

# **User Manual**

MagniLink AIR – iOS

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## 1 About LVI

LVI Low Vision International AB was founded in 1978 and is one of the world's leading manufacturers of equipment for persons with visual impairments. Development of new products takes place in close cooperation with users and professional staff within the low vision rehabilitation industry. LVI is quality-certified in accordance with ISO 9001 and environmentally-certified in accordance with ISO 14001.

The information in this manual has been carefully checked and is believed to be accurate. However, LVI assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will LVI be liable for direct, indirect, special, exemplary, incidental, or consequential damages resulting from any defect or omission in this manual. In the interest of continued product development, LVI reserves the right to make improvements in this manual and the products it describes at any time, without notice or obligation.



## 2 Introduction to MagniLink AIR

Thank you for choosing this camera system. Our aim is for you to be satisfied with your choice of supplier and vision aid.

MagniLink AIR is a product line of magnifying camera systems designed for people with visual impairment. The system is available with several different cameras that can be combined in various ways. MagniLink AIR Uno with a combined distance and reading camera. MagniLink AIR Duo with a distance camera and a reading camera. MagniLink AIR Distance is a distance camera that connects to a computer via a network cable. You can also connect various LVI reading cameras to the system. The system offers features such as the ability to pan and tilt the camera, magnification settings, autofocus, several artificial colours, reading mode, mirror mode and distance mode settings, amongst other things. MagniLink AIR can stream video to a PC, Mac or iOS device.





The systems complies with all CE certification requirements for medical devices in accordance with EU regulation 2017/745.



## 3 Information

## 3.1 Reuse, installation and maintenance

The device may only be technically overhauled and prepared by an authorized company. Re-use may only be carried out after appropriate inspection and cleaning / disinfection.

## 3.2 Cleaning

Before equipment cleaning and maintenance note:

- Disconnect the device from the power supply before cleaning.
- Use a slightly damp (not wet) cloth and a cleaning / disinfectant agent intended for monitors and computers.
- Do not allow any liquids to enter the device.

## 3.3 Safety information

- If the product is moved from the cold into a warm room, condensation (moisture) can form inside the unit or on the camera lens. To prevent problems with condensation, the apparatus should be installed in the room at least 30 minutes prior to usage.
- Please follow the instructions in the document called "Assembly and Installation".
- Store cables and power supplies securely.
- LVI recommends having two persons present when mounting the unit to a ceiling.
- Make sure the system is installed correctly.
- Do not pull or hang on the system after installation.
- Be aware of crushing.
- Do not cover the system.



- Never operate the product if it has been exposed to water or other liquids. Damaged or wet product can cause electric shocks or fire.
- If the system requires cleaning, pull out all cables and use a slightly damp (not wet) cloth. Use only water or a cleaning agent that is intended for monitors and computers.
- Do not rely 100 per cent on the results of an OCR conversion; the OCR engine can misinterpret the text. This is particularly important to bear in mind when processing sensitive information such as a medical prescription.
- Make no further adjustments, even if the product does not function normally after following the functional descriptions. Pull out the power cable and contact service staff or the product distributor.
   Only use spare parts that are specified by LVI.

If in doubt, contact your supplier.

## Warning



The product is supplied packed in a plastic bag. To avoid risk of suffocation, keep the bag out of the reach of children and infants.



## 4 Unpacking

The system is supplied in a box with the following contents:

- Camera system
- User Guide
- USB memory stick with software

Make sure there is no external damage before opening the box. In the event of damage, contact the courier to report the damage. Open the box, take out the MagniLink AIR and remove the packaging parts. For further information, please see the chapter on Installation.

## 4.1 Packaging

The packaging consists of the following packaging material (LVI recommends that the packaging be kept in case you have to return the system or you need to move it):

- Packing material (EPEL E)
- Box (corrugated cardboard)
- Polyethylene (LDPE4)

For sorting and collection of packaging material, please call the packaging collection customer service department for information on the rules that apply in your municipality.

Note that the product and its accessories must be recycled as electronic waste. A worn-out battery is recycled as electronic waste.



