SIGHTCARE

# CloverAir

## Low Vision AR Glasses

# User Guide

REV1.2

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# Precaution

Charge before first use. Refer to the **Battery Charging** section for more details.

Do not expose the device to high temperatures or sunlight for a long time, and try to use it in an environment with a temperature range of 10°and 35°C (50°and 95°F).

The device is not waterproof, keep it dry and away from liquids and chemicals, and try to use it in an environment with a relative humidity of less than 70%.

Do not attempt to repair the device. Any unauthorized attempt will void the product warranty. Please contact with your distributor.

Please use the battery, charger and data cable that comes with the device, and the compatibility of other unofficial accessories is not guaranteed.

# Quick Start

## Overview

The **CloverAir** series is a glassed-style electronic video magnifier focused on improving vision perception for visually impaired person. It provides clear image quality while offering unrestricted portability, supporting mobile use in all indoor and outdoor scenarios.

The **CloverAir** low-vision AR glasses use a modular design that separates the computing unit, battery, and display optical module into two independent parts, greatly reducing the weight of the glasses (around 80g) and heat generation (around 30°C), improving comfort for long-term wear. The glasses are creatively equipped with dual cameras. The front main camera captures visual information such as text and objects and processes it through algorithms to achieve image magnification, contrast enhancement, and color optimization. The processed image is then projected onto the glasses' binocular HD OLED display module. When switched to the close-up camera, users don’t need to lower their heads excessively to capture content on a desk, greatly improving the experience of reading and writing on paper at a desk.

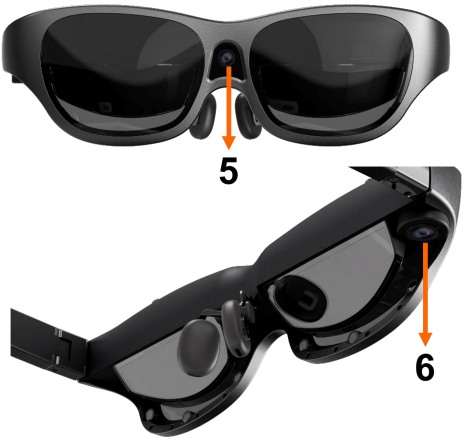
In addition, **CloverAir** is equipped with OCR, mobile screen mirroring, external HDMI input, and a variety of other features

and interfaces to seamlessly meet the daily needs of visually impaired person.

## Compositions

- **Head-mounted Display**

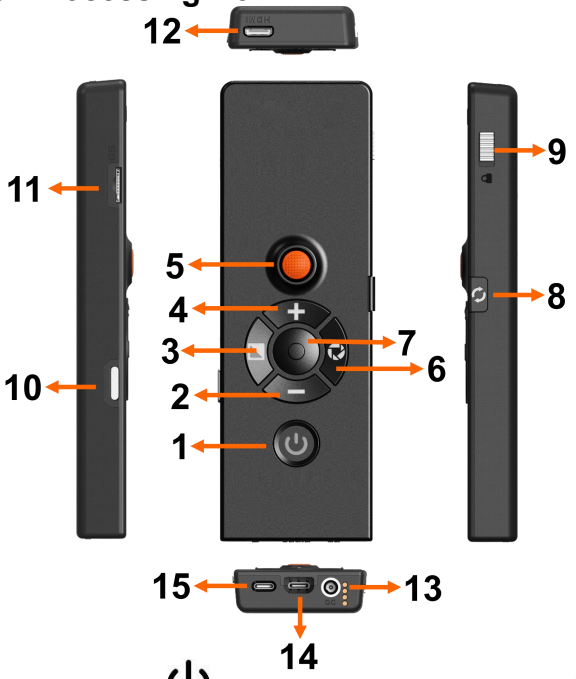
1. AR display module
2. Nose pad
3. Diopter knob
4. USB Type-C port



