



Digitales USB camera system



Direction for use

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1 Field of application

1.1 Intended use (use as directed)

The digital camera system "check & review" is used for pure image documentation on slit lamp microscopes in the field of ophthalmic optics or ophthalmic microscopy and does not fulfill any diagnostic or metrological function.

Any use there than specified is not permitted.

1.2 Intended use

The digital camera system "check & review" is used for image documentation on the slit lamp and surgical microscope in the form of image or video data. The system enables intuitive operation and data storage in freely selectable transfer folders.

1.3 Medical device law

According to the directive of medical guideline 2017/745 (MDR), the digital camera system "check & review" is an active class I device - non-invasive.

Device class	I
Basic UDI-DI	PP10431DC75
EMC	Electromagnetic compatibility fulfilled – USB device

Approvals and requirements

Description	Marking
Electrical version	DIN EN 60601-1: 2006 + Cor.:2010 + A1:2013 protection class I
EMC requirements	The device complies with the EMC requirements of DIN EN 60601-1-2: 2016, class B
CE- marking	The device complies with the essential safety requirements according to EU Regulation 2017/745 on medical devices

The unit is marked



Description of symbols



sign “Follow instructions for use“
 especially read the safety instructions and follow the enclosed documents



Equipment labelling „nameplate“

- MD – medical device
- name of unit
- UDI-DI (PPN)
- type
- Serial number
- Date of production
- voltage
- max. power
- manufacturer
- adress
- CE- marking
- type of device
- Note of professional disposal
- UDI (QR code)



nameplate at device

- manufacturer
- UDI- DI
- Type
- Serial number
- date of production
- connection/ max. power
- Note of professional disposal
- CE- marking



CE- marking
 Indicates compliance with standards for medical devices.



WEEE- marking „disposal“
 Electrical or electronic devices or assemblies must not be disposed of as normal household waste.

1.4 Notes for the operator

- Familiarise yourself thoroughly with the contents of the operating instructions before putting the unit into operation. Also observe the instructions for use for accessories and other system components.
- Installation: The camera module may only be installed and commissioned by trained specialist personnel who are familiar with the installation, commissioning and operation of the product. For the purposes of these operating instructions, qualified personnel are persons who, on the basis of their technical training, knowledge and experience as well as their knowledge of the relevant standards, are able to assess the work assigned to them and recognise possible dangers.
- Observe the legal regulations on accident prevention and work safety applicable in the respective country.
- Keep the Directions for Use within easy reach of the operating and service personnel at all times.
- The camera module must not be set up and operated in damp rooms. Avoid dripping and splashing water.
- Modifications and repairs to the camera module may only be carried out by trained and authorised personnel. The manufacturer is not liable for possible damage and consequential damage caused by unauthorised interventions on the camera. Furthermore, all warranty claims become invalid.
- The camera module was adjusted and configured with the existing PC when it was installed on the slit lamp microscope. A change of PC or a change of the operating system requires a new installation with new software-technical parameterisation of the camera module.
- The electrical connection of the camera module is the direct
- USB 3.0 connection of the PC. This also ensures the data connection.
- Frequent plugging and unplugging of the USB cable can impair the data transmission of the camera module and lead to malfunctions.
- Operation via a USB hub is expressly prohibited.
- The camera module is not intended for cleaning.
- Possible risks during commissioning and operation are considered in the product FMEA and risk management.

2 Requirements for operation

2.1 Before initial operation

- Check the correct installation of the camera module.
- Use a test rod for correct adjustment of the focal plane (see scope of delivery of the slit lamp microscope).
- Check the performance data of your PC (see page 47)
- Establish a proper USB data connection to the PC and use only active USB data cables for signal extension - (error message: install the valid licence)
- Are the cables and plug connections in perfect condition?
- Check that the software has been installed correctly

2.2 Before each operation

- Check the attachment of the camera module
- Start your PC and activate the recording software
- Check the correct setting of your visual acuity on the eyepiece of the slit lamp microscope

2.3 During each operation

- Never leave patients/clients unattended at the equipment
- Check the correct brightness settings and correct the iris diaphragm of the camera module for optimal image presentation

2.4 After each operation

- Switch off the unit together with the PC if it is not to be used for a long time.
- Cleaning of the camera and camera surfaces is not intended.

2.5 Liability and warranty

The warranty and liability shall be governed by the contractually specified conditions

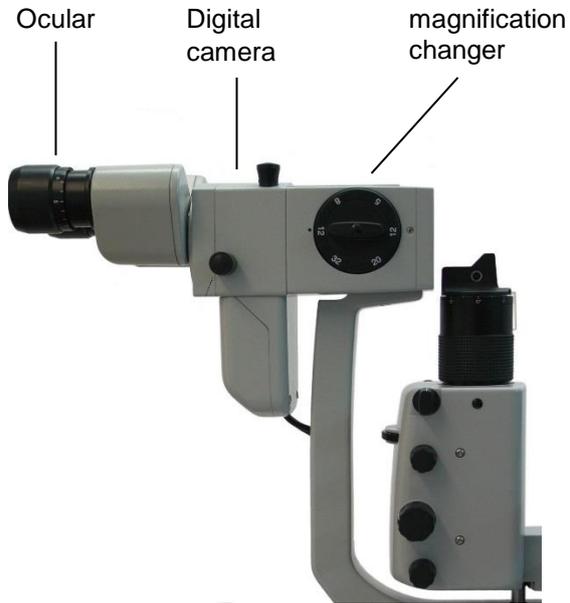
2.6 NOTICE

Loss of warranty

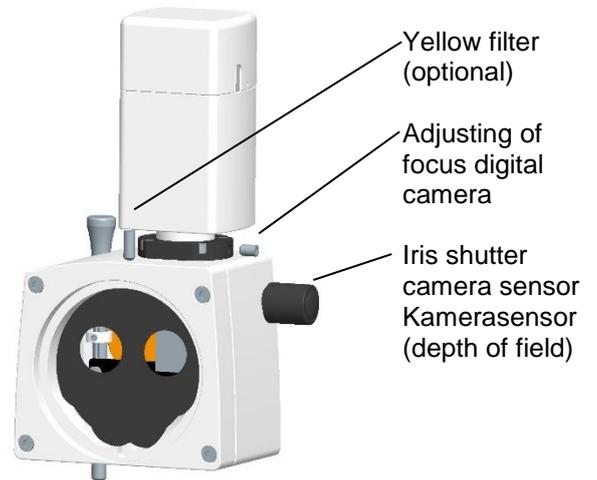
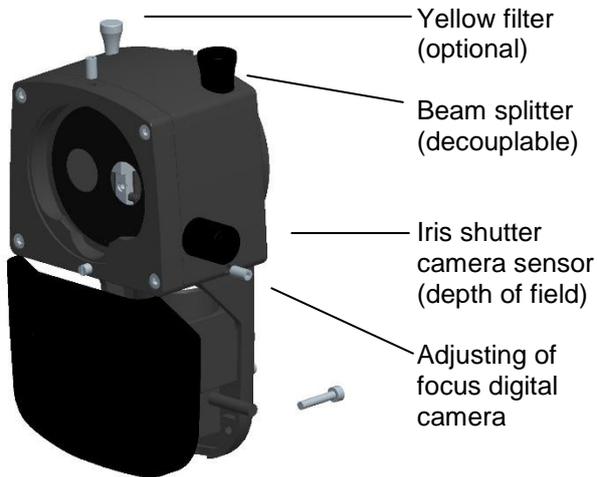
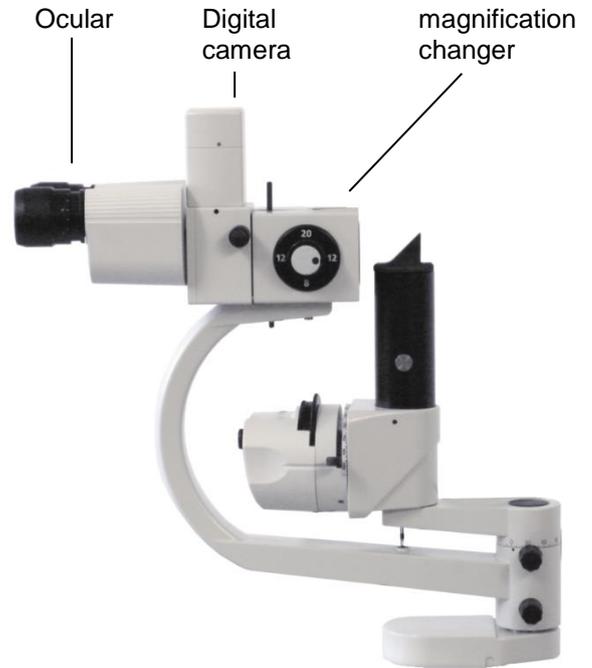
The manufacturer is not liable for damage caused by unauthorised tampering with the unit or by improper handling. In addition, this invalidates all warranty claims.

3 Installation instructions

Version 1:



Version 2:



Electrical connection and data transfer:

USB 2.0
USB 3.0

Notice!

Only use active USB cables for data transfer!



0,9m



5m



USB-A 3.0



5m

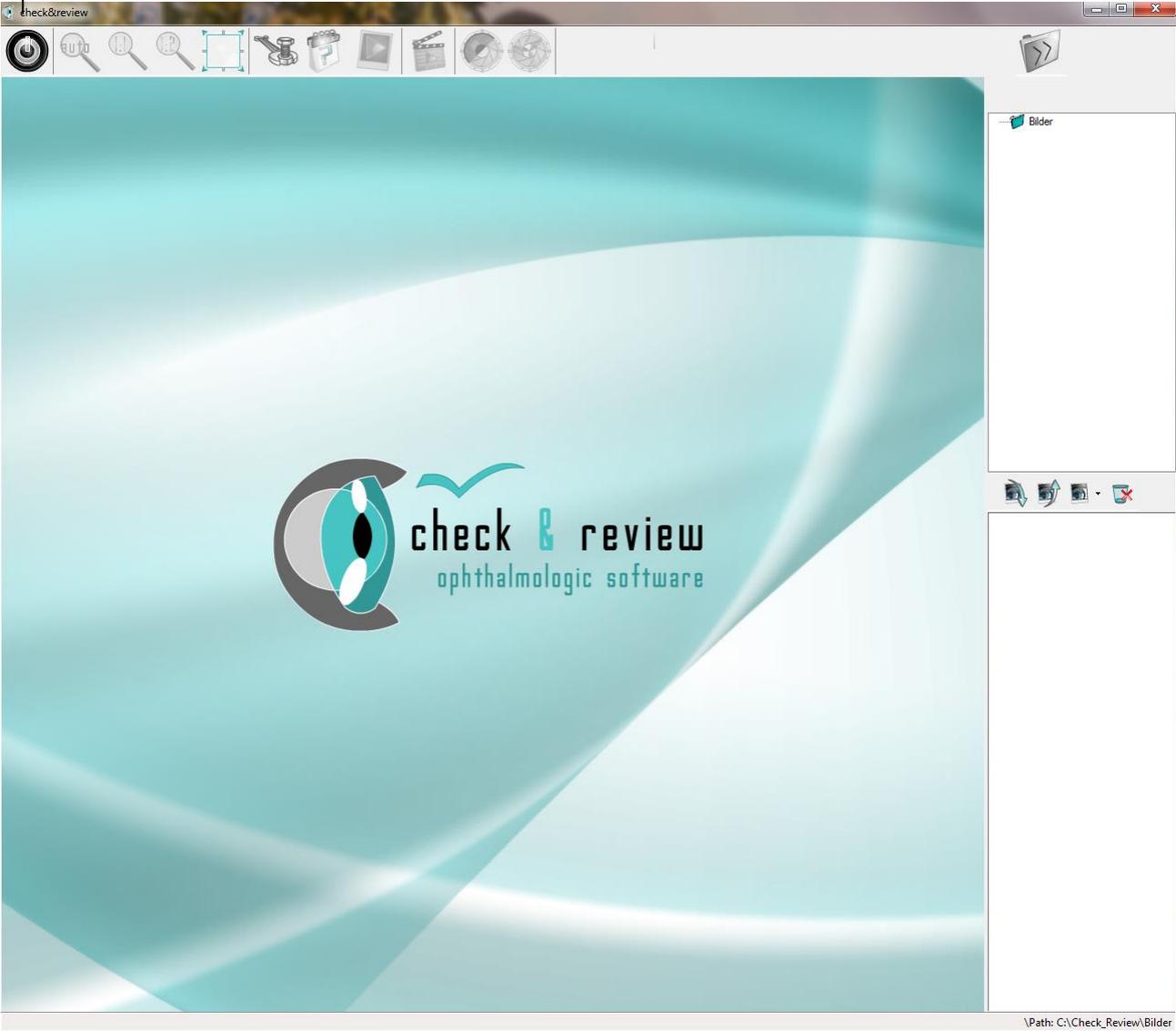


USB 2.0



4 Software operating instructions

Menu bar after launching the programme



Preset storage folder



4.1 Menu

4.1.1 camera ON/OFF



The button on the far left of the menu switches the camera on or off. This can also be done automatically. To do this, you must specify in the software settings under the option Start programme that the camera should be started automatically.

4.1.2 Views

- The three magnifying glass buttons change the size of the camera image in the preview.

4.1.2.1 Original 1:1



With this setting, the full camera resolution is brought onto the screen. This may result in some parts being outside the visible area.

4.1.2.2 Reduced 1:2



Here the camera image is displayed in a ratio of 1:2. This means that the resolution is half the resolution of the camera. This means that the complete image is always visible.

4.1.2.3 Adjusted



Here the resolution is adapted to the screen. This can lead to a reduction on small screens as well as to an enlargement on large screens. The complete camera image is always displayed.

4.1.2.4 Full screen mode



Here the screen can be set to full screen mode, if there is more than one screen, it is possible to display the full screen mode on the 2 screen.

The desired standard view with which the programme is to start first can be defined under Settings under the item Programme start. Except for the full screen mode, this can be activated in addition to the standard view..

4.1.3 Settings



Under this button you can adapt the software to your needs, e.g. integrate your devices or manage the recordings. Detailed information on the settings can be found under point 5 Software settings.

4.1.4 About

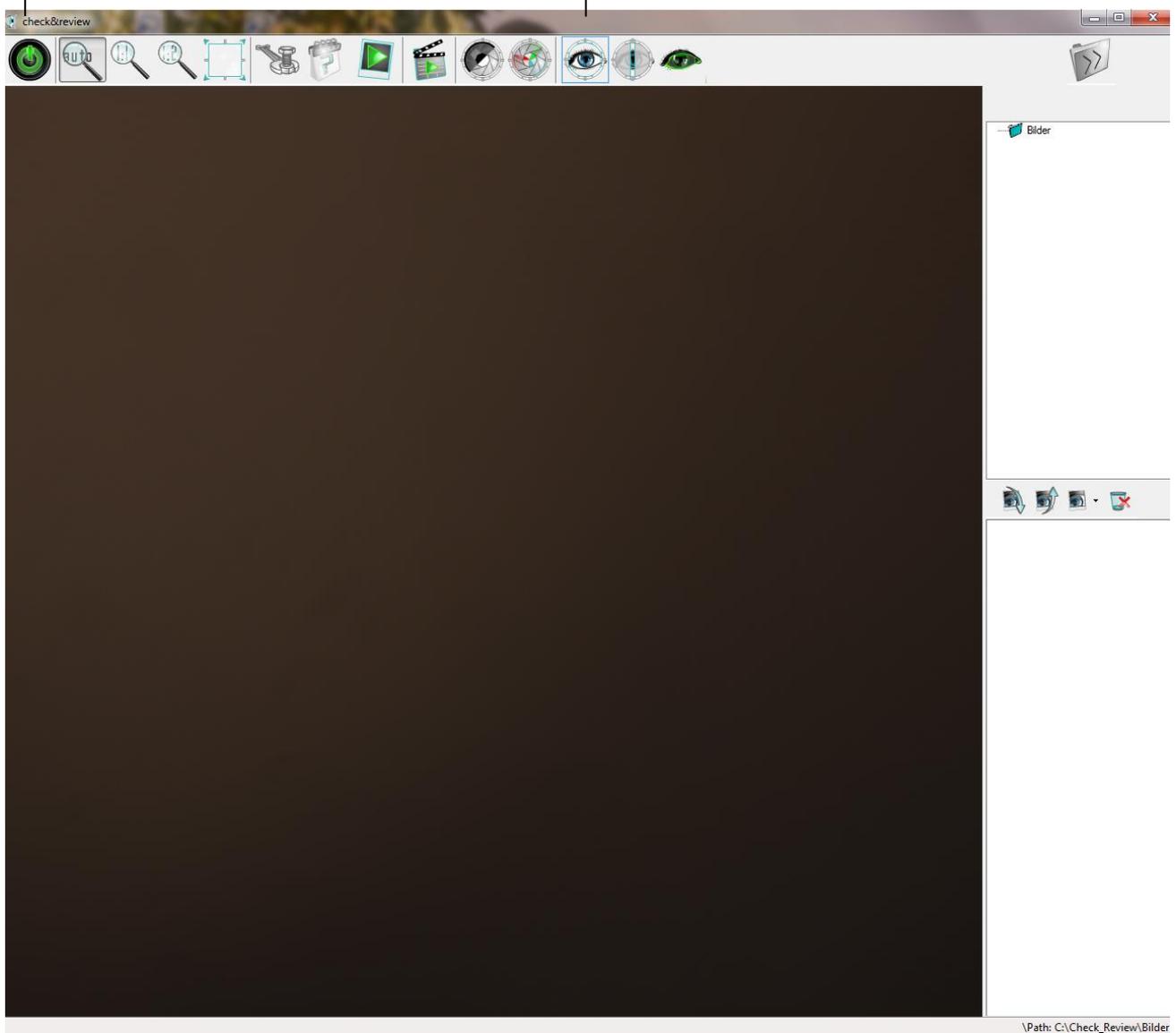


Here you will find the most important information about check & review, such as the programme version and the manufacturer.