## 5 Accessories



Roof bracket (MLAIR-A014). Used if the ceiling is not using 60x60cm panels.



Text To Speech for PC (TTS-PC), Mac (TTS-MAC) or Chromebook (TTS-CHROME).



## 6 MagniLink AIR Distance

The distance camera is connected using the included network cable. To connect it to an iPad, an adapter is required. The distance camera is available with various brackets.



Table bracket (MLAIR-DISTANCE).





Ceiling bracket (MLAIR-DISTANCE-C).



Wall bracket (MLAIR-DISTANCE-W).



## 7 MagniLink Viewer

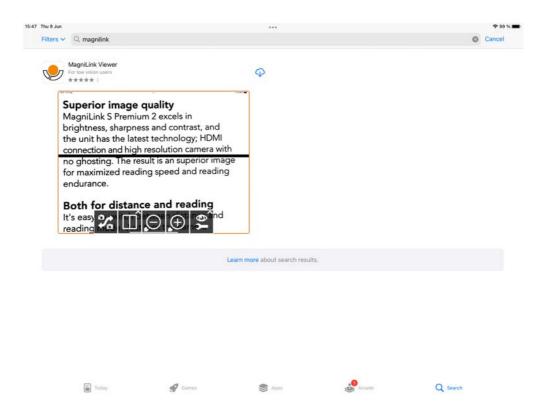
MagniLink Viewer is a software developed for iPad. The software can display images from a MagniLink camera system and the built-in cameras. The software can control camera properties such as magnification level, artificial colours and brightness.

## 7.1 System requirements

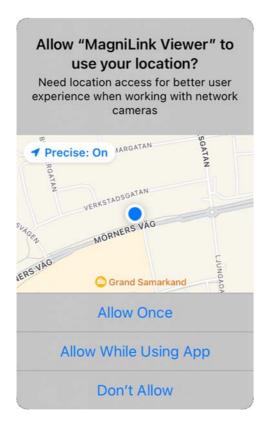
iPad with iPadOS 15.0 or later.

## 7.2 Installation of software

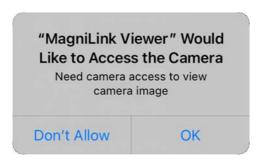
Enter App Store and click Search in the lower right-hand corner.



Click the download icon to install the software.



Click Allow while using the app.



Click OK.

## 7.3 Connect to network

To be able to stream video from MagniLink AIR Uno or Duo, you must connect to its network. Open the iPad's WiFi settings and connect to the **ML\_AIR** network. Enter the password provided.

To be able to stream video from a MagniLink AIR Distance, go to the iPad's Ethernet settings. Select manual IP configuration and enter the following.

- 192.168.100.99 as IP address.
- 255.255.255.0 as the subnet mask.
- 192.168.100.1 as router.



## 7.4 Using the software

## 7.4.1 Functions via menus

### **7.4.1.1** Camera view

The following menu is displayed when the application is started.





#### Switch views

Switches to the OCR view. Press and hold to switch to the Notepad view.



### Change camera

Switch between the LVI camera and the front and rear cameras.



## Split Mode

Opens a submenu where you can set the split mode.



#### Switch between rear and front camera

This feature is available on iPhone and older iPads where you cannot view the two built-in cameras at the same time.



### Change Image Source

Used to swap image sources (if there are more than two sources).



### Change split mode

Change between vertical and horizontal split mode.





## Move split left

Moves the split mode to the left.



## Move split right

Moves the split mode to the right.



#### Pan

Open a submenu with the following options.



Pan left



Pan right



Tilt up



Tilt down



### Position 1

Move the camera image to position 1. Press and hold to save the position.

2

### Position 2

Move the camera image to position 2. Press and hold to save the position.



#### Position 3

Move the camera image to position 3. Press and hold to save the position.





#### Position 4

Move the camera image to position 4. Press and hold to save the position.



#### Position 5

Move the camera image to position 5. Press and hold to save the position.



### Position 6

Move the camera image to position 6. Press and hold to save the position.



