

# User Manual

## MagniLink TAB

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## Table of Contents

1	About LVI.....	5
2	Introduction to MagniLink TAB .....	6
3	Safety information .....	7
4	Unpacking .....	8
4.1	Packaging.....	8
5	Hardware.....	9
5.1	Stand.....	9
5.2	Tablet computer .....	10
5.3	Distance camera .....	11
5.4	Installation .....	12
6	Software.....	13
6.1	Functions via menus .....	14
6.2	Functions via gestures.....	17
6.3	Functions via the keyboard.....	18
6.4	Information and settings window .....	20
6.5	Quality of OCR processing .....	25
7	Ergonomics .....	26
8	Technical information.....	27
9	Declaration of Conformity .....	29



## 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.



MagniLink TAB meets all the requirements for CE marking of medical devices in accordance with Directive 93/94/EEC. Our products comply with MDD 93/94/EEC with additions from Directive 2007/47/EC.

### 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.
- 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, detach all cables. Use a slightly damp (not wet) cloth to clean the system. 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)
- 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

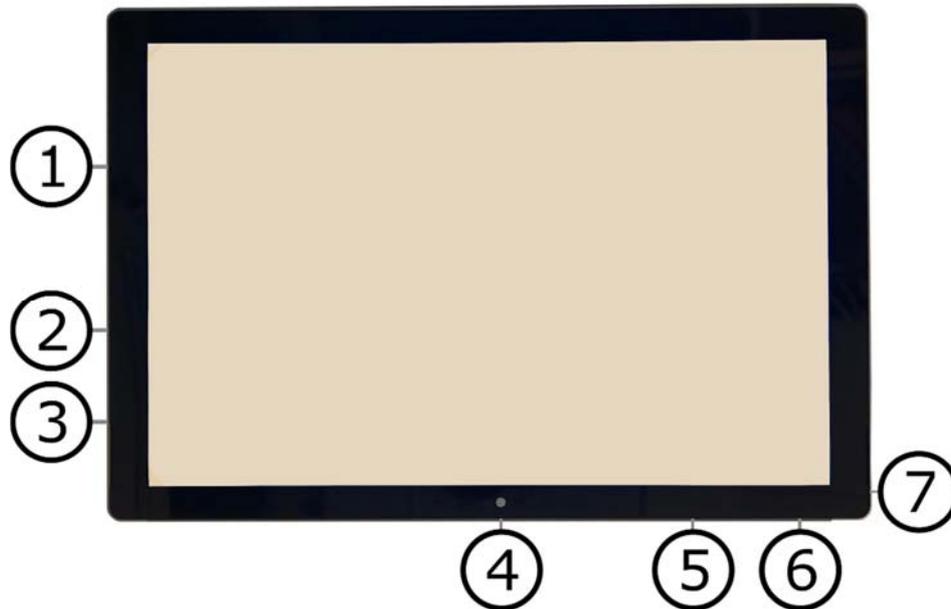
### 5.1 Stand



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



The tablet computer is of the type Microsoft Surface Pro.

1. Power adaptor port.
2. USB ports.
3. Mini-DisplayPort, for connecting an external monitor.
4. Camera.
5. Volume control.
6. 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.
7. Headphone socket.

### 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 turn on the unit. The software comprises three different views; a camera view, an OCR view and a settings view. The software's various functions can be controlled via menus, gestures or keyboard. When a new version is released, the software is updated automatically.

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

LVI accepts no responsibility for conflicts that may arise when users install 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.



Open a submenu with the following two buttons.



Record video. One press with two fingers, starts the recording without dialogue.



Take a picture. One press with two fingers, takes a picture without dialogue.



Open a submenu with the following five buttons.



Switch between natural colours and greyscale.



Switch between artificial colours. Through pressing with two fingers, the artificial colour palette cycles backwards.



Increase brightness or contrast.



Decrease brightness or contrast.



Mirror image.



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 two alternatives are found.



Open document. From the dialogue box, select the file you wish to open. It is possible to open 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.



Start reading.



Skip backwards in the text. Depending on which reading mode is selected, you will either 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 either 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. Through pressing with two fingers, the artificial colour palette cycles backwards.



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.