Direction for use - digital camera system „check & review“

Menu bar after launching camera

available camera settings



4.1.5 Save single image



This button creates an image file in a previously defined directory. The directory can be defined in the software settings (import/export). The recordings and directories can also be managed via the file manager on the right side of the user interface.

The captured image corresponds to the current preview in the software and can be influenced by further buttons. For this purpose, up to 5 quick selection buttons for contrast, white balance and exposure ratios (parameters) can be activated. Further information on this can be found on the next page under items 4.1.7 to 4.1.9 as well as under item U5 Software settings.

4.1.6 Start Video Recording



This starts or stops the video recording.

The recorded video is created in a previously defined directory. You can adjust this in the settings under Import/Export.



In the settings, you can also specify that a prompt for a new directory appears each time a recording is started. To do this, select the option "Use storage location from directory" in the settings (Import/Export). The recording is always started in the previous directory and a new directory can always be created. If this query is cancelled, the video recording is also cancelled directly. For more information on the settings, read point 5.3.

4.1.7 Parameter/ Settings



There are various parameter sets that can be defined for the corresponding exposure ratios. These are defined via the settings (menu adjustment) and can be called up there accordingly. A total of five different parameter sets are possible per camera.



If you need more parameter sets for your camera, you can add your device several times. For more information on this option, read point 5.5 Recording devices.



4.1.8 Auto contrast



This can be used to activate or deactivate an auto-contrast. After deactivation, the camera retains the last changes until a parameter change or camera restart.

4.1.9 Auto white balance



This can be used to perform an auto white balance. As with auto contrast, the camera retains the last changes until the parameter is changed or the camera is restarted.

4.2 Image manager: file manager

With the file manager, the directory can be changed for each image recording or a new folder can be created or deleted. It is also possible to manage the recordings here. The use of the tool depends on the software settings. To do this, set the sub-item Single images in the settings under the category Import/Export to your desired use case of directory management. The three variants are explained under 5.3.

4.2.1 Variant 1: Fixed storage location

If the setting "use fixed storage location" is activated, no manual changes can be made in the file manager. All recordings are always automatically stored in a fixed directory. Further use of the recordings is ideal here via external management software.

4.2.2 Variant 2: Manuell directory management

If you want to organize your data without management software, use the setting "Use storage location from directory tree". It is also necessary to specify a start directory.

In this case, your single image recording or video recording is stored in the directory selected in the file manager. In this variant it is possible, for example, to create a new directory for each patient and each treatment. To do this, use the file manager as follows:



The large folder icon opens and closes the window showing the directory structure and the thumbnails below it. This gives you more space for previewing the camera image.

The three lower buttons are used to manage the directory structure. With the help of the file manager, it is therefore not necessary to leave the software to make changes to the directories.



The folder symbol with the green plus creates a new directory.



By clicking on the middle symbol with the designation "abc", the directories can be renamed.



Deleting directories is done via the right folder symbol with the red cross.

4.2.3 Variant 3: Select files and copie

For this variant, set the item Single images in the settings to the option "Select and move images at the end". It is also necessary to define a start and target directory.



The button "Select files to copy" with the three white arrows in the menu bar takes you to your previously recorded images.



You can now display these in different views.
To do this, select one of three size settings under the button "Change view".

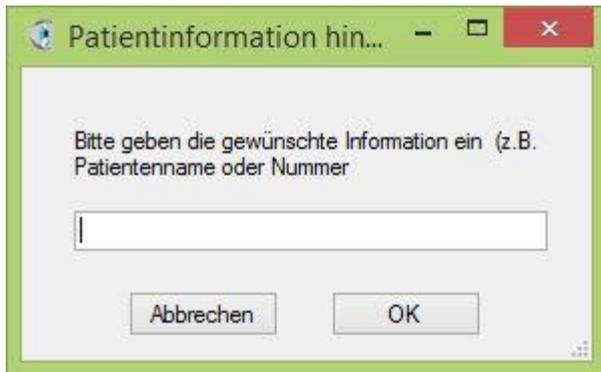


Now select all the images you want to save and move to the patient directory. Mark them using the box at the bottom right below the respective image.



By clicking on the button "Copy files and clean up" (photo icon with green arrow pointing downwards), the marked images are copied to the previously defined destination folder. The start directory is automatically cleaned up at the same time and is thus prepared for the next patient. To prevent data from being deleted by mistake, a warning appears each time before copying and deleting.

Subsequently, an input window appears in which you can automatically assign the name or number of the patient to all file names of the recordings. This prevents confusion between images of different patients.



4.2.4 Image management

In the lower area of the file manager, the recordings in the directory selected above are displayed as a preview image. In this way, you can keep track of recordings and videos already made and manage them directly even during treatment.

By clicking on the preview image, the respective image is displayed as a full screen. Using the slider on the left, the image can be enlarged in a further 6 steps to view individual sections in detail. For orientation, the graphic above the slider shows the current position of the section by means of a rectangular frame. Using the mouse, this can be moved in any direction so that a detailed analysis of the entire image is possible. To do this, click on the desired position in the graphic.



The sorting order (creation date) can be set via the two left arrow buttons in the file manager.



You can define the display size of the preview via the third button from the left. Four levels are available here.



Deleting unwanted recordings is possible via the recycle bin symbol with the red cross. Several files can also be deleted at this point. To do this, a mark must be set by clicking on the box in the lower right corner and then pressing the delete button.

5 Software settings

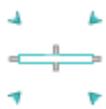
5.1 Programm start



All settings that are to be taken into account when the programme is started are made here.

5.1.1 Programm view

5.1.1.1 Minimises



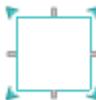
Here the software is placed in the taskbar. This is useful, for example, if check & review is to be used with other programmes and the software only needs to be active in the background.

5.1.1.2 Normal



Here the software is started normally in the window and can be moved to any position on the desktop.

5.1.1.3 Full image



Here the software is started as a full screen and uses the entire size of the desktop.

5.1.2 Camera image

5.1.2.1 Adjusted



Here the resolution is adapted to the screen. This can lead to a reduction on small screens as well as to an enlargement on large screens. The complete camera image is always displayed.

5.1.2.2 Original 1:1



With this setting, the full camera resolution is brought onto the screen. This can lead to some parts being outside the visible area and can only be reached by scrolling.

5.1.2.3 Reduced 1:2



Here the camera image is displayed in a ratio of 1:2. This means that the resolution is half the resolution of the camera. This means that the complete image is always visible.

5.1.3 language

The desired language of the software interface can be selected here.

5.1.4 Right-left marking

This activates the marking for right or left eye on the recordings.

With right-left marking activated, each file is marked as a right or left eye image with an additional letter. If neutral or deactivated, an N is added after each image. This is set by default so that no false information is deposited.

When using a simple button, the buttons appear in the software control bar after activation.



With the button for the right eye, an R is added behind the file name. The button remains on R until it is manually switched back to neutral or to left.



With the button for the left eye, an L is always added after the file name. In this case, too, the button remains active until a manual change is made.



With 5-fold manual buttons (slit lamp control), this marking is processed automatically. Clicking the respective button on the unit automatically transmits the left or right signal to the software. In this case, the buttons are hidden in the software.

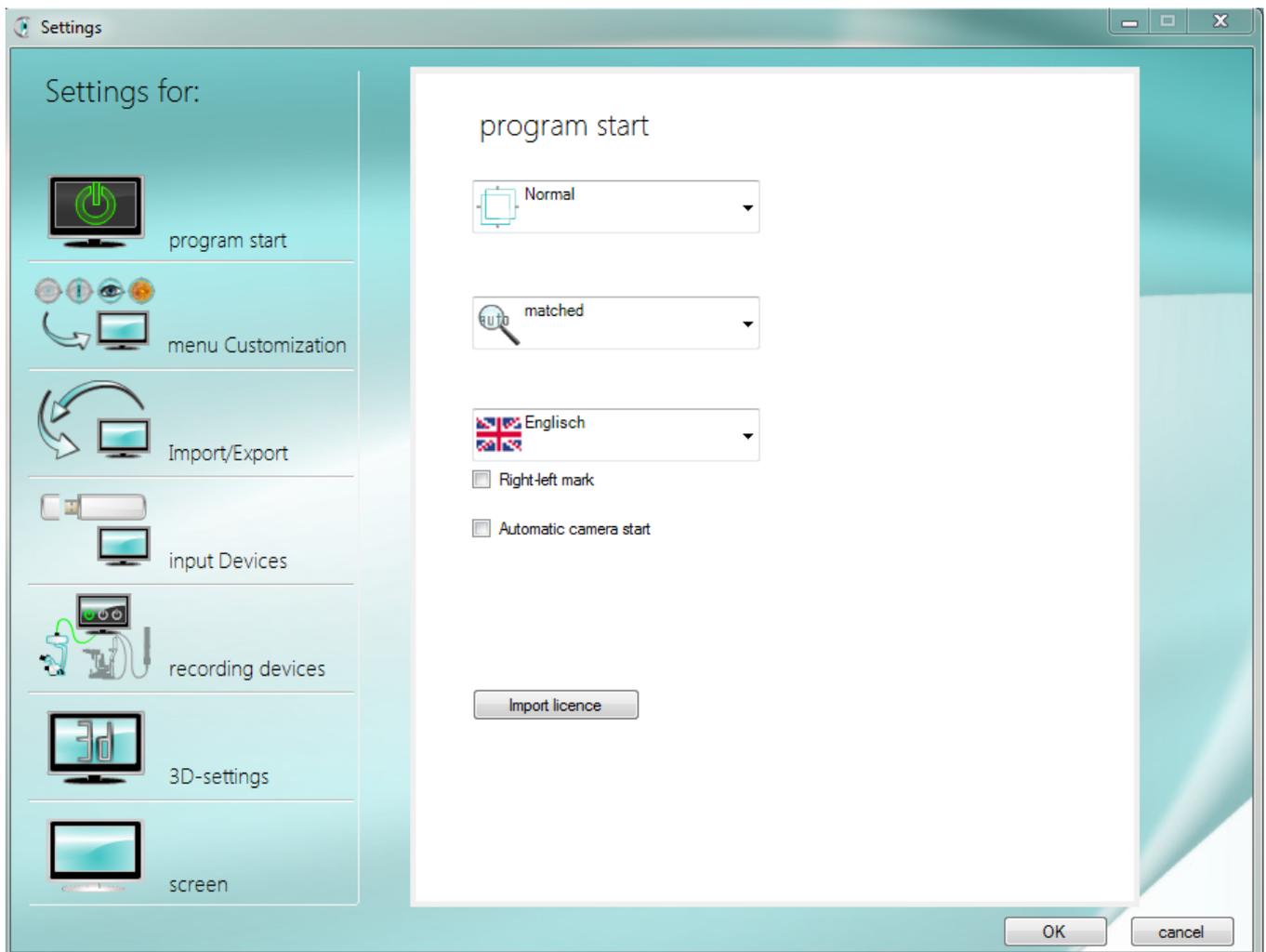
5.1.5 Automatic camera start

This can be used to activate the automatic camera start. This is useful, for example, if the software is only to run in the background.

5.1.6 Install License

At this point the licence file is imported into the software. Click on the button "Import licence" and select the key file from your folder system.

If the software is to be operated by several Windows user accounts, check & review must be started with administrator rights. Afterwards, the licence file must also be imported here in the settings as described above. This licence is now automatically activated for each new user.



5.2 Customise menu



5.2.1 Standard recorder

In the upper selection field, the recording device can be selected, which is activated in the operating bar by the start button (far left). New devices can be added under the menu item recording devices.

Further information on this can be found under point 8.5 # Recording devices.

In the lower part of the window, the buttons for the parameter sets are adjusted for the unit selected above.

5.2.2 Graphics selection

In the left column, you can define the graphic with which the button is to appear in the menu. The graphic with the red-cross deactivates the button. It is then no longer displayed in the menu.

5.2.3 Description

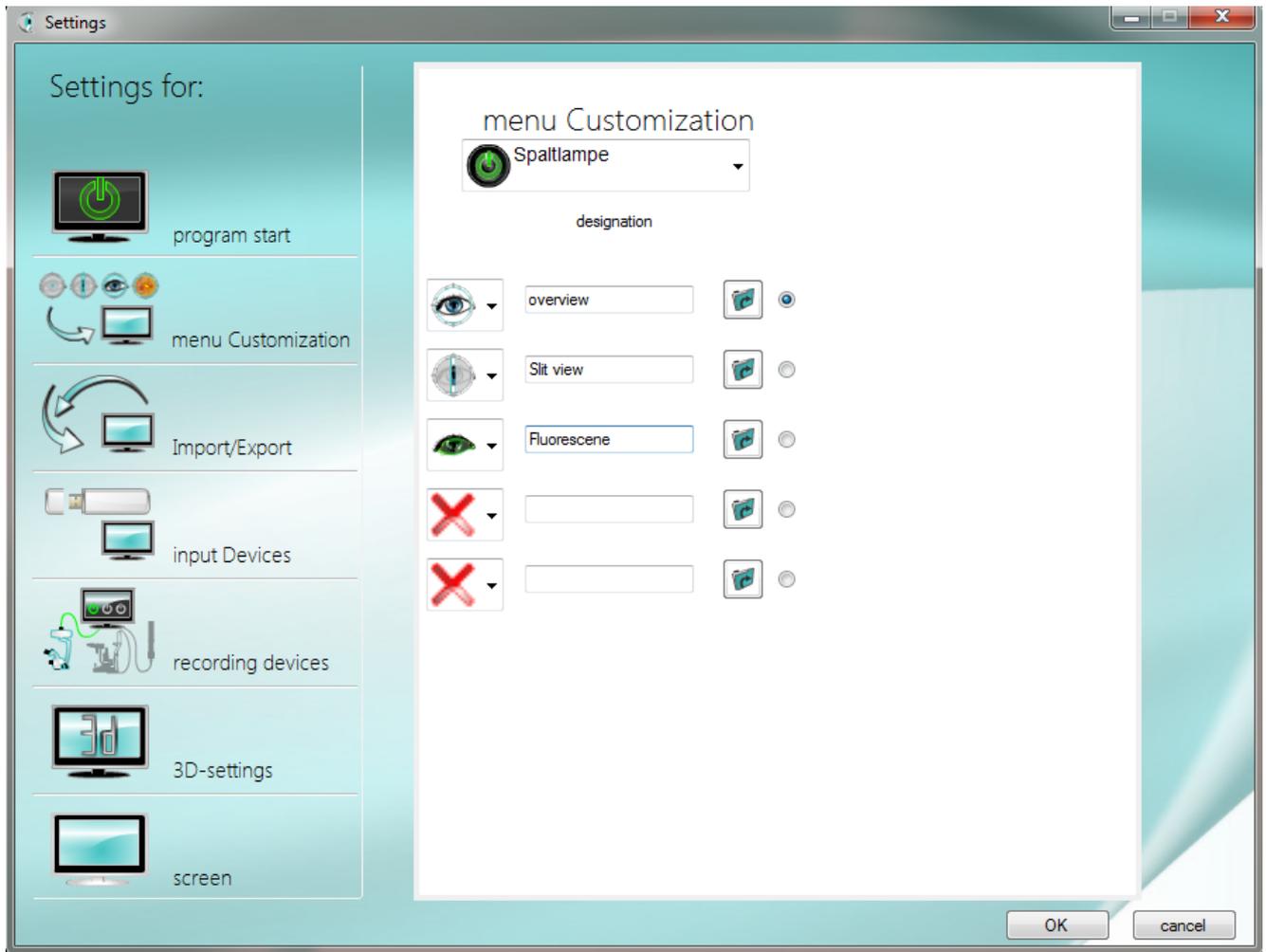
A short description of the content of the button is entered in this text field. This then appears as a mouse-over for the corresponding button

5.2.4 Assignment of the parameter sets

By clicking on the folder symbol, you can determine which ready-made parameter set is to be loaded for the corresponding button.

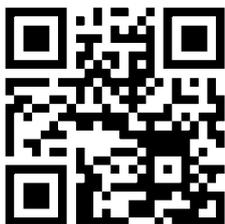
5.2.5 Standard

The selection buttons on the right-hand side determine which mode is automatically used first when the camera is started. This is particularly relevant, for example, if the software is only used in the background.



5.2.6 Parameter sets

The parameterisation is carried out by the manufacturer, as the camera and hardware must be matched to each other. You can find further information on our website www.check-review.de



Service – Online help – Settings of administration (only in german language available)

Every digital camera sensor in hardware combination with slit lamp needs his own settings for correct working and white balance control. These settings can only be made with appropriate prior knowledge and are included in the scope of delivery for the initial installation (the software installation is carried out with "Teamviewer" by the manufacturer).