#### Decrease magnification



## Increase magnification



#### **OCR**

Start OCR. When the OCR process is complete, the application switches to the OCR view and reading begins. You cannot switch using press and hold.



### Take picture and record video

Open a submenu with the following buttons.



### Take picture

There is an audible click, and the image is saved. The image can then be opened in the "Images" app. The file name will be today's date and the current time.



#### Record video

Start recording. The application will display an icon indicating that recording is in progress. Stop recording by pressing the button again. The clip can then be opened in the "Images" app. The file name will be today's date and the current time.





## Notepad

Open image in the notes tool.



## Video Settings

Open a submenu with the following buttons.



#### Full screen

Switch between full screen and cropped image.



#### Switch natural colours

Switch between natural colours and grey scale.



#### Switch artificial colours

Switch between artificial colours. Press and hold to switch back.



## Reduce brightness/contrast



### Increase brightness/contrast



## Mirror the camera image

Press again to reverse the mirror image.



## Rotate the camera image

Rotates the camera image clockwise. Press and hold to rotate anti-clockwise.





## Reference line/vertical bar left/up

Adjusts the position of the reference line. Press the button to move the reference line to the left. Hold the button in to change the reference line to horizontal and move it upwards. The reference line then becomes a vertical bar, which diminishes the viewing area. To make the bar horizontal, press the button again.



### Reference line/bar right/down

Same as the previous command but in the opposite direction.



### Settings

Open the settings dialog boxes.

### 7.4.1.2 OCR view



The OCR view consists of three components.

- At the bottom is a menu bar with buttons.
- To the left is a list of pages that have been OCR processed previously. By clicking on a page, you can navigate to it.



• An area showing the OCR processed page. The current page number is displayed top right.



#### Switch views

Switches to the camera view. Press and hold to switch to the Notepad view.



### Document management

Open a submenu with the following three options.



## Hide sidebar



## Open document

From the dialog box, select the file you wish to open.



#### Save document

A dialog box where you can choose the file format (PDF, Zip and RTF) appears. You can then choose where you want to save the file.



#### Remove

Remove the current page.



#### Notepad

Opens OCR processed pages in the notes tool.



### Start reading

Start reading. Press again to stop reading.



#### **Previous**

Skip backwards in the text. Depending on which reading mode is selected, you will skip back to the previous character, word, sentence or block. Press and hold to switch to the previous page.







#### Next

Skip forwards in the text. Depending on which reading mode is selected, you will skip forwards to the next character, word, sentence or block. Press and hold to switch to the next page.



### Text settings

Open a submenu with the following settings.



### Switch reading mode

Switch to next reading mode. The modes available are: character, row, sentence and block.



## Switch display mode

Switch display mode. The display modes available are "page view", "row view", "word view", "image view", "image and word" and "image and row".



#### Increase font size



Reduce font size.



### Image settings

Open a submenu with the following buttons.



### Switch natural colours

Switch between natural colours and grey scale.



#### Switch artificial colours

Switch between artificial colours. Press and hold to switch back.





## Increase brightness/contrast



Reduce brightness/contrast



## Settings

Open the settings dialog boxes.

## 7.4.1.3 Notepad view

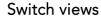


The notes tool consists of three components.

- To the left is a list of images that have been opened previously. By clicking on an image, you can navigate to it.
- An area where you can draw, enlarge and pan through the image.
- At the bottom is a menu bar with buttons.







Switches to the camera view. Press and hold to switch to the OCR view.



### Document management

Open a submenu with the following three options.



Hide sidebar



### New image

Opens a new blank image that you can draw in.



#### Save document

A dialog box where you can choose the file format (PDF and JPEG) appears. You can then choose where you want to save the file.



### Open document

From the dialog box, select the file you wish to open.



### Remove

Remove the current page.



#### Pen

Draw with a pen. Press and hold to open a dialog box where you can choose the colour and size.



### Highlight

Highlight with a highlighter. Press and hold to open a dialog box where you can choose the colour and size.





