

User Manual

MagniLink TAB

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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 TAB

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

MagniLink TAB is a system with a tablet computer and stand, developed to make everyday life easier for visually impaired people. The system offers autofocus, several artificial colours and the ability to set the magnification. It is possible to OCR-process a text and have it read aloud by a speech synthesiser.



	<p>The system complies with all CE certification requirements for medical devices in accordance with EU regulation 2017/745.</p>
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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

- Only use the power adaptor supplied with the product. Using an incorrect type of power adapter may cause damage to 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.
- Place the power cord in such a way that you can neither trip over it or that crush damages can occur.
- The product contains a neodymium magnet. This is a potential risk for a user with a pacemaker. If the magnet gets too close, its magnetic field can interfere with the operation of the pacemaker.
- 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.

- 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.
- When the system is to be moved, remove the distance camera (where applicable), collapse the system and lift it via the handle.
- Be careful not to catch your fingers when collapsing the system.
- 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.

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:

- Stand
- Tablet computer (Microsoft Surface Pro)
- Power adaptor
- Distance camera
- Polishing cloth
- Case
- User Guide

Check first that the box has no external damage. In the event of damage, please contact the transport company and make a notification of damage.

Open the box, take out the MagniLink TAB and remove the packaging parts.

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 (XPE)
- 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 Hardware

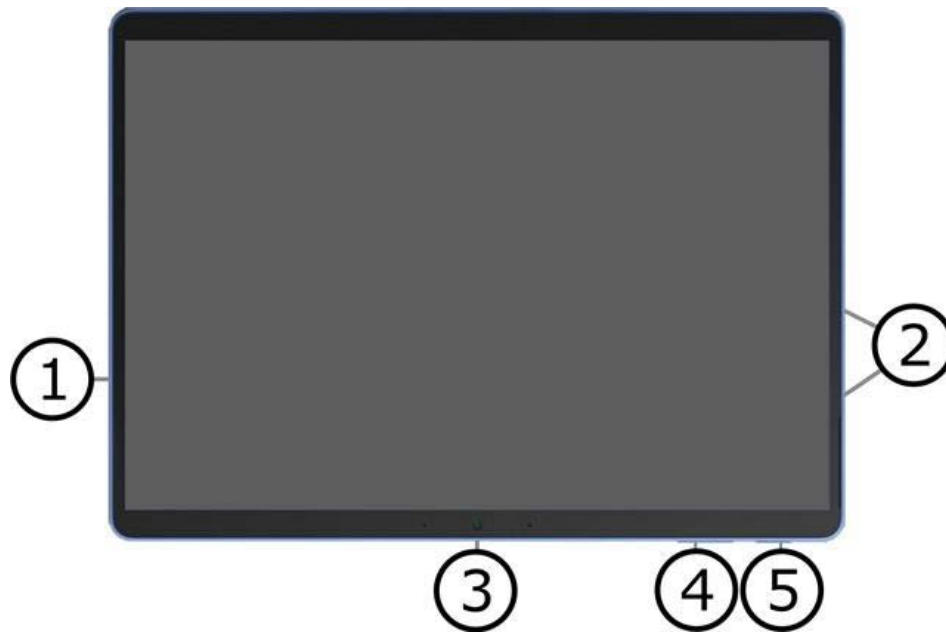
5.1 Stand



The stand consists of an arm with a holder for a tablet computer. The arm of the stand also functions as a handle when collapsing and moving the system. The stand also contains an attachment for a distance camera.

If the tablet is to be put back in the stand, it is important to insert it with the camera down. Otherwise, it can be difficult to remove it.

5.2 Tablet computer



This tablet is of type Microsoft Surface Pro.

1. Power adapter port.
2. USB port.
3. Camera.
4. Volume control.
5. On/Off button. Press to start. To enter standby mode, press and release the button quickly. To shut down the unit, press and hold the button.