5.3 Import/Export

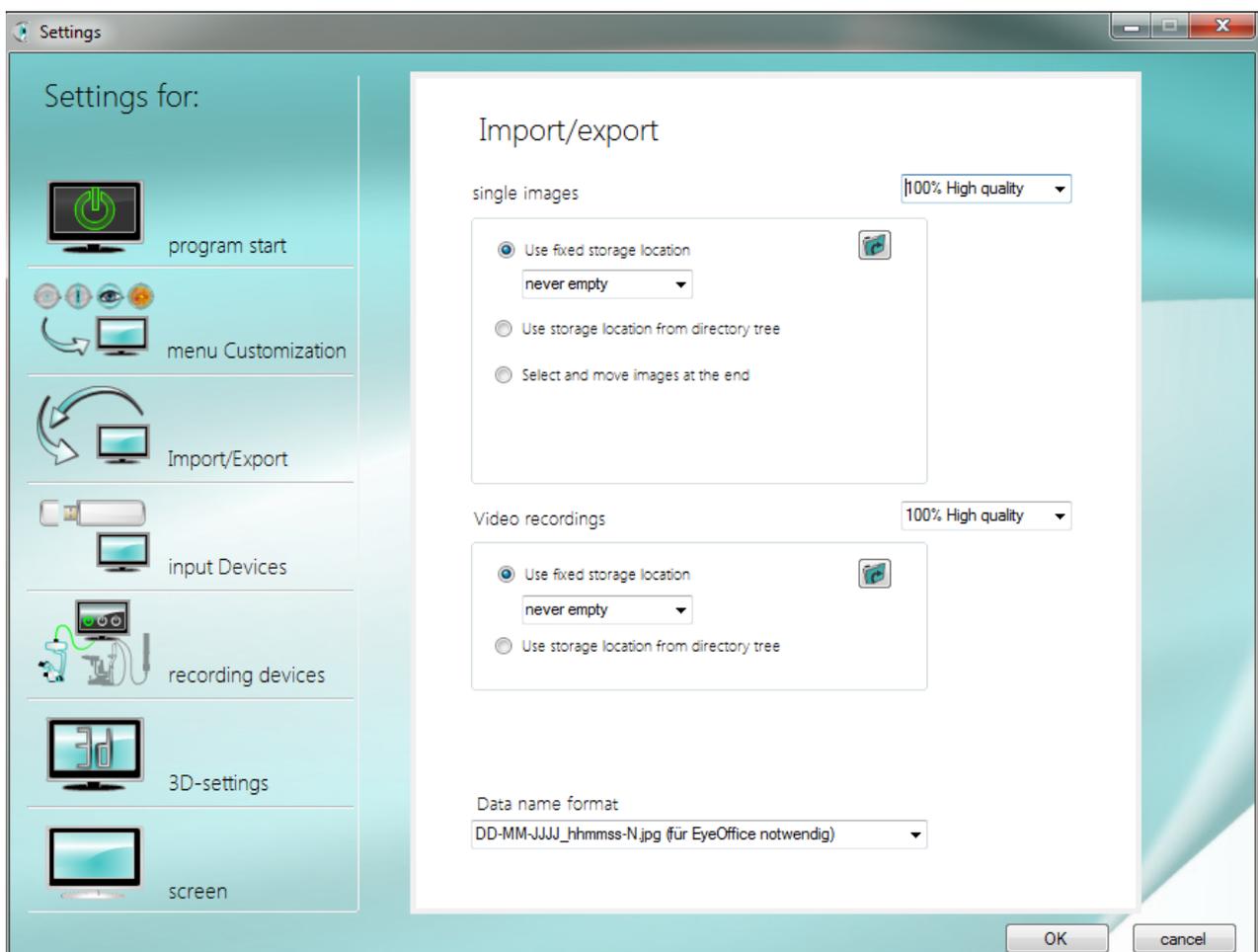


5.3.1 Single images

At this point it is determined where the images are to be saved. There are three options: use a fixed storage location, use the storage location from the directory tree or select the images at the end and move them.

In any case, three quality levels can be set for saving the recordings. This is a JPG compression in the levels 100%, 75% and 50%.

5.3.1.1 Use fixed storage location



If this option is selected, all recordings are always stored in a standard directory.

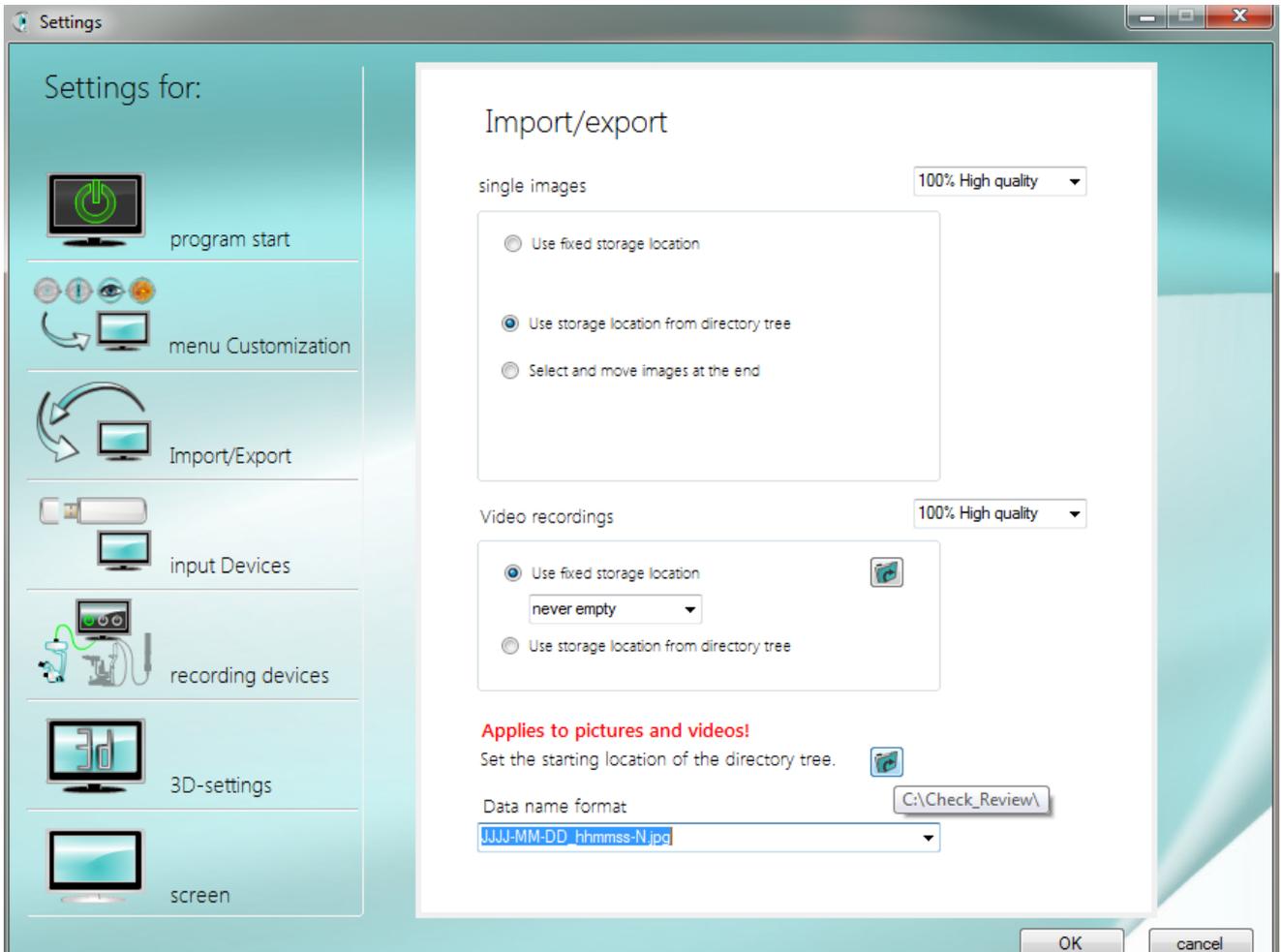
This must be set via the folder icon button "Change picture directory" and can be changed at any time at this point. The change via the file manager on the right-hand side is not possible in this case.

This option is useful when check & review is used in combination with patient management software. If set up accordingly, this software can automatically access the image directory.

To ensure that the images are also stored in the correct directory in minimised software mode, special attention must be paid to the setting of the default directory.

There is also the option of specifying whether check & review should delete the images on exit, on start-up or never. This setting is necessary because some programmes do not automatically delete the original images when importing them. A warning is always displayed so that no important images are deleted by mistake.

5.3.1.2 Use storage location from directory tree



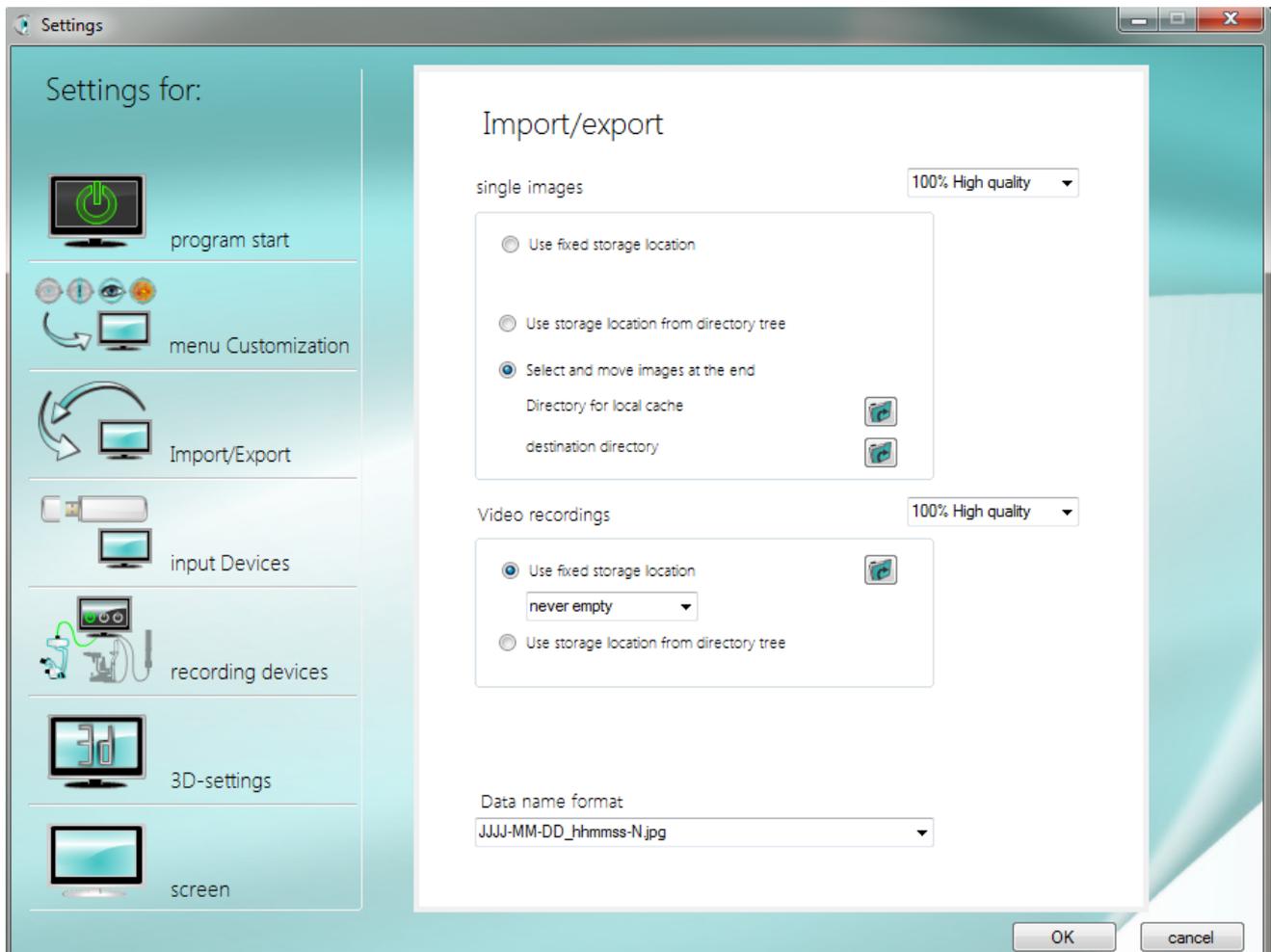
By activating this function, the directory system itself can be managed in the file manager. This is therefore particularly relevant for use without patient management software.

Before starting a single image or video recording, the desired target directory must be selected or newly created accordingly. This is convenient if, for example, a separate directory is to be created manually for each patient.

In the settings, a starting folder (e.g. C:/Images) is defined from which you start your administration. Since this starting directory is also used for video recordings, you must use the common folder icon button. This is located under the box for video recordings under the note "Applies to pictures and videos!" (behind "Set start location of directory tree").

For information on further management with the file manager, see point #.

5.3.1.3 Selecting and moving images at the end



With this function, the images are first saved in a standard directory and then a selection can be moved to a specified directory. This way you can decide after the treatment which images should be moved and which should be deleted.

To do this, first define the initial directory via the folder symbol next to "Directory for local cache". All images of a session are stored in this location.

Under "Destination directory", select the folder to which your image selection is to be moved.

The directory for local temporary storage is emptied at the same time as the images are moved. This means that all images that were not selected will be deleted directly. A warning is always displayed so that no important images are lost.

The selection and sorting out of the recordings is done via buttons in the menu bar, which are only displayed when the option is activated in the properties.

This option is also suitable for patient management using software. Through your preselection, you can reduce the amount of data and find the most relevant recordings more quickly in the future or save them on your network drive.

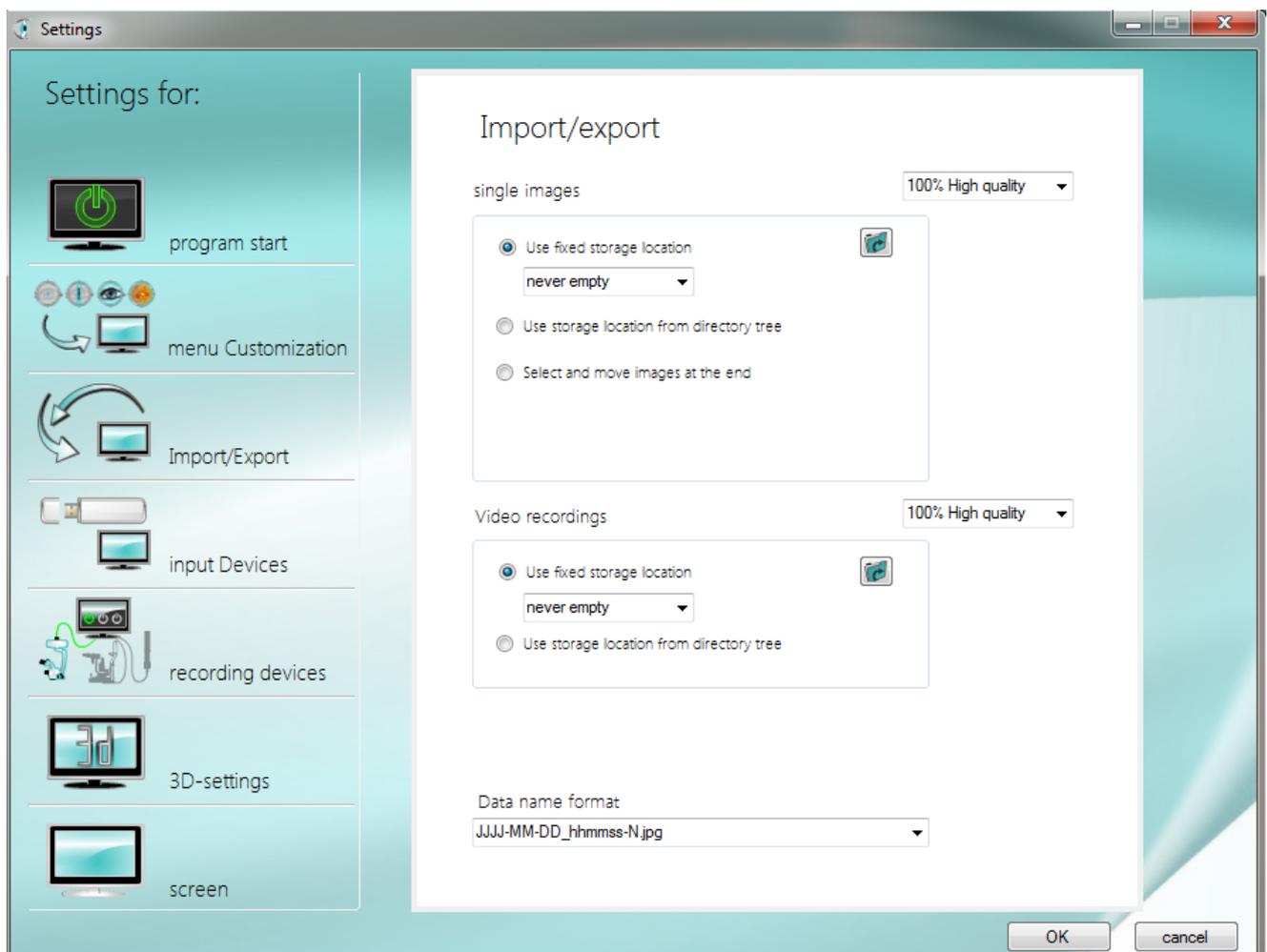
5.3.2 Video recordings

Two variants are provided for managing video recordings. You can either save the videos in a standard directory or organise the directory system yourself via the file manager.