Press with two fingers	Natural colours
Press with three fingers	Autofocus on/off Not possible with the front camera.
Long press with one finger	Start OCR processing
Press and hold with two fingers	Angle correction on/off
Press and hold with three fingers	Mirror image
Press and hold with four fingers	Open settings
Press and hold with five fingers	Toggle fullscreen
Pinch	Change magnification
Drag one finger	Pan through the image
Drag two fingers horizontally	Change contrast level
Drag three fingers horizontally	Change manual focus (in camera view) Only possible with the distance camera.
	Adjust the speech speed (in OCR view)
Drag four fingers horizontally	Change display mode
Drag two fingers vertically	Change artificial colour
Drag three fingers vertically	Adjust the volume
Double tap with one finger	Hide menu

## 6.3 Functions via the keyboard

Most functions can be handled using the keyboard. The short cut commands can be changed in settings. Below are the standard settings for the short cut 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 focusing distance Only possible with the distance camera.
Shift + Down arrow	Reduce focusing distance Only possible with the distance camera.
Right arrow	Increase brightness/contrast
Left arrow	Reduce brightness/contrast
Ctrl + I	Reflect camera image
Ctrl + K	Angle correction on/off
Ctrl + F	Toggle fullscreen
Ctrl + B	Show battery status
F9	Settings
F7	Switch camera
F5	Save picture
Shift + F5	Save picture quickly
Ctrl + F5	Start video recording
Ctrl + Shift + F5	Start video recording quickly
A	Pan left Only possible if the image is magnified. Not possible with the distance camera.

D	<b>Pan right</b> Only possible if the image is magnified. Not possible with the distance camera.
W	<b>Pan up</b> Only possible if the image is magnified. Not possible with the distance camera.
S	<b>Pan down</b> Only possible if the image is magnified. Not possible with the distance camera.
F4	<b>Start OCR</b> The text from OCR processing replaces existing text.
Shift + F4	<b>Start OCR enter</b> The text from OCR processing is entered on a new page.
V	<b>Switch between camera view and OCR view</b>
Alt + F5	<b>Save documents</b>
F6	<b>Open document</b>
Shift + Plus	<b>Increase font size</b>
Shift + Minus	<b>Decrease font size</b>
1	<b>Start reading</b>
2	<b>Stop reading</b>
B	<b>Change display mode</b>
3	<b>Read previous</b>
4	<b>Read next</b>
5	<b>Switch reading mode</b>
Page Down	<b>Next page</b> If several pages have been scanned, you move to the next page.
Page Up	<b>Previous page</b> If several pages have been scanned, you move to the previous page.
8	<b>Reduce volume</b>
9	<b>Increase volume</b>
6	<b>Reduce speaking speed</b>

7	Increase speaking speed
Ctrl + 0	Next voice

## 6.4 Information and settings window

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

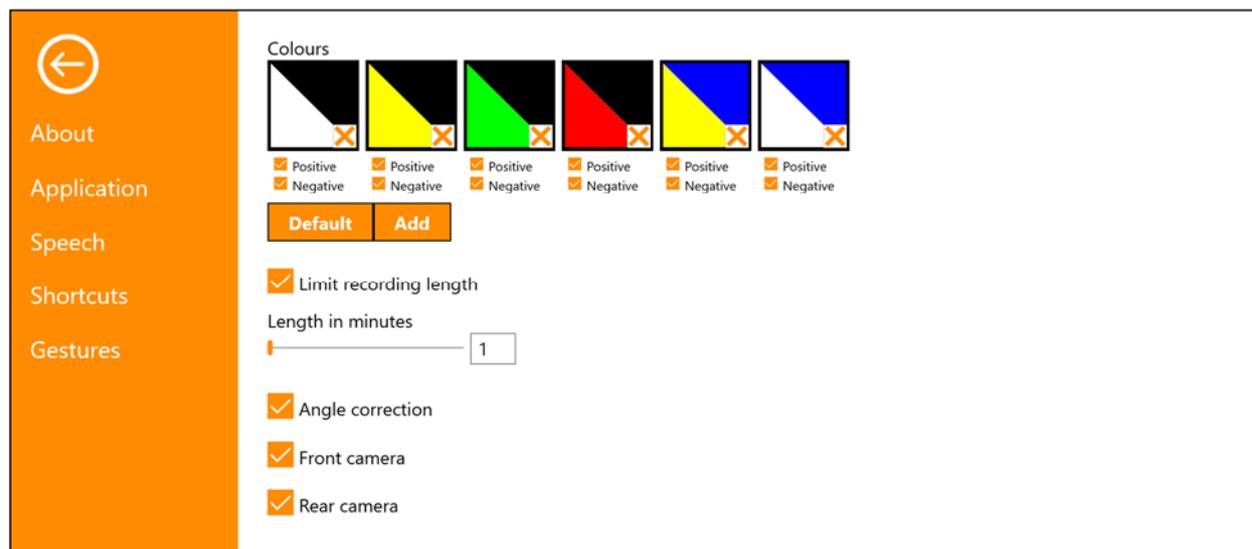
### 6.4.1 About the application



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".