5.3 Distance camera



The distance camera is connected to the tablet computer using a USB cable. The camera lens can be folded down if you wish to view an object from a distance.

5.4 Installation



1. Place the stand on the table in front of your seat.
2. Take hold of the arm of the stand and manipulate it into the desired position.
3. Connect the power adaptor to the port on the left side of the tablet.
4. Place the distance camera on the right side of the stand. Connect the USB cable from the camera body to the USB port on the left side of the tablet.

6 Software

The software comes preinstalled and starts automatically when you start the device. The software comprises three different views: a camera view, an OCR view and a settings view. There is also a tool you can use to take notes in a PDF document or in a picture that has been taken. The software's various functions can be controlled via menus, gestures or keyboard. The software is compatible with Microsoft Surface Pen and the screen reader in Windows 10.

If you wish to shut off the software, press and hold five fingers on the screen to exit fullscreen mode. Then tap the x in the top right-hand corner.

LVI accepts no responsibility for conflicts that may arise when users installs third-party software on the device. If problems occur, there is a restore point. To restore Windows to this point, tap **Search**. Type **Recovery** in the search box, and then click **Recovery**. Press **Open System Restore** and select the Restore Point **LVI Factory Restore**. Restoring the system can take up to one hour.

6.1 Functions via menus

The following menu is displayed when the application is in camera view.



Switch between camera view and OCR view.



Switch between distance camera and the front and rear cameras. One press with two fingers switches direction.



Zoom in.



Zoom out.



Start OCR. When pressing the button with two fingers, the result of the OCR processing appears on a new page.



Scanning a QR code. If the QR code contains a link, a dialog opens where you can open the link.



Open a submenu with the following buttons.



Freeze the camera image. Press again to release the freeze.



Open video in Windows standard programme for video viewing. One press with two fingers opens the last recorded video without dialogue.



Open image in Windows standard programme for image viewing. One press with two fingers opens the last picture taken without dialogue.



Record video. A "Save video clip" dialogue box opens. A file name (today's date and time) is suggested automatically. Press "Save" to save with the suggested name. If you wish to save the video in a different folder, or with another name, it is possible to change this in the dialogue box. Stop recording by pressing the button again. One press with two fingers starts the recording without dialogue.



Take a picture. A dialogue box "Save pictures" opens. A file name (today's date and time) is suggested automatically. Just press "Save" to save the picture. If you wish to save the picture somewhere else, or with another name or in another format (the standard is JPG) you can change this manually. One press with two fingers, takes a picture without dialogue.



Open the notes tool. One press with two fingers opens it together with the camera image.



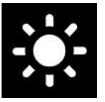
Open a submenu with the following buttons.



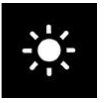
Switch between natural colours and greyscale.



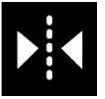
Switch between artificial colours. By pressing with two fingers, cycle backwards between the artificial colours.



Increase brightness or contrast.



Decrease brightness or contrast.



Mirror the image.

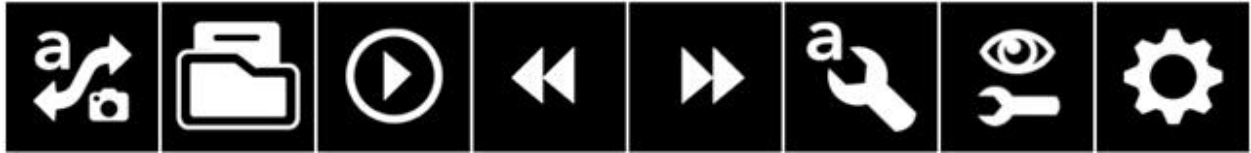


Rotate the image clockwise. One press with two fingers rotates the image anti-clockwise.



Open the Settings view.

The following menu is displayed when the application is in OCR view.



Switch between camera view and OCR view.



Open a submenu where the following three alternatives are found.



