

## Software Setup

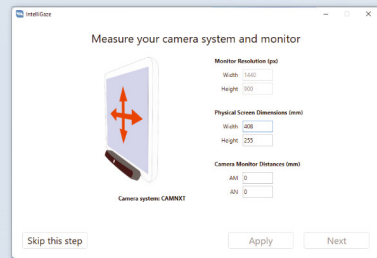
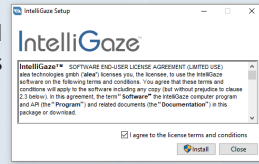
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### Prerequisites

1. Latest download from <https://download.intelligaze.com>
2. An IntelliGaze camera (Cam30xxx) with appropriate license.
3. A PC with Windows 10 or 11 installation which meets the hardware requirements.
4. A metric ruler for the monitor calibration process.

### Software Installation

1. Launch the installation program and follow the instructions until the process finishes successfully.
2. Plug in the camera and wait until a Windows message confirms the installation of 'alea technologies drivers'. The device manager now lists the camera driver in the USB section.
3. Launch IntelliGaze from the desktop.
4. On a first-time installation, the Monitor Calibration tool will open automatically



To ensure the highest gaze accuracy over a large working range, the physical setup of the system needs to be calibrated once. It is assumed, that the camera is mounted centrally, underneath the screen.

The interactive sketch will assist you in locating the requested measurements.

The basic IntelliGaze system has now been installed.

### Updates

To make IntelliGaze automatically check for available updates, enable:  
Options > System > Updates

A notification will then be issued, when an update is available. The update process still has to be started manually.

If automatic updates are disabled, a newer manually downloaded version can be used to update older versions.

Please read the provided release notes carefully in either case.

### Connect AAC Applications - Grid3

Several AAC applications, have been adapted to access gaze control functionality more directly providing a more seamless user experience. When such an application connects to IntelliGaze, all desktop control functions are suspended. This 'API connection' is currently provided in Grid3, MindExpress 5, OSC, Avaz, and DialogQ Talk.

**Grid3** (others equiv.).

Grid3 needs to be configured manually in the EyeGaze section:  
User Settings > Input > Eye gaze > alea IntelliGaze

Calibration and click parameters can be set up in Grid3 and special buttons for tracking status display, calibration control, etc. can be included in grid sets. Calibration data is usually shared between IntelliGaze and Grid3.

Successively there are generally two methods to use Grid3 + IntelliGaze:

- A. Grid3 starts and ends IntelliGaze automatically.
- B. While IntelliGaze is running, the user launches Grid3 from the Windows desktop.

The later option allows the user to switch between Grid3, Windows and other applications autonomously while staying under gaze control.

## Safety & Compliance

The IntelliGaze™ IG30NT/NXT systems has been certified for general office use as in the class of information and telecommunication devices. The system will meet or exceed the required standard according to CE and FCC regulations.

### Safety of the Infrared Illumination

The camera system contains LED sources that emit light in the near infrared (NIR) spectrum. The light emission levels have been measured and calculated to comply with the European laser safety standard EN60825-1. The standards contain test procedures to verify that the emitted light will cause no thermal injury to the eye of a person being exposed to the light. The product is classified as a Class 1 LED product and complies with the standards for long-time exposure. Exposure varies with the chosen frame-rate and working distance. For comparison reason: the user will be exposed to about 200mW/cm<sup>2</sup> at 40Hz tracking rate in the suggested operating distance of 60cm / 2ft. [Cam30NT, less with Cam30NXT].

### Magnetic Field Hazard

The CAM30NT unit and some mounting adapters contain small magnets. Magnetic fields may interfere with the function of cardiac pacemakers and implantable defibrillators. As a general rule, please maintain a minimum distance of 10cm / 4 in. between the frontal part of the device and any implanted, electronic device.

### Epilepsia / Photosensitive Seizure Warning

A very small percentage of people may experience a seizure when exposed to certain visual images, including flashing lights or patterns that may appear in video games. Even people who have no history of seizures or epilepsy may have an undiagnosed condition that can cause these photosensitive epileptic seizures while using a gaze interaction device on a computer screen. These seizures may have a variety of symptoms, including lightheadedness, altered vision, eye or face twitching, jerking or shaking of arms or legs, disorientation, confusion, or momentary loss of awareness. Seizures may also cause loss of consciousness or convulsions that can lead to injury from falling down or striking nearby objects. Immediately stop while using a gaze interaction device on a computer screen and consult a doctor if you experience any of these symptoms. Parents should watch for or ask their children about the above symptoms - children and teenagers are more likely than adults to experience these seizures. The risk of photosensitive epileptic seizures may be reduced by taking the following precautions:

- Using a gaze interaction device on a computer screen only in a well-lit room.
- Do not use a gaze interaction device on a computer screen if you are drowsy or fatigued.
- If you or any of your relatives have a history of seizures or epilepsy, consult a doctor before playing.