### Text tool

Insert text. Press and hold to open a dialog box where you can choose the colour, size and font. You can move text around after inserting. Double-click the text to change it.



Delete



Enlarge and pan in the image.



Undo



#### Restore

Restore after pressing undo.



## Rotate

Any changes you made to the image will be removed if you rotate.



## Settings

Open the settings dialog boxes.



## 7.4.2 Functions via gestures

Some functions can be controlled via gestures on the tablet. Pressing and holding means keeping the fingers in place for more than half a second. It is possible to choose which gestures you want to switch off in the settings.

## 7.4.2.1 Camera view

Pinch	Change magnification
Rotate two fingers	Rotate the image
Press with two fingers on the top of the screen	Natural colours
Swipe with two fingers vertically over the top of the screen	Artificial colours
Swipe with two fingers vertically over the top of the screen	Contrast
Press and hold with one finger on the top of the screen	Start OCR
Press and hold with two fingers on the top of the screen	Start OCR (without switching views)
Press and hold with three fingers on the top of the screen	Take picture for notes tool
Press and hold with one finger on the bottom of the screen	Switch full screen
Double-click with two fingers on the bottom of the screen	Switch views
Double-click with one finger on the bottom of the screen	Hide menus
Double-click with one finger on the top of the screen	Switch camera
Press with three fingers on the top of the screen	Change split mode
Press with three fingers on the bottom of the screen	Open settings

## 7.4.2.2 OCR view

Pinch Change magnification



Swipe with one finger	Pan through the image
Press with two fingers on the top of the screen	Natural colours
Swipe with two fingers vertically over the top of the screen	Artificial colours
Swipe with two fingers vertically over the top of the screen	Contrast
Double-click with one finger on the bottom of the screen	Hide menus
Double-click with one finger on the top of the screen	Hide sidebar
Double-click with two fingers on the bottom of the screen	Switch views
Swipe with two fingers vertically over the bottom of the screen	Switch reading mode
Press with three fingers on the bottom of the screen	Open settings
Press and hold with two fingers on the bottom of the screen	Change display mode

## 7.4.3 Functions via the keyboard

You can connect to a USB or Bluetooth keyboard and control some of the application's functions via the keyboard.

The shortcut commands can be changed in Settings. Below are the standard settings for shortcut commands.

## 7.4.3.1 **General**

fn + F1	Natural colours
fn + F2	Positive picture with increased contrast Artificial colours; White/Black, Yellow/Black, Green/Black, Red/Black, Yellow/Blue, White/Blue Press F2 to toggle through the different colours. (Shift + fn + F2 toggles backwards.)
	in in a reggies backwards.



fn + F3 Negative picture with increased contrast

Artificial colours; Black/White, Black/Yellow, Black/Green, Black/Red, Blue/Yellow, Blue/White Press F3 to toggle through the different colours. (Shift

+ fn + F3 toggles backwards.

Arrow up Zoom in

Arrow down Zoom out

Arrow left Decrease brightness

Arrow right Increase brightness

Cmd + , Open the preferences dialog

This key combination is the standard way to open the

preferences dialog in a Mac application.

Option + H Hide menus

V Switch between camera view and text view

If a text has been OCR-processed, this command switches between camera view and text view.

### 7.4.3.2 Camera view

Option + Arrow left Guiding line left/up

Option + Arrow right Guiding line right/down

Option + R Rotates the camera picture clockwise

Each time you press this key combination the picture

rotates 90° (90°, 180°, 270°, 0°).

Shift + Option + R Rotates the camera picture counter clockwise

Each time you press this key combination the picture rotates 90° counter clockwise (270°, 180°, 90°, 0°).

R Rotate image clockwise steplessly

Shift + R Rotate image anticlockwise steplessly

Option + I Mirror camera image

By pressing Option + I, you can mirror the camera image. This is a useful feature if you for example would like to use the camera as a magnifying makeup mirror.

fn + F5 Take a snapshot

There is an audible click, and the image is saved. The file name will be today's date and the current time.



fn + Alt + F5 Start/stop video recording

Start recording. The application will display an icon indicating that recording is in progress. Stop recording by pressing the button again. The file name will be

today's date and the current time.

