

User Manual

MagniLink Software - PC

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Table of Contents

- 1 About LVI..... 5
- 2 Introduction to MagniLink S 6
- 3 Minimum system requirements 6
- 4 Recommended system requirements 6
- 5 Installation of software 7
 - 5.1 Updating/removing software..... 9
- 6 Using the software 11
 - 6.1 Functions via the keyboard 11
 - 6.2 Functions via menus and buttons..... 17
 - 6.3 Information and settings window 19

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 S

MagniLink S is a software used to display video from a MagniLink camera. The software can control camera properties such as magnification, artificial colours and brightness. If the camera supports OCR, it is possible to OCR process a text and have it read aloud by a speech synthesizer. The software also has the ability to share the computer screen with one of the programs ZoomText or SuperNova.

3 Minimum system requirements

- Microsoft Windows 7.
- 2 integrated USB 2.0 ports.
- i3 processor, 1 GB RAM (32 bit) 2 GB RAM (64 bit).

4 Recommended system requirements

- Microsoft Windows 7.
- 1 integrated USB 3.0 port.
- i5 or i7 processor, 4 GB RAM, external graphics card with at least 512 MB inbuilt memory.

LVI has tested the software on several computers without any problems, but there is no guarantee that the system will function on all computers that comply with the specifications. LVI recommends testing the software on the computer where the system is to be used, in order to ensure compatibility. Better performing computers will facilitate better camera performance.

5 Installation of software

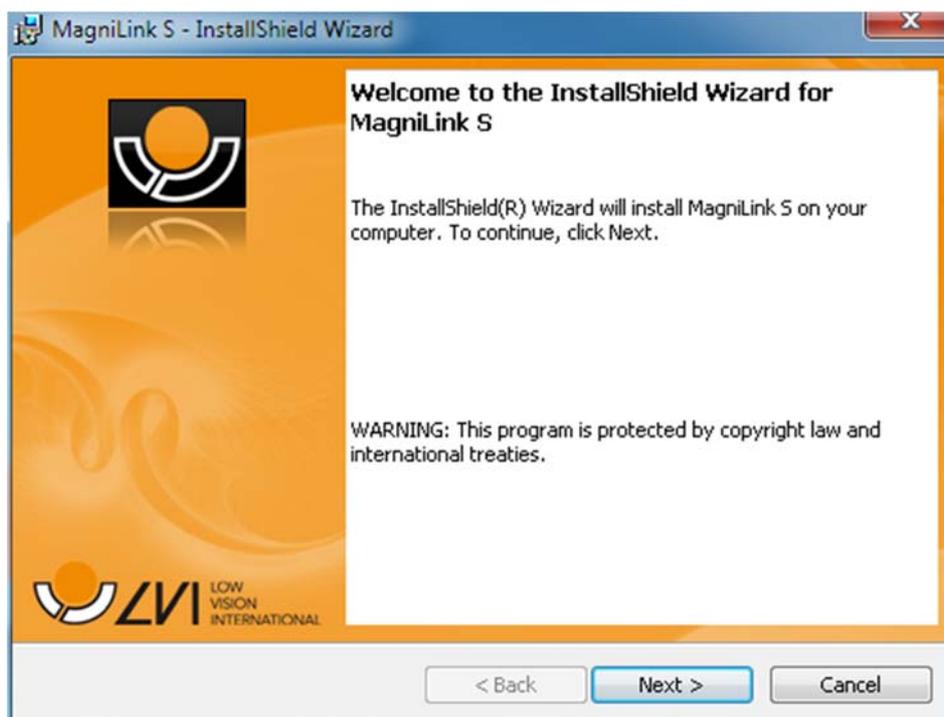
NOTE



Installation requires administrator privileges on the computer in question and is performed on the user account currently in use.

Insert the USB stick containing the software into one of the computer's USB ports. Start the installation by clicking on the **"Setup"** file, which can be found in the **MagniLink S - PC** folder.

When the installation program starts, follow the instructions on the screen to complete installation of the software, or see below for a more detailed description.



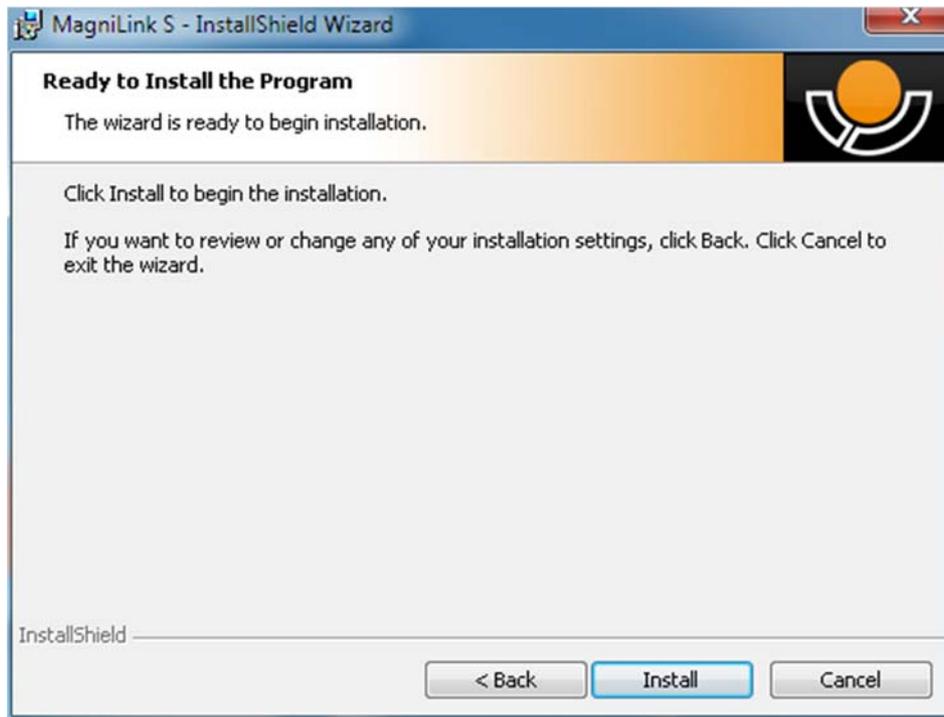
Select **"Next"** in the dialogue box **"Welcome to the InstallShield Wizard for LVI MagniLink S"**.