5. Main camera

6. Close-up camera

- **Visual Processing Box**




1. Power/TTS button

2. Zoom Out button

3. Color button

4. Zoom In button

5. Joystick /Enter

6. Freeze button

7. Lookup/Enter button

8. Switch/Return button

9. Button lock

10. Shift button

11. MicroSD card slot

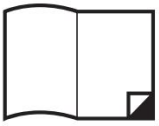
12. HDMI Input

13. DC charging port

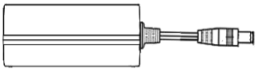
14. Signal port

15. Lightning port

# Accessories

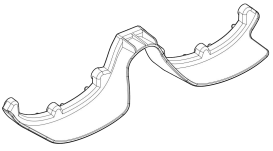


User Manual



Power Adapter

Cleaning Cloth



Sunshade

Lightning to USB type-C cable

# Eyewear Fitting

- **Nose Pad**

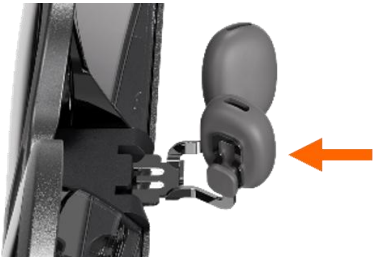
**1) Setup**

The nose pad offers 3 adjustable positions.

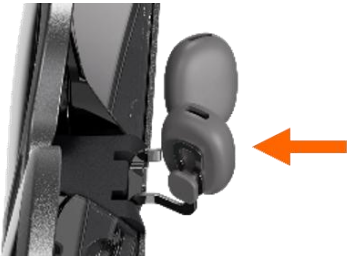
a) Align the nose pad connector with the frame slot.

b) Insert it straight into your preferred position until it locks into place.

c) Adjust the nose pad arms to make them fit more closely against the nose.



Position 1



Position 2

Position 3

Nose pad arm adjustment

**2) Nose Pad Cushion Adjustment**

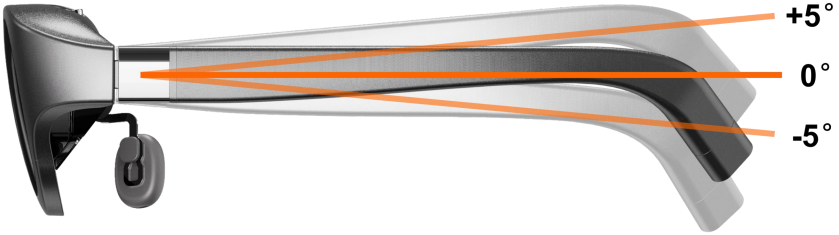
a) The soft cushions on the nose pad can be adjusted vertically for a customized fit. Gently slide the cushions up or down along the support arm.

b) The nose pad cushions can be rotated outward or inward to match the contour of your nose. Simply grasp the

cushions and pivot them to the position.

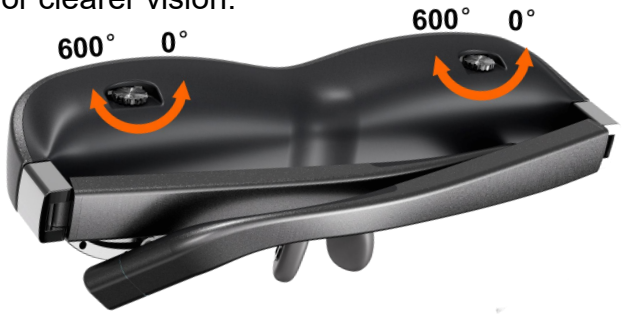
- **Eyeglass Temple**

The temple can be adjusted within a ±5° range for a personalized fit. Gently bend the temple upward or downward to your desired angle until it rests comfortably against the side of your head.




- **Myopia diopter**

Rotate the diopter knob to adjust the Myopia diopter (from 0° to 600°) for clearer vision.



- **Sunshade**

Align the sunshade with the magnetic positions on the frame, until it clicks magnetically.

## Battery Charging

Connect the supplied power cable to the DC port of Visual Processing box, and plug power adapter into an AC outlet to start charging. The green light is on when charging, and the green light is off when it is fully charged in the shutdown state.

