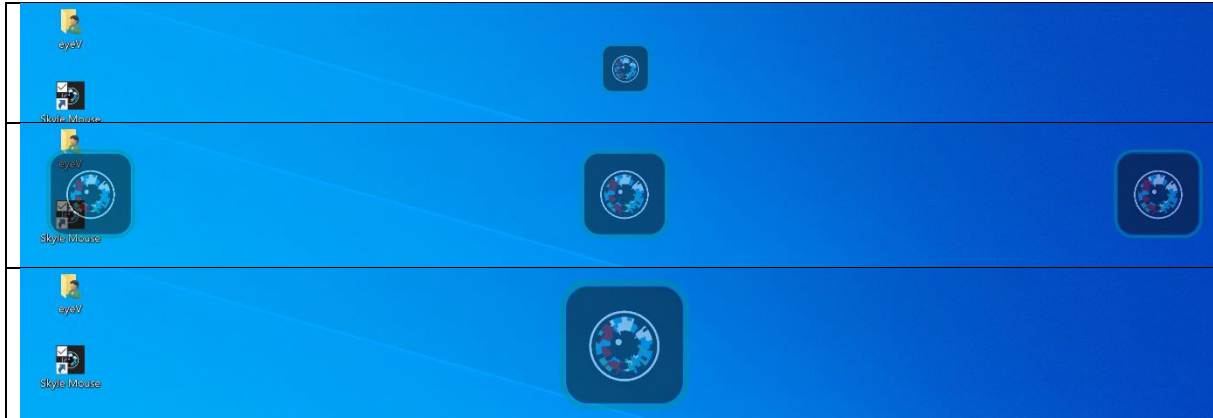
Calibration Pointer

The animation pointer during a calibration can also be adjusted to the user's needs. All changes are visible in the preview.



Keyboard Shortcuts

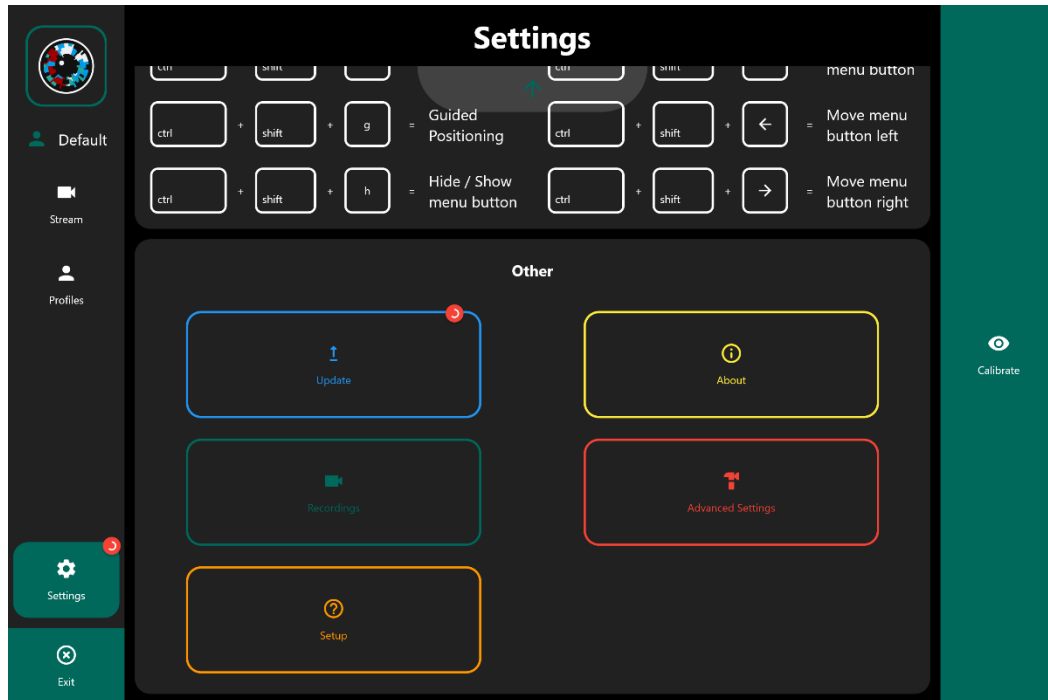
If a keyboard is connected, keyboard shortcuts can also be applied to change the position of the "Skyle Mouse" or to directly start useful functions like a calibration.