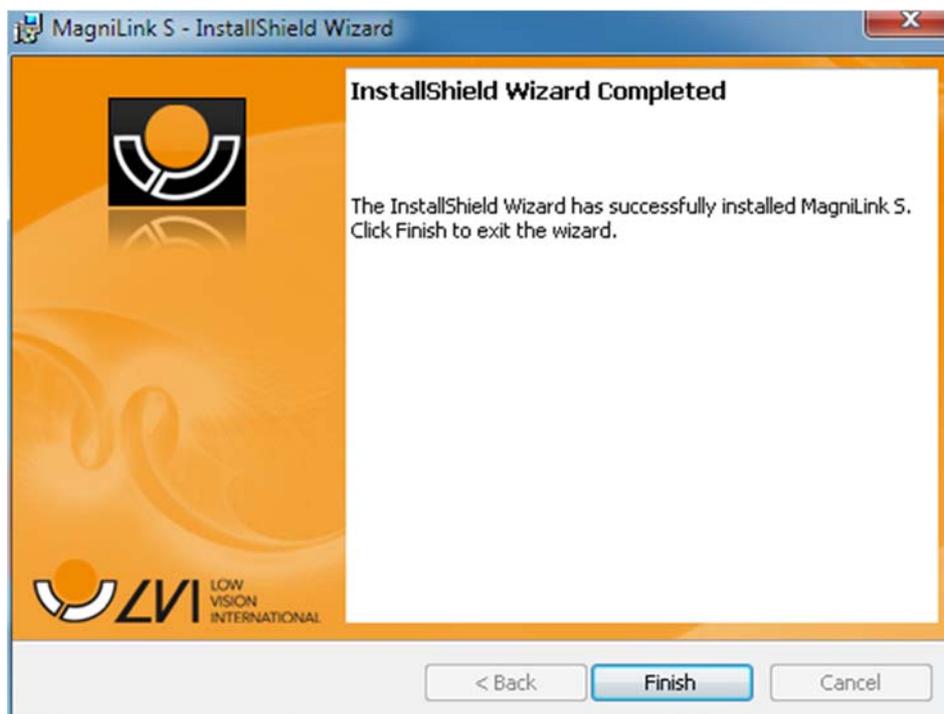
Read the text in "License Agreement", approve this by selecting "I accept the terms of the license agreement" and click on "Next" to start the installation.



If you have a camera with OCR functionality, then mark the language(s) for which you have a license. If you do not have OCR functionality, then do not select any languages. Then click "Next" to continue with the installation.



Select "Install" in the dialogue box "Ready to Install the Program".



Select "Finish" in the dialogue box "InstallShield Wizard Complete".

5.1 Updating/removing software

Insert the USB memory stick containing the MagniLink S software into one of the computer's USB ports. Start by clicking on the "Setup" file in the MagniLink S - PC folder.

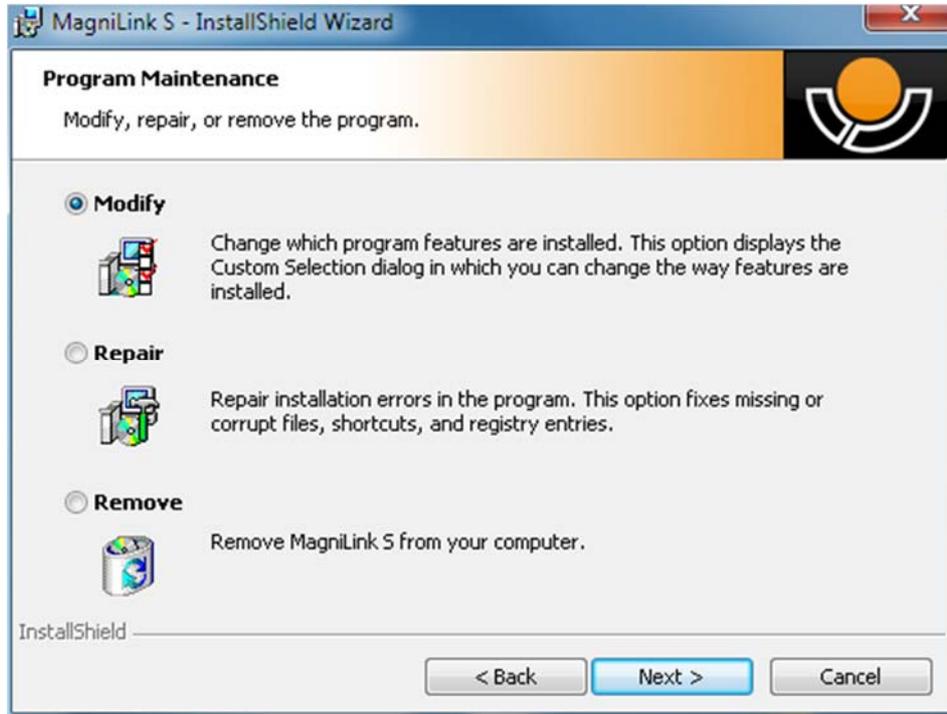
Read the instructions on the screen in order to select the appropriate