Open document. From the dialogue box, select the file you wish to open. It is possible to open PDF files and image files, .bmp, .jpg, .png and .tiff, as well as saved zip files.



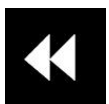
Save document. A file name (today's date and time) is suggested automatically. It is possible to save the text as an RTF (.rtf) or Zip file.



Open the notes tool. One press with two fingers opens it together with the relevant document.



Start reading.



Skip backwards in the text. Depending on which reading mode is selected, you will skip back to the previous character, word, sentence or block. One press with two fingers skips back to the previous page.



Skip forwards in the text. Depending on which reading mode is selected, you will skip forwards to the next character, word, sentence or block. One press with two fingers switches to the next page.



Open a submenu with the following settings.



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



Change 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.



Decrease font size.



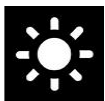
Open a submenu with the following four buttons.



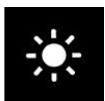
Switch between natural colours and greyscale.



Switch between artificial colours. By pressing with two fingers, cycle backwards between the artificial colours.



Increase brightness or contrast.



Decrease brightness or contrast.



Open the Settings view.

6.2 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.

General

Press with two fingers	Natural colours
Press and hold with four fingers	Open settings
Press and hold with five fingers	Switch fullscreen
Pinch	Change magnification
Rotate two fingers	Rotate the image
Drag one finger	Pan through the image
Drag two fingers horizontally	Change contrast level
Drag two fingers vertically	Change artificial colour

Camera

Drag four fingers horizontally	Switch camera
Press and hold with two fingers	Angle correction on/off
Press and hold with three fingers	Mirror the image
Press with three fingers	Autofocus on/off Not possible with the front camera.
Drag three fingers horizontally	Change manual focus Only possible with the distance camera.
Press and hold with one finger	Start OCR processing
Press with four fingers	Freeze
Double tap	Hide menu

OCR

Drag three fingers vertically

Adjust the volume

Drag three fingers horizontally

Adjust the speaking speed

Drag four fingers horizontally

Change display mode

6.3 Functions via the keyboard

Most functions can be handled using the keyboard. The shortcut commands can be changed in settings. Below are the standard settings for the shortcut commands.

F1	Natural colours
F2	Positive colours forwards
Shift + F2	Positive colours backwards
F3	Negative colours forwards
Shift + F3	Negative colours backwards
Up arrow	Increase magnification
Down arrow	Reduce magnification
Ctrl + J	Autofocus on/off Not possible with the front camera.
Shift + Up arrow	Increase focus distance Only possible with the distance camera.
Shift + Down arrow	Reduce focus distance Only possible with the distance camera.
Right arrow	Increase brightness/contrast
Left arrow	Reduce brightness/contrast
Ctrl + I	Mirror camera image
Ctrl + R	Rotate clockwise
Ctrl + Shift + R	Rotate anti-clockwise
Ctrl + K	Angle correction on/off
Ctrl + F	Switch fullscreen
Ctrl + B	Show battery status
F9	Settings

F7	Switch camera
Ctrl + H	Hide menu
Ctrl + Shift + F	Freeze
F5	Save picture
Shift + F5	Save picture quickly
Ctrl + F5	Start video recording
Ctrl + Shift + F5	Start video recording quickly
F6	Open picture
Shift + F6	Open picture quickly
Ctrl + F6	Open video
Ctrl + Shift + F6	Open video quickly
A	Pan left Only possible if the image is magnified. Not possible with the distance camera.
D	Pan right Only possible if the image is magnified. Not possible with the distance camera.
W	Pan up Only possible if the image is magnified. Not possible with the distance camera.
S	Pan down Only possible if the image is magnified. Not possible with the distance camera.
F4	Start OCR The text from OCR processing replaces existing text.
Shift + F4	Start OCR enter The text from OCR processing is entered on a new page.
V	Switch between camera view and OCR view
Alt + F5	Save documents
Alt + F6	Open document
Shift + Plus	Increase font size

