KINEVO 900

Software Release 1.1

Instructions for Use

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Brand names

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1 Notes on Instructions for Use

1.1 Product name

KINEVO 900 is referred to as "Device" in these Instructions for Use.

1.2 Scope

The present Instructions for Use apply to KINEVO 900 with Software Release 1.1 and the following identification:

- Reference number: 6640

1.3 Purpose and storage of the documentation

These instructions for use explain the safety features, functions and performance parameters of the device. They contain instructions on the safe use of the device and identify measures for its care and maintenance.

Correct operation of the device is imperative for its safe and successful function.

- ▶ Read these instructions for use before setting up and using the device the first time.
- ▶ Keep the instructions for use accessible for all users at all times.
- ▶ Pass the instructions for use to future owners of the device.

1.4 Questions and comments

- ▶ If you have any questions or comments concerning these instructions for use or the device itself, please contact ZEISS Service.

You can find the ZEISS contact partner for your country on the following website: www.zeiss.com/med

1.5 Conventions in this document

Certain types of information are specially marked in this document for better recognition.

1.5.1 Conventions in all text areas

- This is a list.
  - This is a second level list.

This is a cross-reference: Questions and comments [▶ 12].

This is **bold type**.

This is a `software code` or `program text`.

Names of software dialogs, fields or menus, and software messages, are marked by quotation marks:

- "View" menu.
- "Do you want to save the settings?"

The steps in menu and file paths are separated by slashes:

- "File / Save as"
- "My documents / Documents"

Keys, buttons, knobs, levers and other operating controls are marked by square brackets:

- [START] key
- [Next] button

1.5.2 Conventions in a course of action

⚠ WARNING!

This is warning information about hazards that can cause death or severe injuries if not avoided.

The warning message names the possible consequences.

▶ This is a measure with which hazards can be prevented.

⚠ CAUTION!

This is warning information about hazards that can cause injuries if not avoided.

The warning message names the possible consequences.

▶ This is a measure with which hazards can be prevented.

NOTE

This is warning information about hazards that can cause property damages if not avoided.

The warning message names the possible consequences.

▶ This is a measure with which hazards can be prevented.

☑ This is a requirement that must be met before the start of a sequence of actions.

1. This is a command.
2. **CAUTION! This is a warning message about hazards that can occur during a single action.** This is a command.
   ⇨ This is the result of a sequence of actions.

1.6 Other applicable documents

Document type	Document title	Document number
Training record	Training record for newly installed system	G-30-1714
Instructions for Use	INFRARED 800 with FLOW 800 Option	G-30-1956
Instructions for Use	Mouth switch (option)	G-30-1469
Instructions for Use	14-function foot control panel, wired (FCP) or wireless (FCP WL) (option)	G-30-1706
Instructions for Use	QEVO and QEVO ECU (option)	G-30-1976
Conformance statement	DICOM Conformance Statement	G-30-1952
MICROSOFT SOFTWARE LICENSE TERMS	WINDOWS EMBEDDED STANDARD 7	As an annex to the present Instructions for Use

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2 Safety notes

2.1 Target group

⚠ CAUTION!

Only to be operated by trained personnel!

These Instructions for Use are intended for physicians, nurses and other medical and technical staff who prepare, operate or maintain the device after appropriate training. It is the duty of the device owner/operator to train and brief all the operating personnel.

- Initial instruction in preparation, operation, warnings/hazards, emergency operation and transport of the device shall be provided according to Training record G-30-1714 in connection with the present Instructions for Use.
- Any further training and instruction of planned operating personnel shall be performed by the operator of the device based on these Instructions for Use.

2.2 Area of use

2.2.1 Intended use

The KINEVO 900 is a surgical microscope intended for the illumination and magnification of the surgical area and for the support of visualization in surgical procedures.

⚠ CAUTION!

Risk of injury to the patient's eye!

The device must not be used for ophthalmological procedures.

- Make sure that no xenon light and no laser radiation enters the patient's eyes.