action.

Select **"Modify"** to change the software.

Select **"Repair"** if there is a problem with the software.

Select **"Remove"** to uninstall the software.



Select **"Next"** to start the required action.

Select **"Finish"** in the **"Maintenance complete"** dialogue box to complete the desired action.

Software can also be removed via Control Panel – add/remove programs, or from Uninstall MagniLink S in the MagniLink S folder in the Start menu.

6 Using the software

6.1 Functions via the keyboard

MagniLink S is shown as a MS Windows application and all functions can be managed via the keyboard. Various menus allow the short cut commands to be changed. Below are the standard settings for the short cut commands.

F1	Natural colours
F2	Positive image with heightened contrast Artificial colours; White/Black, Yellow/Black, Green/Black, Red/Black, Yellow/Blue, White/Blue. Press F2 repeatedly to switch between the various colours. (Shift + F2 to cycle backwards)
F3	Negative image with heightened contrast Artificial colours; White/Black, Black/Yellow, Black/Green, Black/Red, Blue/Yellow, Blue/White. Press F3 repeatedly to switch between the various colours. (Shift + F3 to cycle backwards)
F5	Take a "snapshot" Press F5 to open the "Save pictures" dialogue box. A file name (with the day's date and time) and a folder (My Pictures) are automatically suggested. Just press Enter 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.
Shift + F5	Take a quick "snapshot" Press Shift + F5 to quickly take a picture and save it, without specifying a name or folder. This function saves the picture in My Pictures or in the folder most recently used for the F5 function.
Ctrl + F5	Start/stop video recording Press Ctrl + F5 to open the "Save video clip" dialogue box. A file name (with the day's date and time) and a folder (My video clips) are automatically suggested. Press Enter to save with the suggested name. If you wish to save the video in a different folder, or with another name, you can change this in the dialogue box. Stop the recording by pressing Ctrl + F5.

Ctrl + Shift + F5	Quickly start/stop video recording. Press Ctrl + Shift + F5 to quickly start video recording, without specifying a name or folder. The video is saved under "My video clips" or in the folder most recently used for the function.
F6	Display mode for "snapshots" Press F6 to view the saved pictures. Mark the picture you wish to view and press Enter or select Open. The picture is normally opened in Windows' standard picture-viewing program where, amongst other things, the picture can be enlarged.
Shift + F6	Immediately show the most recently taken "snapshot" Press Shift + F6 to immediately show the most recently taken picture. If no pictures have been taken previously whilst the program has been running, the button will have the same function as F6.
Ctrl + F6	Display mode for video Press Ctrl + F6 to view saved video files. Mark the video you wish to view and press Enter or select Open. The video is normally opened in Windows' standard media player software.
Shift + Ctrl + F6	Immediate playback of the most recently recorded video. Press Shift + Ctrl + F6 to immediately play back the most recently recorded video. If no video has been recorded previously whilst the program has been running, the button will have the same function as Ctrl + F6.
F8	Preset split screen mode Press F8 repeatedly to switch between the preset split screen modes. If multiple screens are being used, the split screen modes will switch consecutively between all of the screens. The window can also be controlled via mouse or with Windows standard commands.
F9	Information and settings window Under this window, different settings for the application can be applied.
F11	Return to the program's standard values Press F11 to return to the program's standard values (normal window, natural colours, normal brightness).

Up arrow	Increase magnification
Down arrow	Decrease magnification
Ctrl + O	Overview Reduces magnification to overview mode. Press the button again to restore the magnification. When overview mode is active, a sight is displayed in the middle of the video window.
Left arrow	Reduce light intensity/contrast
Right arrow	Increase light intensity
Ctrl + Left arrow	Reference line left/up
Ctrl + Right arrow	Reference line right/down
Ctrl + A	Deactivate/activate "always on top" Short cut command activates the "Always on top" function for the application window. If "Always on top" is activated, the camera image will be placed over other open applications. This means that another program can be in focus and that you can for example use Word whilst looking at the camera image.
Ctrl + M	Minimises the application window to the taskbar.
Ctrl + R	Rotate the camera image clockwise Every time this key combination is pressed, the camera image will rotate 90° clockwise (90°, 180°, 270° and 0°).
Shift + Ctrl + R	Rotate the camera image anticlockwise Every time this key combination is pressed, the camera image will rotate 90° anticlockwise (270°, 180°, 90° and 0°).
Ctrl + I	Reflect camera image Reflects the camera image. This is a handy function if, for example, you want to use the camera as a magnified cosmetic mirror.
F	Freeze camera image By pressing this key combination, the camera image freezes; to release the image, press the same key combination again. To save a frozen image, press F5.