# Basic Operation

## Power On / Off

Connect the Head-mounted Display and Visual Processing Box using the supplied signal cable.

Press and hold the Power/TTS button ⏻ for 2 seconds to turn on/off the device.

## Button lock

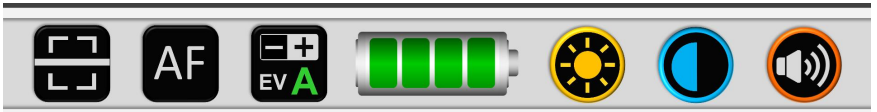
Slide the Button lock to lock or unlock the button operations (except for power on/off).

## Quick Control Bar

Short press the Shift button to pop up/close the quick control bar. Push and short press down the Joystick or the Lookup/Enter button to select the related function or setting.

Press the Zoom In button + or Zoom Out button — to adjust the setting, and short press the Lookup/Enter button or the Switch/Return button to confirm.

| Line Mask | Image Exposure | Screen Brightness | Bluetooth Volume |
|---|---|---|---|




| Focus Control | Battery Status | Image Contrast |
|---|---|---|

## Main Menu

Press and hold the Switch/Return button for 2 seconds to exit the current module and enter the Main Menu. Push and short press down the Joystick or short press the Lookup/Enter button to enter the following modules:

Magnifier - Open - Setting

## Display Switching

Short press the Switch/Return button to switch between: Main camera display, Close-up camera, HDMI Input and Mirroring.

The device supports external HDMI audio and video input with 1920*1080 video resolution.

## Bluetooth and Volume

When no Bluetooth audio device is connected, click the Bluetooth icon on the Quick Control Bar to pair and connect the scanned Bluetooth headphones or speakers.

When Bluetooth audio device is connected, click the volume icon on the Quick Control Bar to adjust the volume.

Bluetooth audio device can be switched by pushing and short pressing down the Joystick or the Lookup/Enter button to click the Bluetooth icon on left side of the volume bar.

# Image Operation

## Image Scaling

Press the Zoom In button + or Zoom Out button — to zoom in or zoom out the image.

## Enhanced Color / Edge Mark

Short press the Color button to switch between different edge mark and enhanced color combinations.

Edge mark and color combinations can be customized in the setting module.

Press down and hold the Color button for 2 seconds to quickly return to the natural color.

Press and hold the Shift button, and short press the Color button to change the color of edge mark.

## Image Freeze / Storage

Short press the Freeze button to freeze the image at a higher quality.

Press and hold the Freeze button for 2 seconds to pop up the saving checkbox and choose to save the image.

Short press the Freeze button again to unfreeze the image.

## Image Lookup

Short press the Lookup/Enter button to reduce the image to 1/3 of the current size, and short press again to return.

Press and hold the Lookup/Enter button to reduce the image to the minimum zoom level, and release to return.

## Image Panning

Push the Joystick to navigate the image around. **Head movement tracking** can also be used to navigate the still image.

- **Panning Speed Adjustment**

Keep pushing the Joystick to any direction and short press the Zoom In button + or Zoom Out button — to pop up and adjust the Panning Speed Bar.

- **Picture Positioning**

Quickly push the Joystick in the same direction twice to jump to the image edge directly.

In the Mirroring module or reading PDF, press down the Joystick to Jump to the upper left corner of the image. In the other modules, press down the Joystick to jump to the image center.

## Image Focus

Press and hold the Shift button for 2 seconds to trigger the focus manually.

Click the Focus Control icon AF on the Quick Control Bar to toggle between autofocus and focus lock which is especially useful for handwriting or handwork to prevent the fault focus on the hand or pen.

## Reading Line/Mask

Click the Line Mask icon on the Quick Control Bar to toggle between horizontal reading line, vertical reading line and reading mask.

Press and hold the Shift button , and push the Joystick to change the position or the thickness of reading line/mask.

Press and hold the Shift button, and short press the Color button to change the color of reading line.