2.2.2 Normal use

The KINEVO 900 is suitable for cranial and spinal applications in neurosurgery, for ENT applications in the area of the auditory nerves and the base of the skull. Further fields of application include reconstructive and plastic procedures in accident surgery, plastic and reconstructive surgery, and oral and maxillofacial surgery in hospitals, clinics or other human medical institutions. The KINEVO 900 is also suitable for multidisciplinary use in microsurgery. It is designed for surgical procedures in which endoscopes and surgical microscopes are used simultaneously. The system can be optionally supplemented with navigation and network systems.

2.2.3 Risk of burn injuries caused by high illumination intensity

⚠ CAUTION!

Risk of burn injuries caused by high illumination intensity

Improper use of the xenon illumination may result in an excessively high illumination intensity, thus causing third degree burn injuries! A long surgical procedure increases the risk of injury, in particular if a standard procedure takes considerably longer than usual.

✓ Various factors contribute to the risk of burn injuries:

General

The device is equipped with a powerful xenon illumination.
If used improperly, the xenon illumination can lead to an excessively high illumination intensity resulting in third degree burns.
Never leave a device unattended when its light source is switched on!
Various factors contribute to the risk of burn injuries:

Device-related factors:

- If a high magnification value is used, the diameter of the field of view and the light intensity at the surgeon's eye both decrease while the light intensity in the surgical field remains the same. This effect is amplified by using certain accessory parts, e.g. for eyepieces, via a higher magnification or, in the case of the f170/f260 foldable tube, via the tube magnification (PROMAG function). When working at maximum magnification, you should therefore pay particular attention to the set light intensity to prevent burns, especially of the surrounding tissue.

Surgery-related factors:

- The size of the luminous field influences the risk of injury in two respects: With a large luminous field diameter, areas of the skin are illuminated which are not monitored as strictly by the surgeon and which are not moistened sufficiently. These areas represent a particular risk of injury. Such injuries can be prevented by adjusting the luminous field size to the smallest size required for that particular operation.
- If the luminous field is reduced in size, the intensity increases because the light is more strongly focused. So, if possible, the intensity should be lowered as soon as the size of the luminous field is reduced.
- A long surgical procedure increases the risk of injury, in particular if a standard procedure takes considerably longer than usual.

- Injuries in the peripheral area can be prevented by covering this area with moist, sterile gauze. The gauze must be moistened at regular intervals to prevent the area from drying out or heating up. The risk is increased if dry drapes are used to cover such areas.
- It should also be considered that some areas of the body may be more sensitive than others.
- Certain preparations of the surgical field, local vasoconstrictive medications and surgical incision drapes may also result in a higher risk of injury (surgical drapes may heat up to varying degrees depending on their color and moisture content).

Patient-related factors:

- The general condition of a patient's health may contribute to the risk of injury.
- The skin type may also play a major role for the risk of injury.
- Certain medications also affect the sensitivity to light.
- The interaction of heat and antimicrobial substances in incision foils may lead to an increased reaction of the patient to these substances.

Recommendations

- The initial light intensity should be preset to a low value.
- If used, surgical drapes should also be remoistened at regular intervals in order to prevent heat from accumulating underneath the surgical drape.
- The risk of burns can be reduced by constantly irrigating the illuminated surgical area and by keeping it moist.
- Using the buttons on the handgrip or foot control panel, the surgeon can then set the illumination intensity to the value required for the procedure. Please note that the intensity increases with decreasing luminous field size if the Spot function is used. For this reason, the intensity should only be set after the size of the luminous field has been changed.
- The system features "automatic limiting of luminous field", which should not be turned off.
- Usually, the magnification factor is increased during surgery. This darkens the image so that the illumination intensity must be increased. This loss in image brightness is automatically compensated if the zoom-dependent brightness control is activated.
- Never leave a device unattended when its light source is switched on.
- Switch off the light when the microscope is not used or make sure that it is not aimed at unprotected bare skin.

2.2.4 Electromagnetic compatibility

The device is subject to specific requirements with regard to electromagnetic compatibility (EMC).