Just as with single images, the quality for videos can also be set in three quality levels. These are compression levels of 100%, 75% and 50%.

Since the AVI format has a physical limit of 4 GB, the system automatically creates another video file when this limit is reached. The system continues to do this until you stop recording. Attention: This requires a correspondingly large amount of storage space.

5.3.2.1 Use fixed storage location

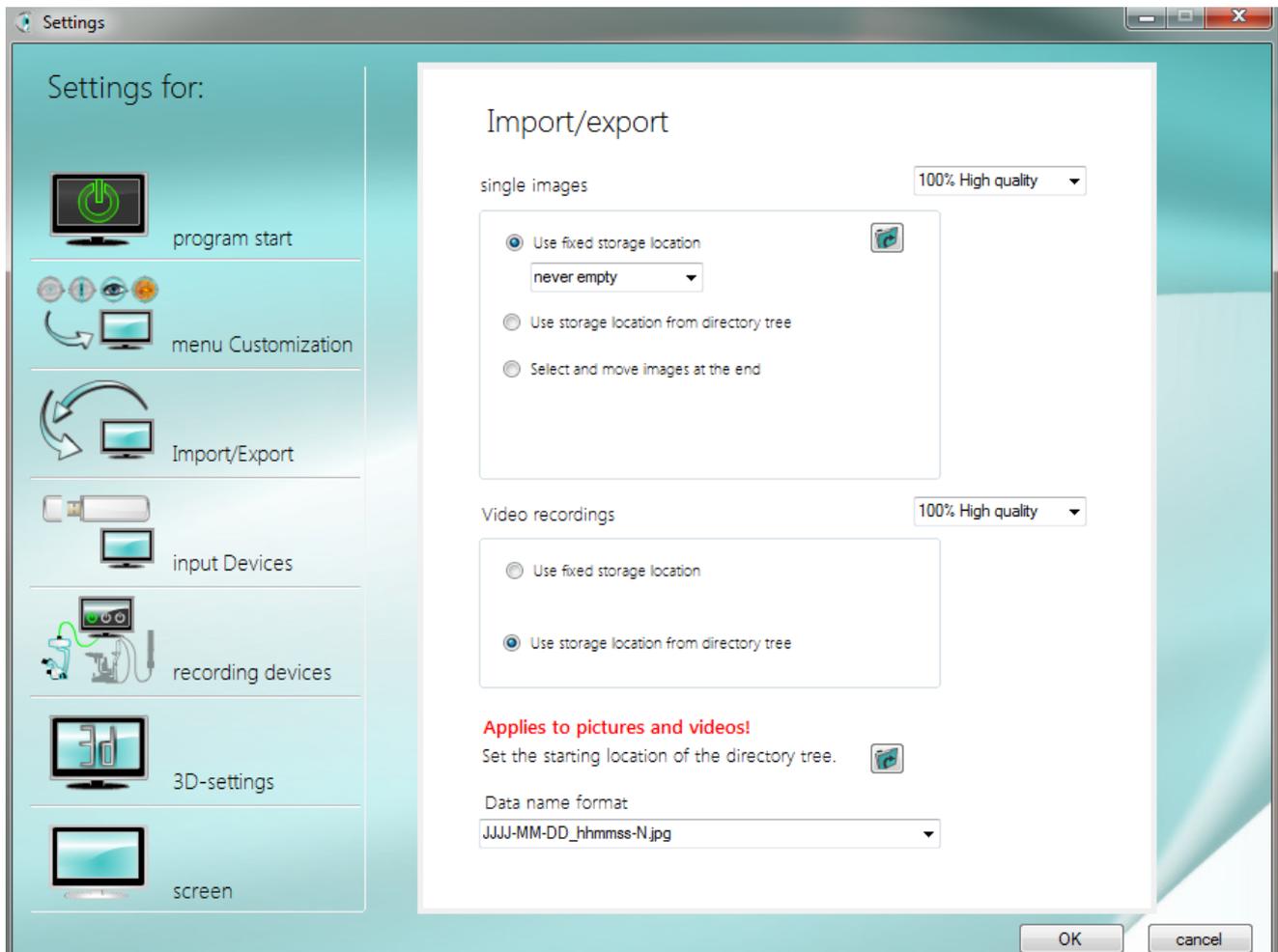


If this option is activated, all videos are always stored in a standard directory.

This must be set via the folder icon button and can be changed at any time at this point. The change via the file manager on the right-hand side is not possible in this case.

Here you have the option of specifying whether check & review should delete the images on exit, on start-up or never. This setting is necessary because some programmes do not automatically delete the original images when importing them. A warning is always displayed so that no important images are deleted by mistake.

5.3.2.2 Use memory location from directory tree



The "check & review" software does not have a database but uses Windows Explorer for data storage. By activating this function, the data directory itself can be managed in the file manager.

Before starting a video recording, the desired target directory must be selected or newly created accordingly. This is convenient if, for example, a separate directory is to be created manually for each patient.

In the settings, a starting folder is defined from which you start your further administration. Since this starting directory is also used for single image recordings, you must use the common folder icon button. This is located under the box for video recordings under the note "Applies to pictures and videos!" (behind "Set start location of directory tree").

For information on further management with the file manager, see point 4.2.

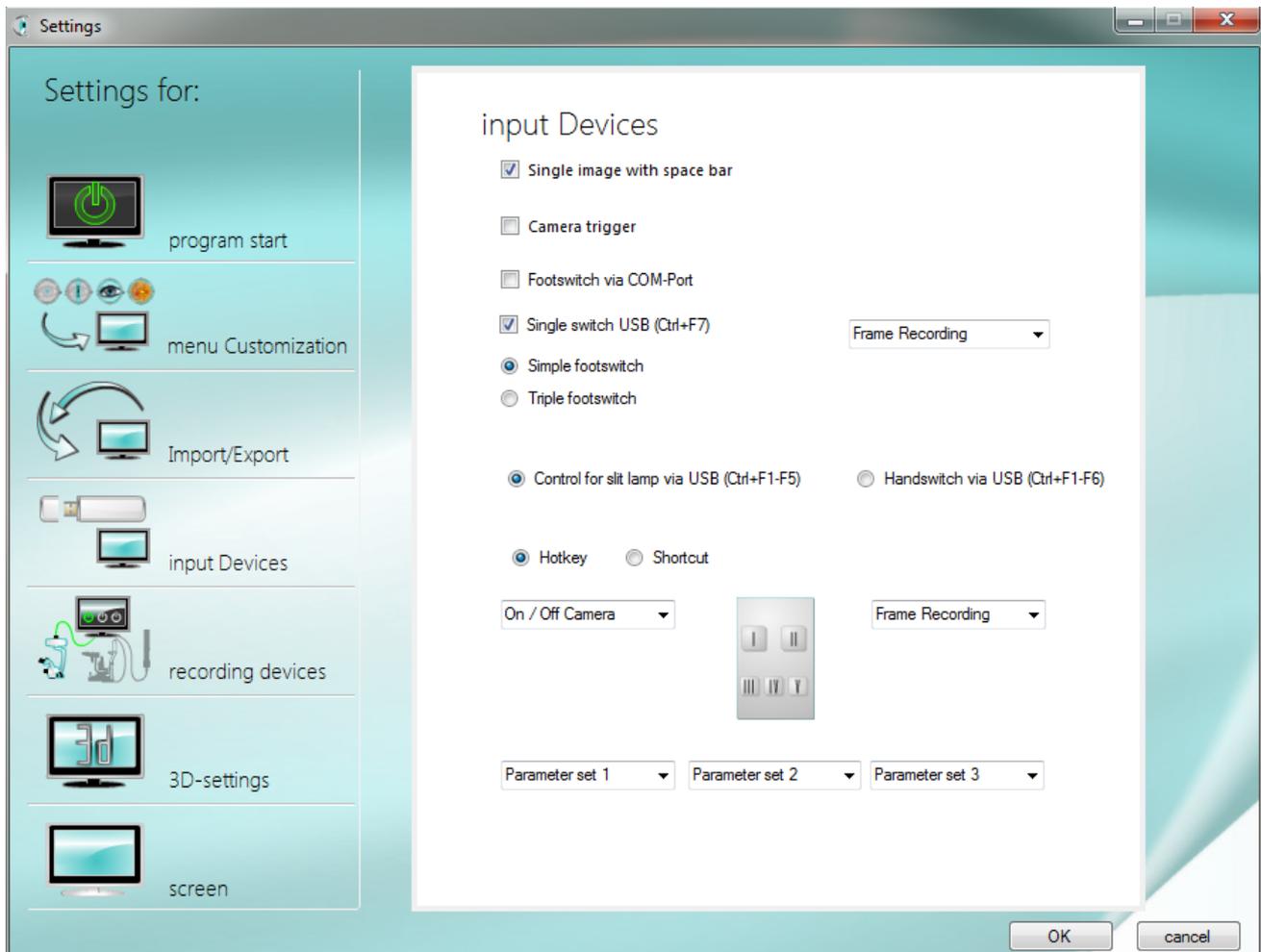
5.3.3 Name of data file

The file name format determines what name the software gives to the recordings. The name is always composed of the date and time. The two choices differ only in the order of the date. Please choose your data file format which is best to work. When using the EyeOffice software, for example, it is necessary to set the format to day-month-year.

5.4 Input devices



By default, "check & review" is operated by mouse via the software buttons. Other input devices must be configured and activated beforehand in the settings for using the software.



5.4.1 Single-frame recording by the space bar

When this is activated, it is possible to use the space bar to activate the shutter release for single images. However, this does not work if the software is not in the foreground and not active.

5.4.2 Trigger button on the camera

This image capture function is only available on the surgical microscope camera module and should be fundamentally deactivated as it is very sensitive. With this button it is possible to trigger image acquisition directly on the surgical microscope.

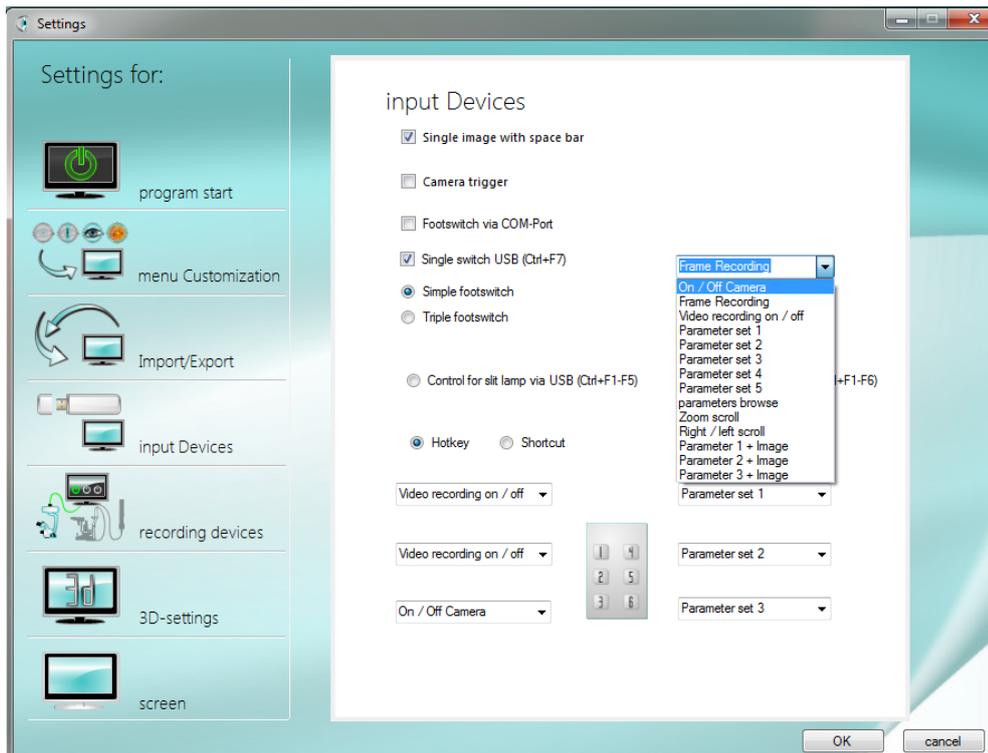
5.4.3 Foot switch using COM port

Older buttons that are still controlled via the COM interface can be connected here.

After activation, a field appears in which the COM port type must be entered, e.g.: COM6.

In addition, the function field is visible. Here it is possible to define the desired function that is to be executed with the corresponding button.

5.4.4 Die Funktionen der Auswahlfelder



5.4.4.1 ON/ OFF slit lamp camera

This allows the camera to be switched on and off.

5.4.4.2 Single image

This can be used to take single images.

5.4.4.3 Video ON/ OFF

This can be used to start and stop video recording.

5.4.4.4 Parameter 1-5

With this, the individual parameter sets can be set accordingly.

5.4.4.5 Parameter scroll

By pressing the button several times, it is possible to select the parameter sets one after the other in the following order.

5.4.4.6 Zoom scroll

This allows you to scroll through the 3 camera zoom views.

5.4.4.7 Right/ Left scroll

With this it is possible to scroll through the right/left/neutral marking.

5.4.4.8 Parameter 1-3 + Auslösen

This triggers a recording with your preset parameter sets.

5.4.5 Single or triple foot switch by USB (Strg+F7)

This allows a single or triple foot switch to be connected via USB. Address of the function key "single foot switch": Ctrl+F7. Here, too, the function selection field appears after activation. If the triple foot switch option is selected, two further selection fields appear. Addresses of the function keys: Ctrl+F7, Ctrl+F8, Ctrl+F9. For information on installing the driver for your single or triple footswitch, see point 6.4.

5.4.6 Digicam control by USB Hotkey (Strg+F1-F5)

Handling module with 5 operating keys for slit lamps.

After activation, 5 function selection fields become visible. These can be set according to the keys.

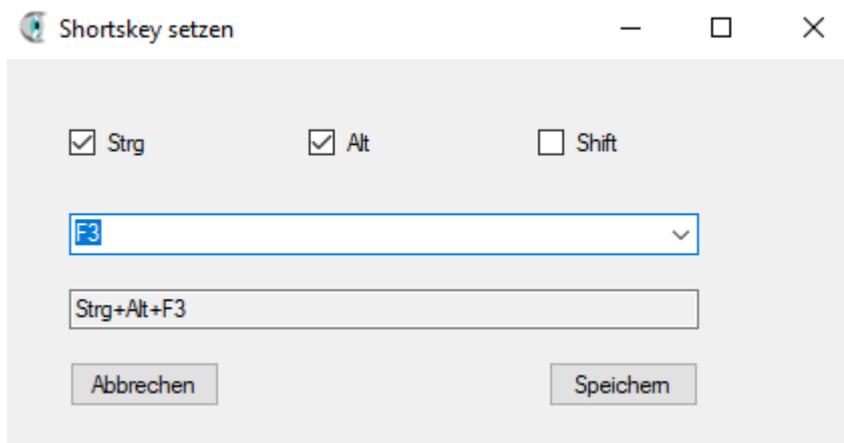
A special feature is the automatic left-right detection with an optical sensor. However, the F20 key (continuous trigger) is used with the help of a continuous signal. This function can cause problems in connection with third-party software. Troubleshooting is described in point 6.5 - Shortkeys. For information on installing the driver for your slit lamp control, see point 6.5.

Example: slit lamp microscope ZEISS SL-120



5.4.7 Digicam control by USB Shortkey

Since some third-party software uses the same key combinations as the defined hotkeys, it is possible to define your own shortkeys. These are only executed when "check & review" is active in the foreground.



When defining the shortkeys, it is possible to combine the F1-F20 keys randomly with the system keys: CTRL, Alt and/or Shift, so that there is no interference with other software installations.

The settings must then also be stored accordingly in the control software of the buttons.

5.4.8 Hand switch by USB Hotkeys (STRG +F1-F6)

This allows a USB device with 6 keys to be connected.

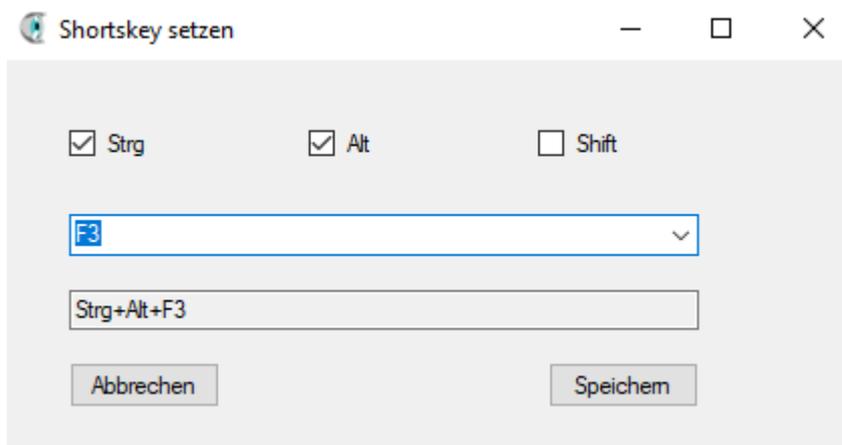
The function keys must be assigned as follows: Ctrl+F1, Ctrl+F2, Ctrl+F3, Ctrl+F4, Ctrl+F5 and Ctrl+F6.