### Mounting Warning

The camera should be mounted according to manufacturer or authorized system integrator instructions. alea technologies is not liable for damage or injuries due to a dropped or tipping over device. The mounting of an alea technologies product is done entirely at the user's own risk.

### Emergency Situations

Be aware that due to the possible risk of failure, the IntelliGaze system should not be relied upon exclusively as an audio communications or an environmental control device. In emergencies, as well as in dangerous, or other wise sensitive situations, do not solely rely on the device for communication.

### Do Not Open the Camera Device

There are no user serviceable parts inside. Non-compliance will result in loss of Warranty!

Hot Key	Function
Pause key	Pause Gaze Interaction
Ctrl+ F5	Start Calibration
ESC key	Cancel calibration, keep last.
SPACE key	Accept point during manual calibration.
Ctrl+ L	Load calibration
Ctrl+ K	Save calibration
Ctrl+ ↓	Keyboard, show/hide
Ctrl+ F1	Open Home Menu
Ctrl+ F11	Show Options
Ctrl+ F10	Toggle Eye Display
Ctrl+ D	Record Screen Video
Ctrl+ Q	Quit IntelliGaze

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# IntelliGaze™ 11.1

Gaze Communication System

## Quick Start Guide

## Hardware Setup

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### PC & USB Connection

CPU: intel® Core™ i5, 8th gen. or newer or equivalent AMD platform.  
RAM: 8GB RAM or more - HD: 128GB SSD or larger.  
Windows 10/11 home/pro.

A free USB3.1 port Type-A or Type-C\*, ideally directly on the computer.  
Cable connections >1m and other 3<sup>rd</sup> party USB-hardware should be evaluated carefully.

### Monitor Size

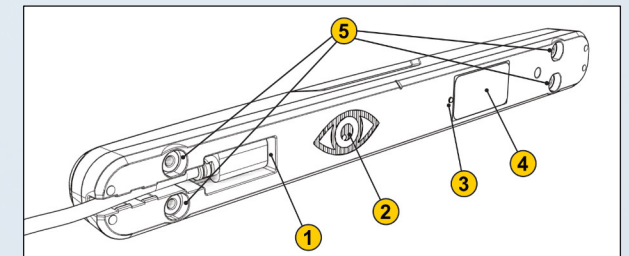
IntelliGaze can track most users precisely up to a monitor size of 24". Typically the highest accuracy is achieved on 12-17" screens. For best results the camera should be mounted as close as possible to the screen, especially on larger monitors. Adapters for typical situations are available on request.



### Monitor Arm / Stand

In order to achieve a good flexibility, when adjusting the camera in respect to the user, it is recommended to mount the screen/tablet on a flexible solution with several degrees of freedom.

### Camera System - Cam30NXT



① USB3.1 Type-C Connector (not for end-user access)	④ Device Label, Serial Number
② Ventilation, passive Camera-LED - Green: OK	⑤ Mounting Points: Magnetic target, steel. 4x M4 threads, max. 5mm screw-in depth.
③ Status-LED - Green: OK	

IntelliGaze 11 is also compatible with all older camera systems. A license upgrade might be required.

### Mounting the Camera

alea technologies provides a number of adapters for a range of typical setups. The Cam30NXT can be mounted magnetically and/or screw-locked. For mobile setups, the screw-locked option is highly recommended. Please refer to the documentation shipped with a particular adapter for technical details.

### USB Cable Options

Cam30NXT can be shipped with a 0,5m or 1m USB3 cable. Please do only use certified cables and USB-hubs for guaranteed performance.

### Temperature

The high-performance USB3-camera gets warm during operation. The surface of the camera does typically only get hand-warm. The internal temperature is being monitored and the permanent operation is guaranteed up to an ambient temperature of 35°C (95°F). Please do not cover the ventilation holes on the backside and avoid excessively warm mounting points on other devices.