## Image Exposure

Click the Image Exposure icon on the Quick Control Bar to pop up the exposure control bar.

| **Exposure Value = 0** | **Exposure Value ≠ 0** |
| --- | --- |
| Auto Exposure | Manual Exposure |

## OCR/TTS

Abbreviation: OCR (Optical Character Recognition) ; TTS (Text to Speech)

Before OCR recognition, set the corresponding language type in the Language Setting Page.

Short press the Power/TTS button to pop up the OCR checkbox.

After confirmation, the current image will be recognized and the text will be converted to speech and start reading aloud.

Click the Exit icon or press and hold the Switch/Return button for 2 seconds to exit reading aloud.

## TTS Control Bar

Short press the Shift button to pop up the TTS control bar together with the quick control bar.

Exit | Picture Read-aloud | Play | Speech Rate | Segmentation Enabled

Exit | Plain Text Read-aloud | Pause | Speech Rate | Segmentation Disabled

## TTS Operation

- **Play / Pause:** Click the play/pause icon or short press the Power/TTS button to play or pause the reading aloud.

- **Picture / Plain Text Read-aloud:** Short press the Switch/Return button to choose to read aloud in picture mode or plain text mode. Only the text of the current section is displayed with segmentation enabled, and the whole recognized text is displayed with segmentation disabled.
- **Skip lines:** Press and hold the Shift button, and short press the Zoom In button + or Zoom Out button — to jump to the previous or next section or sentence. Press and hold the Lookup/Enter button for 2 seconds to activate the cursor and use **Head movement tracking** to jump to different sections or sentences and release the Lookup/Enter button to start reading aloud.

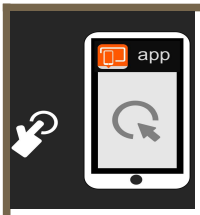
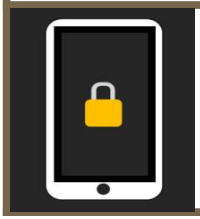
## Screen Mirroring

Android smartphone/pad with **MirrorPlay** APP installed can be screen casted. iPhone/iPad can be screen casted without

additional APP installed.

Use the official USB type-C / Lightning cable to connect the phone and the device, and the device will automatically detect and enter the Mirroring module.

If the following user interface appears on the device screen, perform the following operations.

| | |
|---|---|
|  | Please open the **MirrorPlay** APP on Android smartphone and authorize screen casting.<br>If it is not working, please try reconnecting the USB Type-C cable. |
|  | The phone is in the lock screen state, please unlock the phone. |

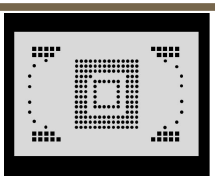
## Open

Recognized image formats: JPG, BMP, PNG

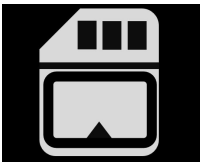
Recognized document formats: TXT, PDF

Supported file systems: FAT32, exFAT

## Storage Medium



Memory



MicroSD Card

- Push and short press down the Joystick or short press the Lookup/Enter button to choose the storage medium and open the folder of selected storage medium.
- The memory folder can be formatted. Select and highlight the folder, press and hold the Shift button for 5 seconds to pop up the format checkbox , short press the Shift button again to format the folder, or press the other buttons to cancel the formatting.

  **Note**: The formatting will erase all files in the selected folder, so please do it carefully and make a backup.

## Thumbnail Grid

- Push the Joystick to turn the page up and down when in the image or document folder of selected storage medium. Short press the Switch/Return button to

return to the parent directory. Short press down the Joystick or the Lookup/Enter button to open the selected file.

- Press down and hold the Joystick or the Lookup/Enter button for 2 seconds to activate or inactivate the multi-selection for files. Push and short press down the Joystick or the Lookup/Enter button to select the images or documents which can be transferred or deleted in batches.
- Files can be copied from different storage medium. Files from internal memory can be exported to an SD card by short pressing the Freeze button . Files from the SD card can also be imported into the Shared Picture or Shared Document folder of internal memory by short pressing the Freeze button .
- Press and hold the Freeze button for 3 seconds to copy all files in batches.
- Short press the Shift button to pop up the delete

prompt on the highlighted thumbnail. Short press again to confirm the deletion or press other buttons to cancel.