Take the following precautionary measures to avoid EMC malfunctions:

Procedure

- ▶ Observe the Instructions for Use.
- ▶ Observe the EMC guidelines in the section “Technical specifications".
- ▶ Only use accessories, cables and spare parts which have been approved by ZEISS for this device.
- ▶ If you use radio equipment or wireless transmission components: Maintain a minimum distance of 30 cm from all components of the device.
- ▶ If you install the device in the vicinity of other devices or stack it with other devices: Check whether normal operation is possible in this arrangement.

2.3 Responsibilities and duties of the operator

Operating personnel

The device may be operated only by properly instructed and trained persons.

- ▶ Make sure that the operating personnel are appropriately trained and instructed.
- ▶ Make sure that the operating personnel have read and understood the Instructions for Use.
- ▶ Keep the Instructions for Use available at all times for the operating personnel.
- ▶ To simplify access for all operating personnel, order additional copies of the Instructions for Use from ZEISS as required.
- ▶ Specify the competencies for handling the device and state who is authorized to perform what tasks.
- ▶ Determine the reporting obligations for malfunction and damage and make them known. Notification of the manufacturer and authorities. [▷ 20]
- ▶ Provide the necessary protective clothing.
- ▶ Regularly check that the legal regulations applicable in your country with regard to accident prevention and work safety are being complied with.

Safety inspections

- ▶ In order to prevent a reduction of the device's safety due to aging and wear, have safety inspections performed regularly as specified for this device by the applicable national regulations.

The safety inspections may only be performed by the manufacturer or qualified personnel.

- ▶ Comply with the specified time limits.
- ▶ Carry out checks according to the extent specified.

The safety inspections of the device should at least comprise the following points:

- Availability of the Instructions for Use
- Visual inspection of the device and accessories for damage, as well as legibility of the labels
- Leakage current test
- Test of protective ground conductor
- Function and wear test of the brakes
- Function test of all switches, buttons, sockets and indicator lamps of the device

Maintenance and inspection

- ▶ In order to ensure safe operation of the device and reach the expected useful life: Comply with the maintenance and inspection intervals specified in these Instructions for Use.

Modifications to the product

- ▶ WARNING: This device must not be modified without the manufacturer’s permission. If the device is modified, suitable inspections and tests must be performed to ensure that the device can still be used safely.

Accessories and additional equipment

- ▶ If you want to connect accessories or additional equipment to the device: Contact your ZEISS contact person [▷ 11].

Any additional equipment connected to medical electrical devices must demonstrably comply with the applicable IEC or ISO standards (e.g. IEC 60950 for data processing equipment).

In addition, all configurations must meet the normative requirements for medical systems (see IEC 60601-1-1 or Clause 16 of the 3rd edition of IEC 60601-1 respectively).

Anyone connecting additional equipment to medical electrical systems is a system configurer and as such responsible for compliance of the system with the standards for systems.

Local legislation has priority over the above normative requirements.

Dangers arising from connection to a network

Before connecting the device to a network, observe the following safety measures to prevent injury or damage:

- ▶ The user (or IT manager) is responsible for ensuring that no computer viruses are transmitted to the device via the network connection.
- ▶ Make sure that there are no defects in the network which could lead to a hazardous voltage on the network connector.
- ▶ Ensure a data transmission rate of 1 Gbit/s (Fast Ethernet) and the conformity of your network configuration with internet protocol IPv4 so that patient data can be exported to your network reliably, safely and error-free.

Changes to the network

The following subsequent changes to the network may result in new risks:

- ■ Changes to the network configuration
- ■ Connecting additional devices to the network
- ■ Disconnecting devices from the network
- ■ Updates of devices connected to the network
- ■ Upgrades of devices connected to the network
- ▶ Analyze and eliminate any risk factors newly incurred by such changes to the network.

2.3.1 Messages to manufacturer and authorities

If a serious incident occurs in connection with this medical device affecting the operator or another person, the operator (or person responsible) must report this serious incidence to the manufacturer or seller of the medical product. In the European Union, the operator must report this serious incident to the responsible authorities in the applicable country.