Shift + Minus	Decrease font size
1	Start reading
2	Stop reading
B	Change display mode
3	Read previous
4	Read next
5	Switch reading mode
Page Down	Next page If several pages have been scanned, you move to the next page.
Page Up	Previous page If several pages have been scanned, you move to the previous page.
8	Reduce volume
9	Increase volume
6	Reduce speaking speed
7	Increase speaking speed
Ctrl + 0	Next voice
Ctrl + S	Save drawing
Ctrl + O	Open picture
Ctrl + Z	Undo
Ctrl + Shift + Z	Redo

6.4 Notes tool



The notes tool consists of three components.

- At the top is a menu bar with buttons.
- On the left is a list of pictures. By clicking a picture, you can navigate to it. You can delete an image by clicking in the upper right corner.
- A surface where you can draw, enlarge and pan in the picture.

The buttons in the menu bar have the following functions.



Leave the notes tool.



Opens a new blank page.



Open picture. It is possible to open the image files .jpg and .png.



Save picture. It is possible to save pictures as .pdf and .png.



Deletes the current page.



Undo.



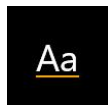
Restore after pressing undo.



Draw with a pen. Press and hold opens a dialogue where you can choose the colour and size.



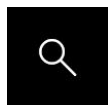
Draw with a highlighter. Press and hold opens a dialogue where you can choose the colour and size.



Insert text. Press and hold opens a dialogue where you can choose the colour, size and font. After inserting text, you can move it around.



Delete.



Enlarge and pan in the image.



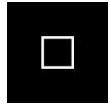
Rotate the image. Any changes you made to the image will be removed if you rotate.



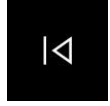
OCR process. After the image has been OCR processed, you can start reading.



Start reading.



Stop reading.



Read previous.



Read next.



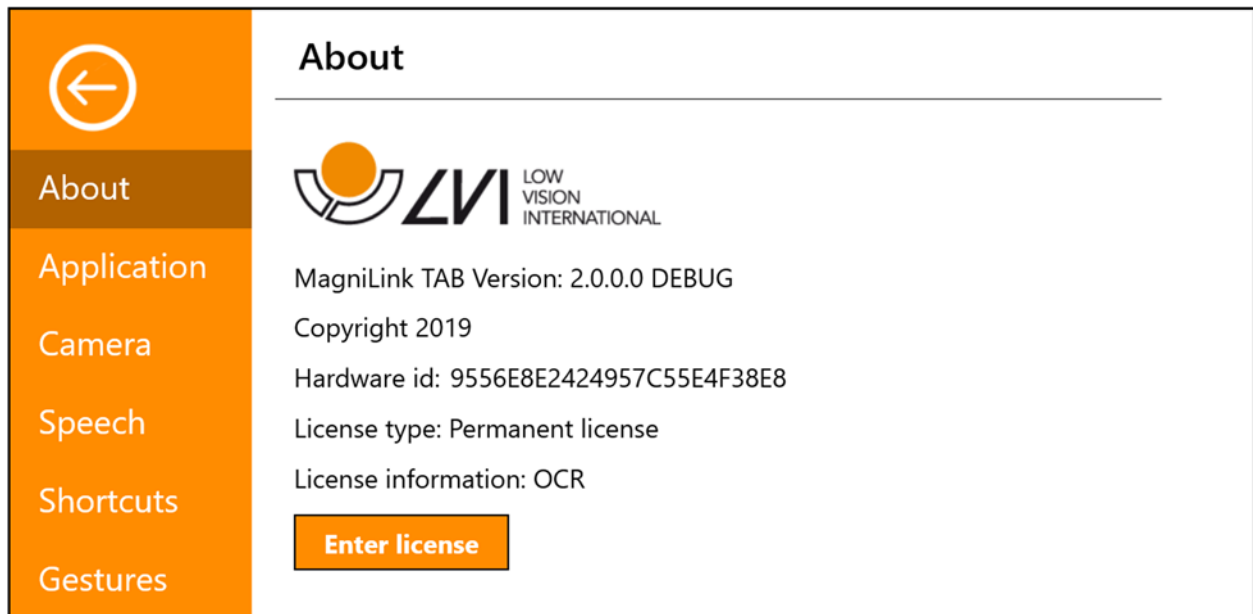
Go to settings.