After activation, the 6 function selection fields become visible and can be set according to the keys.

For information on installing the driver for your hand-held pushbutton, see point 6.4.

5.4.9 Hand switch by USB Shortkeys

Since some third-party software uses the same key combinations as the defined hotkeys, it is possible to define your own shortkeys. These are only executed when "check & review" is active in the foreground.



When defining the shortkeys, it is possible to combine the F1-F20 keys randomly with the system keys: CTRL, Alt and/or Shift, so that there is no interference with other software installations.

The settings must then also be stored accordingly in the control software of the buttons.



5.5 Recording devices

Several recording devices can be integrated in the software. This means that not only slit lamp recordings can be displayed, but also recordings by various other system cameras. It is therefore possible, for example, to set up videos of an operating microscope camera and a surrounding camera that films the entire operating theatre at the same time. The integration of a 3D camera is therefore also possible.

Another possible application is the creation of different parameter sets for the same camera, e.g. for different users. If you need more than 5 parameters for your standard camera, this is possible by creating a new device.

A new set of input fields is displayed via the "New device" button.

By setting the mark in the upper left box, the device is activated for use. All marked units appear in the operation bar after the programme restart. Multiple selection of units is possible.

The round option field underneath determines which of the units is to be used as the default.

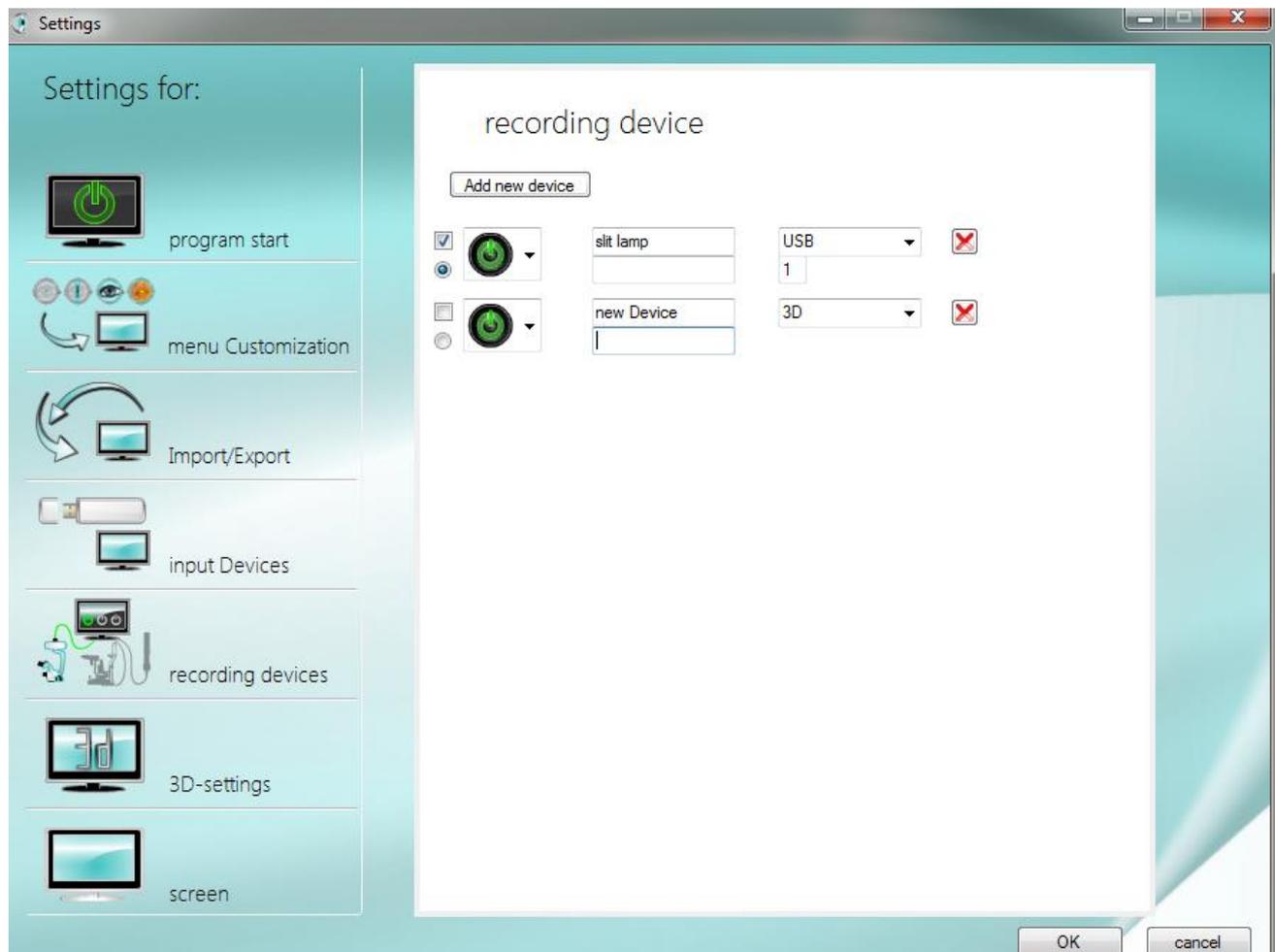
To identify the units, one of 5 graphics can be selected for the button in the control bar.

The unit designation entered in the upper text field appears as information when the mouse is moved over the button in the control bar. Extended information can be entered in the lower text field.

The software also requires information about the interface via which the unit is connected. This is possible via USB, FrameGrabber, network connection or as a 3D device. Depending on the technology, the number of the connection (USB), the FrameGrabber type or the ID of the device (network) must also be entered.

There is a separate selection option for connecting 3D cameras.

Click on the red cross to remove the device from the software. Confirm the warning afterwards.





5.6 3D settings

3D images are generated by two separate cameras positioned in the beam paths of the slit lamp microscope. It is therefore necessary to link and synchronise the images from the two cameras. The processing of 3D images can be done in two ways. The "Side by Side Mode" connects the recordings of the right and left camera purely on the hardware level. In "interlaced mode", the data from the two cameras are converted directly by software. This method is to be preferred. The display can only be done via a circularly polarised monitor in Full HD or 4K!

5.6.1.1 Image displacements Software

In both cases, image shifts may occur after installation, which can be corrected under the item "Shifting the cameras in relation to each other". The shifting takes place pixel by pixel. Attention: For technical reasons, the number of pixels in the up-down shift must always be divisible by two.

5.6.1.2 Camera IDs left/ right change

This correction is necessary if an inverted 3D effect should appear in the finished image. In this case, for example, you see close objects in the distance.

If the cameras have been swapped, the IDs of the cameras can be adjusted at this point in "check & review".

5.6.1.3 Control image

It is also possible to display the 3D recording without the 3D effect. This is particularly suitable, for example, to present the 3D recordings on a separate screen while controlling the 2D recording.

It should be noted here that the increased processing effort of the software can limit the performance.

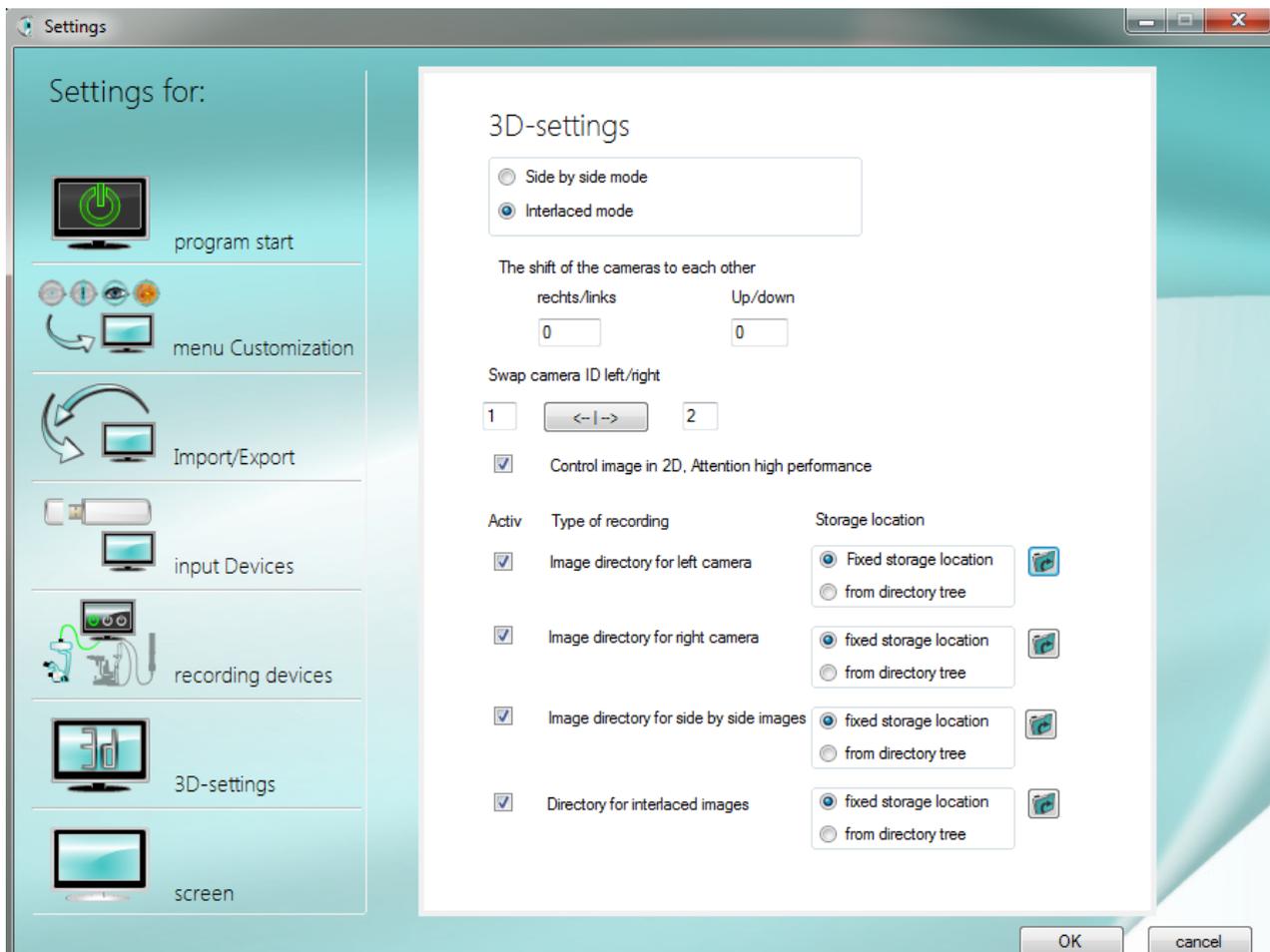
The administration and setup of the screens is done under the item Screen in the settings. For more information, see 5.7 Screen in this chapter.

5.6.1.4 Administration of image in 3D mode

Not only the processed images of the side by side mode or the interlaced mode can be saved, but also the separate recordings of the right or left camera.

By setting the marker on the left side, you determine which recording types you want to receive.

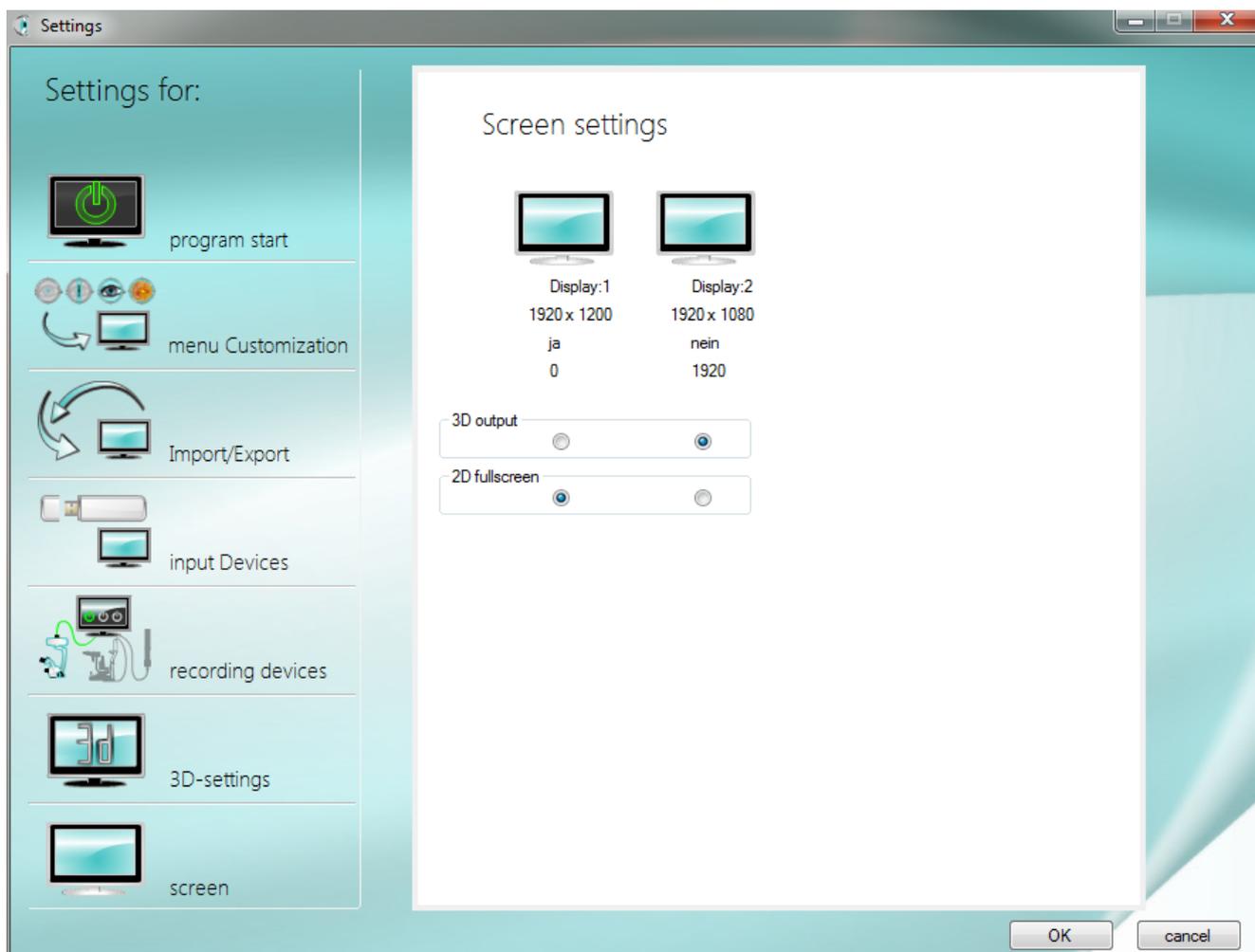
For each active recording type, also select whether you want to store it in a fixed storage location or manage it via the file manager (from the directory tree). Use the folder symbol on the right to determine the standard directory as a fixed storage location or the starting location from which you want to use the file manager. Playback of the 3D image is only possible in the "check & review" software or other suitable software.





5.7 Select screen for image display

You can use the selection fields to determine which camera image is to be displayed on which of your screens. To do this, first set up your devices with the help of the control panel of your computer. In order to distinguish the devices, some information such as resolution, main screen (yes/no) and the positioning of the displays in relation to each other is shown in "check & review". The resolution of the display can only be adjusted in the computer settings.