### Maintenance

The camera does not contain any parts that require service. Please clean the acrylic front plate with a soft microfiber cloth and avoid harsh cleaning liquids.

The IR-transmissive 'mirror' can be carefully cleaned using Isopropanol on a cotton swab. Please avoid excessive pressure on the thin glass.

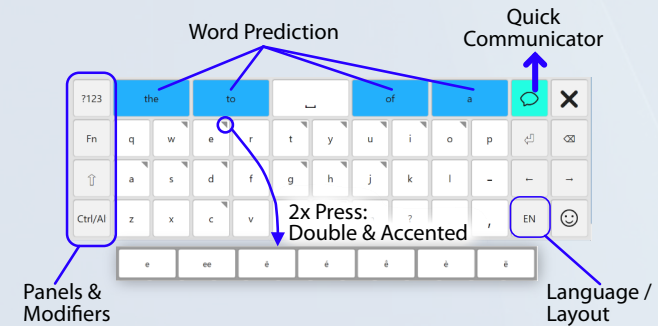


## Integrated Keyboard

IntelliGaze includes a gaze-optimized, integrated keyboard, that will appear from the bottom of the screen, when required.

It can be easily opened and closed by looking below the screen, approximately into the camera center. In cooperative applications, the keyboard will also open automatically, when a text field is activated.

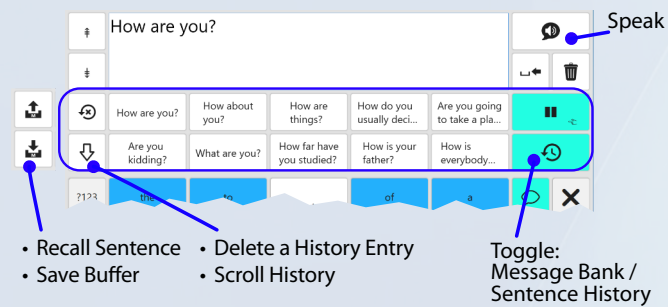
Beside a keyboard with various, switchable layouts, a learning, multi-lingual word prediction and a simple text-to-speech communication tool are provided.



A 'Privacy Switch' is available on the 'Fn' panel, which will prevent the dictionary from learning, e.g. entered passwords.

## Quick Communication

The keyboard can be extended to a communication page. History functions and the option to store&recall up to ten sentences are provided.

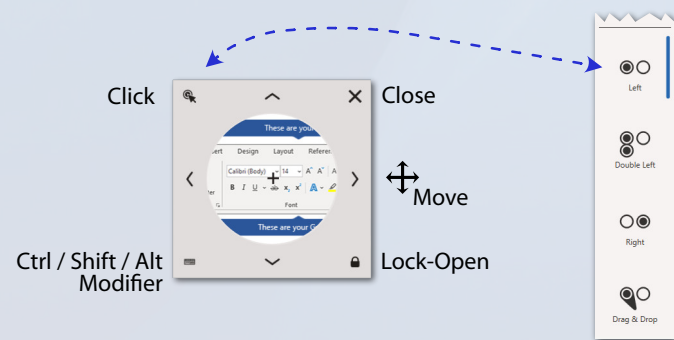


## Precise Clicker

The Precision Clicker is a tool for pixel-precise clicks or drags. Several options are provided while it is in operation.

The actual click function can still be modified on the Operation Bar, while the control is open.

Operation Sequence:



1. Select Precise Clicker [PC] from Operation Bar.
2. Position the PC approximately on target.
3. Move the PC by gazing at the arrow icons, so that the X-hair is precisely on target.
4. Perform the click or change the type [OB] and click then .

## General Use

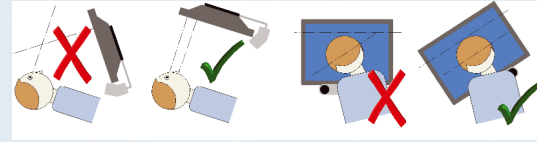
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This section will provide a simple step-by-step guide on how to operate the system for for general computer control.

### User Set Up

1. Start IntelliGaze: The camera's illumination should show a dim red light and the IntelliGaze tray icon will appear.
2. Position the camera: Ctrl-F1 / Home.

The monitor should be aligned with the user's head in about 65cm (2ft.) distance. A straight look of the user should intersect the monitor in the upper 3rd, centrally.