6.5 Information and settings window

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

You can resize the settings menus by placing two fingers on the screen and separating them or moving them towards each other.

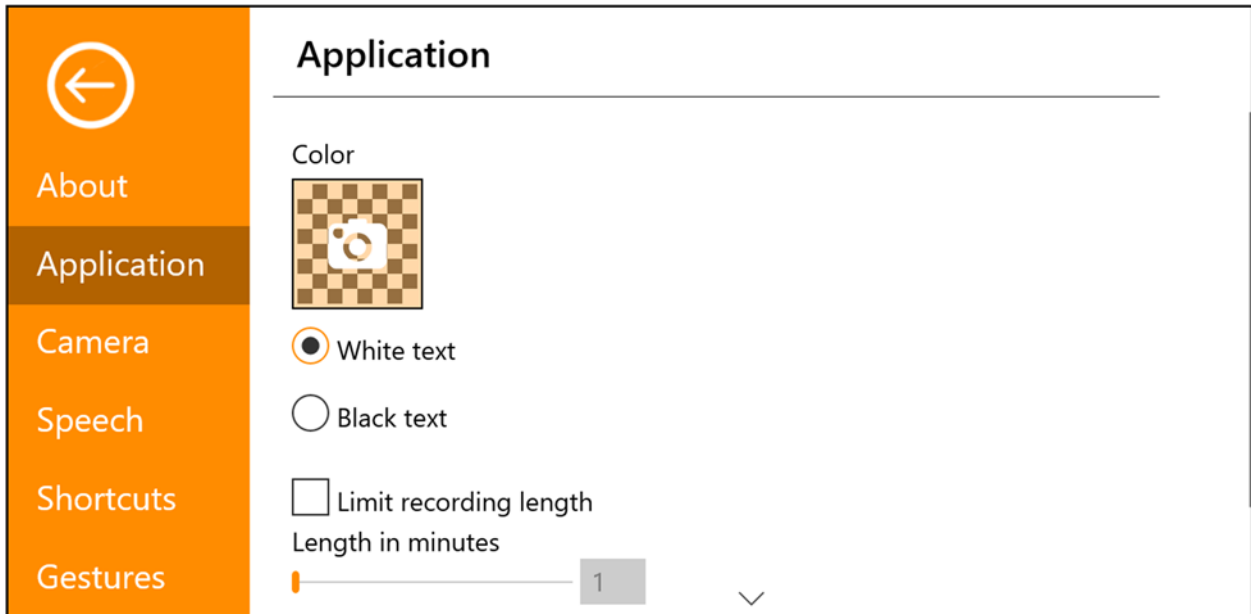
6.5.1 About the application



Information regarding the software version and system licence can be found under this tab.

If you want to update the system licence, this can be done by pressing the button "enter licence".

6.5.2 Application Settings



Colour

It is possible to press the camera icon and specify which colour of the application is desired. You can also adjust the transparency. This colour is applied to both the settings menu and the menus in camera and OCR mode.

White Text

Check here for white text and white symbols in the menus.

Black Text

Check here for black text and black symbols in the menus.

