

### 3.4.5 Overview of microscope

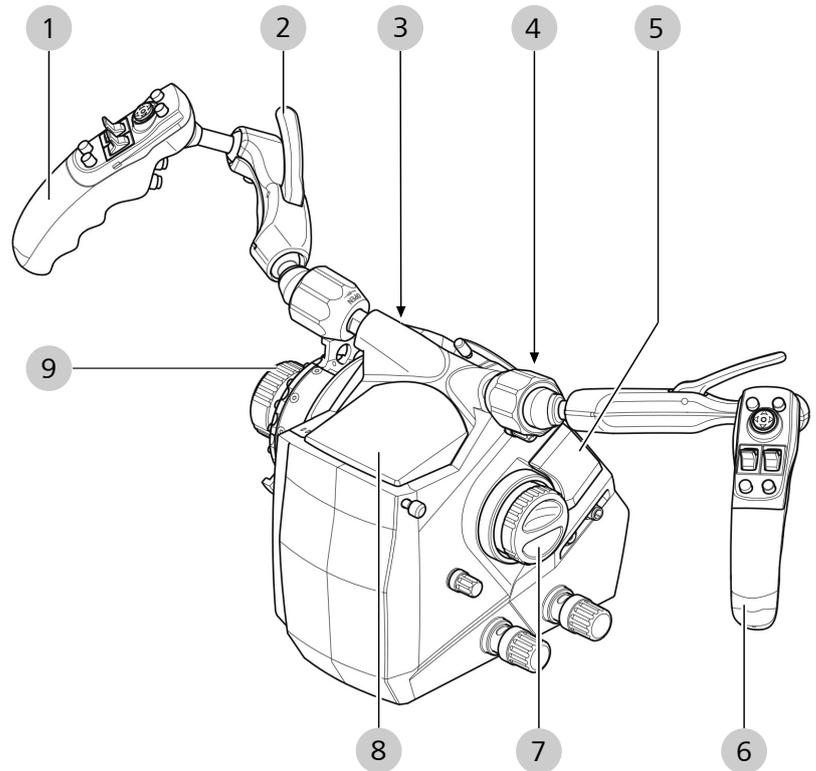


Figure 13: Overview of microscope

|   |   |   |  |
|---|---|---|--|
| 1 | Left handgrip                               | 2 | Hand grip clamping                                 |
| 3 | Microphone                                  | 4 | Port for assistant tube (option)                   |
| 5 | Port for navigation system antenna (option) | 6 | Right handgrip                                     |
| 7 | Port for co-observer right (option)         | 8 | Microscope cover/ port for surgeon's tube (option) |
| 9 | Port for co-observer left (option)          |   |  |

### 3.4.5.1 Hybrid visualization configuration options (option)

The information in this paragraph only applies to the optional configuration of the microscope as a system for hybrid (optical-digital) visualization.

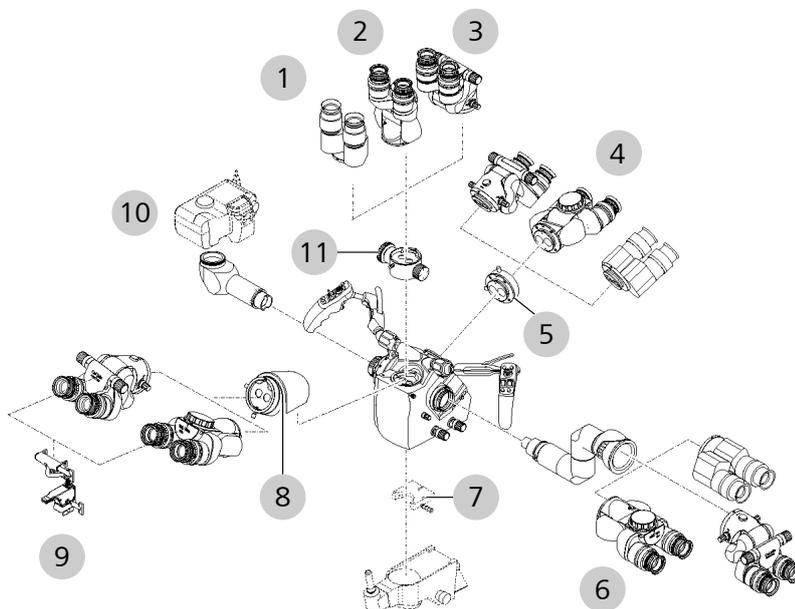


Figure 14: Configuration options

|    |   |    |   |
|----|---|----|---|
| 1  | Straight binocular tube                             | 2  | Tiltable binocular tube                                 |
| 3  | Folding binocular tube                              | 4  | Tubes for face-to-face viewing (items 1, 2, 3)          |
| 5  | Rotary adapter                                      | 6  | Stereo co-observation module with tubes (items 1, 2, 3) |
| 7  | Adapter plate for connecting laser micromanipulator | 8  | Angle optics*   |
| 9  | Mouth switch  | 10 | Photo adapter for DSLR                                  |
| 11 | Magnification changer, 3-position*                  |    |   |

\* When assembling the microscope, be careful not to mount the 3-position magnification changer (item 12) and the angle optics (item 9) on the microscope body at the same time. In this case, the microscope body would be too heavy for the autobalance function.

### 3.4.5.2 Overview of binocular tubes

The information in this paragraph only applies to the optional configuration of the microscope as a system for hybrid (optical-digital) visualization.

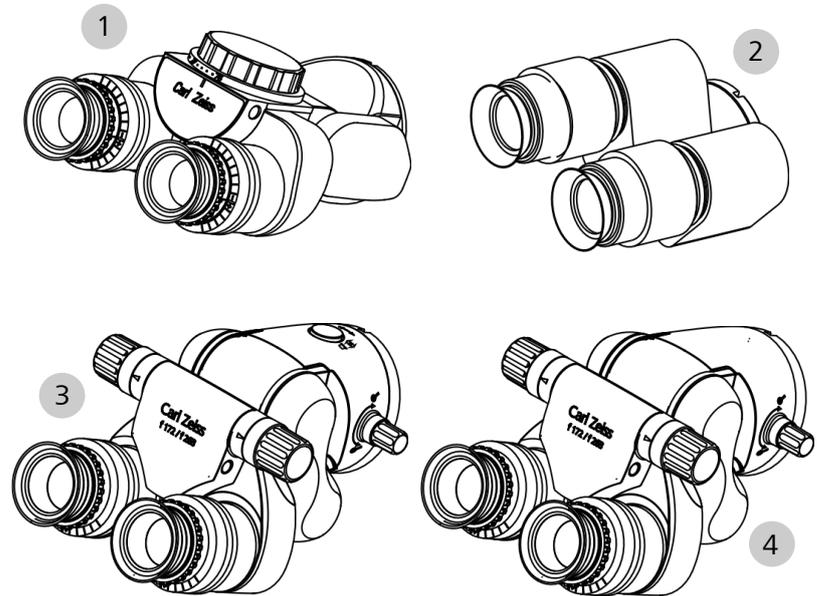


Figure 15: binocular tubes

|   |  |   |   |
|---|--|---|---|
| 1 | 180° tiltable tube,<br>focal length $f=170$ mm | 2 | Straight tube,<br>focal length $f=170$ mm                         |
| 3 | Foldable tube,<br>focal length $f=170/260$ mm  | 4 | Foldable tube for mouth<br>switch,<br>focal length $f=170/260$ mm |

### 3.4.5.3 Widefield eyepiece (10x or 12.5x)

The information in this paragraph only applies to the optional configuration of the microscope as a system for hybrid (optical-digital) visualization.

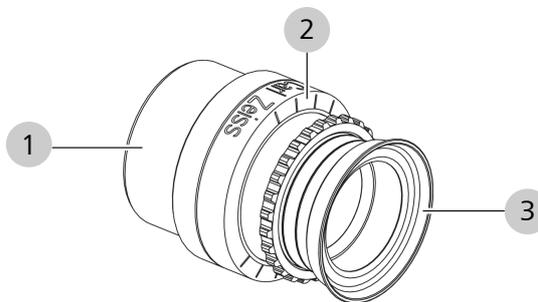


Figure 16: Widefield eyepiece (10x or 12.5x)

|   |                   |   |               |
|---|-------------------|---|---------------|
| 1 | Magnetic coupling | 2 | Diopter scale |
| 3 | Eyecup            |   |               |

### 3.4.5.4 Stereo co-observation module

The information in this paragraph only applies to the optional configuration of the microscope as a system for hybrid (optical-digital) visualization.

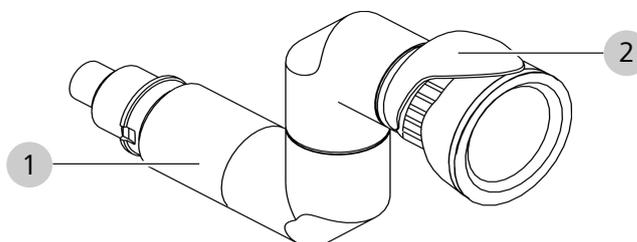


Figure 17: Stereo co-observation module

|   |   |
|---|---|
| 1 | Stereo coobservation module with 2 pivot joints |
| 2 | Locking lever                                   |

### 3.4.5.5 Digiskop cover

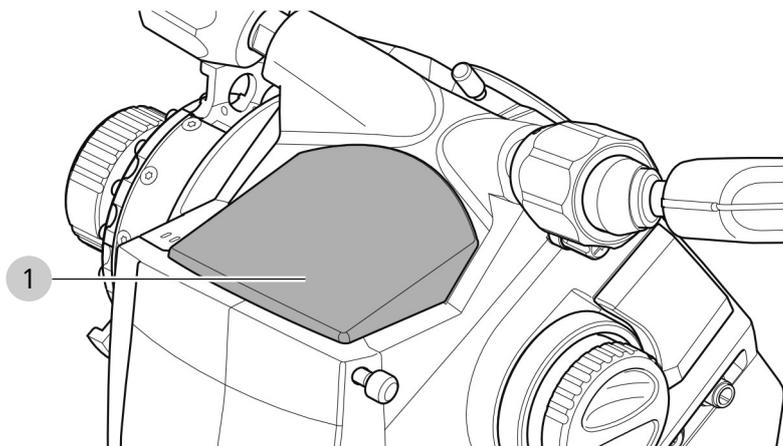


Figure 18: Digiskop cover

|   |                              |  |  |
|---|------------------------------|--|--|
| 1 | Cover for main observer tube |  |  |
|---|------------------------------|--|--|

### 3.4.5.6 Additional Light

Schematic of shadow adjustment via additional illumination  
 The additional illumination can be activated via the touchscreen.

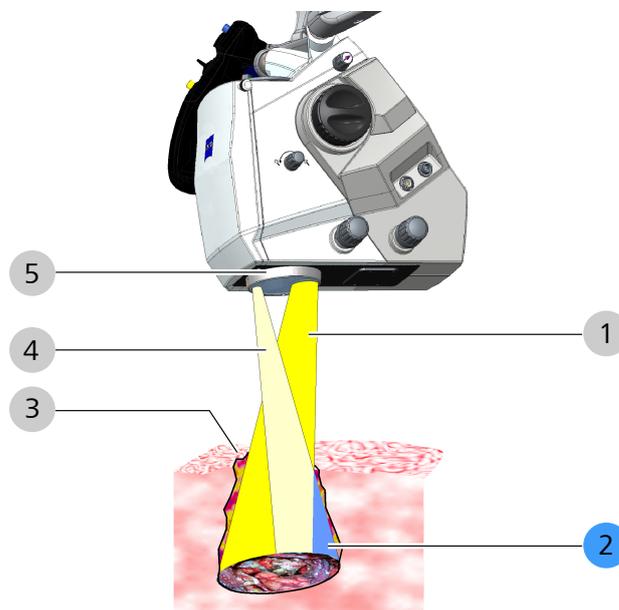


Figure 19: Additional Light

|   |                                       |   |  |
|---|---------------------------------------|---|--|
| 1 | Main illumination                     | 2 | Shaded area of main illumination         |
| 3 | Surgical field                        | 4 | Special illumination to brighten shadows |
| 5 | Objective lens of surgical microscope |   |  |

## 3.5 Control elements and displays

### 3.5.1 Screen keyboard



Figure 20: Screen keyboard key assignment

| Item | Name       | Explanation   |
|------|------------|---|
| 1    | Shift key  | Switches between upper-case and lower-case letters. |
| 2    | Space key  | -   |
| 3    | Delete key | Deletes the character to the left of the cursor.    |
| 4    | Close      | Ends the input and closes the screen keyboard.      |

### 3.5.2 Display: Editing

A rotating editing symbol appears during editing. A load symbol is displayed while larger amounts of data are being saved, imported or exported.