6 uEye Driver installation and „check & Review“ Software installation

IMPORTANT: Please start at first uEye driver installation and choose 32 bit or 64 bit version. After finish installation process connect USB digicam to correct USB port

UI-1240: USB 2.0 connection

UI-3280: USB 3.0 connection

UI-3880: USB 3.0 connection

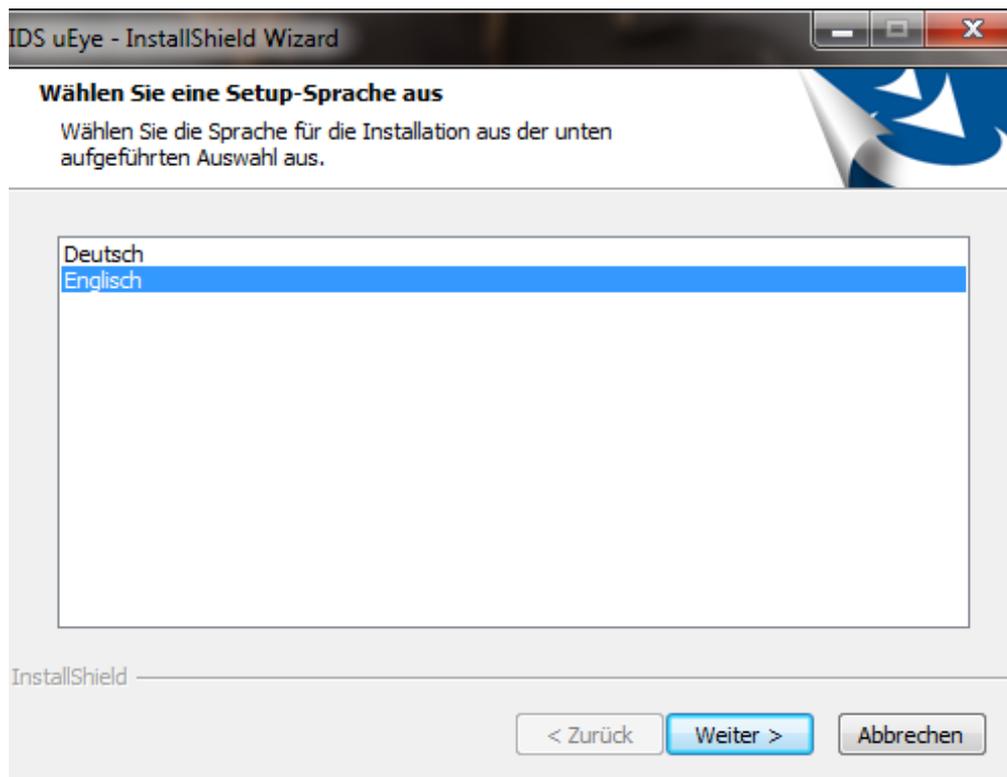
6.1 Installation of uEye digicam driver

Start the installation process by running one of the following applications

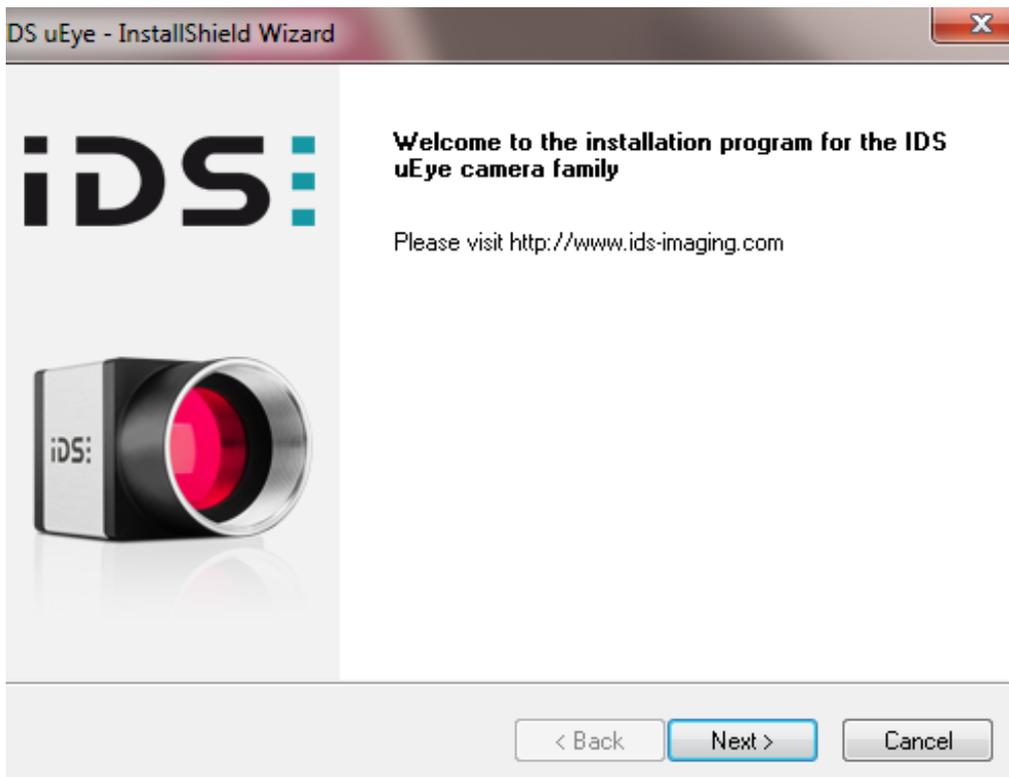
-> uEye32_XXXX oder uEye64_XXXX

Allow the installation at the firewall and/or the user account

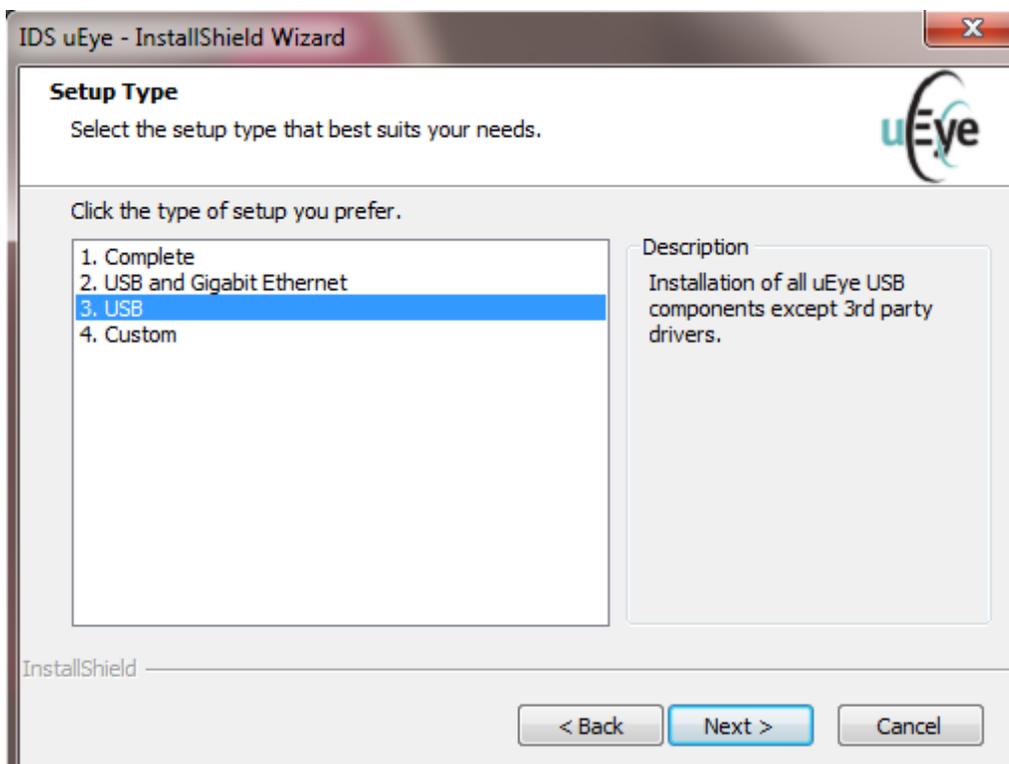
Choose your language for installation -> Next



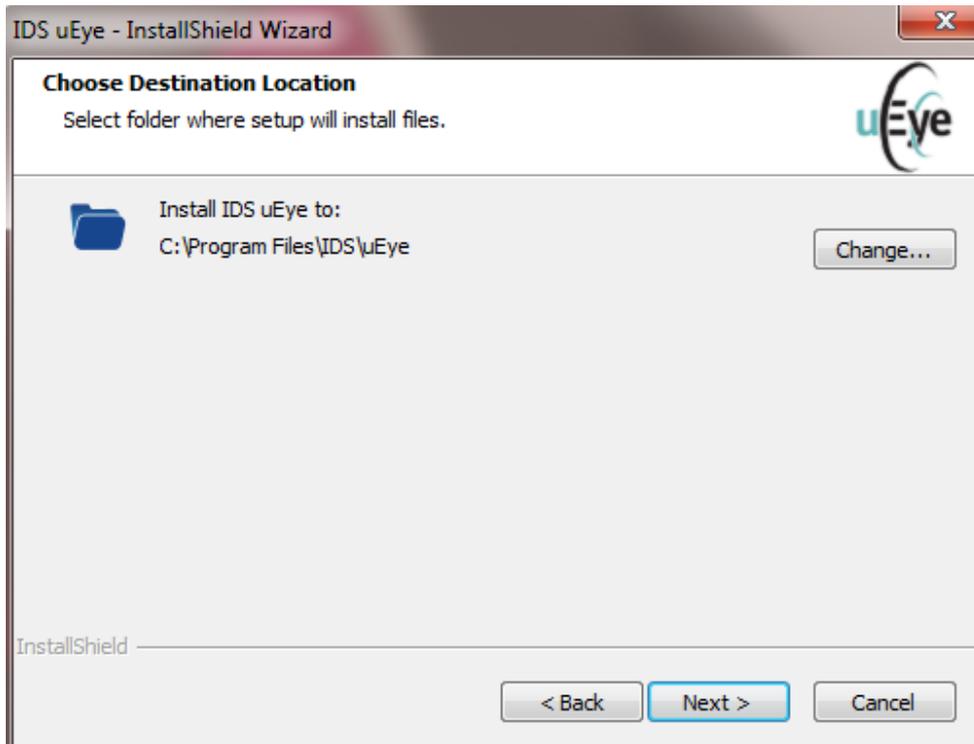
Welcome to uEYE installation programm -Pop-Up -> Next



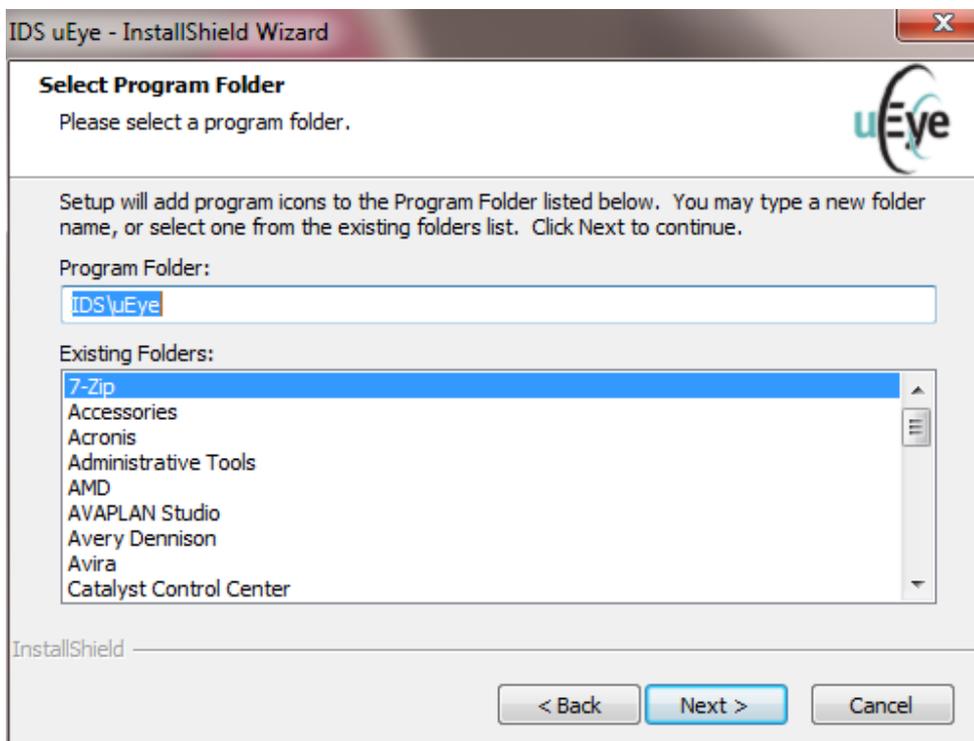
3. choose USB port, USB 3.0 blue marked, or SS super speed -> Next



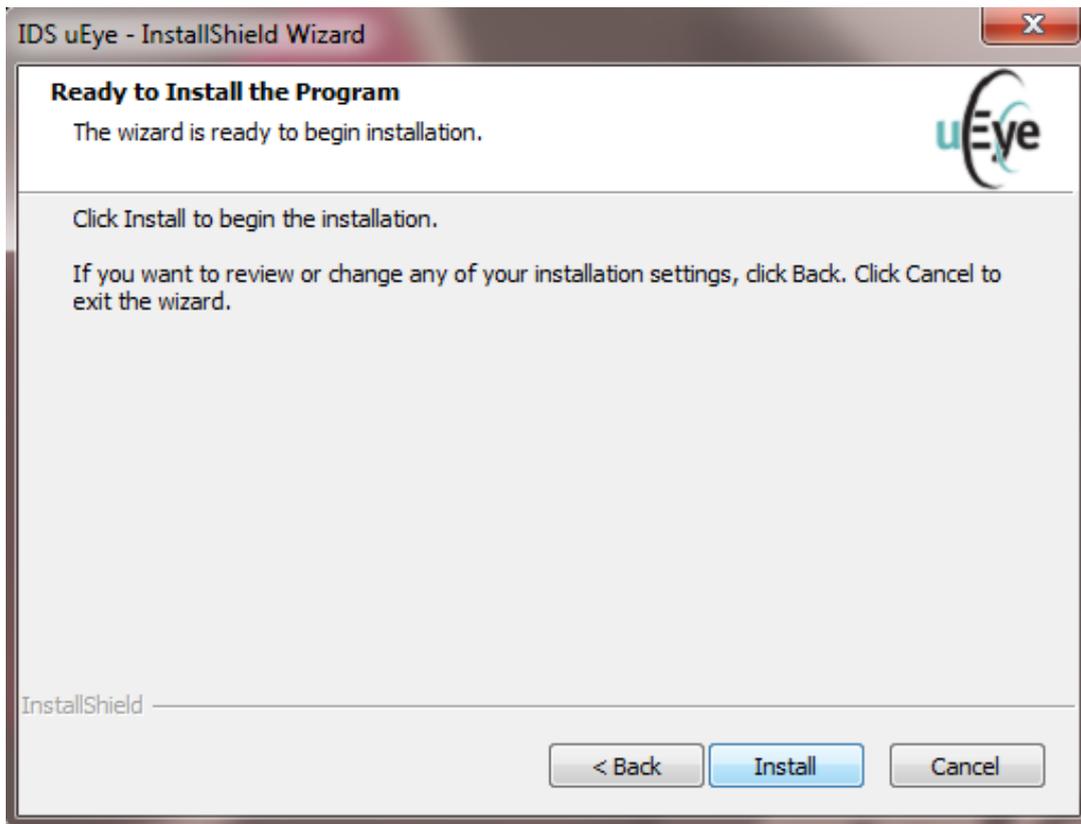
Keep storage folder -> Next



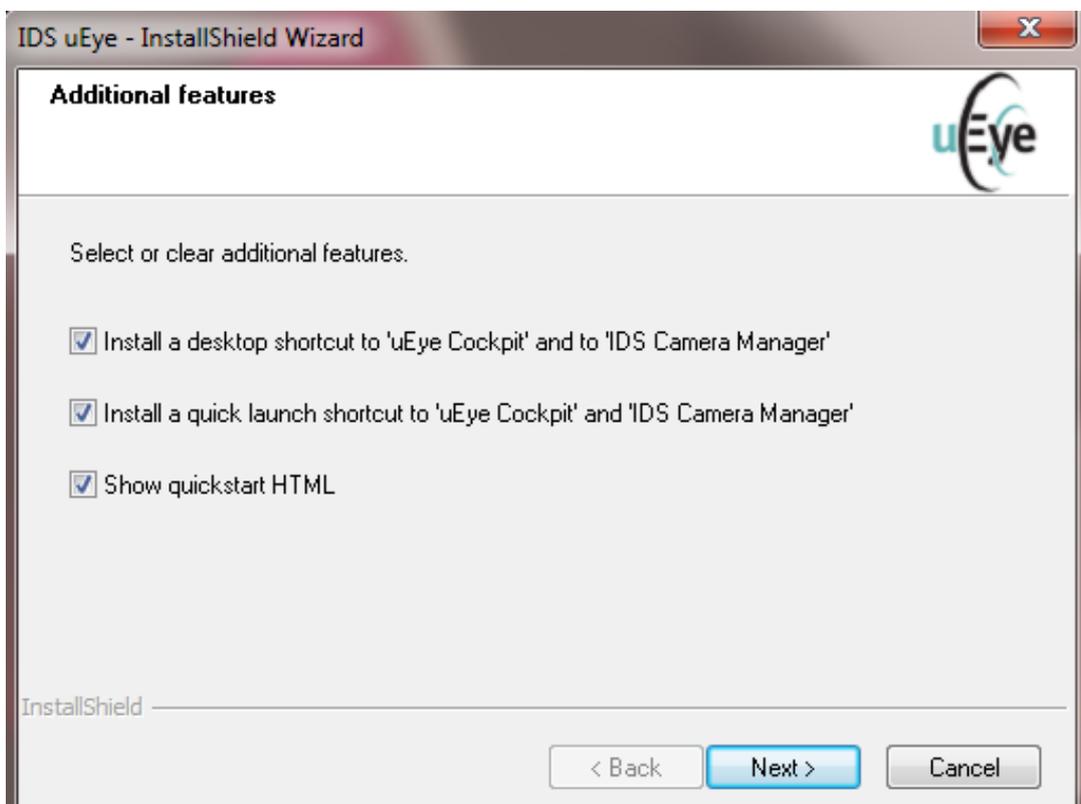
Choose programm folder -> Next



Please start installation process



Additional options: These actions are optional. Please decide for yourself by unchecking/checking the box if you want to create the links and access the information file. -> Next



„Idle State“ Information confirm with „OK“

Modern processors and operating systems are designed to be energy efficient. This can also have unwanted effects. In the modern Core i3/i5/i7 Intel processors, the USB bus is also optimized to operate in a power-saving, energy-efficient manner.

Complete the driver installation -> Finish.