Ctrl + J	Lock autofocus Locks the autofocus mode. This can be used when you wish to write by hand. In this way, autofocus is not affected by the pen or your hand. Press the button a second time, to reactivate autofocus.
Ctrl + Up arrow	Reduce focus distance
Ctrl + Down arrow	Increase focus distance
Ctrl + Alt + S	Global short cut command (quick activation of MagniLink S) This command does not work immediately after the program has been installed. It is necessary to log out and then log in again in order for it to work. If it still does not work, this may be due to a conflict with another installed program. You can change this short cut command by right-clicking on the MLS icon on the desktop, selecting Properties and then changing the last letter in the short cut commands field.
F12	Open the manual This key combination opens the manual pages in the standard application for viewing pdf-files.

The following functions are only available together with cameras that support OCR.

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. If the text view already contains text, this is replaced by the text from the OCR conversion. See OCR-settings for more information.
Ctrl + F4	Process with OCR and add text Works like the previous command, but the text from the OCR conversion is added to the existing text. See OCR-Settings for more information.
Ctrl + S	Toggle column selector Activates or deactivates the column selector. When the column selector is active, only those columns that are intersected by the column selector are OCR-processed.

Ctrl + C	Copy image or text Copy the camera image or all text in the text view to Windows Clipboard. If the text view is active the text is copied otherwise the camera image is copied. It is then possible to paste the content of the clipboard into another program, such as Word.
Ctrl + V	Paste text If the user has copied text from another program, this text can be pasted into the text view. This command replaces the existing text.
Ctrl + Shift + V	Paste and add text Works like the previous command, but the text is added to the existing text.
Alt + F5	Save text document Press Alt + F5 to open the "Save document" dialogue box. A file name (with the day's date and time) and a folder (My Documents) are automatically suggested. Just press Enter to save the document. If you wish to save the picture somewhere else, or with another name, you can change this manually.
Alt + F6	Open text document A dialogue box opens. Select the .txt file in the dialogue box that is to be opened and press Enter or select Open.
V	Switch between camera view and text view If a text has been OCR-processed, this command switches between camera view and text view.
B	Display mode Switches to display mode for OCR-processed text. The available display modes are: Side view, line view, word view and a silent mode where the text moves sideways on the screen.
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.

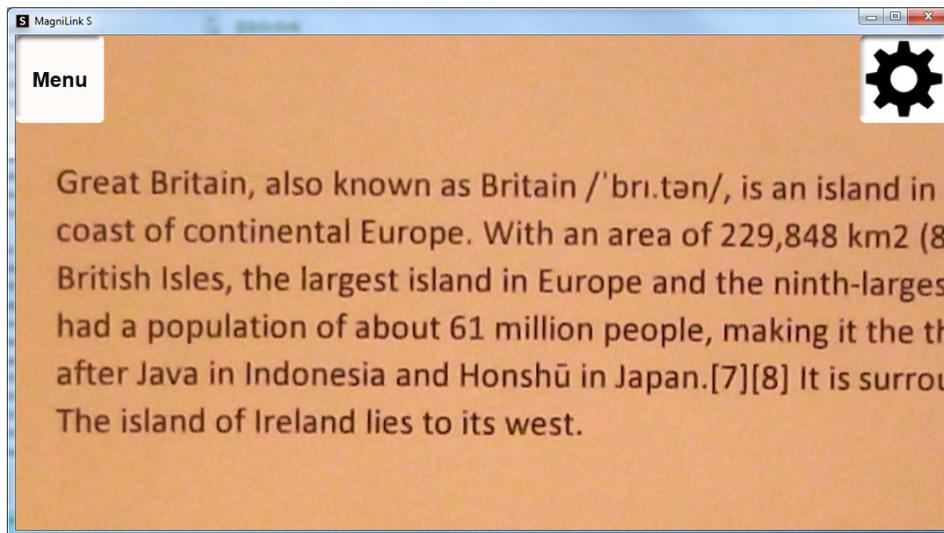
- 3** **Read previous**
With this command, the user can go backwards through the text. If the reading mode is set to character, one character is read for each keystroke. If the reading mode is word, you move backwards through the text word by word. If the reading mode is sentence, you move backwards through the text one line at a time.
- 4** **Read next**
With this command, the user can move forward in the text. If the reading mode is set as character, one character is read for each keystroke. If the reading mode is word, you move forward through the text word by word. If the reading mode is line, you move forward through the text one line at a time.
- 5** **Switch reading mode**
This command selects the reading mode that is to be employed when the "Read previous/next" command is entered. There are three modes: character, word and line.
- 6** **Slower**
Reduces the reading speed.
- 7** **Faster**
Increases the reading speed.
- 8** **Reduce volume**
- 9** **Increase volume**
- 0** **Next voice**
Switches to the next installed voice. This command also changes the OCR engine's language to the new voice's language.