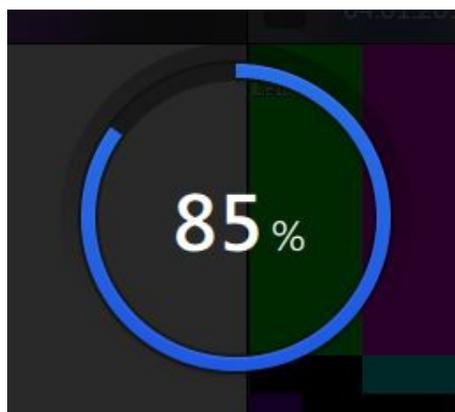


Figure 21: Progress display

During longer editing periods, the percentage display flashes inside the circle symbol.

### 3.5.3 Online help

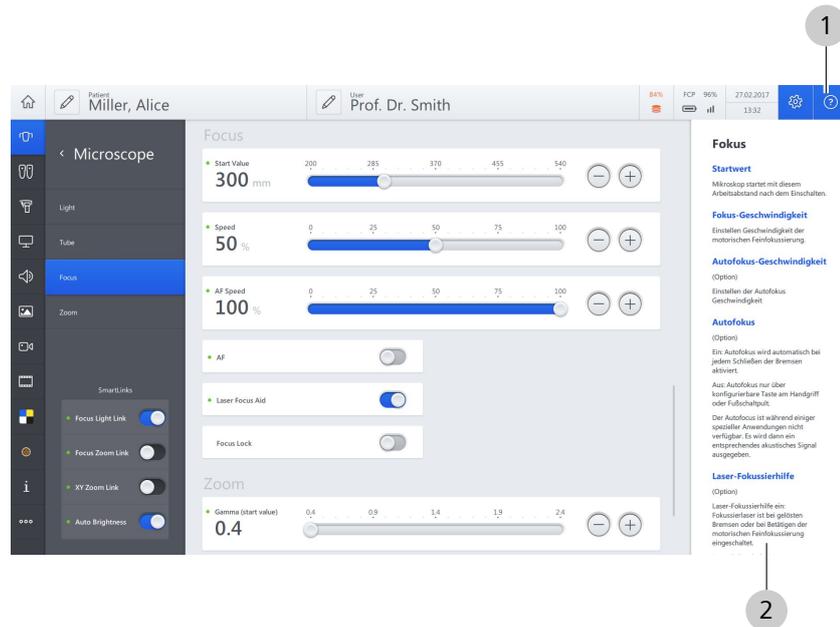


Figure 22: Call-up and display of online help

| Item | Symbol | Name                 | Explanation   |
|------|--------|----------------------|---|
| 1    | ?      | Button [Online help] | Tapping on the ? button opens the Help window on the right side.          |
| 2    |        | Help menu            | If the entire help text is not displayed, scroll down on the touchscreen. |

The content of the Help window adapts to the respective opened menu. To close the Help window, tap on the [Online help] button again.

### 3.5.4 Error messages on the monitor

Information on a problem occurring during operation is detected automatically and displayed as an error message. The device saves this error message in a log file which can be exported (Settings - Extras - Export Log Files).

#### NOTE

#### Error messages on the monitor!

If a malfunction occurs during operation, a corresponding error message is displayed on the monitor.

- ▶ If an error occurs that you cannot correct with the aid of the chapter "What to do in the event of malfunctions", label the device as out of order and contact ZEISS Service.



Figure 23: Error message on the monitor

#### Prerequisite

- Error message appears on the monitor

#### Action

1. Carefully read through the error message and follow the instructions displayed therein.
2. Acknowledge the error message either directly on the monitor or by pressing the center joystick button on the **left** handgrip.
3. If the error message appears on the monitor again and the problem persists, export the log file and contact your responsible ZEISS Service organization.

### 3.5.5 Controls on the microscope

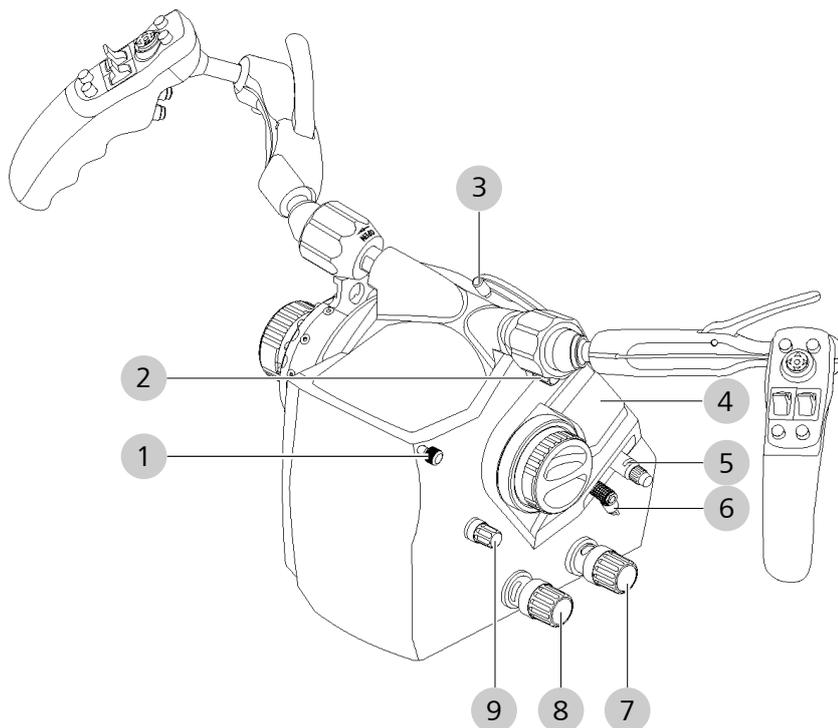


Figure 24: Controls on the microscope

| Item | Symbol  | Name                                    | Explanation   |
|------|---|---|---|
| 1    |   | Fastening screw                         | Attach the assembly: Tighten the fastening screw hand-tight.  |
| 2    |  | Adjust pivoting mirror                  | Image outputs: Face-to-face<br>image outputs: Right and left. |
| 3    |   | Fastening screw                         | Attach the assembly: Tighten the fastening screw hand-tight.  |
| 4    |   | Socket (under cover)                    | Antenna connector (external navigation system accessory).     |
| 5    |   | Camera release socket                   | For shutter release of an external camera.                    |
| 6    |   | Mouth switch socket                     | For connecting the optional mouth switch.                     |
| 7    |  | Adjust luminous field diameter manually | Turn CCW: Larger<br>Turn CW: Smaller                          |
| 8    |  | Adjust focus/working distance manually  | Turn CCW: Larger<br>Turn CW: Smaller                          |

| Item | Symbol  | Name                               | Explanation                          |
|------|---|------------------------------------|--------------------------------------|
| 9    |  | Adjust zoom magnification manually | Turn CCW: Smaller<br>Turn CW: Larger |

### 3.5.6 Controls of binocular tubes

The information in this paragraph only applies to the optional configuration of the microscope as a system for hybrid (optical-digital) visualization.

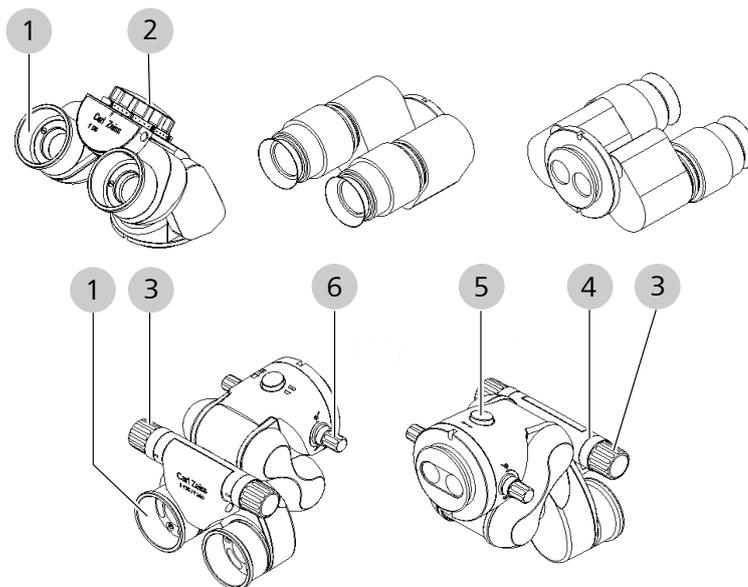
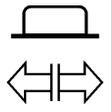


Figure 25: Controls of binocular tubes

| Pos. | Symbol  | Name   | Explanation  |
|------|---|--|--|
| 1    |   | Eyepiece mount   | Insert widefield eyepieces into eyepiece mounting as far as they will go.      |
| 2    |   | Adjustment wheel for eye distance                              | Setting the eye distance (interpupillary distance)                             |
| 3    |   | Adjustment knobs for eye distance                              | Setting the eye distance (interpupillary distance)                             |
| 4    |   | Eye distance scale   | Display of eye distance (interpupillary distance)                              |
| 5    |  | Locking device for rotation function                           | After pressing the locking button, you can turn the tube to the left or right. |
| 6    |  | Adjustment wheel for integrated magnification changer (PROMAG) | Changing to a higher magnification.  |

### 3.5.7 Controls for widefield eyepieces

The information in this paragraph only applies to the optional configuration of the microscope as a system for hybrid (optical-digital) visualization.

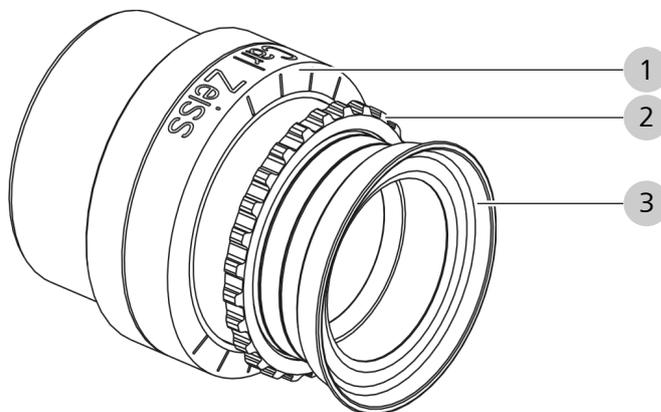


Figure 26: Control elements on the widefield eyepiece

| Pos. | Name                 | Explanation   |
|------|----------------------|---|
| 1    | Diopter scale        | Adjustable from -8 dpt. to +5 dpt.                        |
| 2    | Diopter setting ring | For adjusting the diopter setting.                        |
| 3    | Adjustable eyecup    | Can be unscrewed to prevent the entry of scattered light. |

### 3.5.8 Controls of handgrips

Both hand grips are of the same design. You can configure the left and the right hand grip with the same functions or with different functions.