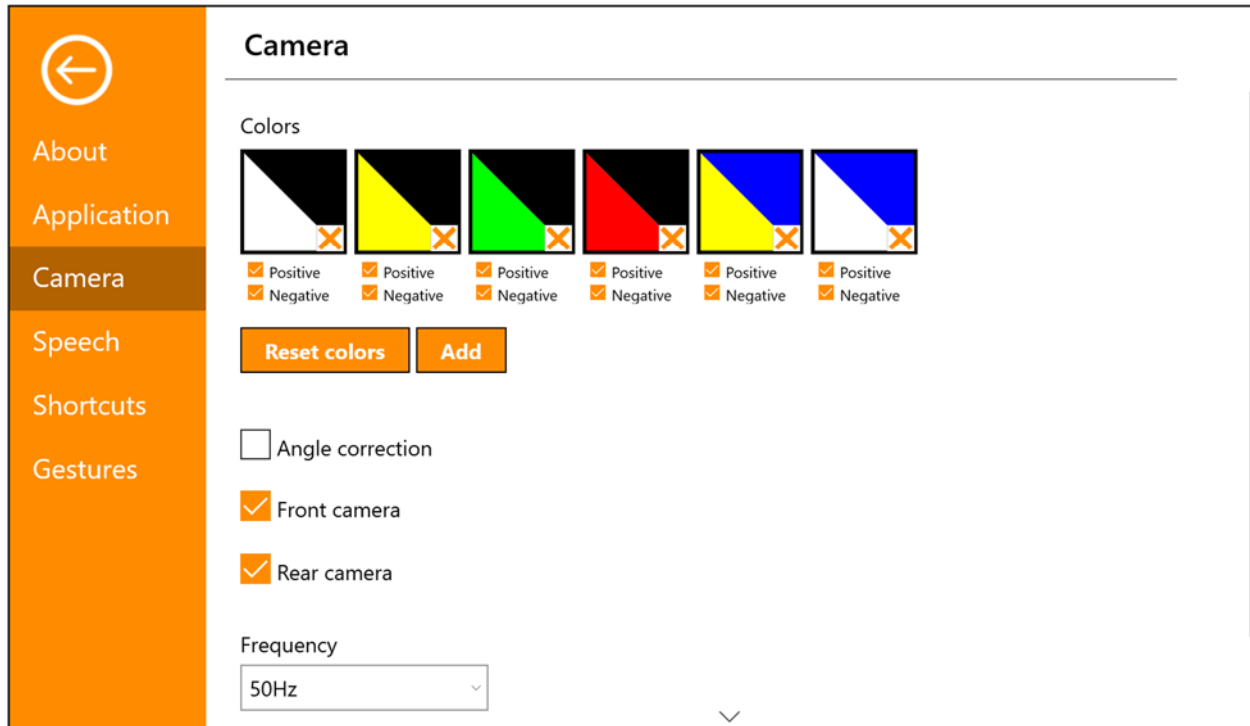
Limit recording length

Activate this function if you wish to limit the length of recording.

Length in minutes

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

6.5.3 Camera settings



Colours

It is possible to remove artificial colours by checking out x in the box of the selected colour and to change the artificial colours of the system by pressing any colour triangle and specifying the desired colour from the colour chart that comes up.

Angle correction

When this is selected, the tilt of the rear camera is compensated for in the video.

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.