C Switch camera

Z Change image source

X Change split mode

Shift + left arrow Move split left/up

Shift + right arrow Move split right/down

A Pan left

D Pan right

W Tilt up

S Tilt down

Ctrl + 1 Save position 1

Ctrl + 2 Save position 2

Ctrl + 3 Save position 3

Option + 1 Go to position 1

Option + 2 Go to position 2

Option + 3 Go to position 3

## 7.4.3.3 OCR view

fn + F4 OCR process

This command takes a picture for OCR processing. The

program then switches to text view and the OCR

processed text is read aloud.

Minus Decrease font size

Plus Increase font size

1 Start/Pause reading

If no reading is currently in progress, reading starts,

otherwise reading is paused.



2 Stop reading

This command stops the reading. The next reading will

begin from the start of the text.

3 Read previous

With this command, the user can go backwards through the text. If the reading mode is sentence, you move backwards through the text one sentence at a time. If the reading mode is word, you move backwards through the text word by word. If the reading mode is set to character, one character is read for each

keystroke.

4 Read next

With this command, the user can move forward in the text. If the reading mode is sentence, you move forward through the text one sentence at a time. If the reading mode is word, you move forward through the text word by word. If the reading mode is set as character, one character is read for each keystroke.

5 Switch reading mode

This command selects the reading mode that is to be employed when the "Read previous" or "Read next" command is entered. The modes are, character, word, sentence, view and block. Which modes can be

selected depends on the display mode.

B Display mode

Switches to display mode for OCR-processed text. The available display modes are: "page view", "row view", "word view", "image view", "image and word" and

"image and row".

## 7.4.3.4 Notepad view

fn + F7 Take a picture and open in Notepad

Option + N New Page

Option + O Open image

Option + S Save image

Cmd + Z Undo

Shift + Cmd + Z Redo

Option + R Rotate clockwise



Shift + Option + R Rotate anti-clockwise

Option + P Select pen tool

Option + L Select the highlighter tool

Option + T Select text tool

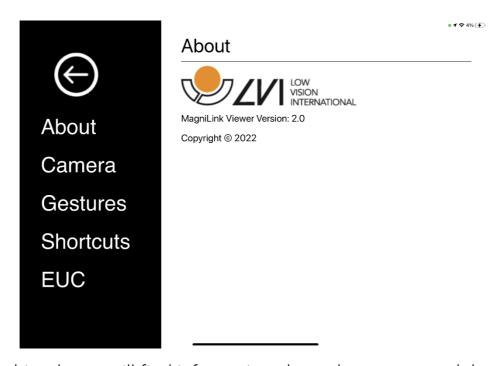
Option + E Select the eraser tool

Option + F Select the pan tool

## 7.4.4 Information and settings window

The Information and settings window consists of a number of different tabs that contain application information and alternative settings.

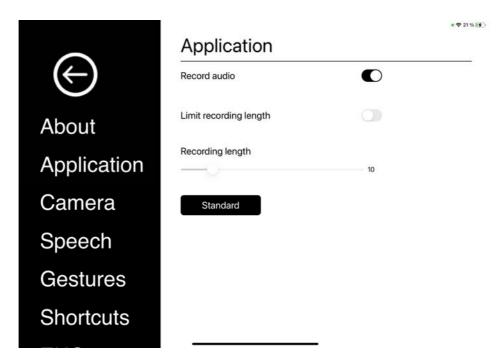
## 7.4.4.1 About the application



Under this tab you will find information about the camera and the software version.



## 7.4.4.2 Application Settings



## Record audio

Choose whether to record video with audio

## Limit recording length

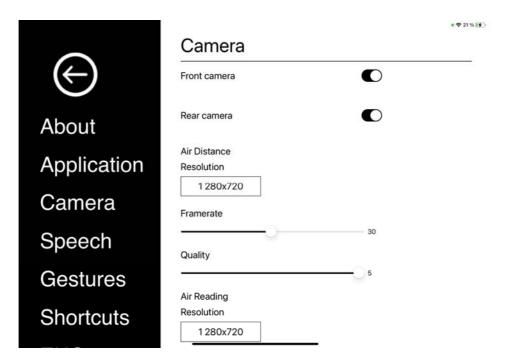
Activate this function to limit the recording length.