ctrl + shift + p	= Pause Mode
ctrl + shift + c	= Calibration
ctrl + shift + g	= Open guided positioning stream
ctrl + shift + h	= Hide / Show menu (eye)-icon-Menu
ctrl + shift + ↑	= Scale up (eye)-icon-Menu
ctrl + shift + ↓	= Scale down (eye)-icon-Menu
ctrl + shift + ←	= Move (eye)-icon-Menu left
ctrl + shift + →	= Move (eye)-icon-Menu right

Update

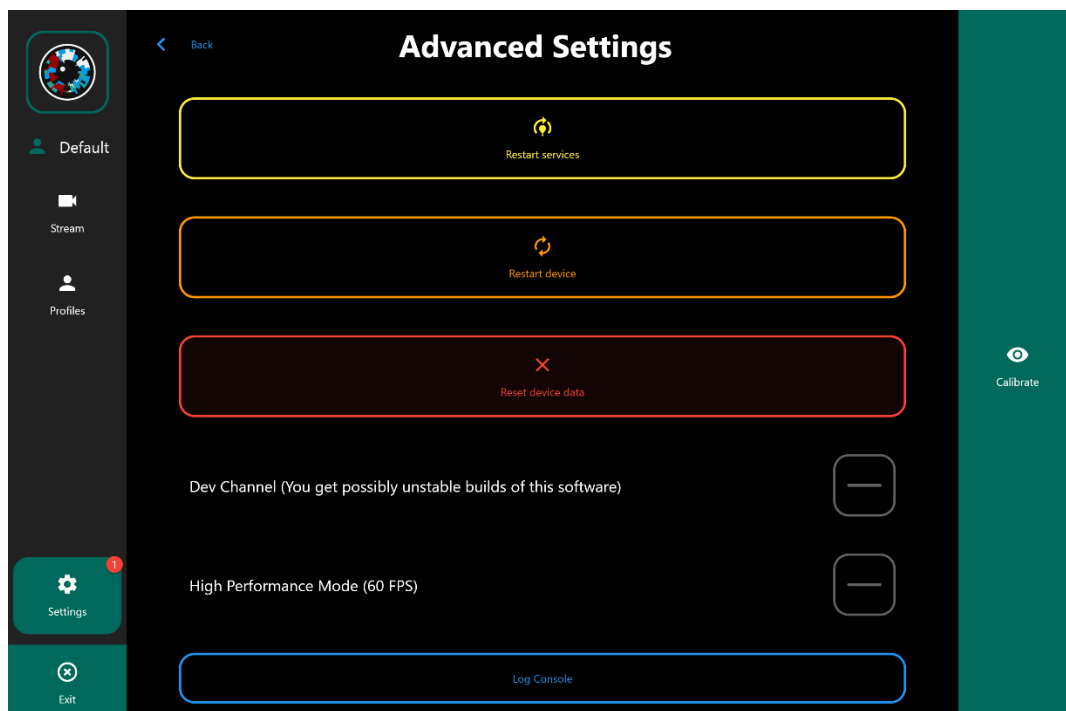
Updates for the eye control can be installed via the app. If a new update is available, a small red dot will appear in the left corner. The update can now be found in the settings under Update.



If an update has been installed, the eye control will restart itself.

Advanced Settings

The advanced settings allow soft or hard reboot and factory reset.



Improvement

There is no such thing as perfect eye control. Each eye is unique and has unique characteristics. To support the largest possible number of users, the largest possible amount of test data is required.

If an eye control does not work well, test data can be collected to improve the quality of the eye control. A 9-point calibration is performed during the collection ("Calibration->Recording calibration"). The test data recorded during this process can then be checked and sent off. If you want your data to be deleted, please send an email with the corresponding character string, which you can find in the app under "Settings -> Recordings".

Safety instructions

Please observe the safety instructions supplied with the device