## 6.4.2 Application Settings



### Colours

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

### 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.

### Angle correction

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

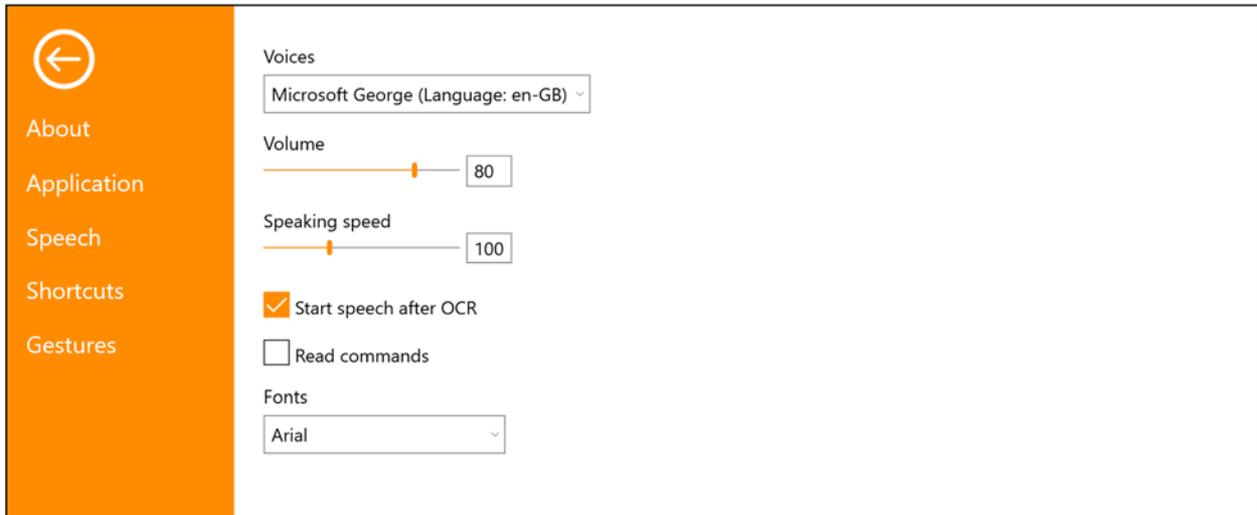
### Front camera

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.

## 6.4.3 Speech Settings



### Voices

If several voices are available, the user can choose between them.

### 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.

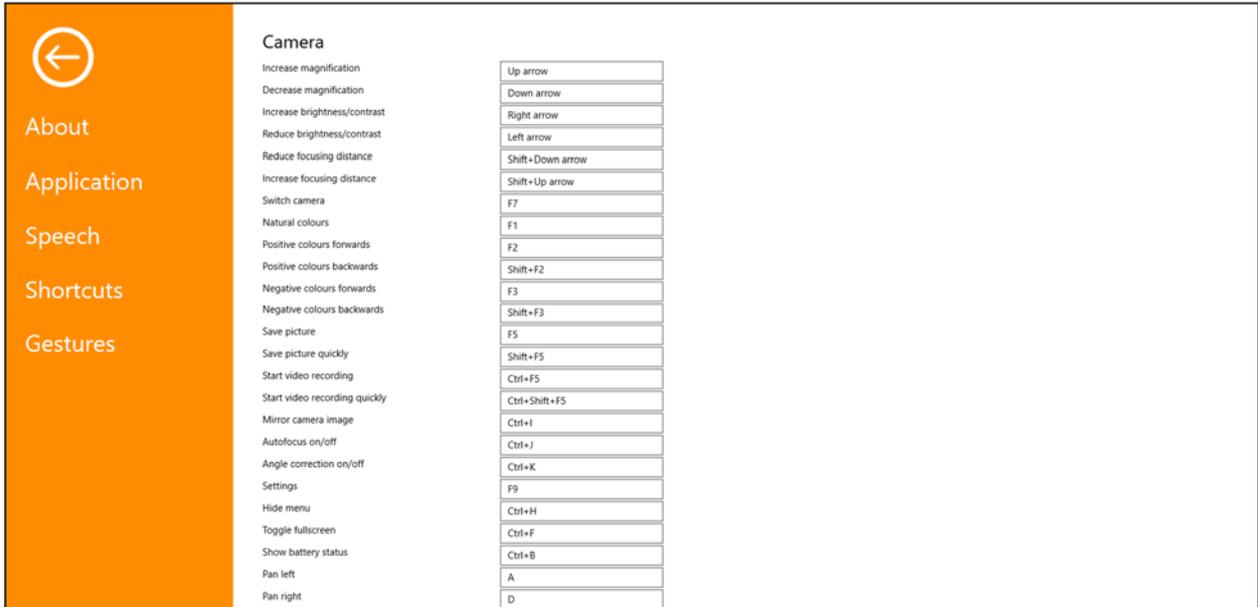
### Read commands

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

### 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.

## 6.4.4 Short cut commands



The screenshot shows the 'Camera' settings menu in the MagniLink TAB application. On the left is an orange sidebar with navigation options: About, Application, Speech, Shortcuts, and Gestures. The main area is titled 'Camera' and lists various functions with their current keyboard shortcuts in a table.