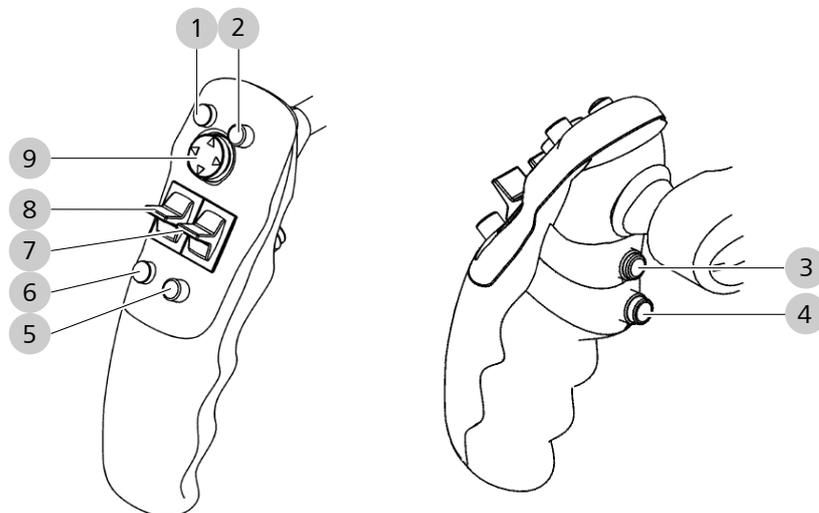
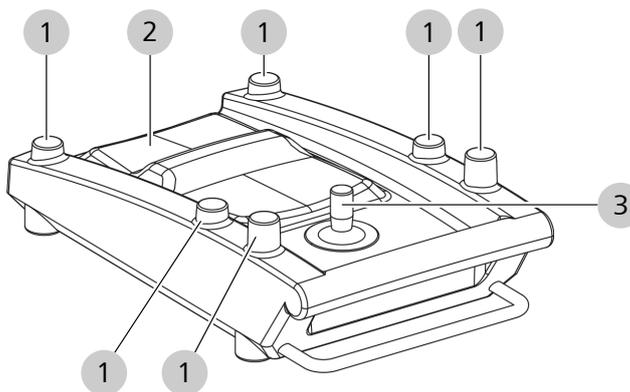


Figure 27: Button assignment of hand grips

| Pos. | Name                               | Explanation  |
|------|------------------------------------|--|
| 1    | Button <b>A</b> , configurable     | Factory setting: trigger photo   |
| 2    | Button <b>B</b> , configurable     | Factory setting: autofocus   |
| 3    | Brake release button ( <b>SB</b> ) | Brake release button for selected rotary axes and PointLock (factory setting: PointLock)   |
| 4    | Brake release button ( <b>AB</b> ) | Brake release button for all stand and microscope axes   |
| 5    | Button <b>D</b> , configurable     | Factory setting: increase illumination intensity<br>Depending on the current operating mode/activated option, the yellow buttons of the right hand grip may have certain special functions (see separate description in the corresponding chapters). |
| 6    | Button <b>C</b> , configurable     | Factory setting: reduce illumination intensity<br>Depending on the current operating mode/activated option, the yellow buttons of the right hand grip may have certain special functions (see separate description in the corresponding chapters).   |
| 7    | Rocker switch <b>G / H</b>         | Zoom + / Zoom - (factory setting)  |
| 8    | Rocker switch <b>E / F</b>         | Focus + / Focus - (factory setting)  |

| Pos. | Name     | Explanation   |
|------|----------|---|
| 9    | Joystick | Motorized XY fine adjustment<br>Depending on the current operating mode, the joystick of the right hand grip may have certain special functions (see separate description in the corresponding chapters). Messages displayed on the touchscreen can be acknowledged by pressing the center of the joystick button on the <b>left</b> hand grip. |

### 3.5.9 14-function foot control panel



| Pos. | Name            | Explanation  |
|------|-----------------|--|
| 1    | Buttons         | Control device functions (freely configurable).  |
| 2    | Rocker switches | Control zoom and focus (horizontal and vertical configuration possible).   |
| 3    | Joystick        | Motorized XY fine adjustment (optional) in eight directions:<br> |

## 3.6 Software description

### 3.6.1 General

All menus shown in these Instructions for Use are in English. The name and explanation of each function is specified in the respective language in the following lists.

#### Optional applications (licenses)

Various applications are available for the device which can be activated after obtaining a license. All licenses must be ordered separately.

#### Display and operation

Only activated applications are displayed on the touchscreen and can be configured and operated.

#### User-specific settings

User-specific settings are marked by a green dot placed in front of their designation.

These changes in settings are adopted only for the current user.

**Please note the following:** In order not to obstruct intraoperative changes of users, do not have the focus and zoom start values set user-specifically. Changes of the focus and zoom start values only become effective after the device is restarted.

### 3.6.2 Interactive buttons

All interactive buttons and their functions are described in the following table.

| Symbol  | Buttons       | Explanation   |
|---|---------------|---|
|  | Live image    | Touchscreen with live image, status bar and main menu bar   |
|  | Setup menu    | All configurations and settings are accessible via this menu.   |
|  | switches      | Function switched on  |
|  | switches      | Function switched off   |
|  | Buttons       | Triggers a function.  |
|  | Slide control | Continuously adjustable<br>The values displayed (SI units) are rounded. They are intended to improve the display and do not represent a measurement function. |

| Symbol  | Buttons                      | Explanation                                     |
|---|------------------------------|---|
|    | +/- buttons                  | Adjustable in steps                             |
|    | Record button                | Records and saves the current display.          |
|    | Video Recording start button | Video recording running                         |
|    | Video Recording stop button  | Video recording stopped                         |
|    | Selection field              | Selection between functions (blue: selected)    |
|    | functionalities              | Selection of various functions (blue: selected) |
|    | Loudspeaker on button        | Switch loudspeaker on                           |
|    | Loudspeaker off button       | Switch loudspeaker off                          |
|   | PIN lock deactivated         | Unlock settings for handgrips and FCP.          |
|  | PIN lock activated           | Lock Hand Grips and FCP Settings.               |
|  | Selection menu               | Selection of various system languages           |
|  | functionalities              | Create new user or patient                      |
|  | functionalities              | Edit patient/user profile                       |
|  | functionalities              | Filter patient data/filtering direction         |
|  | functionalities              | Search for patient record                       |
|  | functionalities              | Import/Export data                              |
|  | functionalities              | Hide keyboard                                   |
|  | functionalities              | Delete  |

Table 2: Interactive buttons

### 3.6.3 User interface of the KINEVO 900

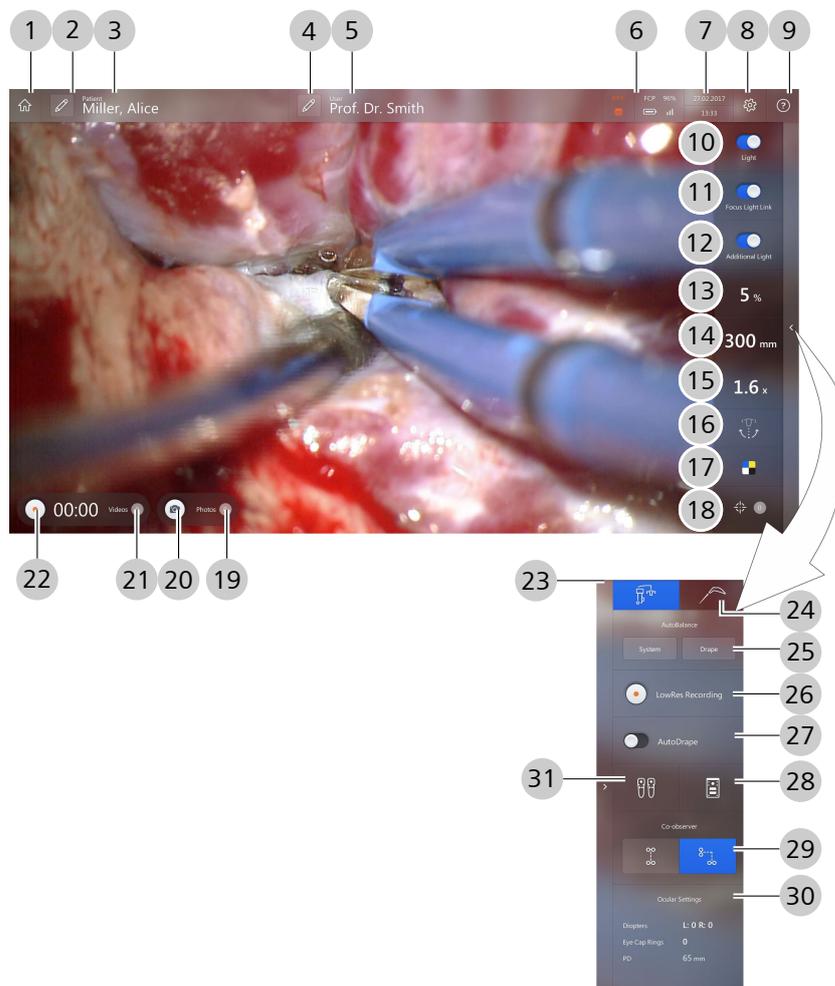


Figure 28: Design of the KINEVO 900 user interface

| Pos. | Name               | Explanation  |
|------|--------------------|--|
| 1    | Main menu (Home)   | Navigation to the main menu with live image, status bar and main menu bar.   |
| 2    | Edit Patient       | Used to edit patient data.   |
| 3    | Patient            | Displays name of current patient, tapping on the button opens the patient directory.   |
| 4    | edit a user        | Used to edit user data.  |
| 5    | Physician/user     | Displays name of current user, tapping on the button opens the user directory.   |
| 6    | Status Information | Displays current status information. The color of the hard disk or USB symbol changes from white to orange if only 20% of the storage capacity is available. Tapping on the button opens an overview [▶ 71]. |
| 7    | Date, time         | Displays current date and time.  |

| Pos. | Name                                 | Explanation  |
|------|--------------------------------------|--|
| 8    | Setup menu                           | Opens the configuration menu.  |
| 9    | Help                                 | Opens the help window on the right-hand edge of the screen.  |
| 10   | Light                                | switching the illumination on / off.   |
| 11   | Focus Light Link                     | Limits the maximum light intensity for the selected working distance.  |
| 12   | Additional Light                     | Switch the additional light on/off.  |
| 13   | Light intensity                      | Set light intensity.   |
| 14   | Focus speed                          | Set the speed of the motorized fine focusing.  |
| 15   | Zoom speed                           | Set the zoom speed.  |
| 16   | XY adjustment movement modes         | Set the stand and speed movement modes.  |
| 17   | Fluorescence setting                 | Select the activated fluorescence modules for BLUE 400, YELLOW 560 and INFRARED 800 with FLOW 800.   |
| 18   | Position memory                      | Save position (bookmark) or move to stored position.   |
| 19   | Number of photos                     | Displays the number of photos taken.   |
| 20   | Image capture                        | Take still image (photo).  |
| 21   | Number of videos                     | Displays the number of videos taken.   |
| 22   | Video Recording                      | Start and stop video recording.  |
| 23   | Additional menu "Extended operation" | Offers additional adjustment options for the device.   |
| 24   | Surgical microscope or endoscope     | Tap on the [Surgical microscope] button to work only with the device. Tap on the [QEVO] button to switch to the QEVO Micro-Inspection Tool. [▶ 70] |
| 25   | AutoBalance                          | Tap on the [System] button to balance the device.<br>Tap on the [Drape] button to perform fine balancing with a drape.                             |
| 26   | Video recording with low resolution  | Start and stop video recording with low resolution. Suitable for recording long-term videos.   |
| 27   | AutoDrape                            | If the RFID label on your SMARTDRAPE has been scanned in, the system starts when the [AutoDrape] with drape suction button is tapped.              |

| Pos. | Name                            | Explanation  |
|------|---------------------------------|--|
| 28   | Wired foot control panel        | Tap on the button in order to assign functions to the buttons of the foot control panel.   |
| 29   | Start value of co-observer tube | Switching between face-to-face and lateral co-observer connection. Only available in the optional configuration for hybrid (optical-digital) visualization and in the case of active optical co-observation (see Tube [▶ 79]). In digital mode, a stereo glasses symbol refers to the digital setting. |
| 30   | Settings of current users       | Displays the user-specific eyepiece settings. Only available in the optional configuration for hybrid (optical-digital) visualization and in the case of active optical co-observation (see Tube [▶ 79]). In digital mode, a stereo glasses symbol refers to the digital setting.                      |
| 31   | Hand Grips                      | Tap on the button in order to assign functions to the buttons of the hand grips.   |

All control elements, the status bar and the main menu bar can be hidden by tapping on the live image (full screen mode). Only the video runtime is displayed during a recording in full screen mode. If you tap on the monitor again, all control elements, the status bar and the main menu bar will reappear. The values displayed (SI units) are rounded. They serve to enhance the display and do not represent a measurement function.