## Length in minutes

If you have chosen to limit the recording length you can set the limit here in minutes, from 1 to 60 minutes.



## 7.4.4.3 Camera settings



#### Front camera

When this is deselected, it is not possible to switch to the front camera. It is not possible to deselect this if the rear camera is deselected.

### Rear camera

When this is deselected, it is not possible to switch to the rear camera. It is not possible to deselect this if the front camera is deselected.

#### Resolution

Select from the camera's various resolution options.

#### Frame rate

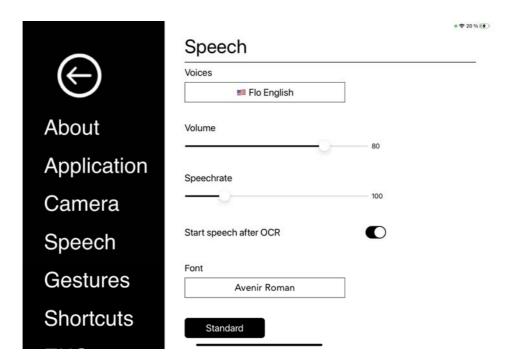
This setting allows the user to limit the frame rate. For the best video quality, the frame rate should be 60 Hz, but it may be appropriate to set the frame rate at 30 Hz for computers with a lower level of performance.

## Quality

Depending on performance, you may want to use a lower video quality setting.



## 7.4.4.4 Speech Settings



## Voices

If several voices are available, the user can choose between them. You can get other voices by downloading languages in the iPad's settings. The OCR engine only supports languages that use the Latin alphabet.

### Volume

Setting for the sound level of the voice.

## Speaking speed

Setting for the speaking speed.

## Start speech after OCR

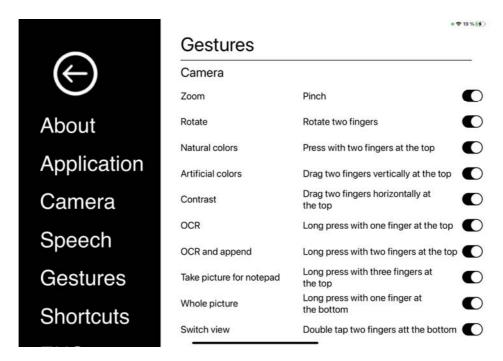
If this box is checked, text will automatically be read aloud after an image has been OCR processed.

#### **Font**

Here the user can set the font for displaying the OCR processed text. The choice of font has no bearing on the OCR result.



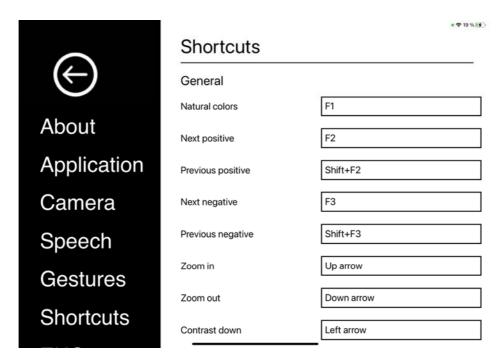
## **7.4.4.5** Gestures



Here you can choose which gestures will be used. To turn off a gesture, you can untick the relevant box.



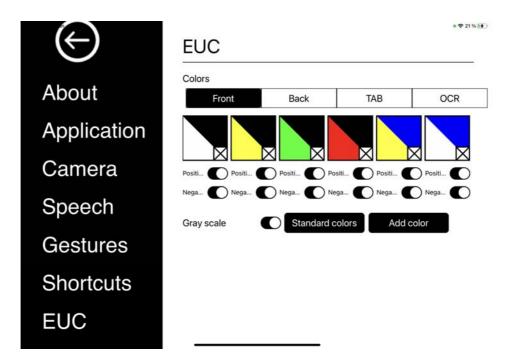
## 7.4.4.6 Short cut commands



Here the short cut commands used for the application can be changed. To change a short cut command, tab to the command that is to be changed and enter the new keyboard combination. If a combination already being used for another command is entered, the other command will be erased. A new keyboard combination will need to be entered for the other command.