- Press and hold the Shift button for 5 seconds to delete all pictures or documents in this folder. Short press again to confirm the deletion or press other buttons to cancel.
- The thumbnail of the image saved in the OCR/TTS module will appear with an embedded text icon in the upper left corner. Short press the Zoom In button to open the text attached to the image.

## File Control Bar

Short press the Shift button to pop up the file control bar together with the quick control bar. Push and short press down the Joystick or the Lookup/Enter button to click the highlighted icon.

Click the Exit icon or press and hold the Switch/Return button for 2 seconds to close the file and return to the thumbnail grid.

- Picture Control Bar:

| Exit | First One | Previous One | Picture No. | Next One | Last One | Rotation |
|---|---|---|---|---|---|---|

- TXT Control Bar:

| Exit | First Page | Previous Page | Page No. | Next Page | Last Page | TTS |
|---|---|---|---|---|---|---|

- PDF Control Bar:

| Exit | First Page | Previous Page | Page No. | Next Page | Last Page | PDF mode |
|---|---|---|---|---|---|---|

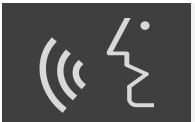
- Click the image rotation icon or short press the Freeze button to rotate the image.

- Automatic pagination for the large TXT format document.
- The PDF document may also contain TXT text information, click the PDF mode icon P or the TXT mode icon T to switch between each other. If the current PDF page does not contain TXT format text, an Empty TXT icon is displayed.
- Click and hold on the Page Up icon or Page Down icon to turn multiple pages at once.

# Setting

## Option Page

| | |
|---|---|
| | Color Mode Combination: Customize the desired color mode from 12 selectable color combinations and 2 edge mark types. |
| | Enable or disable the Close-up camera. |
| | Enable or disable Text to Speech. |



Language Setting： Set the target region and language for OCR.

Male and female voice selection.

## Factory Setting Page

System Reset： Restore the default factory settings.

Power Frequency： The power frequency can be manually set to 50HZ or 60HZ according to different countries and regions.

User Interface: Standard UI mode provides comprehensive functionality; Simple UI mode disables most combo key functions as well as other complex features such as image freeze, saving, playback, line mask, live panning, and OCR.

## Hardware Reset

When the device is hung or can't be turned off normally, press down the Power button ⏻ and Zoom In button + and Zoom Out button — at the same time to trigger the hardware reset.

## FCC Statement

This equipment 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. This equipment 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 this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following

measures:

•Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

•Connect the equipment 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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Information

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

# Specification

| | |
|---|---|
| **Model:** | **CloverAir** |
| **Optical system:** | AR Birdbath |
| **Field of view:** | FOV43° @0D |
| **Eye box @ Eye relief:** | 10*7mm@12mm |
| **Diopter:** | -6D ~ 0D |
| **Display panel:** | 0.49-inch Mirco-OLED, 1920*1080 |
| **Perceived brightness:** | 100 to 400 nits adjustable |
| **Interpupillary distance:** | 53 to 73 mm |
| **Main camera:** | Standard 48MP |
| **Close-up camera:** | Telephoto 24MP |
| **Magnification:** | Near: 1.2x - 30x; Distance: up to 30x |
| **Color mode:** | Nature color; Edge mark; False color |
| **Connection:** | SD; Lightning; HDMI IN; Bluetooth |
| **Battery:** | 6000 mAh Li battery; 7 hours duration |
| **Power Adapter:** | Input: 100-240V; Output: 5V/3A |
| **Weight:** | ≤ 80g (Glasses); ≤ 180g (Box) |
| **Dimension:** | ≤ 155*57*48mm (Glasses folded)<br>≤ 155*168*48mm (Glasses unfolded)<br>≤ 160*53*21mm (Box) |

Ver.

Low Vision

SIGHTCARE