The head position and automatic tracking can be validated by looking at the Status Monitor in the Home or Calibration menu. The best position is achieved, when the system shows a green smiley in the center.



If the user should be wearing glasses, a more stable tracking might be achieved by positioning the camera slightly lower than normal.

Switching Status Monitor to a live video view [Ctrl-F10] of the user to better locate and remove reflections.

### Gaze Calibration

The system should be calibrated individually in order to achieve the best accuracy for the user. It is recommended to calibrate both eyes while using at least 9 points. Less points are typically easier, but provide less accurate gaze measurements. Options > Calibration

If the positioning above has been successful and the user's condition does not pose any other challenges, the calibration will just pace through a number of points, while waiting for the user to follow. The results will be shown graphically, including a short qualitative feedback for each eye.

In complex cases, where a full calibration is too complex and limited accuracy is sufficient, a 1-point calibration can be used, or even fixed '0-Point'-calibration can be loaded.

A successful calibration can be interactively tested by opening the 'Verify' screen from the calibration menu.

### Operate Windows Applications

Most operations follow a simple pattern:

1. Select an action from the Operation Bar, e.g. Zoom Click. [ optionally modify the action left / right / dbl click on the lower half of the OB]
2. Execute the action at the desired location.
3. If the action requires more steps, e.g. Precise Clicker , follow the process until the tool closes.
4. Once the action has been executed, the system will be paused again.

To interrupt any operation, pick any other or re-select the operation.

Mouse actions can be permanently enabled, omitting the pause state, by selecting the modifying parameter, e.g. Left Click a second time. A little lock icon will be shown. Unlock can be performed by selecting again, or selecting any other.

### Mouse Control & Click Options

**Zoom-Click** OB, default

Zooms dynamically on a selected area and clicks at the eventual gaze location. Good choice for fast navigation with average accuracy.

**Precise Click** OB, default

Positions a frame over an area and allows to adjust a cross-hair for most precise clicks.

**Fast Click** Permanent alternative to Zoom-Click >Options

Click directly at gaze location. Requires good gaze accuracy and can be faster than Zoom-Click.

**Live Mouse** Alternative mode >Home

Suitable as temporal input, where fast interaction is required, e.g. games. The mouse cursor is updated permanently and only a simple L-Click can be issued.

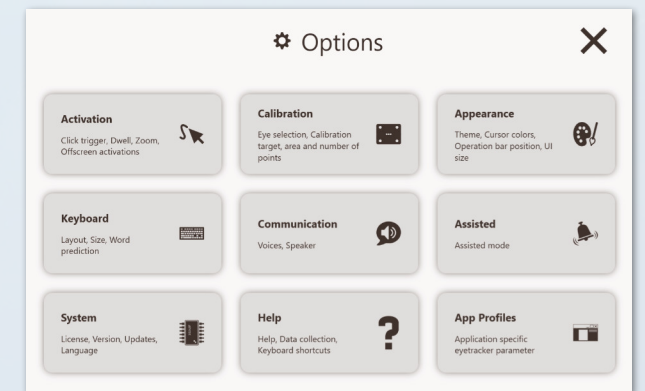
## Home

The home menu grants access to useful Windows functions such as volume control, task manager, shutdown PC as well as some eye gaze related functions. The status monitor provides a visual feedback about the users location.



## Options

IntelliGaze provides access to all options in a categorized dialog. Each category shows a brief description about the underlying functions. Some areas may contain more than one page, which can be navigated horizontally.



Use Help > Help to put help labels on all desktop elements for inexperienced users.

An inexperienced user can be locked out of particular option-blocks which will remain touch accessible: Open 'Options' by touch, select ⇐ (key) in the top left corner and toggle the appearing lock icons on the categories. The same method can be used to unlock categories again.

## Assisted Mode

The Assisted Mode assumes a helper who guides a user through the first rounds of gaze interaction, e.g. using apps like *Look-2-Learn* or similar.

IntelliGaze will display a differently organized Operation Bar that is paused by default and the user is not enabled to navigate Windows apps freely.