The following functions are available when MagniLink S is used together with ZoomText or SuperNova:

- | | |
|---------------------------|--|
| Shift + Up arrow | Moves the split screen mode to the left/up. |
| Shift + Down arrow | Moves the split screen mode to the right/down. |

6.2 Functions via menus and buttons

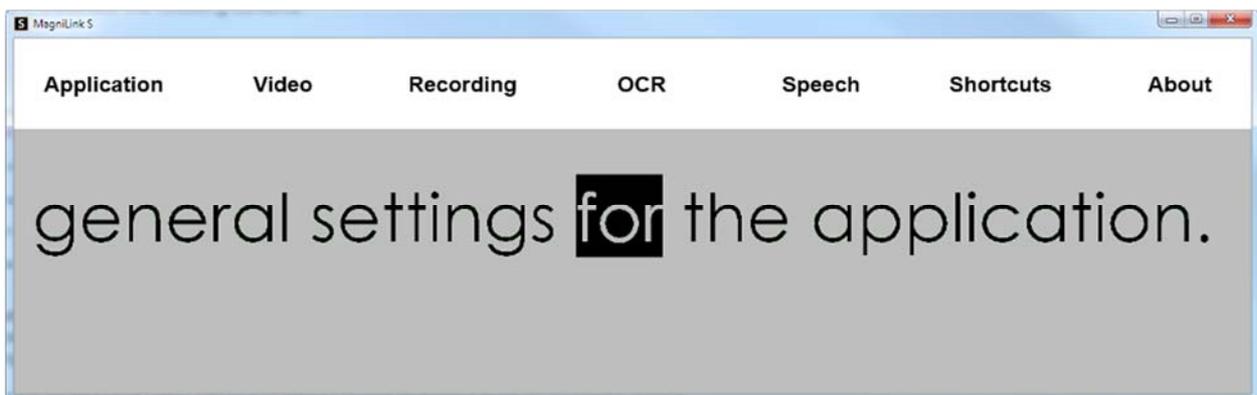
The application can be controlled via menus or buttons.



- To access the menus, move the cursor to the top left corner of the application. The "Menu" button will then be displayed. Click on this to access the menus.
- To access the buttons, move the cursor to the top right corner of the application. The button with a gearwheel will then be displayed. Click on this to access the other buttons.

6.2.1 Functions via menus

The menus contain settings for the application.



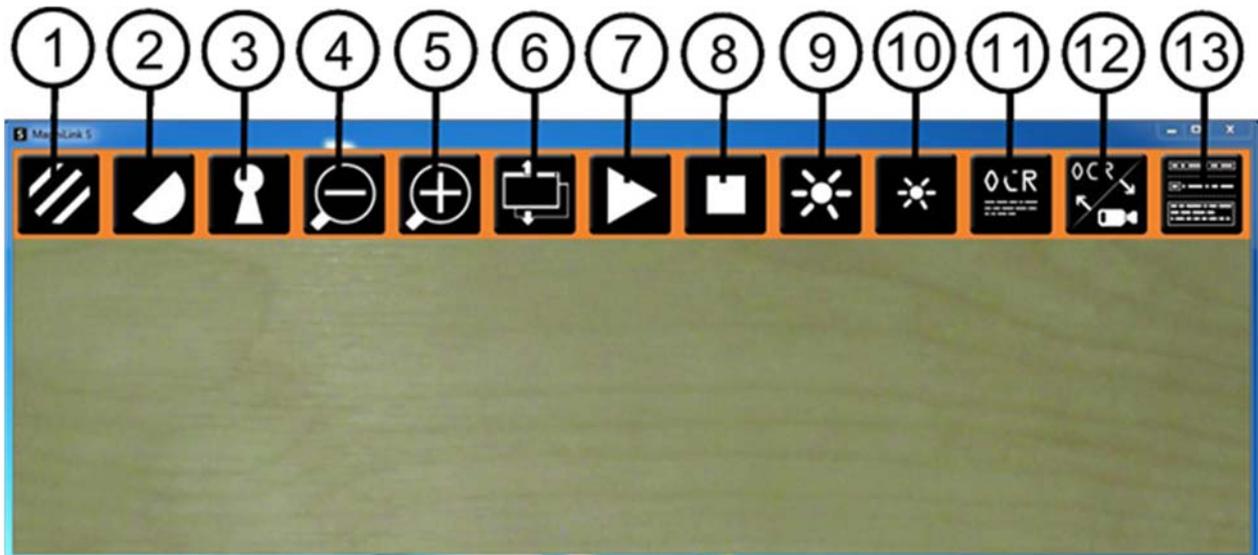
- **Application**
Contains general settings for the application.
- **Video**
Settings that shall apply for video are set here.
- **Recording**
Here are recording settings.

- **OCR***
Contains settings for the OCR engine.
- **Speech***
Here you can access settings for reading.
- **Short cut commands**
Click here to change the short cut commands.
- **About**
Click here if you require information regarding the software version in use and your license.

* Only cameras that are licensed for OCR.

6.2.2 Functions via buttons

The buttons let the user control the program. Below is a description of what they do.