## 7.4.4.7 EUC



The camera can be configured under this tab.

### Colours

It is possible to remove and change the camera's artificial colours.

- To remove a colour combination, press X.
- To add a colour combination, press Add.
- To change a colour combination, press one of the triangular fields and a colour dialog box will appear. Select colours and press OK.
- To remove either the positive or the negative component. Uncheck the "Positive" or "Negative" checkboxes.
- To restore the colours, press "Default colours".

## Grey scale

Choose if you wish to have grey scale or not.



## 8 Ergonomics

Your reading camera is now ready to use. It is important that the workplace around your MagniLink is comfortable, and that you sit correctly. This is so that you can use the camera for as long as possible without putting undue strain and stress on your neck and back.

You should bear the following in mind:

- Your chair should be positioned close to the table on which the equipment is located, and you should not sit in the chair for too long. We recommend a good office chair with adjustable height.
- The seat of the chair should be at a height that does not cause your legs to become numb; legs should be at an angle of 90 degrees and you should rest your feet on the floor.
- The reading table should be at a height at which you can rest your lower arm horizontally on it. It is important that the table is neither too high nor too low for you. The ideal solution is if the screen is slightly below eye level and in as straight a line in front of you as possible.
- Shield off daylight. Lights in the ceiling, table lamps and light from windows can cause reflections on the monitor. For this reason, avoid placing lights where they shine directly at the screen or at yourself.
- If you use the device for long periods of time, there is a risk of repeated movements causing you pain in your neck, shoulders and back. Your eyes can also get tired from looking at a screen for too long.



## 9 Technical information

Magnification, distance camera 30x optical zoom + 12x digital zoom

Resolution, distance camera HD (1280x720)

Frequency, distance camera 60 Hz

Weight, distance camera 2 kg

Power source AC

Power consumption 30 W

Acceptable temperature ranges Transport and storage -20 °C - +60 °C

Operation: +5 °C - +35 °C





Disposal of old electrical and electronic equipment (applies for EU countries and all other European countries that have specific collection systems)

If the product or its packaging has this symbol on it, it is not to be handled as regular domestic waste. It should instead be deposited at a suitable collection centre for the recycling of electrical and electronic equipment. By ensuring that this product is properly taken care of, you are helping to prevent the negative impact on health and the environment that might otherwise result from inappropriate disposal of this product. Recycling helps in the management of our natural resources. For more detailed information regarding the recycling of this product, you can contact your municipality, your waste management company or the store where you purchased the product.



# 10 Declaration of Conformity

# **DECLARATION OF CONFORMITY**

Manufacturers name:		LVI Low Vision Inte	ernational AB
Manufacturers Address	5:	Verkstadsgatan 5 S-352 46 Växjö Sweden	
Web:		http://www.lviglo	bal.se
SRN (Single Registratio	n Number):	SE-MF-000004178	3
Basic UDI-DI (GMN):		7330724MLAIRV9	
Brand name or tradem	ark:	MagniLink	
Product code:		MLAIR	
Classification:		Class 1	
Type of equipment:		Reading Aid	
Conformity assessment route:		LVI Low Vision International AB uses the following procedures for the CE-labeling of their products according to the Regulation MDR 2017/745:	
		Class [1]: EC conford Annex I + Annex II +	mity declaration according to Annex VII
hereby declare that he med	lical device(s) specified es. This declaration is	d above meet the prov supported by the Qua	LVI Low Vision International AB. We vision of the Regulation (EU) MDR lity System approval to ISO 9001 mises of the manufacturer.
Manufacturer	Manufacti	urer's authorized r	epresentative
Date	Signature		Position
28-06-2021	Half	n	Managing Director
	Clarification		
	Henrik Blomdahl		



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