### 3.6.4 QEVO user interface (option)

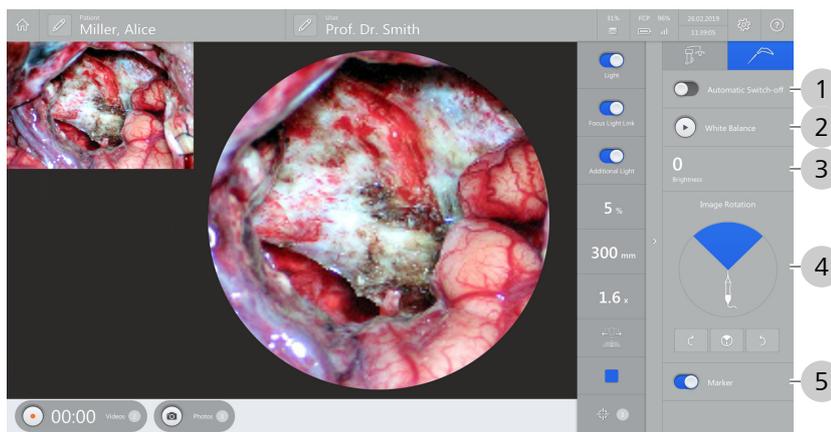


Figure 29: QEVO user interface

| Pos. | Name                 | Explanation  |
|------|----------------------|--|
| 1    | Automatic Switch-off | Switch automatic deactivation on/off: <ul style="list-style-type: none"> <li>■ On (switch illuminated in blue): If the Micro-Inspection Tool is set aside and not moved, the camera and light source will switch off after 40 seconds. To switch the camera and light source back on, press the [QEVO] button on the hand grip or the foot control panel.</li> <li>■ Off (switch gray): The camera and light source of the Micro-Inspection Tool are permanently switched on. The presentation on the monitor and the MultiVision display (if activated) remain in QEVO mode.</li> </ul> |
| 2    | White Balance        | Perform white balance  |
| 3    | Brightness           | Set the image brightness on a scale from -5 to +5  |
| 4    | QEVO Alignment       | Adjust the camera image on the monitor to the actual viewing direction in the surgical field   |
| 5    | Marker               | Switch marker on/off: <ul style="list-style-type: none"> <li>■ On (switch blue): A marking in the image displays the direction of sight of the camera image.</li> <li>■ Off (switch gray): No marking is displayed.</li> </ul>   |

### 3.6.5 Status Information



Figure 30: Status information overview

| Pos. | Symbol  | Name                | Explanation   |
|------|---|---------------------|---|
| 1    |  | Internal Hard Drive | Available internal hard disk space<br>The color of the hard disk symbol changes from dark gray to orange if only 20% of the storage capacity is available.  |
| 2    |  | USB                 | Available storage space on connected USB storage medium<br>The color of the USB symbol changes from dark gray to orange if only 20% of the storage capacity is available.                                     |
| 3    | Eject   | Remove Hardware     | The USB storage medium (e.g. USB stick or external Mini HDD USB 3.0 hard disk) may be removed. For reliable system functioning, this eject function must be used before each removal of a USB storage medium. |
| 4    |  | Connection status   | Wireless FCP connected  |
| 5    |  | Battery Status      | Charging status of battery in FCP   |
| 6    |  | Signal Strength     | FCP signal strength   |
| 7    |  | Hotspot             | Hotspot connection (WiFi) ON/OFF  |

| Pos. | Symbol  | Name                  | Explanation                               |
|------|---|-----------------------|---|
| 8    |  | Show Hotspot Password | Hotspot password display ON/OFF           |
| 9    |   | Web interface address | Displays the address of the web interface |

### 3.6.6 "Patient data" menu

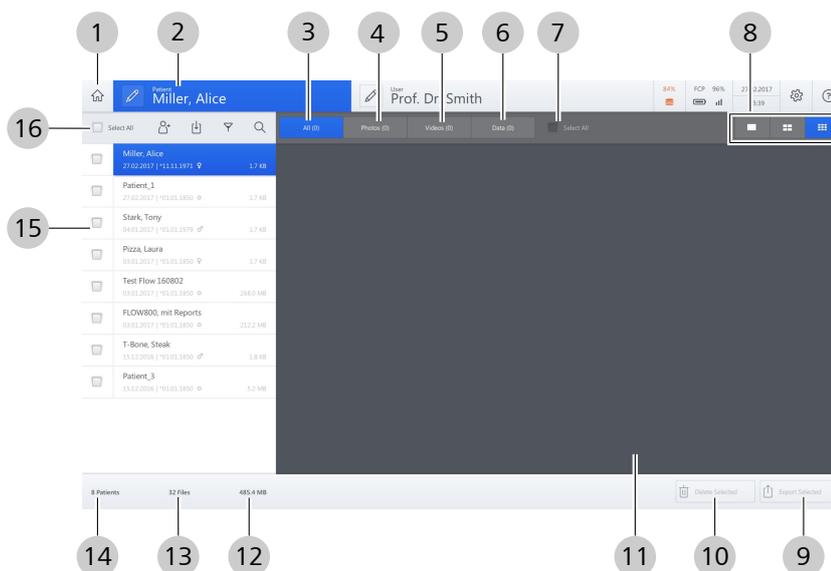


Figure 31: Design of "Patient data" menu

| Pos. | Name             | Explanation  |
|------|------------------|--|
| 1    | Main menu (Home) | Navigation to the main menu with live image, status bar and main menu bar.   |
| 2    | Patient          | Displays name of current patient, tapping on the button opens the patient directory.   |
| 3    | All              | Displays all of the respective patient's recorded images, videos and data in the preview window.   |
| 4    | Photos           | Filters the preview window for photos; all of the respective patient's recorded images are displayed.  |
| 5    | Videos           | Filters the preview window for videos; all of the respective patient's recorded videos are displayed.  |
| 6    | Data             | Filters the preview window for data; all of the respective patient's recorded data are displayed (e.g. analysis data from the fluorescence mode INFRARED 800 with FLOW 800). |

| Pos. | Name                   | Explanation   |
|------|------------------------|---|
| 7    | Select All             | Selects the entire contents of the respective preview window. This function is used e.g. to export or delete patient data.                              |
| 8    | Preview window display | Determines the size of the images in the preview window (large, medium, small).   |
| 9    | Export                 | Exports all selected patient files.   |
| 10   | Delete                 | Deletes all selected patient files.   |
| 11   | Preview window         | Displays all patient files as thumbnails.   |
| 12   | Storage volume         | Displays the total storage volume of all patient files in the footer bar.   |
| 13   | Number of files        | Displays the total number of all patient files in the footer bar.   |
| 14   | Number of patients     | Displays the total number of all patients in the footer bar.  |
| 15   | Patient Directory      | Displays the patient registry on the left side of the monitor.  |
| 16   | Edit patient directory | Offers five options for working with the patient directory: Select all patients/Add new patients/Import patient files/Sort patients/Search for patients |

### 3.6.7 Importing patient data from the DICOM Worklist

Main menu - Patient - Import  - DICOM

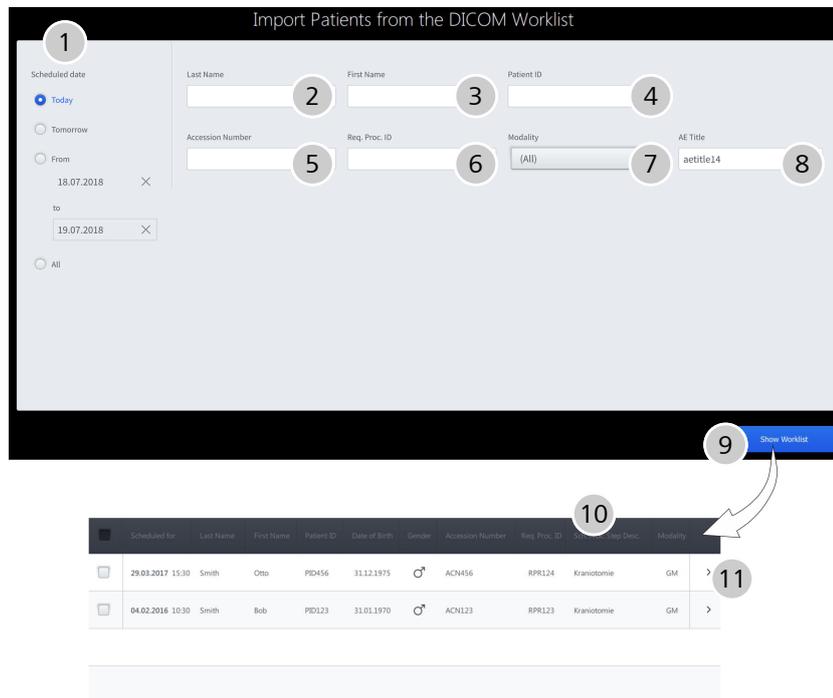


Figure 32: Input mask and DICOM Worklist display window

| Pos. | Name             | Explanation  |
|------|------------------|--|
| 1    | Scheduled date   | Period of time (selectable) for which the DICOM Worklist is to be called up.   |
| 2    | Last name        | Patient's last name.   |
| 3    | First Name       | Patient's first name.  |
| 4    | Patient ID       | Primary hospital identification number for the patient.  |
| 5    | Accession Number | Department-specific case number which identifies the order for the "Imaging Service Request".                                  |
| 6    | Req. Proc. ID    | <b>Requested Procedure ID:</b> identification number that identifies the requested procedure in the "Imaging Service Request". |
| 7    | Modality         | Device type with which the scheduled procedure step is to be performed.  |
| 8    | AE title         | AE title of the device with which the scheduled procedure step is to be performed.   |
| 9    | Show Worklist    | Tap on button to open the DICOM Worklist.  |

| Pos. | Name                  | Explanation   |
|------|-----------------------|---|
| 10   | Sch. Proc. Step Desc. | <b>Scheduled Procedure Step Description:</b><br>description specified by the hospital or classification of the scheduled procedure step.      |
| 11   | Arrow button          | Tap on button to display more details about the patient.  |
| -    | Req. Proc. Desc.      | <b>Requested Procedure Description:</b><br>administrative description specified by the hospital or classification of the requested procedure. |
| -    | Req. Proc. Code       | <b>Requested Procedure Code:</b><br>code value that describes the requested procedure according to a specific coding scheme.                  |
| -    | Ref. Phys. Name       | <b>Referring Physician's Name:</b><br>name of the referring physician who requested the procedure.  |
| -    | Sch. Proc. Step Start | <b>Scheduled Procedure Step Start:</b><br>scheduled start time for the procedure step.  |
| -    | Sch. Protocol Code    | <b>Scheduled Protocol Code:</b><br>code value that describes the scheduled protocol according to a specific coding scheme.                    |

### 3.6.8 “Edit video recording” menu

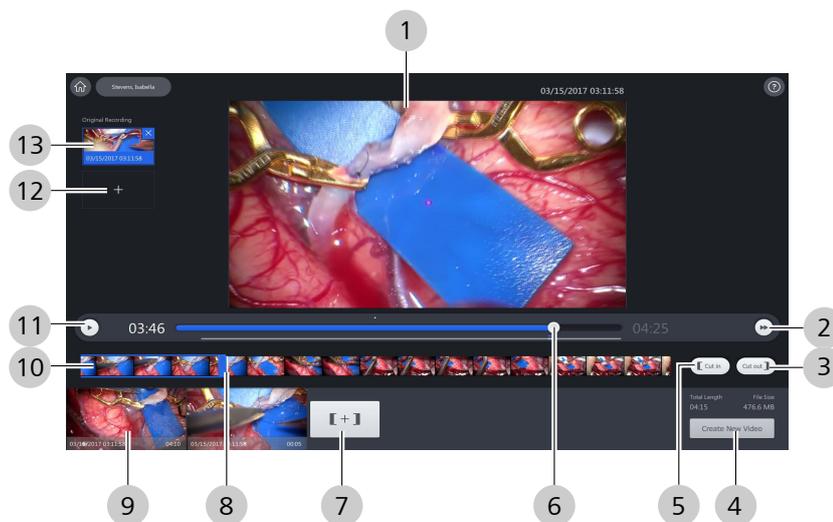


Figure 33: “Edit video recording” menu

| Pos. | Name                            | Explanation   |
|------|---------------------------------|---|
| 1    | Video Recording                 | Displays the recorded video.  |
| 2    | Fast forward                    | Used to run the video recording forward rapidly.  |
| 3    | Cut out                         | Determines the end point of the timeline selection window, and therefore of the scheduled video recording.  |
| 4    | Create New Video                | Saves the cut video sequence as a new video.  |
| 5    | Cut in                          | Determines the starting point of the timeline selection window, and therefore of the scheduled video recording/display.   |
| 6    | “Video playback” slide control  | The gray slide control keeps moving throughout the entire length of the video recording. Slide the gray slider to jump to an interesting area in the video recording without using the [Fast-forward] / [Rewind] buttons. |
| 7    | Save video sequence temporarily | Temporarily saves the currently cut video sequence and displays it as a preview.  |
| 8    | Time marker                     | Marks the current position in the timeline selection window during video playback.  |
| 9    | Preview window                  | Displays the cut video sequence(s).   |

| Pos. | Name                      | Explanation  |
|------|---------------------------|--|
| 10   | Timeline selection window | Displays the individual sequences/frames of the video. The start and end of the timeline selection window is bounded by blue bars. You can slide these blue bars to select and cut the sequence relevant for you in the video. |
| 11   | Start / Pause             | Plays back the video recording. The playback of the video recording can be stopped by repeatedly tapping on the button.  |
| 12   | Add Original Recording    | Opens a preview window with all original video recordings of the patient.  |
| 13   | Original Recording        | Displays the original video recordings as a preview.   |