Options > Assisted > Assisted Mode

## Application Profiles

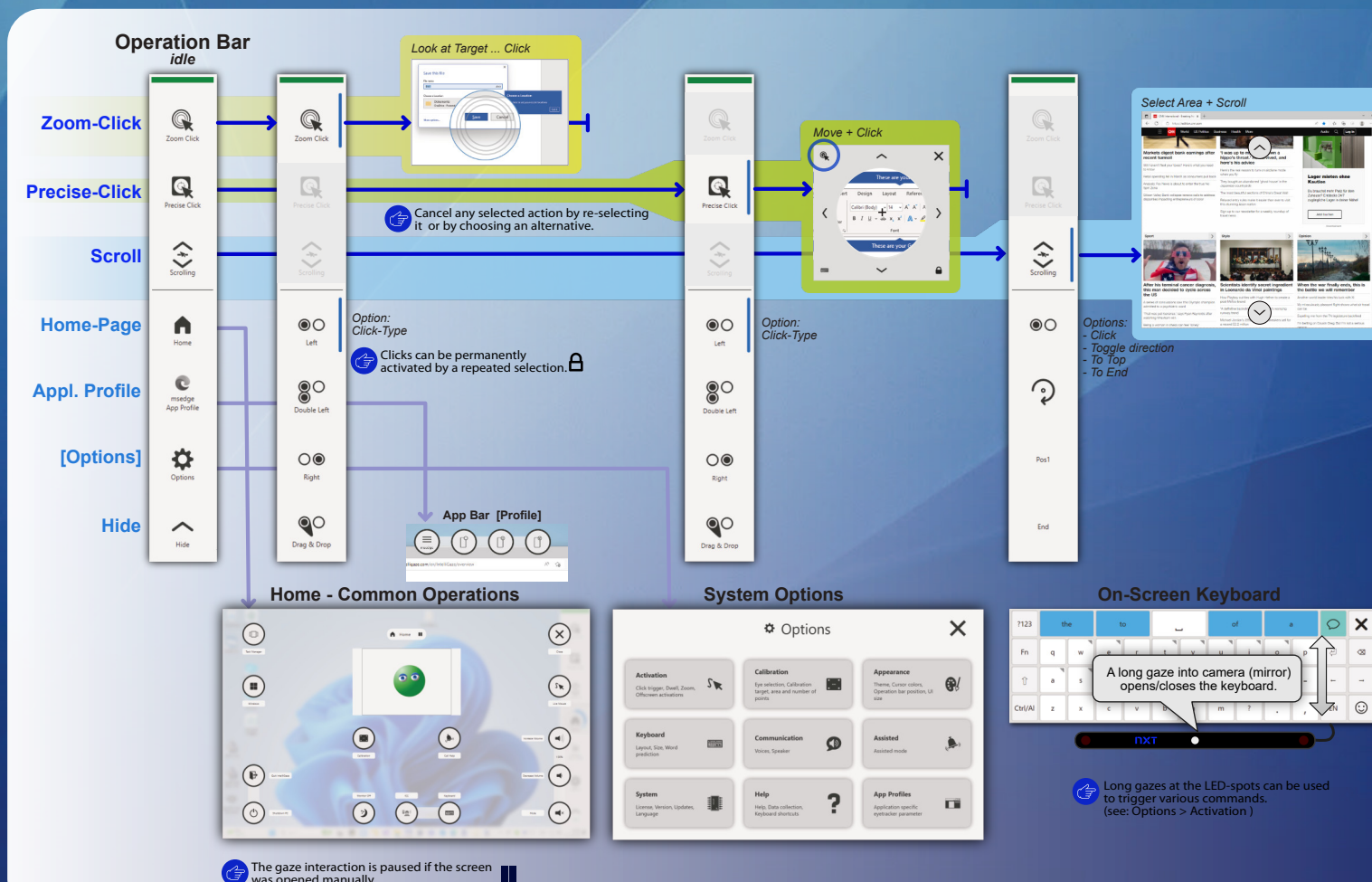
Profiles can provide a custom gaze control behavior on a per-application basis. Whenever a program is launched, IG loads a matching Application Profile, from a pre-defined collection.

The App Bar, providing custom, gaze accessible functions can be toggled by clicking on the profile [app name] button on the Operation Bar.

A new profile can be created by clicking Settings on the App Bar. The location of the App Bar can be toggled and made transparent.

The profile remains active even if the App Bar is hidden until a new application is focused, shown on the Operation Bar.

The list of application profiles can be managed through: Options > App Profiles



The gaze interaction is paused if the screen was opened manually.

Long gazes at the LED-spots can be used to trigger various commands. (see: Options > Activation)