Connect digicam at USB-port

-> Installation of drivers starts automaticly „uEye UI-x series“ und „uEye boot“

After finish installation camera system is working and is showing in USB device manager, UI device

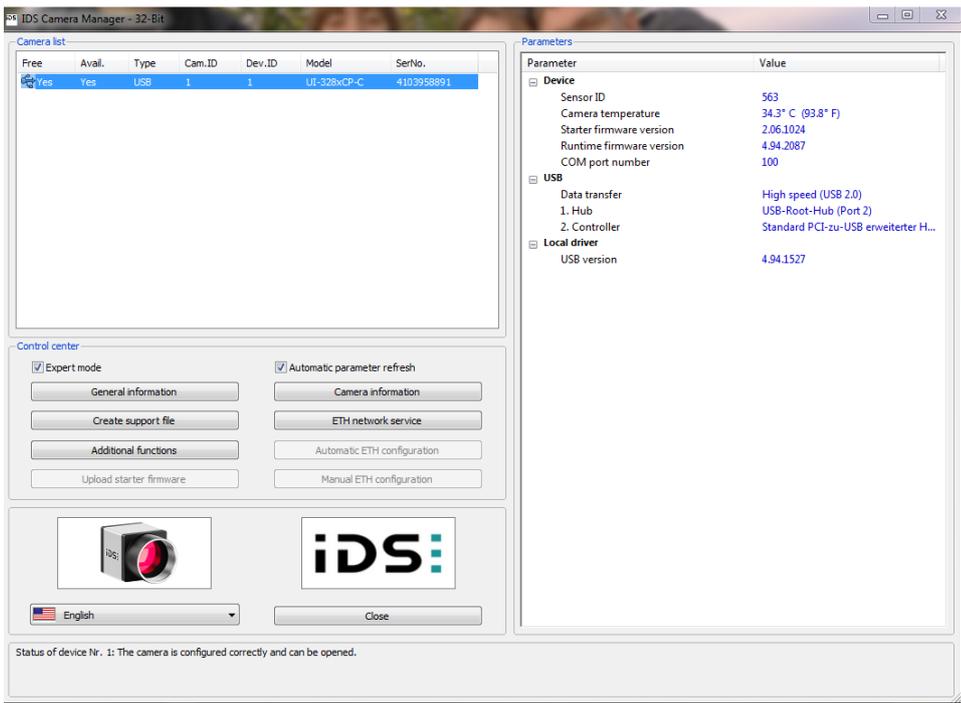
6.2 Idle State settings

If you receive a message during the installation of the camera driver that the setup has detected an Intel i5 or i7 processor, it is important to adjust the "Idle State" for the USB camera to function correctly.

As a result, uEye USB cameras cannot be operated using the maximum available frame rate in this mode. Use IDS Camera Manager's CPU Idle-States settings (accessible via 'Additional functions' button) to ensure the full performance of the USB bus in connection with a uEye industrial camera.

You can adjust the "Idle State" settings in the IDS Camera Manager.

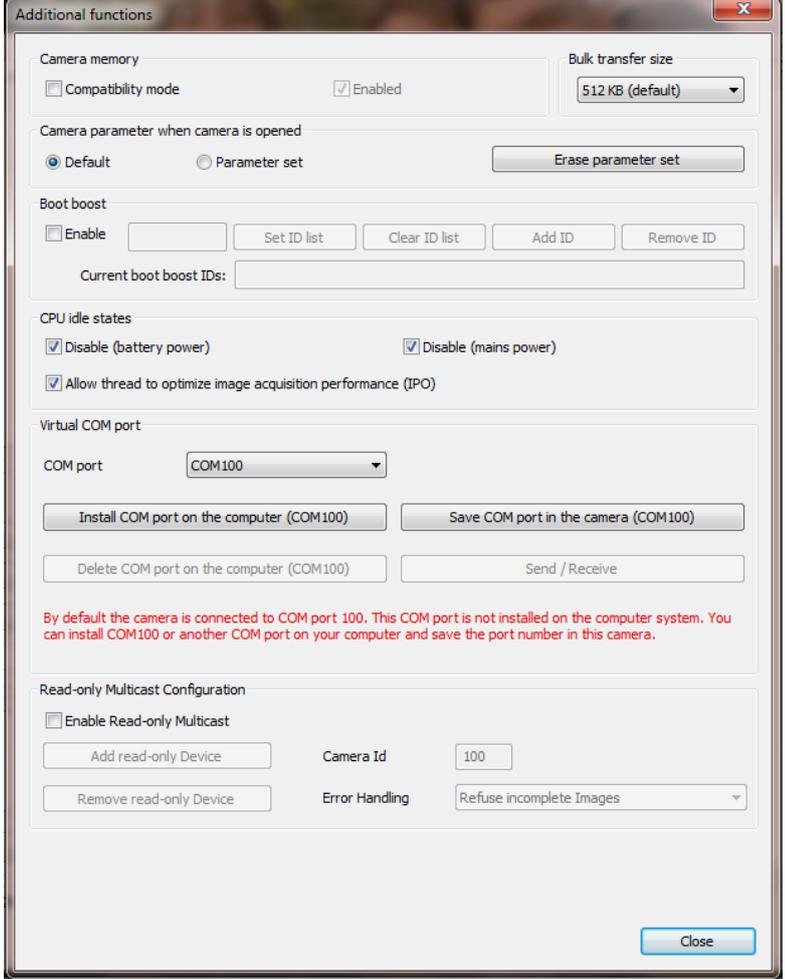
Direction for use - digital camera system „check & review“



Go to Additional functions and activate the 2 ticks at

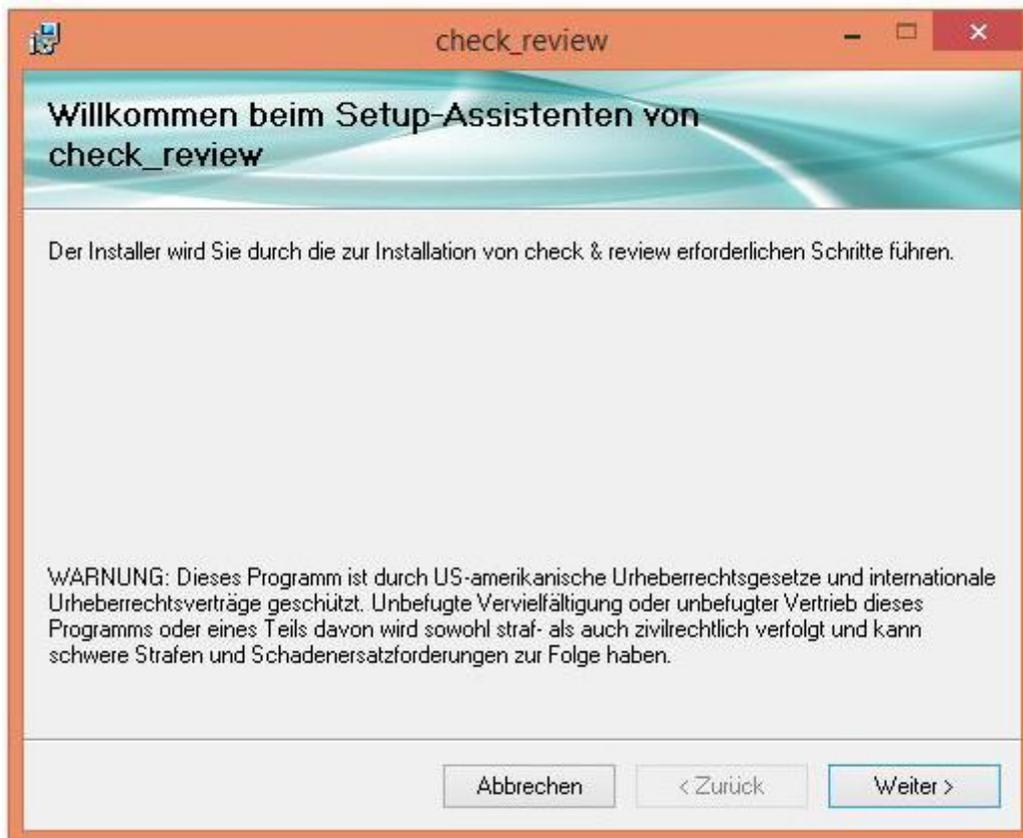
Disable (battery power)

Disable (mains power)

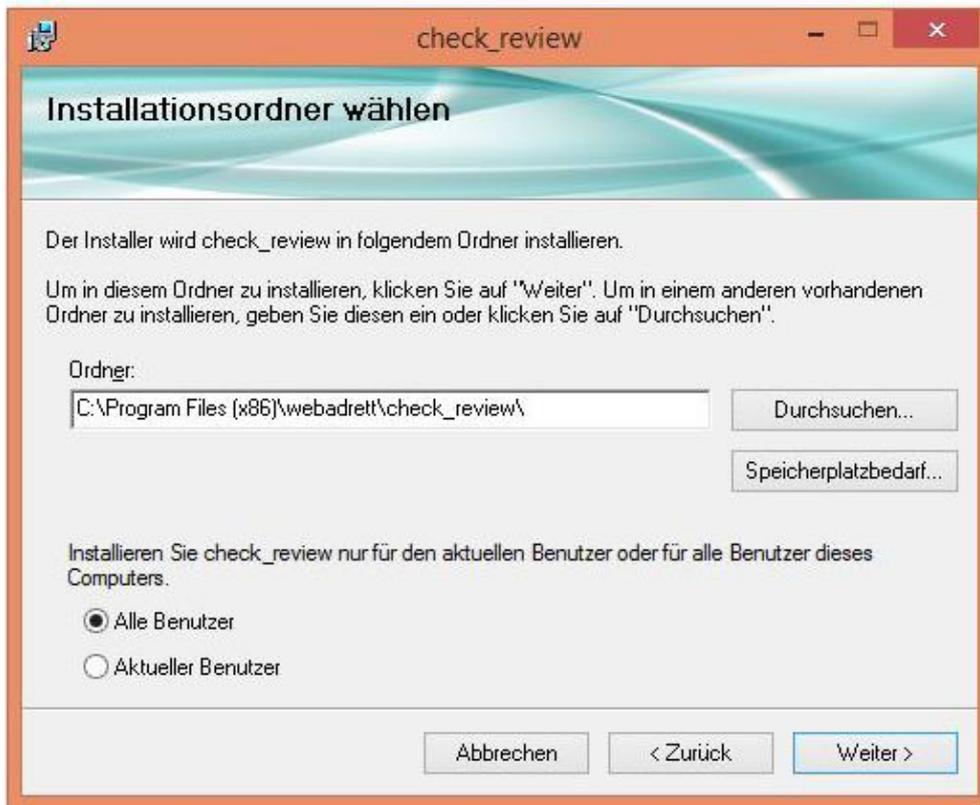


6.3 “check & review” Software installation

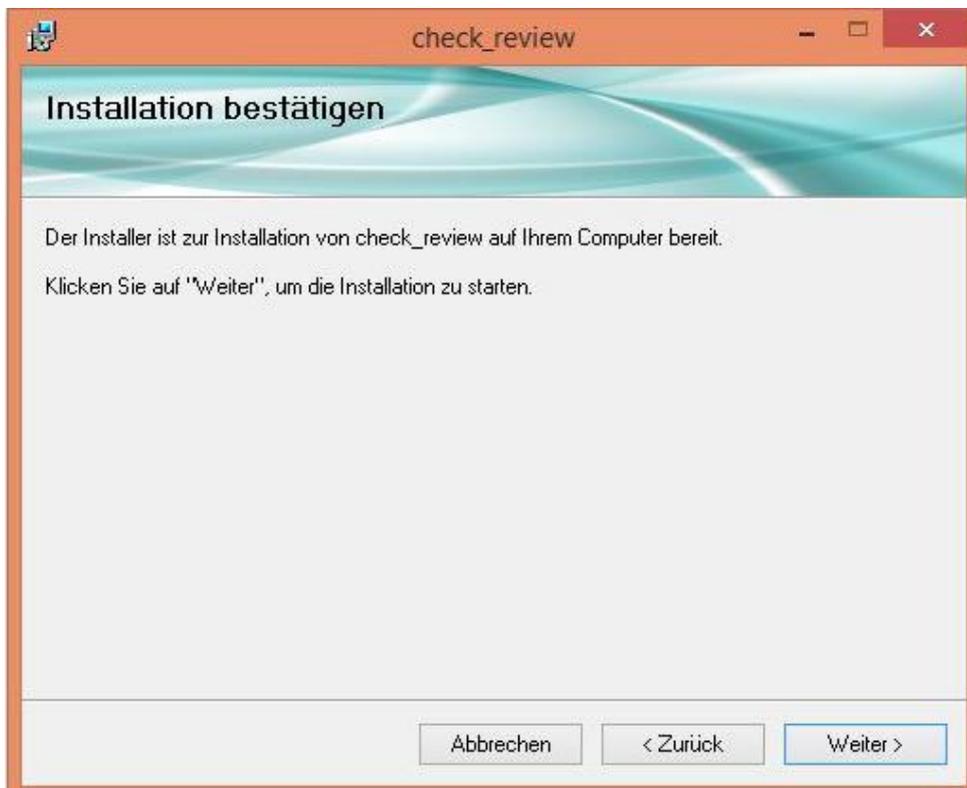
start setup file and confirm copyright declaration -> Next



Select installation directory and install for all users -> Next



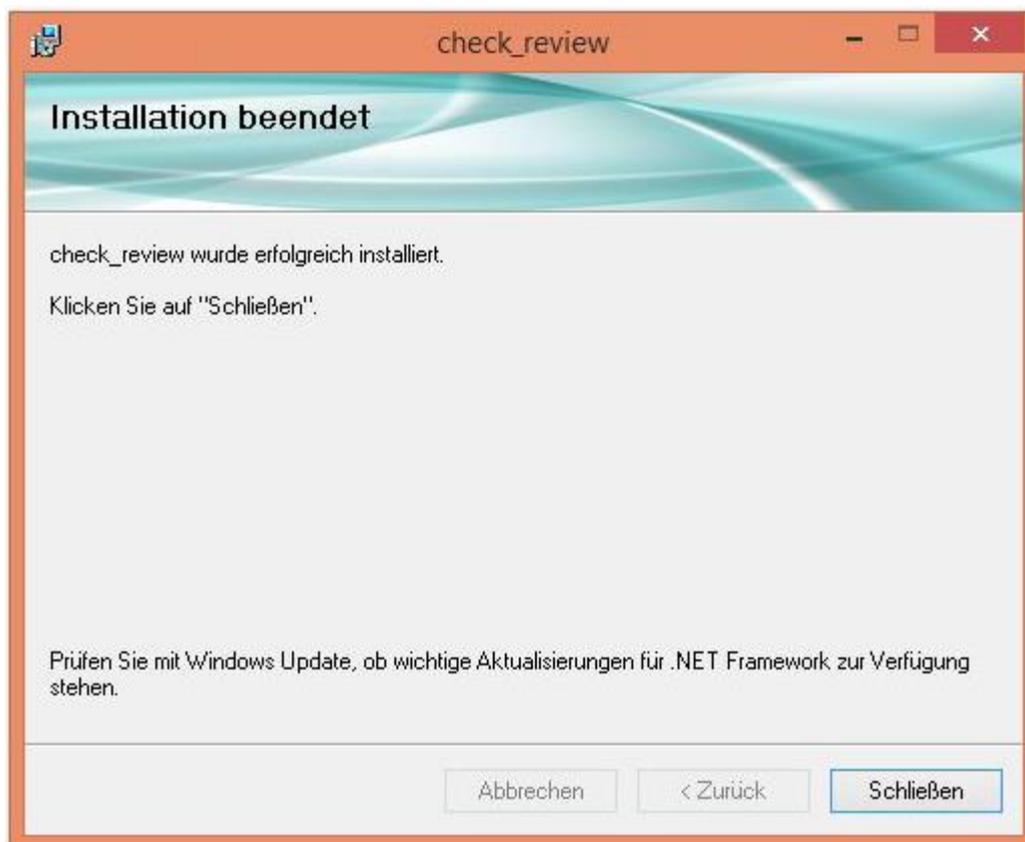
Installation starts -> Next



The setup checks whether the current version of Microsoft Net-Framework is installed and, if necessary, automatically installs it after

Allow the installation at the firewall and/or the user account

Finish Installation -> close



6.4 Foot switch

Connect foot switch to USB Port

After connection driver installation start automaticly

The set up takes place by means of FootSwitchV6.9.9.

HIDKEYBOARD

- 1 = Default
- Key = 1
- Group Key = Ctrl
- Get Defined Key = F7
- Save
- Exit

6.5 Hand switch

The set up takes place by means of FootSwitchV6.9.9.

Handle Keyboard

- Select 6-fold manual push-button
- Then on the individual fields 1-6
- Keyboard/mouse activate
- Set a check mark for Ctrl
- Select the corresponding F key from F1-F6

6.6 Slit lamp USB control

F20 / R+L

The set up takes place by means of FootSwitchV6.9.9.