### 3.6.9 SmartLinks



In the "Settings Microscope" menu, four SmartLinks are available for your selection:

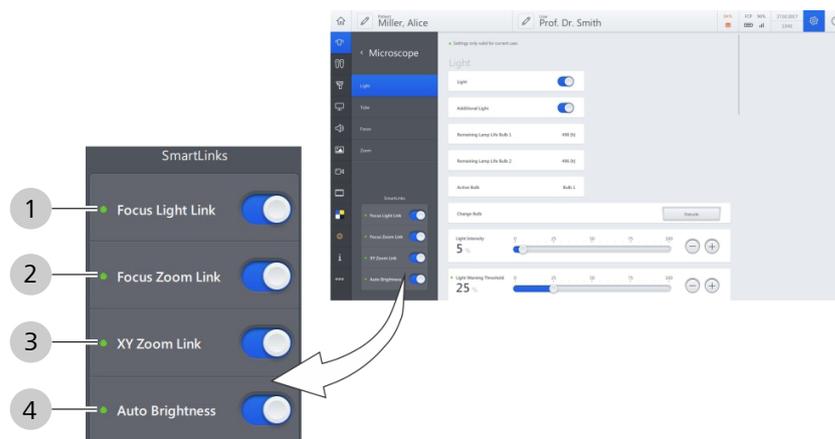


Figure 34: SmartLinks

| Pos. | Name             | Explanation  |
|------|------------------|--|
| 1    | Focus Light Link | Limits the maximum light intensity for the selected working distance.  |
| 2    | Focus Zoom Link  | Automatically adapts the focusing speed to the magnification. The preselected focusing speed is automatically reduced when a higher magnification is used. |
| 3    | XY Zoom Link     | Automatically adapts the XY travel speed to the magnification. The preselected travel speed is automatically reduced when a higher magnification is used.  |

| Pos. | Name            | Explanation  |
|------|-----------------|--|
| 4    | Auto Brightness | Regulates the light intensity for constant brightness in the eyepiece depending on the working distance and magnification. Automatically adapts the luminous field diameter. |

### 3.6.10 Light



In this menu, you configure the microscope illumination settings.

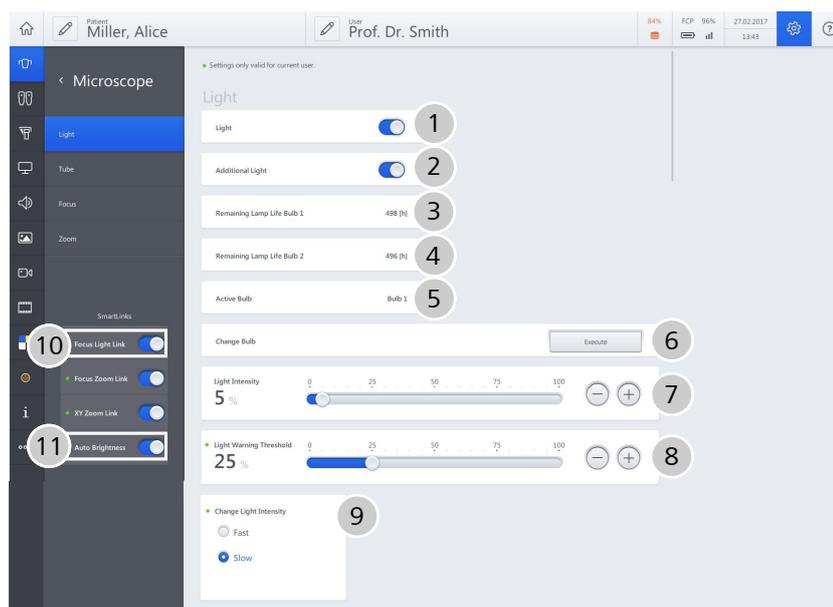


Figure 35: "Settings Microscope" menu, "Light" submenu

| Pos. | Name                                 | Explanation  |
|------|--------------------------------------|--|
| 1    | Light                                | switching the illumination on / off.   |
| 2    | Additional Light                     | Switch the additional light on/off.  |
| 3    | Remaining lamp operating time Bulb 1 | Remaining lamp operating time of bulb 1 until the next recommended bulb change (total lamp operating time = 500 hours) |
| 4    | Remaining lamp operating time Bulb 2 | Remaining lamp operating time of bulb 2 until the next recommended bulb change (total lamp operating time = 500 hours) |
| 5    | Active Bulb                          | Indicates whether bulb 1 or bulb 2 is in operation.  |
| 6    | Replace bulb                         | Activate lamp change from bulb 1 to bulb 2.  |
| 7    | Light intensity                      | Set light intensity.   |
| 8    | Light Warning Threshold              | Set light warning threshold (factory setting: 25 %). Display on monitor.   |

| Pos. | Name                         | Explanation  |
|------|------------------------------|--|
| 9    | Change Light Intensity       | Select speed of light intensity change (fast or slow).   |
| 10   | SmartLinks: Focus Light Link | Limits the maximum light intensity for the selected working distance.  |
| 11   | SmartLinks: Auto Brightness  | Regulates the light intensity for constant brightness in the eyepiece depending on the working distance and magnification. Automatically adapts the luminous field diameter. |

### 3.6.11 Tube

This menu is only available in the optional configuration of the microscope for the hybrid (optical-digital) visualization.



Activate the optical co-observation and select the tubes and eyepieces used for the surgeon. The total magnification is calculated with these stored values and displayed on the monitor.

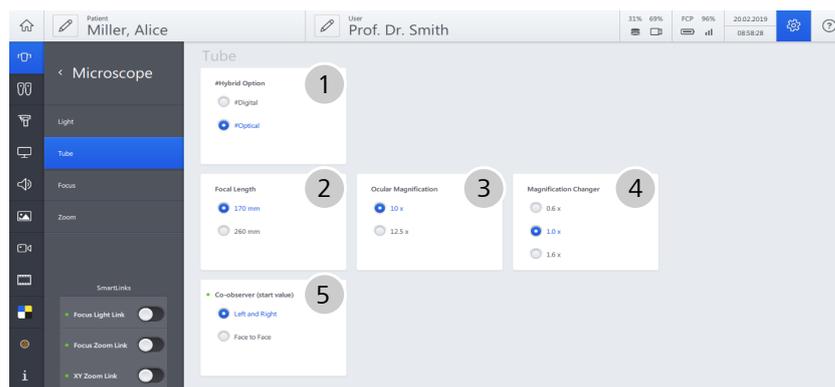


Figure 36: "Settings Microscope" menu, "Tube" submenu

| Pos. | Name         | Explanation   |
|------|--------------|---|
| 1    | System Mode  | Visualization mode selection: <ul style="list-style-type: none"> <li>■ Digital: purely digital visualization - optical co-observation not possible</li> <li>■ Optical: hybrid visualization - co-observation through tubes and on the monitor</li> </ul> <p>Only available in the optional configuration for hybrid (optical-digital) visualization. The selection also influences options and displays in other menus.</p> |
| 2    | Focal Length | Focal length of tube in use: (170 mm for tiltable tube and foldable tube, 260 mm for foldable tube with magnification).   |

| Pos. | Name                      | Explanation  |
|------|---------------------------|--|
| 3    | Eyepiece magnification    | Magnification of the eyepieces used: (10x or 12.5x).   |
| 4    | Magnification Changer     | Magnification of the optional 3-position magnification changer.  |
| 5    | Co-observer (start value) | Selection of co-observer: <ul style="list-style-type: none"> <li>■ Opposite image outputs: Face-to-face for tiltable tube or foldable tube</li> <li>■ Lateral image outputs: Right and left for stereo co-observation module or photo adapter for external camera</li> </ul> The "co-observer (start value)" can be adjusted on the monitor in the additional menu "Extended operation" and manually on the microscope body. |

### 3.6.12 Focus



In this menu, you configure the focus settings.

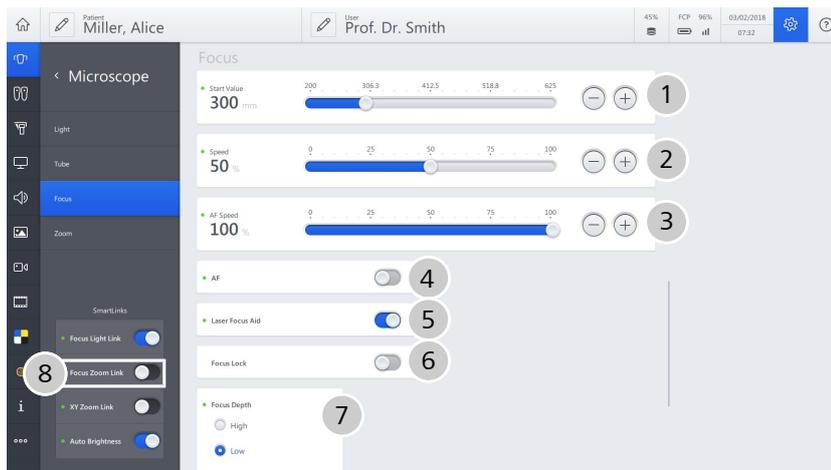


Figure 37: "Settings Microscope" menu, "Focus" submenu

| Pos. | Name                 | Explanation   |
|------|----------------------|---|
| 1    | Start Value          | The microscope starts with this working distance after it is switched on. |
| 2    | Speed                | Set the speed of the motorized fine focus adjustment.                     |
| 3    | Autofocus (AF) Speed | (option)<br>Adjust the autofocus speed.                                   |

| Pos. | Name                           | Explanation   |
|------|--------------------------------|---|
| 4    | Autofocus (AF)                 | <p>(option)</p> <p>On: Autofocus is automatically activated each time the brakes are closed.</p> <p>Off: Autofocus only via configurable button on the handgrip or foot control panel.</p> <p>The autofocus is not available during a few specific applications. A corresponding acoustic signal is then emitted.</p> |
| 5    | Laser Focus Aid                | <p>(option)</p> <p>Laser Focus Aid on: The focusing laser is switched on when the brakes are released or the motorized fine focus adjustment is actuated.</p> <p>Laser Focus Aid off: The focusing laser is switched off.</p>   |
| 6    | Focus Lock                     | <p>For the application of an optional micromanipulator with a fixed working distance.</p> <p>Focus Lock on: Autofocus inoperative. Focus rocker switch on handgrip/foot switch out of operation.</p> <p>Focus Lock off: Autofocus functioning. Focus rocker switch on handgrip/foot control panel active.</p>         |
| 7    | Depth of field                 | <p>High: High depth of field - less light - lower image resolution.</p> <p>Low: Low depth of field - more light - high image resolution.</p> <p>The [Focus Depth] field is <b>not</b> displayed when the BLUE 400 and YELLOW 560 options are activated simultaneously.</p>  |
| 8    | SmartLinks:<br>Focus Zoom Link | <p>Automatic adaptation of the focusing speed to the magnification. The preselected focusing speed is automatically reduced when a higher magnification is used.</p>  |

### 3.6.13 Zoom



In this menu, you configure the zoom settings.



Figure 38: Zoom

| Pos. | Name                        | Explanation  |
|------|-----------------------------|--|
| 1    | Gamma (start value)         | Set the zoom factor (0.4 ... 2.4) at which the zoom system is to start after the system is switched on.  |
| 2    | Speed                       | Set the zoom speed.  |
| 3    | SmartLinks:<br>XY Zoom Link | Automatic adaptation of the motorized XY travel speed to the magnification. The preselected travel speed is automatically reduced when a higher magnification is used. |

### 3.6.14 Hand Grips



In this menu, you configure the controls of the handgrips.