1. Shows the camera image in natural colours or in black and white.
2. Shifts between the MagniLink camera's artificial colours.
3. Switches between autofocus and locked focus modes.
4. Zooms out.
5. Zooms in.
6. Switches between the pre-set split screen modes.
7. Starts the reading of OCR-processed text. Press once - the text will be read aloud. Press again - reading is paused*.
8. Stops the reading of OCR-processed text. The next reading will begin from the start of the text*.

9. Increases the light intensity in natural colours or raises the contrast level in artificial colours.
10. Reduces the light level in natural colours or lowers the contrast level in artificial colours.
11. Begins OCR-processing of the image shown. When the OCR-processing is complete, the program switches to text mode and the OCR-processed text is read aloud*.
12. This button switches between camera view and text view*.
13. Switches to display mode for OCR-processed text. The available display modes are side view, line view, word view and a silent mode where the text moves sideways on the screen*.

* Only cameras that are licensed for OCR.

6.3 Information and settings window

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

6.3.1 Applications Settings



Activate CCTV interface

By activating this function, MagniLink S is able to work with the magnification software from Dolphin and AiSquared

MagniLink S is compatible with ZoomText version 10 and with SuperNova version 12 or more recent. We recommend deactivation of the CCTV interface when working with older versions of the programs mentioned above.

Activate automatic updates

MagniLink S will automatically search for new versions of MagniLink S software. You can also deselect this and update manually instead (note: Internet connection is required for both automatic and manual updating).

Search for updates now

Press **OK** to search for updates (requires Internet connection).

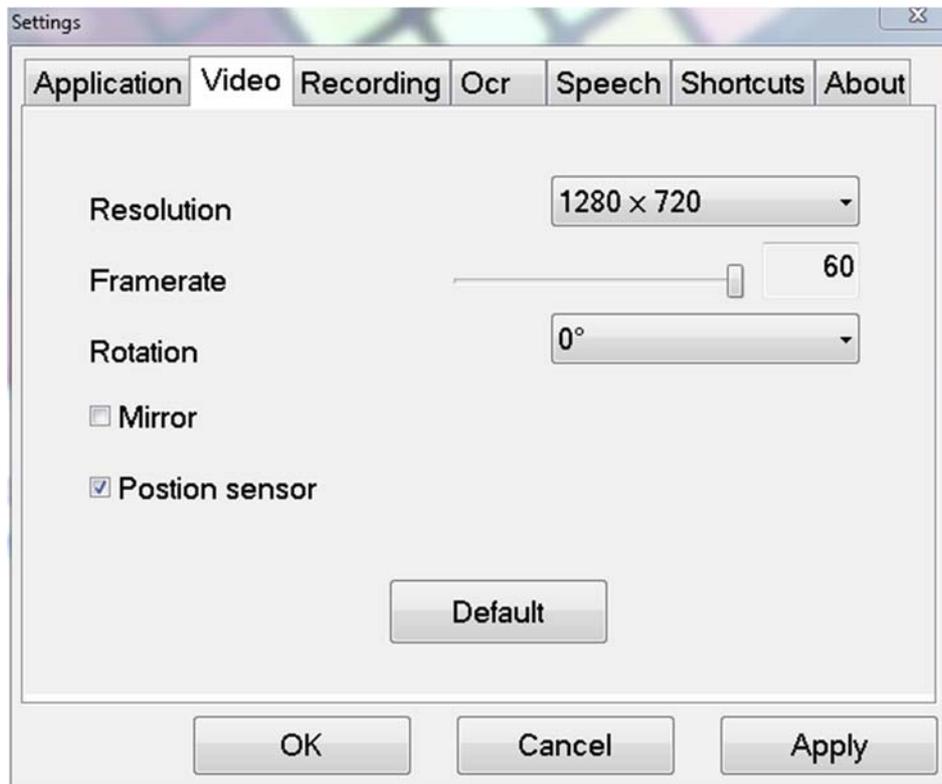
Language

The system is set to use the computer's standard language. If the language is not available for MagniLink S software, English is automatically chosen as the standard. Languages can be changed manually under Application Settings.

Available languages:

- English
- German
- Danish
- Spanish
- Finnish
- French
- Dutch
- Norwegian
- Swedish

6.3.2 Video Settings



Resolution

Select from the camera's various resolution options. The best picture quality is achieved by selecting the highest resolution. Lower resolutions may be required if the application is used on a computer with a lower level of performance.

Frame rate

This setting lets the user 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.

Rotate image

Allows you to set the rotation angle of the camera image. MagniLink S supports rotation of the camera image to the following angles: 0°, 90°, 180° and 270°.