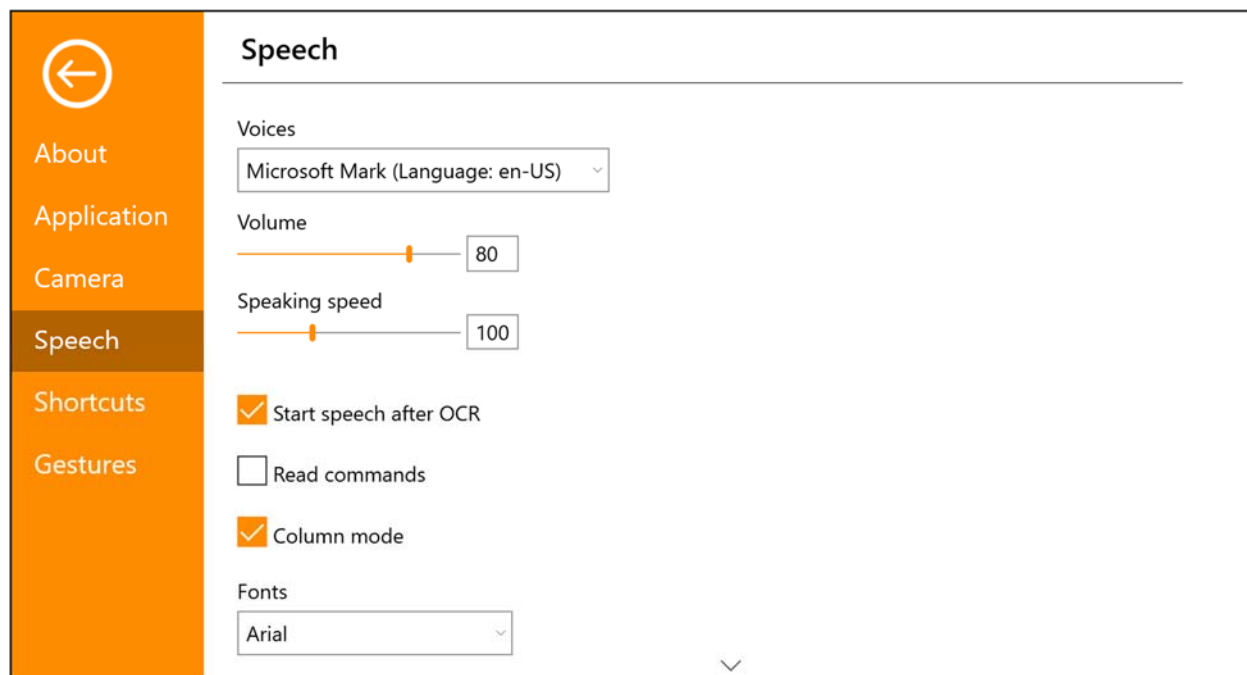
Rear camera

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.

Frequency

Depending on the ambient lighting, you may wish to change the frequency of the cameras between 50Hz and 60Hz. After changing the frequency of the distance camera, you must unplug the camera and restart the application.

6.5.4 Speech Settings



Voices

If several voices are available, the user can choose between them. You can get other voices by downloading languages in Windows settings. For a voice to be available, Windows OCR must support the voice language.

Volume

Setting the sound level of the voice.

Speaking speed

Setting the speaking speed.

Start speech after OCR

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

Read commands

When this is checked, the application reads out the menus when you use them.

Column mode

When this setting is active, the OCR engine processes the text by column, which is useful if text from a newspaper is to be OCR processed.

Font

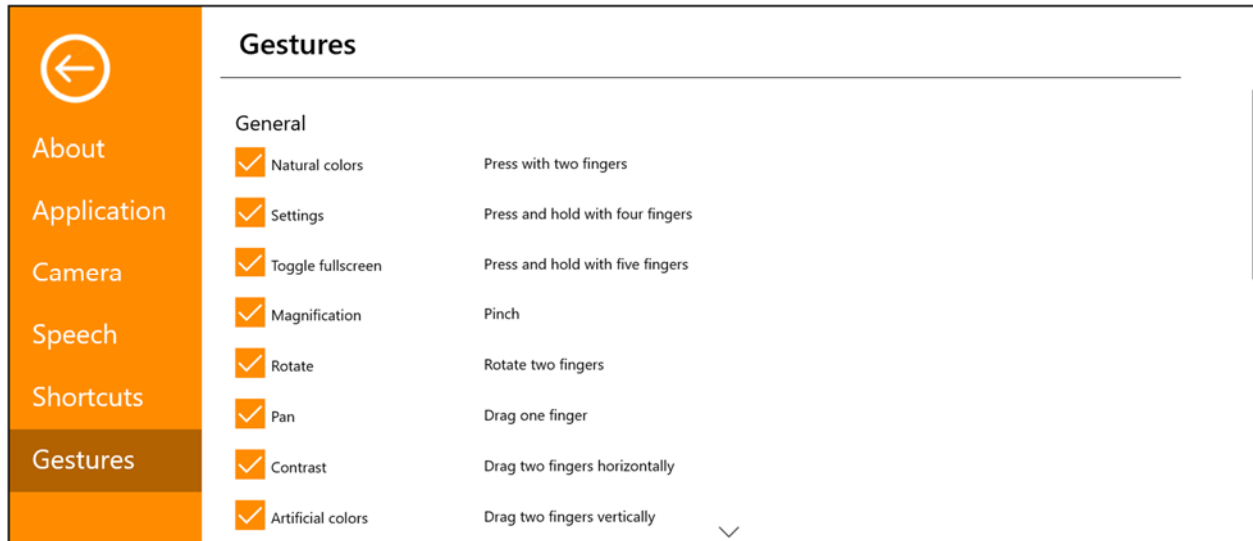
Here the user can set which font is to be used to display the OCR processed text. The font that is used has no effect on the result of the OCR processing.