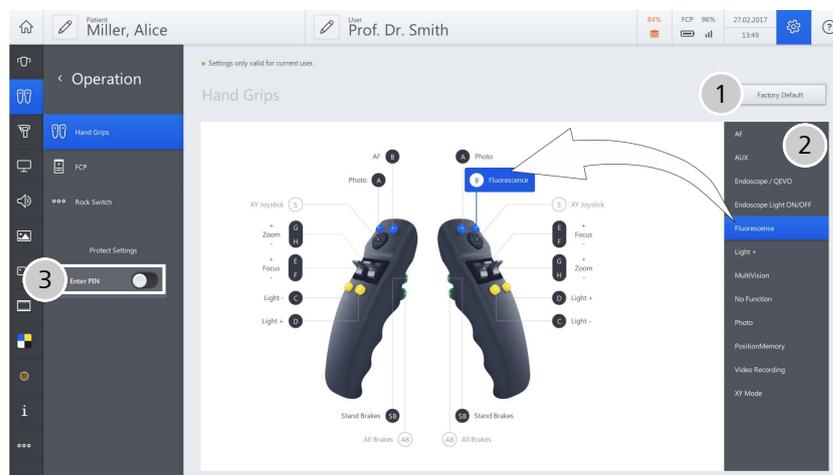


Figure 39: "Settings Microscope" menu, "Handgrips" submenu

| Pos.       | Name                             | Explanation   |
|------------|----------------------------------|---|
| 1          | Factory Default                  | Tapping this button resets the programming of all handgrip functions to the factory settings.   |
| 2          | Selection window, right side     | Appears after a handgrip button is tapped: Displays all available functions for each handgrip button.   |
| 3          | Enter PIN                        | By activating this button, you can protect your button assignment for the handgrips with a four-digit PIN.  |
| A, B, C, D | Configurable buttons             | Tapping on the respective button opens a selection window on the right side where the functions available to you can be selected.   |
| S          | XY Joystick                      | For motorized XY fine adjustment:<br>The XY joystick of the right handgrip can have certain special functions, depending on the option activated.<br>Messages displayed on the touchscreen can be acknowledged by pressing the center position of the joystick button on the left handgrip. |
| E, F, G, H | Rocker switch for focus and zoom | Tapping on the buttons opens a selection window on the right side for selecting the direction (+/-) or changing the zoom/focus functions.   |

| Pos. | Name                            | Explanation   |
|------|---------------------------------|---|
| SB   | [SB] ("Selected Brakes") button | Tapping on the button opens, on the right-hand side, a selection window for programing the button with the brake function for the stand brakes, the brake function for the microscope brakes or the PointLock function. |
| AB   | [AB] ("All Brakes") button      | The button is not configurable. As long as the button is pressed, the entire system can move freely. When you let go of the button, the system locks stably and with vibration damping.                                 |

### 3.6.15 Foot Control Panel (FCP)



In this menu, you configure the controls of the FCP (foot control panel).

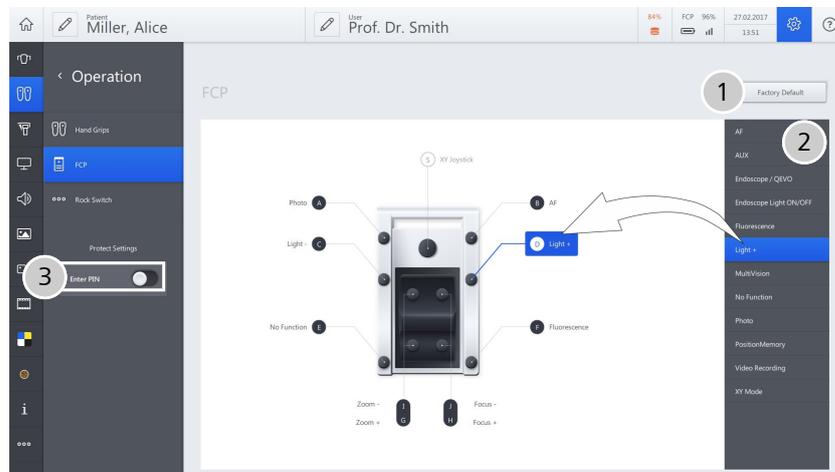


Figure 40: "Settings Microscope" menu, "Handgrips" submenu

| Pos.             | Name                             | Explanation   |
|------------------|----------------------------------|---|
| 1                | Factory Default                  | Tapping this button resets the programming of all handgrip buttons to the factory settings.   |
| 2                | Selection window                 | Appears after a foot control panel button is tapped:<br>Displays all available functions for each foot control panel button.              |
| 3                | Enter PIN                        | By activating this button, you can protect your button assignment for the foot control panel with a four-digit PIN.                       |
| S                | XY Joystick                      | Motorized XY fine adjustment.   |
| A, B, C, D, E, F | Configurable buttons             | Tapping on the respective button opens a selection window on the right side where the functions available to you can be selected.         |
| G, H, I, J       | Rocker switch for focus and zoom | Tapping on the buttons opens a selection window on the right side for selecting the direction (+/-) or changing the zoom/focus functions. |

### 3.6.16 Rock Switch



In this menu, you configure the controls of the rocker foot switch.

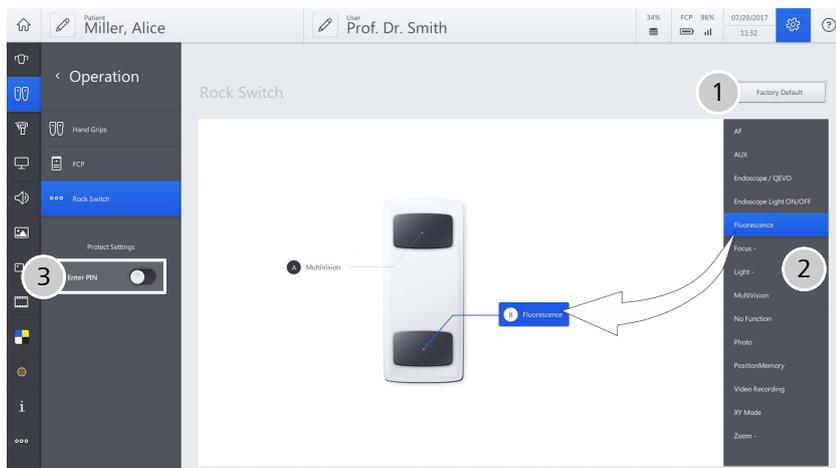


Figure 41: "Settings Microscope" menu, "Rocker foot switch" submenu

| Pos. | Name                             | Explanation  |
|------|----------------------------------|--|
| 1    | Factory settings                 | Tapping this button resets the programming of the rocker foot switch to the factory settings.  |
| 2    | Rocker foot switch, configurable | Appears after rocker foot switch is tapped: Displays all available functions for each rocker foot switch button: When the following functions are selected for a rocker foot switch, the second rocker foot switch is automatically assigned: <ul style="list-style-type: none"> <li>■ Light: Light brighter (top button) / darker (bottom button)</li> <li>■ Zoom: + (top button) / - (bottom button)</li> <li>■ Focus: + (top button) / - (bottom button)</li> </ul> |
| 3    | Enter PIN                        | By activating this button, you can protect your button assignment for the rocker foot switch with a four-digit PIN.  |

### 3.6.17 Suspension System



In this menu, you configure the movement modes, the park position and the drape position.

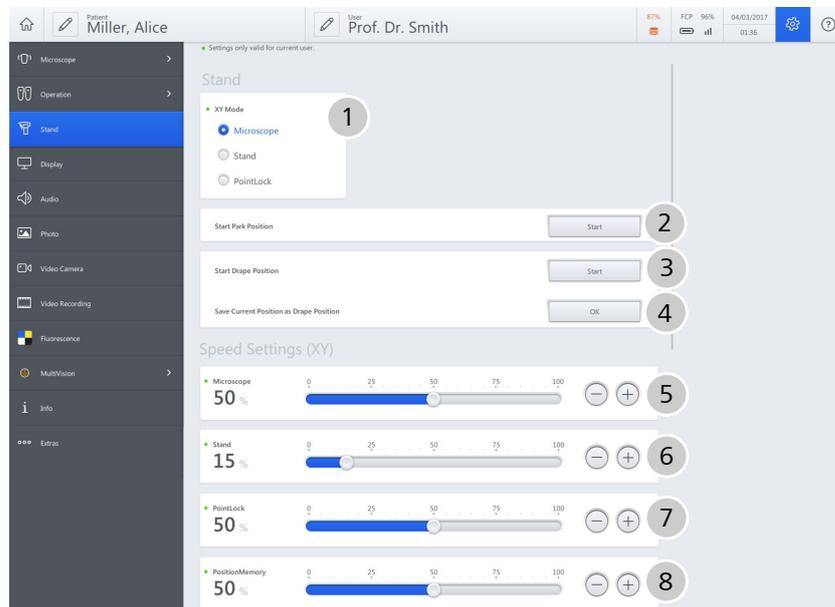


Figure 42: "Settings Stand" menu

| Pos. | Name                                    | Explanation  |
|------|---|--|
| 1    | XY Mode                                 | Selection of the movement modes for motorized fine adjustment using the XY joystick on the handgrip or on the foot control panel: <ul style="list-style-type: none"> <li>■ Microscope: Microscope movement in three axes</li> <li>■ Stand: XY stand movement in the focal point plane</li> <li>■ PointLock: adjustment around the focal point</li> </ul> The setting can also be carried out in the main menu. |
| 2    | Start Park Position                     | Device moves to park position. To do this, the right button of the XY joystick on the hand grip or the foot control panel must also be kept pressed.   |
| 3    | Start Drape Position                    | Device moves to drape position. To do this, the right button of the XY joystick on the hand grip or the foot control panel must also be kept pressed.  |
| 4    | Save Current Position as Drape Position | Save drape position.   |

| Pos. | Name              | Explanation   |
|------|-------------------|---|
| 5    | Microscope        | Preselect speed for movements in this XY mode.                |
| 6    | Suspension system | Preselect speed for movements in this XY mode.                |
| 7    | PointLock         | Preselect speed for movements in this XY mode.                |
| 8    | PositionMemory    | Preselect speed for movements in the PositionMemory function. |

### 3.6.18 Displays



In this menu, you configure the settings of the video outputs.

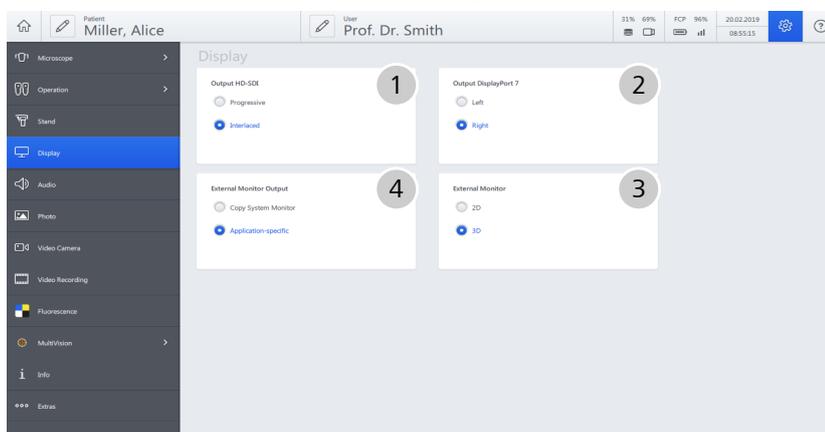


Figure 43: "Settings Display" menu

| Pos. | Name                 | Explanation  |
|------|----------------------|--|
| 1    | Output HD-SDI        | <ul style="list-style-type: none"> <li>Progressive 3G-SDI: Full Image</li> <li>Interlaced HD-SDI</li> </ul> Video output: 9 or 10  |
| 2    | Output DisplayPort 7 | <ul style="list-style-type: none"> <li>left-hand camera</li> <li>right-hand camera</li> </ul> Video output: 8  |
| 3    | Video Format         | Video format for second system monitor and optional external monitor. This setting is only available with integrated 3D video system (stereo option). <ul style="list-style-type: none"> <li>2D</li> <li>3D</li> </ul> Video output: 6 |

| Pos. | Name                    | Explanation   |
|------|-------------------------|---|
| 4    | External Monitor Output | Display on the second system monitor and optional external monitor. <ul style="list-style-type: none"> <li>■ Copy System Monitor</li> <li>■ Application-specific</li> </ul> Video output: 6 |

### 3.6.19 Audio



In this menu, you configure the audio settings.