FootSwitchV6.9.9.msi execute

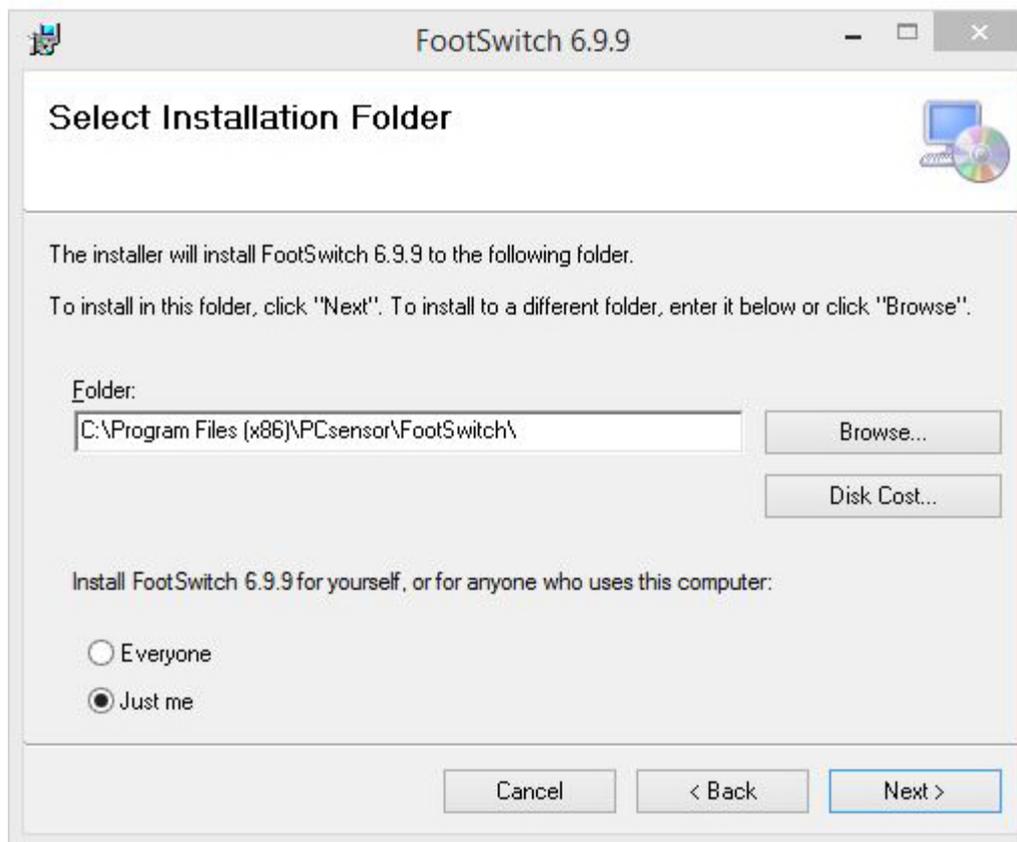
Confirmation of the copyright notice with „Next >“



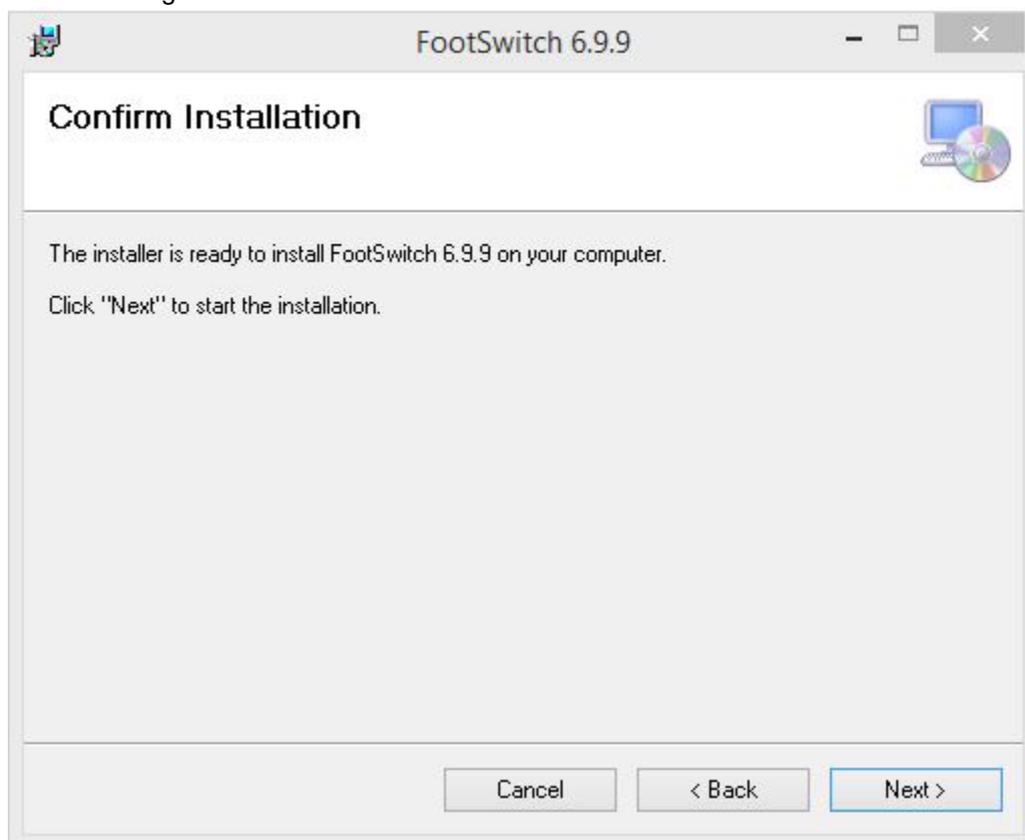
Keep installation directory

Installation for all users -> mark "Everyone"

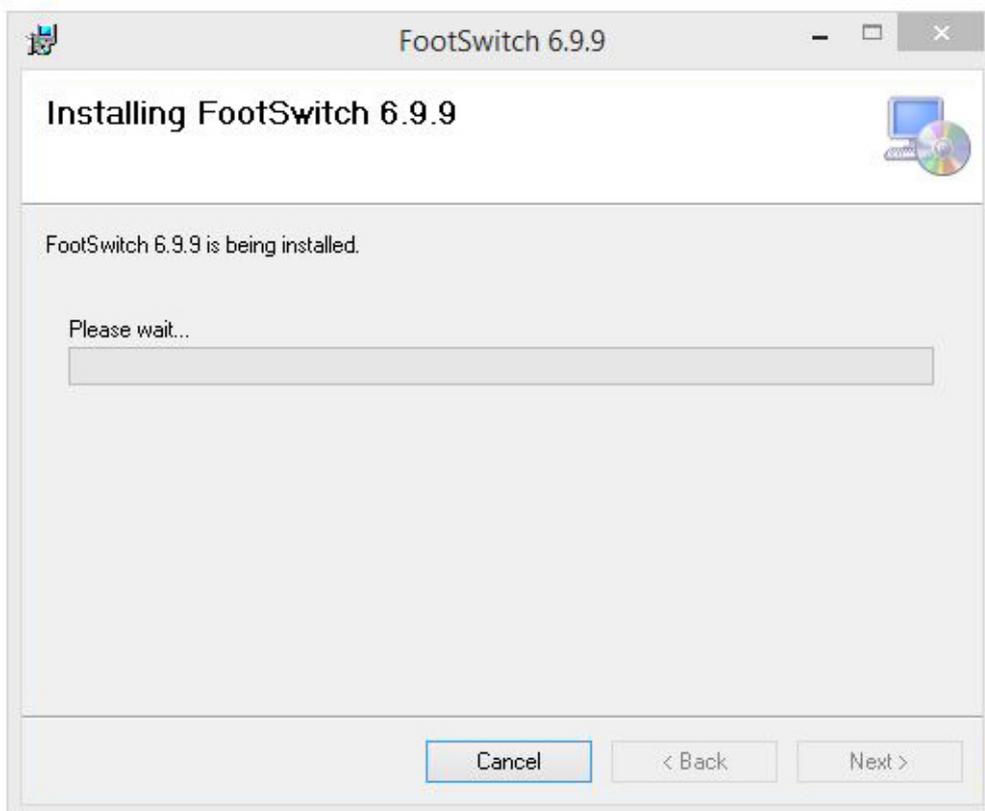
Confirm dialogue with "Next >".



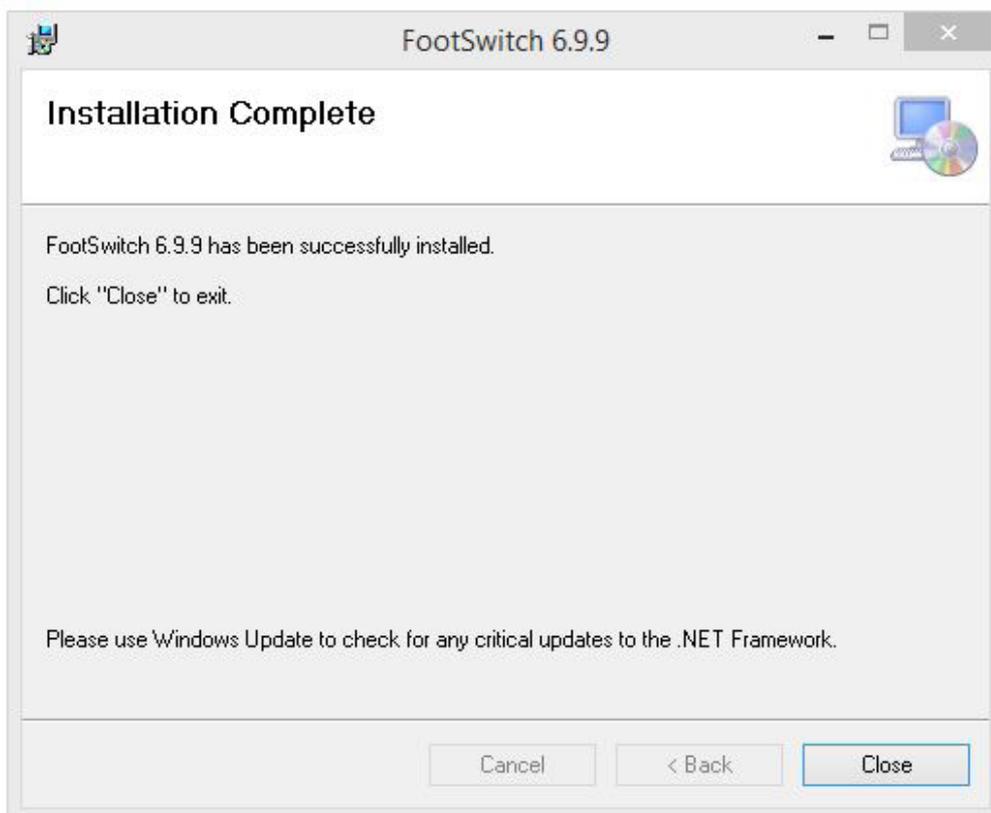
Confirm dialogue with "Next >"



Allow the installation at the firewall and wait for the process to complete.



The installation is now finished and the window can be closed.



7 Maintenance of the device

7.1 Safety check



The camera module is maintenance-free and designed for a service life of 6 years. The electrical safety of the unit may deteriorate due to ageing and wear.

As a minimum, the following safety checks should be carried out on the system by the manufacturer or qualified persons.

- Checking for the presence of the operating instructions
- Visual inspection of the unit and accessories for damage
- Legibility of the labels
- Functional test of the operating functions

8 Care of the device



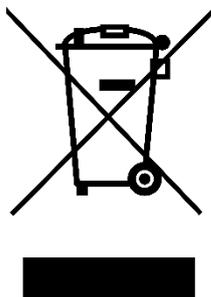
Recurring maintenance of the device is not provided for

8.1 Cleaning

- Clean the housing only with a slightly damp cloth.
- Do not use solvents, corrosive agents or other alcohols.
- Clean only the outer surfaces of the instrument.
- Disinfection of the instrument is not necessary.

9 Environment protection measures

9.1 Disposal



This symbol means that the electrical or electronic equipment must not be disposed of as normal household waste.

This symbol is only valid for EU member states.

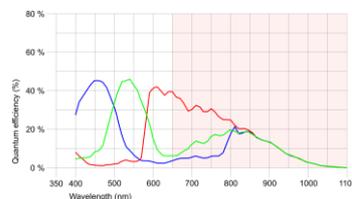
To avoid possible negative effects on the environment and possibly on human health, this appliance must be disposed of (i) in EU Member States in accordance with the EU WEEE Directive and (ii) in all other countries in accordance with local regulations for the disposal and recycling of hazardous waste.

WEEE-Reg.-Nr. DE 67707987

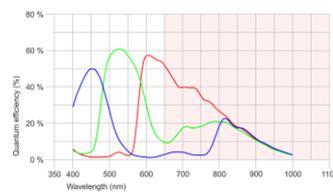
10 Device data

10.1 Technical data

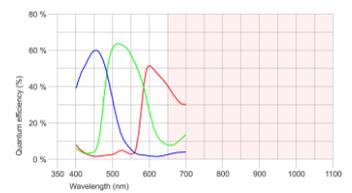
Type	USB 2.0 - 2D	USB 3.0 - 2D	USB 3.0 - 2D
Sensor	UI-1240	UI-3280	UI-3880
Connection	USB 2.0	USB 3.0	USB 3.0
Resolution	1,31Mpix 1280 x 1024	5,04Mpix 2456 x 2054	6,41Mpix 3088 x 2076
Optical area	6,784 x 5,427mm	8,473 x 7,086mm	7,410 x 4,980mm
Pixel size	5,3µm	3,45µm	2,40µm
Frame rate	Max. 24 fps	Max. 36 fps	Max. 58 fps
Image format	jpg	jpg	jpg
Video format	avi (max. 4GB)	avi (max. 4GB)	avi (max. 4GB)
Sensortyp	CMOS	CMOS	CMOS
Optical class	1/ 1,8“	2/ 3“	1/ 8“
Shutter	Global/ Rolling	Global	Global



Quelle: ids-imaging.de



Quelle: ids-imaging.de



Quelle: ids-imaging.de



Wagner & Guder Medical GmbH

OT Hermstedt
Hermstedter Straße 57,
99518 Bad Sulza, Germany

10.2 System requirements, Hardware (optimum Desk-PC or All IN ONE PC)

	Minimal	Required
Clock frequency (CPU)	4 x 3,0GHz (z.B. Core i5-4430)	4 x 3,0Ghz (z.B. Core i5, i7)
Core	4	4
Threads	4	6
memory (RAM)	8GB	8GB
USB- Hostcontroller	USB 3.0 (5Gbps)	USB 3.0 (5Gbps) 900mA ext. Voltage
Operating system/	Windows 10/ 64bit	Windows 10/ 64bit
Microsoft Frame- Network	4.8	4.8
Graphic card	AGP-/PCIe-Grafikkarte	AGP-/PCIe-Grafikkarte

11 Environmental conditions

1. For operation in the intended use

Feature	Permitted value range
Temperature	+5°C ... +40°C
Relative humidity	30% ... 75% (no condensation)
Insert height	Up to 2000 altitude metres

2. For transportation and storage (in transport packaging)

Feature	Permitted value range
Temperature	-40°C ... +70°C
Relative humidity	10% ... 95%
Air pressure	500hPa ... 1060hPa

3. Lagerbedingungen

Feature	Permitted value range
Temperature	-10°C ... +55°C
Relative humidity	10% ... 95% (no condensation)
Air pressure	700hPa ... 1060hPa

12 Technical fault on the system

12.1 Solve technical malfunction

If an error occurs, put the system out of operation and use the following troubleshooting list to correct the error. If this does not solve the problem, mark the unit as non-functional and contact your support.

For your Safety

Malfunction	Possible cause	correction	Reference
No function	Power failure	Notify electrician	page 8
	PC not switched ON	Switch ON	page 8
	Virus protection	Define exception	Software manual
	Broken cable	Check USB connection cable for damage, notify support.	page 9
Enter a valid licence	USB connection failed	Search for the USB device in the Windows device manager and activate it if necessary.	page 8 (WIN: device manager)
		Connect USB cable IN- and OUT	
	Windows Update	Search for the device in the Windows device manager and activate it if necessary.	-
		Connect USB cable IN- and OUT	
Picture jerks or freezes	Transfer rate too low	Check USB interface	page 9
	wrong camera parameters loaded	Check loaded settings	page 18
	Wrong camera parameters loaded	Check loaded settings	page 18
Images not in memory folder	Choose memory folder	Check memory folder	page 19
Note on memory folder	Memory folder deleted or moved	Choose new memory folder	page 19

13 Warranty and warranty conditions

If defects due to material or processing faults occur within 24 months of purchase, we guarantee the fastest possible repair free of charge or, at our discretion, a free exchange.

Requirements for a warranty claim:

- The invoice with date of purchase is available
- The unit has been properly installed
- Repairs were carried out exclusively by the customer service or by persons authorised by us

Warranty services do not cause an extension of the warranty periods, nor do they set a new warranty period in motion. Consumables or normal signs of use are not subject to warranty claims.

The General Terms and Conditions of the
Fa. Wagner & Guder Medical GmbH

14 Purchase data

14.1 Spare parts

descripton	order number
USB 3.0 connection cable, 0,9m	2017-103
USB 3.0 connection cable, 1,8m	2017-107
USB 3.0 Extension active, 5m	2017-101
USB 2.0 connection cable, 5m	UI-USB2.0_OT
USB 2.0 Extension active, 5m	2017-110
UI-1240SE, 1,3Mpix, USB 2.0	UI-1240SE-C-HQ
UI-3280SE, 5,0Mpix, USB 3.0	UI-3280CP-C-HQ
USB Foot switch	DC-F001
Software check&review	DC-CR-SO
Direction for use	www.wagner-guder-medical.de