6.5.5 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.

6.5.6 Gestures



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

6.6 Quality of OCR processing

In order to optimize the results of the OCR conversion, you should bear in mind the following.

- Ensure the magnification is sufficient. Very small text produces poor results in the OCR software. A minimum of 12 point is recommended for the lowest magnification on the reading camera.
- Avoid glossy paper as this results in reflections in the image. This impairs the results of the OCR conversion. If you intend to use glossy paper, we recommend that the light on the unit is switched off.
- Certain fonts can be difficult for the OCR engine to interpret.
- It is important that the text contrast is sufficient.
- It is important that the OCR engine's language is the same as that of the text.

7 Ergonomics

It is important that the workplace around your system is comfortable, and that you sit correctly. This is so that you can use it 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 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 out 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.

8 Technical information

Stand

Dimensions, folded	365 x 300 x 30 mm (W x D x H)
Dimensions, open	230 x 310 x 350 mm (W x D x H)
Weight	3.0 kg

Distance camera

Magnification	0.9-50x (Height 33 cm, iPad Pro 12.9")
Weight	700 g
Refresh rate	60 Hz
Length of camera and arm	620 mm

Tablet computer

Type	Microsoft Surface Pro
Weight	883 g
Screen size	13"
Resolution	2880 x 1920
Magnifying area (Built in camera)	0.7 - 8x (Height 30 cm)
Battery time	In use: about 2.5 hours
Temperature range	0°C – 35°C
Dimensions (W x H x D)	287 x 208 x 9 mm



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.

9 Declaration of Conformity

DECLARATION OF CONFORMITY

Manufacturers name: *LVI Low Vision International AB*

Manufacturers Address: *Verkstadsgratan 5
S-352 46 Växjö
Sweden*

Web: *http://www.lviglobal.se*

SRN (Single Registration Number): *SE-MF-000004178*

Basic UDI-DI (GMN): *7330724MLTABWG*

Brand name or trademark: *MagniLink*

Product code: **MLTAB**

Classification: *Class 1*

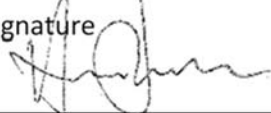
Type of equipment: *Reading Aid*

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 conformity declaration according to Annex I + Annex II + Annex VII*

This declaration of conformity is issued under the sole responsibility of LVI Low Vision International AB. We hereby declare that the medical device(s) specified above meet the provision of the Regulation (EU) MDR 2017/745 for medical devices. This declaration is supported by the Quality System approval to ISO 9001 issued by Intertek. All supporting documentation is retained at the premises of the manufacturer.

Manufacturer Manufacturer's authorized representative

Date
20-05-2021

Signature


Position
Managing Director

Clarification
Henrik Blomdahl

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