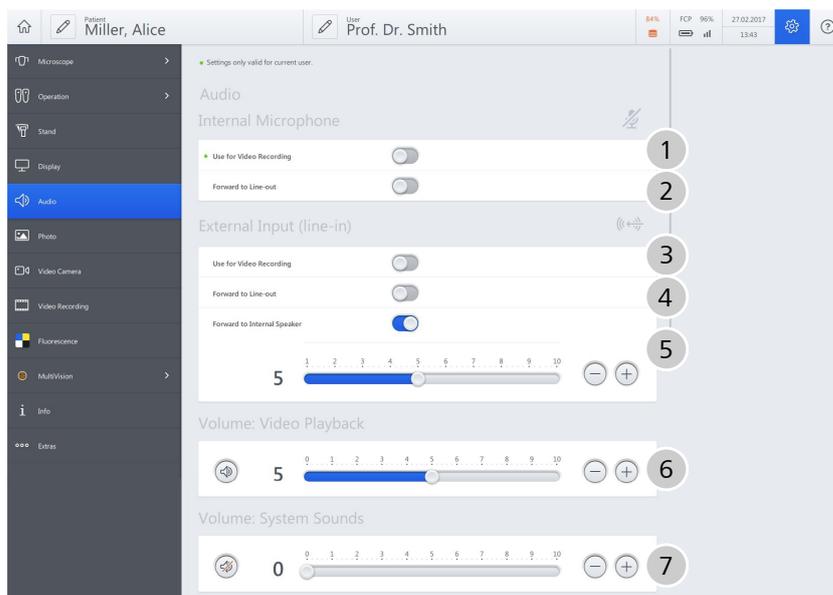


Figure 44: "Settings Display" menu

| Pos. | Name  | Explanation               |
|------|---|---------------------------|
| 1    | Internal Micro-<br>phone:<br>Use for Video<br>Recording     | Switch microphone on/off. |
| 2    | Internal Micro-<br>phone:<br>Forward to Line-out            | Switch microphone on/off. |
| 3    | External Input (line-<br>in):<br>Use for Video<br>Recording | Switch microphone on/off. |
| 4    | External Input (line-<br>in):<br>Forward to Line-out        | Switch microphone on/off. |

| Pos. | Name   | Explanation                                 |
|------|--|---|
| 5    | External Input (line-in):<br>Forward to Internal Speaker | Switch microphone on/off.<br>Adjust volume. |
| 6    | Volume: Video Playback                                   | Switch playback on/off.<br>Adjust volume.   |
| 7    | Volume: System Sounds                                    | Switch playback on/off.<br>Adjust volume.   |

### 3.6.20 Photo



In this menu, you configure the photo settings.

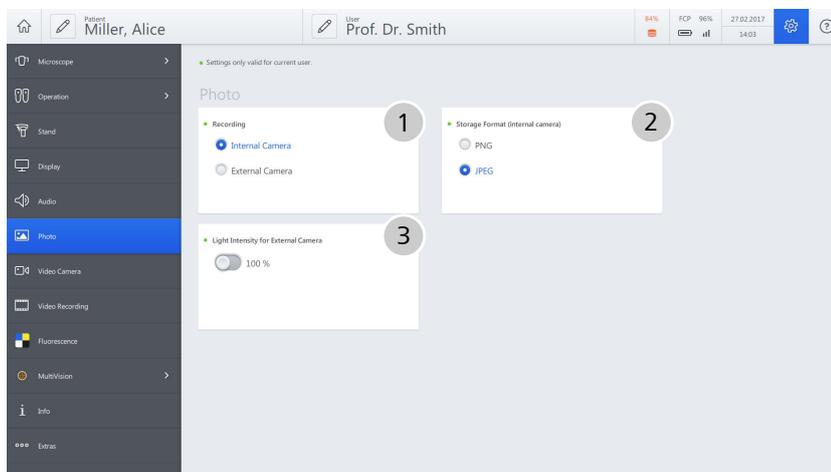


Figure 45: "Settings Photo" menu

| Pos. | Name                                | Explanation   |
|------|-------------------------------------|---|
| 1    | Recording                           | Selection: <ul style="list-style-type: none"> <li>Single images with internal video camera</li> <li>Images with external photo camera (DSLR, option)</li> </ul> |
| 2    | Storage Format (internal camera)    | Storage format for images taken: <ul style="list-style-type: none"> <li>PNG format</li> <li>JPEG format</li> </ul>  |
| 3    | Light Intensity for External Camera | Utilization of maximum xenon light output (100%) for taking photos.   |

### 3.6.21 Video Camera



In this “White Light” menu, you configure the settings of the video camera. You can optionally configure the video settings for BLUE 400 and YELLOW 560.

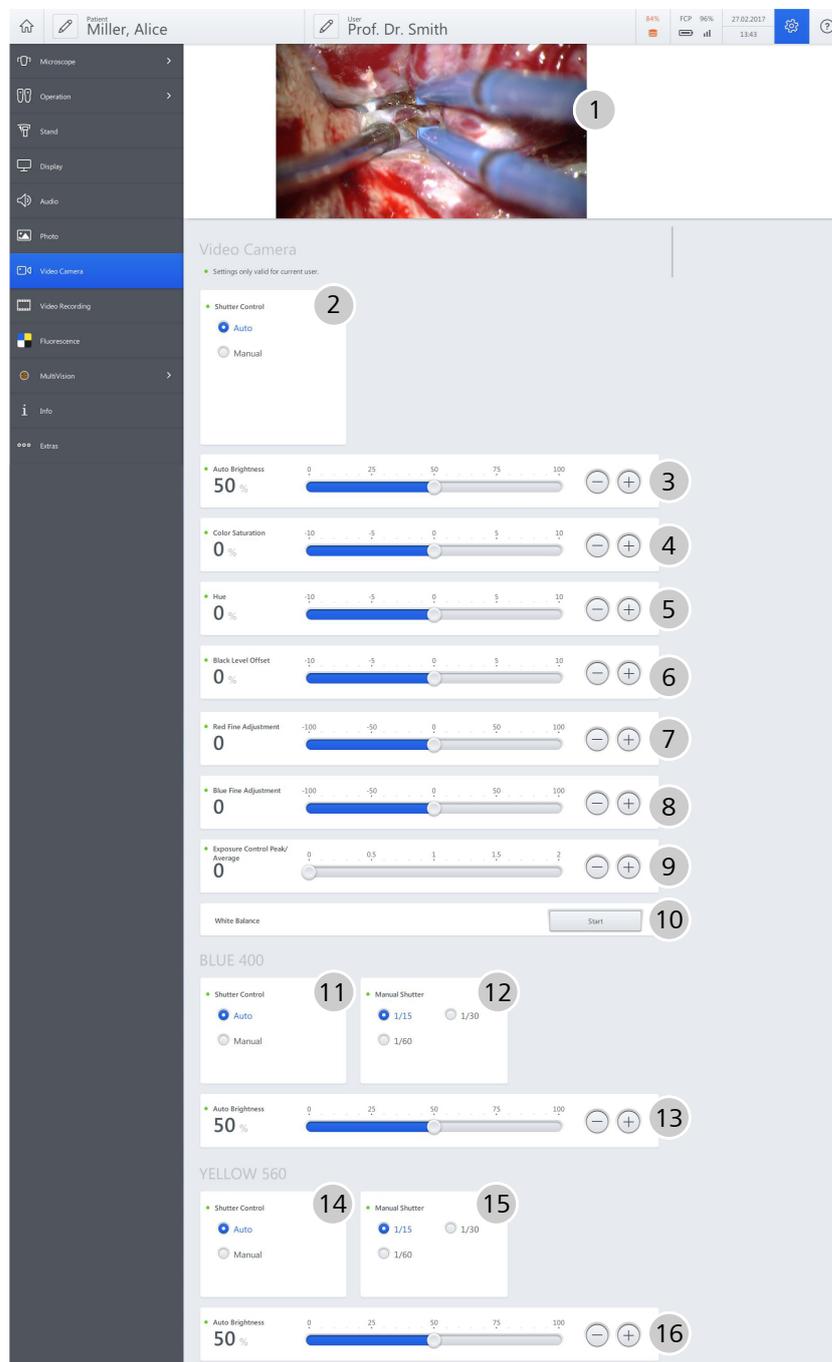


Figure 46: “Settings Video Camera” menu

| Pos. | Name                          | Explanation  |
|------|-------------------------------|--|
| 1    | Preview window                | Video image for checking the settings.   |
| 2    | Shutter Control               | Selection in the shutter control: <ul style="list-style-type: none"> <li>■ Auto: Automatic control of the exposure time</li> <li>■ Manual: Manual control of the exposure time</li> </ul>            |
| 3    | Auto Brightness               | Set the brightness level of the automatic brightness control.<br>This field appears only if the shutter control was set to "Auto".   |
| 4    | Color Saturation              | Set the color saturation.  |
| 5    | Hue                           | Set the hue.   |
| 6    | Black Level Offset            | With a higher black level, dark image details are displayed brighter. This can lead to an enhanced recognizability.  |
| 7    | Red Fine Adjustment           | Set the red value.   |
| 8    | Blue Fine Adjustment          | Set the blue value.  |
| 9    | Exposure Control Peak/Average | Set the peak value or the average value.   |
| 10   | White Balance                 | Start white balance.   |
| 11   | Shutter Control BLUE 400      | Selection in the BLUE 400 brightness mode: <ul style="list-style-type: none"> <li>■ Auto: Automatic control of the exposure time</li> <li>■ Manual: Manual control of the exposure time</li> </ul>   |
| 12   | Manual Shutter BLUE 400       | Set the desired exposure time for BLUE 400 manually.<br>This field appears only if the BLUE 400 shutter control was set to "Manual".   |
| 13   | Auto Brightness BLUE 400      | Set the brightness level of the automatic brightness control for BLUE 400.<br>This field appears only if the BLUE 400 shutter control was set to "Auto".   |
| 14   | Shutter Control YELLOW 560    | Selection in the YELLOW 560 brightness mode: <ul style="list-style-type: none"> <li>■ Auto: Automatic control of the exposure time</li> <li>■ Manual: Manual control of the exposure time</li> </ul> |

| Pos. | Name                          | Explanation  |
|------|-------------------------------|--|
| 15   | Manual Shutter<br>YELLOW 560  | Set the desired exposure time for YELLOW 560 manually.<br>This field appears only if the YELLOW 560 shutter control was set to "Manual".                     |
| 16   | Auto Brightness<br>YELLOW 560 | Set the brightness level of the automatic brightness control for YELLOW 560.<br>This field appears only if the YELLOW 560 shutter control was set to "Auto". |

### 3.6.22 Video Recording



In this menu, you configure the settings for video recordings.

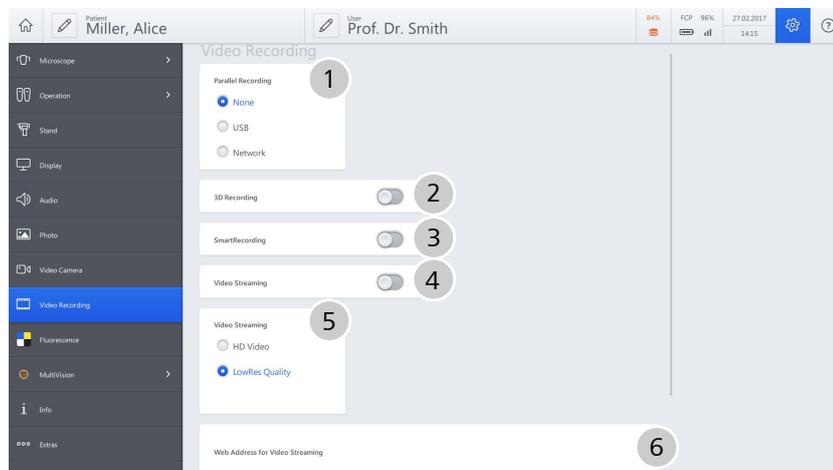


Figure 47: "Settings Video Recording" menu

| Pos. | Name                            | Explanation   |
|------|---------------------------------|---|
| 1    | Parallel Recording              | The data are always stored on the internal hard drive. In addition, parallel storage on a connected USB storage medium or a configured network drive (USB or network drive) also is possible.   |
| 2    | 3D Recording                    | Option for a stereo video camera. Selection whether the internal recording is to be made in 3D format (ON).   |
| 3    | SmartRecording                  | If "SmartRecording" is activated, video data of the operation are recorded in a buffer which is automatically cleared and restarted every five minutes. You can start and stop the recording of the video data from the buffer at any time. |
| 4    | Video Streaming                 | Video recordings can be live streamed to a preset web address or device via LAN or WLAN.  |
| 5    | Video Streaming                 | Selection of video resolution. <ul style="list-style-type: none"> <li>■ HD Video: High resolution (1920 x 1080)</li> <li>■ LowRes Video: Low resolution (960 x 540)</li> </ul>  |
| 6    | Web Address for Video Streaming | Entry of intended web address for video streaming.  |

### 3.6.23 Fluorescence



(Option) Fluorescence settings for BLUE 400, YELLOW 560 and INFRARED 800 with FLOW 800.

Only activated fluorescence options are displayed on the touch-screen and can be configured.