Command	Keyboard Shortcut
Increase magnification	Up arrow
Decrease magnification	Down arrow
Increase brightness/contrast	Right arrow
Reduce brightness/contrast	Left arrow
Reduce focusing distance	Shift+Down arrow
Increase focusing distance	Shift+Up arrow
Switch camera	F7
Natural colours	F1
Positive colours forwards	F2
Positive colours backwards	Shift+F2
Negative colours forwards	F3
Negative colours backwards	Shift+F3
Save picture	F5
Save picture quickly	Shift+F5
Start video recording	Ctrl+F5
Start video recording quickly	Ctrl+Shift+F5
Mirror camera image	Ctrl+I
Autofocus on/off	Ctrl+J
Angle correction on/off	Ctrl+K
Settings	F9
Hide menu	Ctrl+H
Toggle fullscreen	Ctrl+F
Show battery status	Ctrl+B
Pan left	A
Pan right	D

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.

## 6.4.5 Gestures

←

About

Application

Speech

Shortcuts

Gestures

**General**

<input checked="" type="checkbox"/> Natural colours	Press with two fingers
<input checked="" type="checkbox"/> Settings	Press and hold with four fingers
<input checked="" type="checkbox"/> Toggle fullscreen	Press and hold with five fingers
<input checked="" type="checkbox"/> Magnification	Pinch
<input checked="" type="checkbox"/> Pan	Drag one finger
<input checked="" type="checkbox"/> Contrast	Drag two fingers horizontally
<input checked="" type="checkbox"/> Artificial colours	Drag two fingers vertically

**Camera**

<input checked="" type="checkbox"/> Switch camera	Drag four fingers horizontally
<input checked="" type="checkbox"/> Angle correction on/off	Press and hold with two fingers
<input checked="" type="checkbox"/> Mirror camera image	Press and hold with three fingers
<input checked="" type="checkbox"/> Autofocus on/off	Press with three fingers

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

## 6.5 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 collapsed	365 x 300 x 30 mm (W x D x H)
Dimensions, opened up	230 x 310 x 350 mm (W x D x H)
Weight	2.2 kg

### Distance camera

Magnifying area	0.8 - 80x (Height 33 cm)
Weight	700 g
Refresh rate	60 Hz
Length of camera and arm	620 mm

### Tablet computer

Type	Microsoft Surface Pro
Weight	800 g
Screen size	12.3"
Resolution	2736 x 1924
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)	292 x 202 x 8 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

according to the Medical Devices Directive, 93/42/EEC with amendments from directive 2007/47/EC

Type of equipment: *Reading Aid*

Brand name or trademark: *MagniLink*

Type designation: ***MLTAB***

Product class: *Class 1.*

Manufacturer: *LVI Low Vision International AB*

Address: *Verkstadsgatan 5  
S-352 46 Växjö  
Sweden*

Web: <http://www.lvi.se>

Phone: *+46 470 - 72 77 00*

Fax: *+46 470 - 72 77 25*

As the manufacturer, we declare under our sole responsibility that:

- the product complies with the provisions of the Council Directive 93/42/EEC with amendments from directive 2007/47/EC.
- we will keep the technical documentation described in section 3 of Annex VII available to the national authorities for a period ending at least five years after the last product has been manufactured.
- the device meets the Essential Requirements of Annex 1 which applies to it, taking into account the intended purpose of the device.
- to follow the requirements regarding products placed on the market as described in section 4 of Annex VII.

Manufacturer

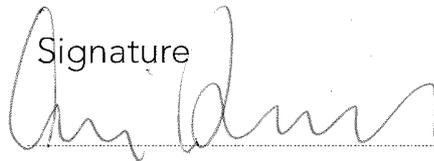
Manufacturer's authorized representative

Date

Signature

Position

05-03-2019



Managing Director

Clarification

Erik Bondemark

## Alphabetical index

About LVI .....	5
About the application .....	20
Application Settings.....	21
Declaration of Conformity .....	29
Distance camera .....	11
Ergonomics.....	26
Functions via gestures.....	17
Functions via menus.....	14
Functions via the keyboard.....	18
Gestures .....	24
Hardware.....	9
Information and settings window.....	20
Installation.....	12
Introduction to MagniLink TAB .....	6
Packaging.....	8
Quality of OCR processing.....	25
Safety information .....	7
Short cut commands .....	23
Software .....	13
Speech Settings.....	22
Stand .....	9
Tablet computer.....	10
Technical information.....	27
Unpacking .....	8