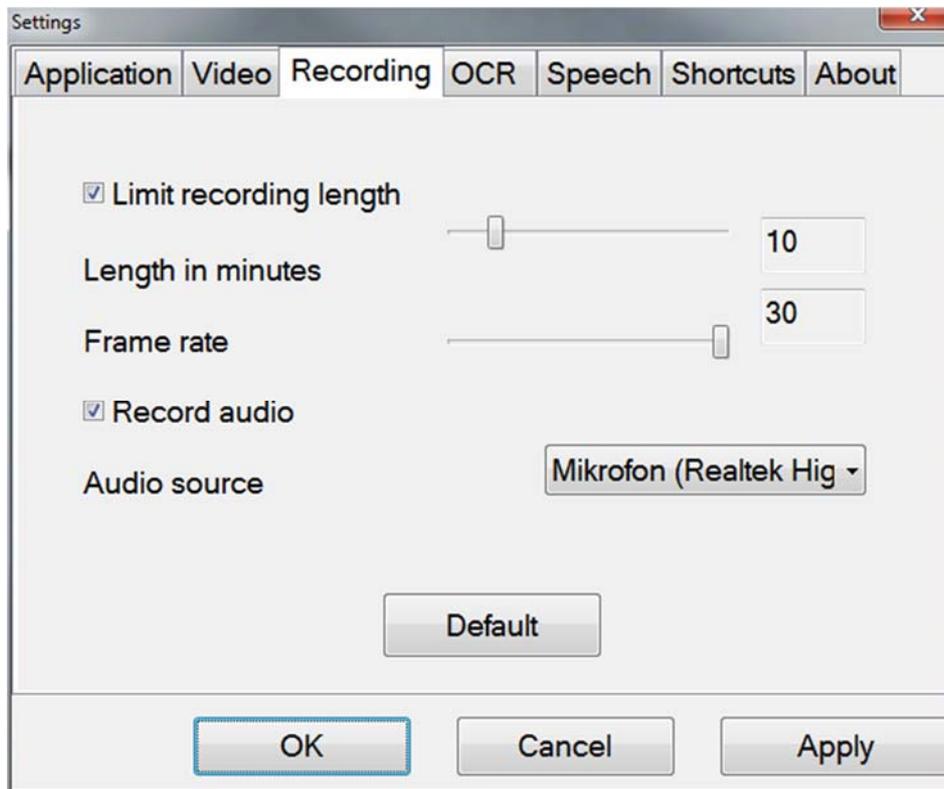
Mirror image

When this function is active, the camera image is mirrored.

Use position sensor

When this function is active, the application remembers the user's settings for reading and distance modes.

6.3.3 Recording Settings



Limit the duration of recording

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

Duration in minutes

If you have chosen to limit the duration of the recording, you can set the maximum duration in minutes from 1 to 60.

Frame rate

Frame rate of the recording, the number of images that can be recorded per second, can be set from 1 to 30 (1 to 24 images per second when the program runs together with ZoomText). A lower frame rate provides poorer quality on the recorded video, but takes up less space on the hard disk.

Record sound

If your computer is equipped with a microphone, (internal or external) sound can be added to your video recording.

Sound source

Select which microphone is to be used for video recording with sound. Normally only one sound source may be selected.

Carefully read the following information before using the video recording function.

The MagniLink S software can record video sequences from the MagniLink S camera in Windows Media Video (.wmv) format. It is possible to record video with or without audio. The video recording is started with the keyboard (Ctrl + F5) and a red indicator is displayed at the bottom right of the video window while video is being recorded.

The camera image is viewable in the application window while recording video, but since the video recording is quite CPU demanding, the frame rate of the camera is lowered to 30 Hz while the recording is in progress. This will affect the camera image quality compared to the image quality of 60 Hz frame rate. Since the video recording is relatively CPU demanding, the quality of the recorded video can vary on some computers. In that case, the recording frame rate can be lowered to reduce the CPU load.

There must be 50 MB of free disk space in which to save the file when a video recording starts. If, while recording, the disk space falls below 50 MB, the video recording stops automatically. 1 minute of video at 10 Hz takes about 20 MB of disk space. We recommended that you always save the files on the local hard disk and not move them to another folder until the video is finished.

6.3.4 OCR Settings

This settings tab is only visible if the camera supports OCR.



Typeface

Here the user can set the typeface used for viewing text that has been OCR-processed. The typeface in use has no effect on the OCR-processing.

Column mode

When this setting is active, the OCR engine processes the text in columns, which is appropriate if it is a newspaper text that is to be processed.

Start speech after OCR

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

Smart start

Smart start works as follows. If a text has already been read aloud and a new OCR conversion is starting, the reading will start from the position where the reading of the old text stopped.

Automatic language detection

When this function is active, the application will try to detect the language of the text and change the voice to the detected language. Automatic language detection will only work for those languages for which the application has licensed voices. If a text on a different language is to be OCR-processed, then this function needs to be deactivated.

6.3.4.1 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 12pt 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.
- The camera's resolution should be set to at least 1280x720, see Video settings for more information.

6.3.5 Speech Settings

This settings tab is only visible if the camera supports OCR.