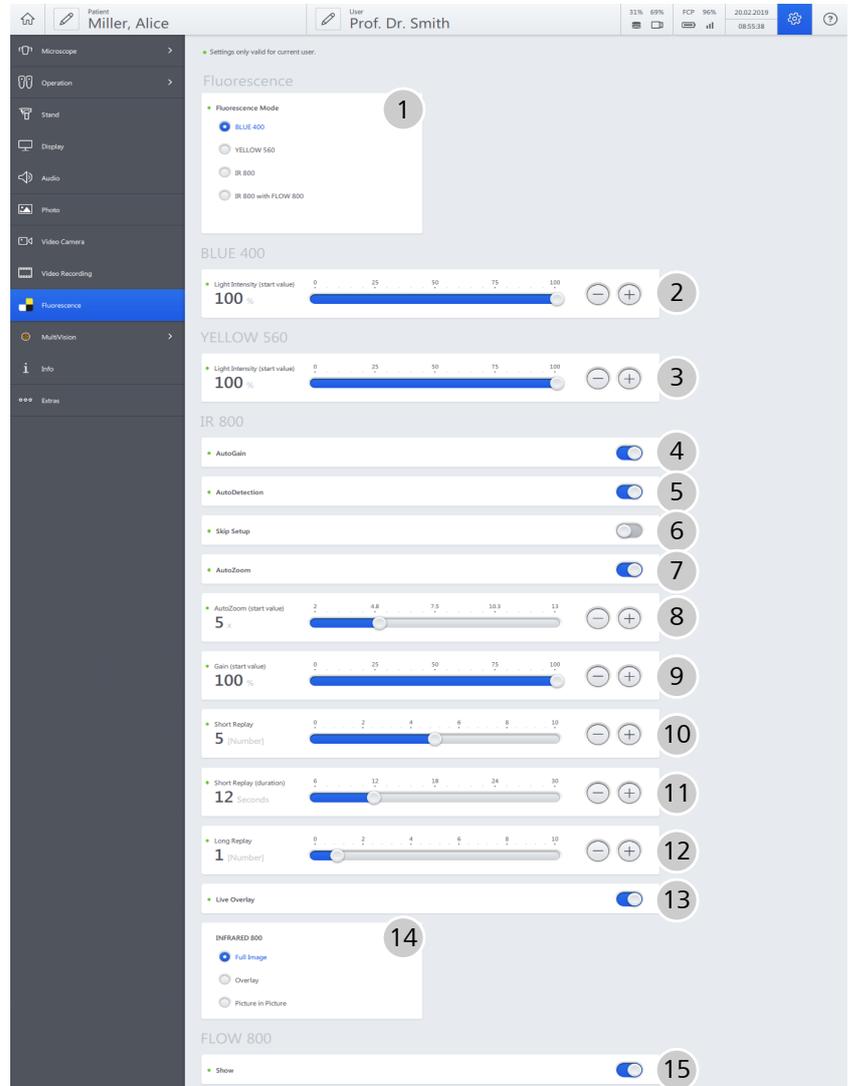


Figure 48: "Settings Fluorescence" menu

| Pos. | Name                                   | Explanation   |
|------|--|---|
| 1    | Fluorescence mode                      | <p>Selection of the fluorescence mode which is activated with the configured hand grip button</p> <ul style="list-style-type: none"> <li>■ BLUE 400</li> <li>■ YELLOW 560</li> <li>■ IR 800</li> <li>■ IR 800 with FLOW 800</li> </ul> <p>By pressing on the touchscreen, the configured handgrip button or the FCP button, you can activate the respective fluorescence application.</p> |
| 2    | Light Intensity Start Value BLUE 400   | Selecting the light intensity for BLUE 400  |
| 3    | Light Intensity Start Value YELLOW 560 | Selecting the light intensity for YELLOW 560  |
| 4    | AutoGain                               | <p>Manual or automatic control of camera gain</p> <ul style="list-style-type: none"> <li>■ Auto: The camera gain is controlled automatically.</li> <li>■ Manual: The camera gain is controlled manually.</li> </ul>   |
| 5    | AutoDetection                          | <p>AutoDetection detects the influx of the fluorescence dye during the recording.</p> <ul style="list-style-type: none"> <li>■ ON: The black leader without any fluorescence signal is hidden during the replay.</li> <li>■ OFF: The replay is played back incl. the black leader.</li> </ul>   |
| 6    | Skip Setup                             | When the option is activated, INFRARED 800 starts immediately in the recording mode, the setup phase is skipped.  |
| 7    | AutoZoom                               | <p>On: The total magnification is automatically changed to the preconfigured value without a notice dialog.</p> <p>Off: A setup dialog for changing the total magnification outside of the preconfigured range is displayed.</p>  |
| 8    | AutoZoom (start value)                 | Magnification value to which the microscope is set for the start of the recording of the INFRARED 800 video.  |
| 9    | Gain (start value)                     | Set the gain start value for a manual camera gain.  |

| Pos. | Name                       | Explanation  |
|------|----------------------------|--|
| 10   | Short Replay               | The short replay is played back repeatedly until the preset number of short replays has been reached or the button that was configured for the fluorescence application is pressed on the handgrip or the foot control panel. The number of short replays is automatically limited to max. 25. |
| 11   | Short Replay (duration)    | The length of the short replay is adjustable from 6 to 30 seconds. The adjusted length defines the video sequence used for the FLOW 800 card.  |
| 12   | Long Replay                | The recorded fluorescence video is played back in full length until the preset number of replays has been reached or the button that was configured for the fluorescence application is pressed on the handgrip or the foot control panel.   |
| 13   | MultiVision Overlay        | Live display of the infrared image (during recording) <ul style="list-style-type: none"> <li>■ On: Display on the monitor and as MultiVision Data Injection</li> <li>■ Off: Display on the monitor only</li> </ul>   |
| 14   | Display on Monitor         | Live display of the infrared image on the touchscreen (during recording) <ul style="list-style-type: none"> <li>■ Full Image</li> <li>■ Overlay</li> <li>■ Picture in Picture</li> </ul>   |
| 15   | MultiVision Data Injection | Show FLOW 800 evaluation   |

### 3.6.24 MultiVision



In this menu, you configure the settings for MultiVision (integrated data injection, option).

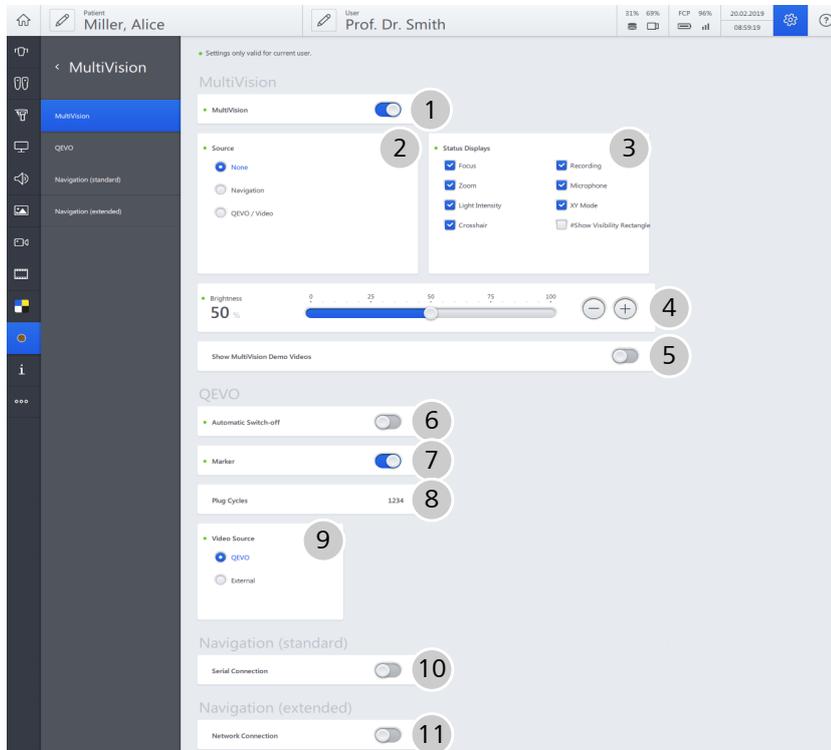


Figure 49: "Settings MultiVision" menu (option)

| Pos. | Name        | Explanation   |
|------|-------------|---|
| 1    | MultiVision | Switch the MultiVision function (option) on/off   |
| 2    | Source      | Selection of MultiVision data source for display: <ul style="list-style-type: none"> <li>■ None</li> <li>■ Navigation: Data from the navigation system are displayed.</li> <li>■ QEVO / Video: Video recording of the Micro-Inspection Tool or the integrated video camera is shown.</li> </ul> |

| Pos. | Name                                       | Explanation  |
|------|--|--|
| 3    | Status Displays                            | <p>Selection of displays which can be shown in the MultiVision display with a corresponding symbol:</p> <ul style="list-style-type: none"> <li>■ Focus: current working distance</li> <li>■ Zoom: current magnification</li> <li>■ Light intensity: current light intensity</li> <li>■ Reticle: marking of the current focus point</li> <li>■ Recording: REC symbol</li> <li>■ Microphone: current status of microphone</li> <li>■ XY mode: current movement mode of XY adjustment</li> <li>■ Camera (16:9): Marking of the camera recording area</li> </ul> |
| 4    | Brightness                                 | Set the brightness of the data injection   |
| 5    | Show MultiVision Demo Videos               | Selection of different MultiVision demo videos. These MultiVision demo videos can be displayed with the shutter open or closed.  |
| 6    | QEVO Automatic Switch-off (Auto rest mode) | Switch automatic switch-off for QEVO on/off  |
| 7    | QEVO Marker                                | Switch QEVO marker on/off  |
| 8    | Plug Cycles                                | Shows how often a QEVO has already been plugged in.  |
| 9    | Video Source                               | <p>Select video source (output 5):</p> <ul style="list-style-type: none"> <li>■ QEVO</li> <li>■ External</li> </ul>  |
| 10   | Navigation (standard)                      | The navigation system is connected directly to the device: Activate / deactivate connection to navigation system with standard functions   |
| 11   | Navigation (extended)                      | The navigation system is connected to the device via the network: Activate / deactivate connection to navigation system with extended functions. As soon as the connection to the navigation system has been activated, the current IP address appears in the "Navigation (extended)" field.   |

### 3.6.25 Info

#### INFO

This menu displays a variety of information regarding the system (serial numbers, software versions, license information).

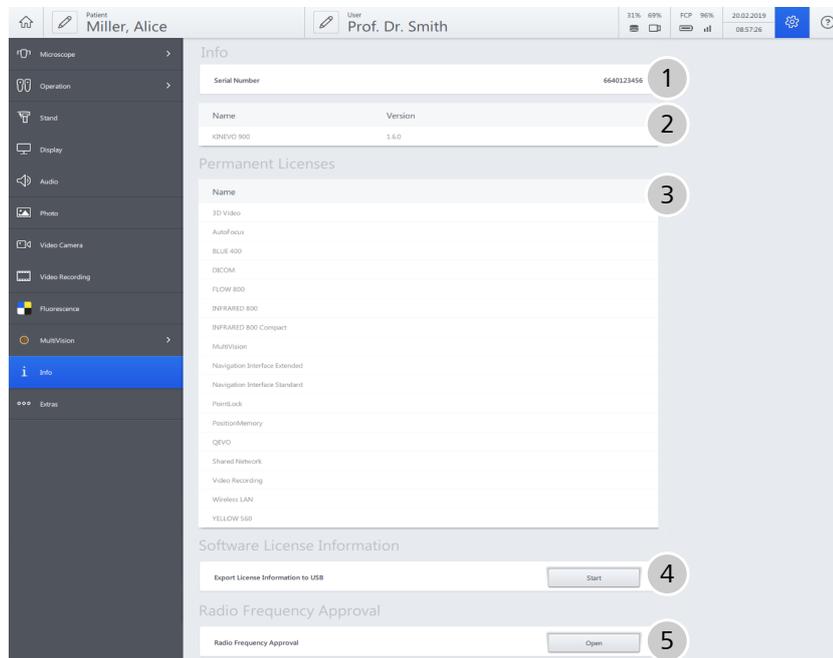


Figure 50: “Settings Info” menu

| Pos. | Name                              | Explanation   |
|------|-----------------------------------|---|
| 1    | Serial Number                     | Displays serial number of device.   |
| 2    | Name / Version                    | Displays the following values: <ul style="list-style-type: none"> <li>■ Product name</li> <li>■ Software version</li> </ul> |
| 3    | Permanent Licenses                | Lists all licenses installed in the device.   |
| 4    | Export License Information to USB | Tap on the [Start] button to export licenses to a USB storage medium.   |
| 5    | Radio Frequency Approval          | Tap on the [Open] button to display all radio frequency approvals available on the device.                                  |