Voice

If several voices are available, the user may select from these

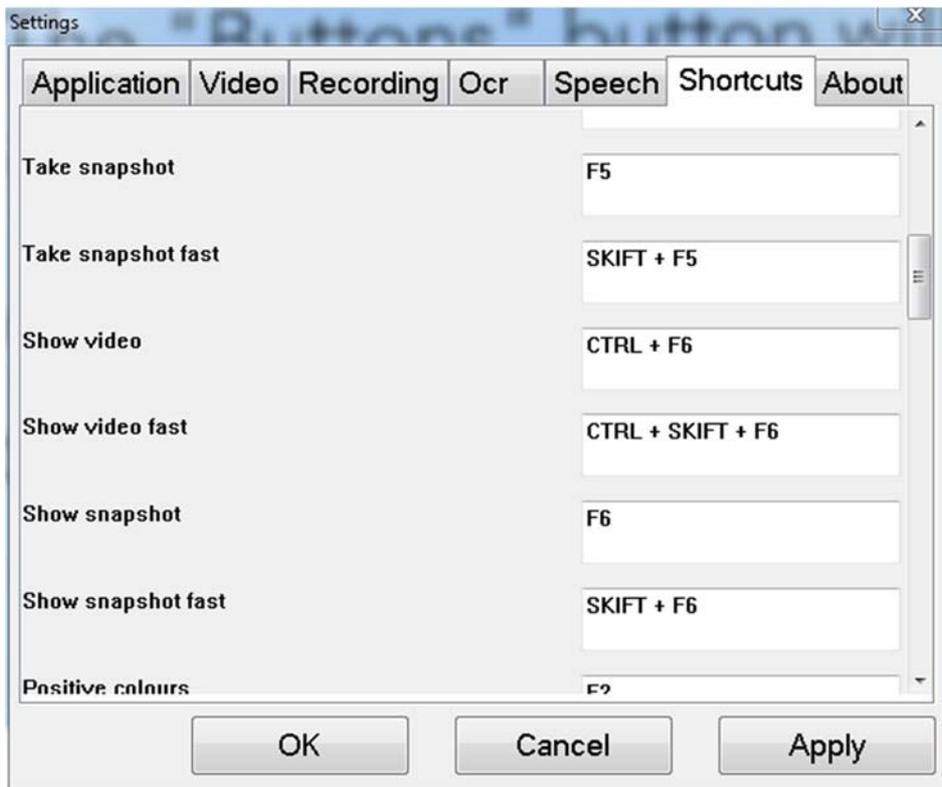
Volume

Set the sound level for the voice.

Speed

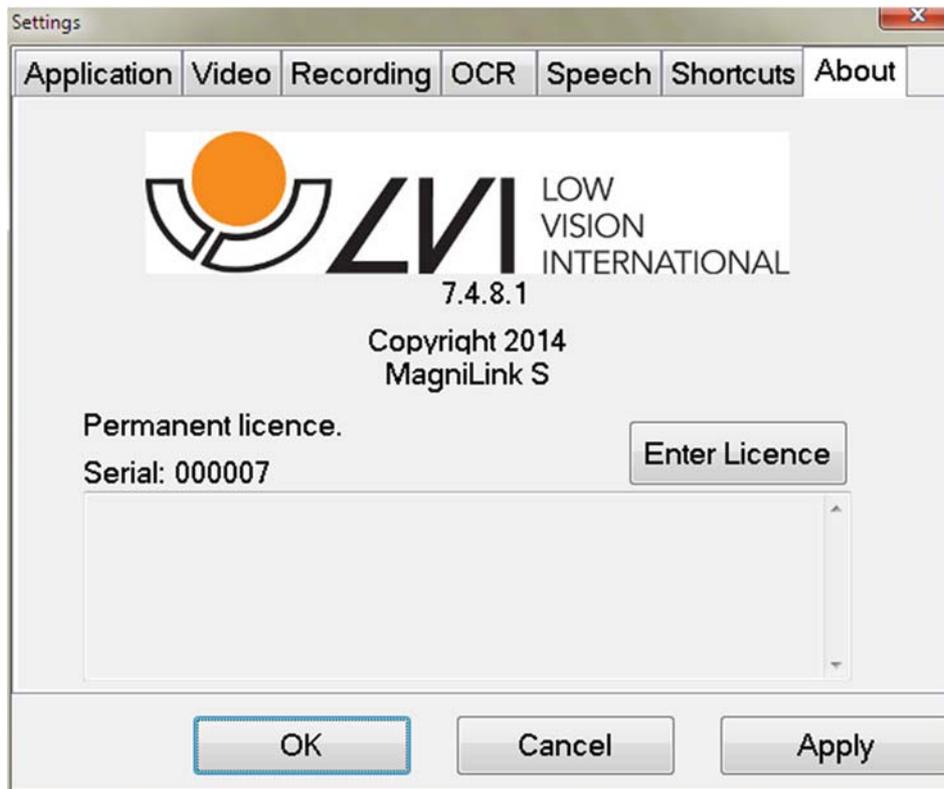
Set the speed of the voice.

6.3.6 Settings for 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 second command will be erased. A new keyboard combination will need to be entered in order to change the command.

6.3.7 About the application



Information regarding the software version and copyright can be found under this tab. If there is no Internet connection, press the "**Enter license**" button to license the software.

Alphabetical index

About LVI	5
About the application	28
Applications Settings	19
Functions via buttons	18
Functions via menus.....	17
Functions via menus and buttons	17
Functions via the keyboard.....	11
Information and settings window.....	19
Installation of software	7
Introduction to MagniLink S	6
Minimum system requirements.....	6
OCR Settings	24
Quality of OCR processing.....	25
Recommended system requirements.....	6
Recording Settings.....	22
Settings for short cut commands	27
Speech Settings.....	26
Updating/removing software	9
Using the software.....	11
Video Settings	21