2.4 Measures and duties of the operator

Electrical safety

- ▶ Always switch off the device before connecting it to or disconnecting it from the power supply, for cleaning its surface, or if it will not be used for a prolonged period of time.
- ▶ Only connect the device to a power supply that complies with the values specified on the rating label.
- ▶ Do not use multiple sockets!
- ▶ Do not use extension cables!
- ▶ Do not touch the device if your body is electrostatically charged and the device is not grounded.

- ▶ Connect the device via the potential equalization connection (according to IEC 60601-1) to other active devices with the same ground potential or connect it to a protective ground connection.
- ▶ Please observe the information on electromagnetic compatibility (EMC).

The device contains freely accessible live components. If you remove the housing, you run the risk of electric shock.

- ▶ Never open the device!

Environmental conditions

- ▶ Make sure that the installation conditions and the operation of the device comply with the surgical requirements:
- ■ Low vibration
- ■ Clean environment
- ■ Avoid extreme mechanical stress
- ▶ Do not use power-operated devices included in the delivery package
- ■ in explosive atmospheres,
- ■ at a distance of less than 25 cm from flammable anesthetics or volatile solvents such as alcohol, benzine or similar substances.
- ▶ Do not use or store the device in damp rooms. Do not expose the device to water splashes, dripping water or sprayed water.
- ▶ Ensure that fluids cannot enter the device.

Symbols and labels

- ▶ Note the symbols and labels attached to the device!

Transport

- ▶ Only transport the device over long distances (e.g. relocation, return for repair) in its original packaging or special return packaging.
- ▶ Please contact your dealer or ZEISS Service for this purpose.

2.5 Liability and warranty

The warranty and liability depend on the contractually specified conditions.

Do not modify the device without permission.

- This device must not be modified without the manufacturer's approval. If the device is modified, suitable inspections and testing must be completed to ensure that it can still be used safely.
- The manufacturer is not liable for damage caused by unauthorized use of the device. Furthermore, this will forfeit any rights to claim under warranty.

3 Device description

3.1 General

The standard configuration of the KINEVO 900 includes modules and functions for neurosurgical applications (autofocus, autodrape, navigation interface and MultiVision system). This basic equipment can be extended to include additional options and accessories. A symmetrical system design with 2 system monitors enables flexible positioning in the operating room. A modular hardware and software concept allows the user to achieve an individually adjustable system configuration. This in turn enables the subsequent activation of an additional function of an installed hardware module at a later date by activating a corresponding license.

Only installed and active options and their functionalities can be displayed and configured on the touchscreen.

3.2 Innovative functionalities

3.2.1 Kinematic and robot-assisted positioning functions

Every KINEVO 900 system offers the user new and innovative movement and positioning functions for simplified and more precise pre- and intraoperative microscope positioning in its standard configuration.

- Manual "PointLock" movement mode

  When the "SB" button on the handgrip is pressed (for PointLock configured), the microscope can be moved and realigned freely (e.g. in order to adjust to a different observation angle for the same object) without changing the focal point in the center of the field of view. The working distance is at the same time automatically adapted from 200 to 625 mm within the available focal length range. The new PointLock control greatly simplifies repositioning and adjustment of the microscope whenever the user would like to remain focused on the field of view center.

- Motorized "PointLock" XY movement mode

  This new motorized XY movement function enables time-saving and exact adjustment of the microscope while keeping it focused on the focal point (field of view center) at a constant working distance. The motor control can be triggered via the XY joystick on the handgrip or hands-free with the FCP.

- Position Memory

  The current position of the microscope, its alignment to the object, the working distance and the magnification can be saved intraoperatively at any time. Via the handgrip and the FCP or the user interface on the touchscreen, the user can call up these stored positions again and automatically move to them with high accuracy via the release button on the handgrip or FCP at any time during the procedure. Important intraoperative landmarks or anatomical details can be called up again and set in this way at any time.

- Motorized "Microscope XY movement mode

  The microscope can be moved by motor in the three axes of its suspension, 4, 5 and 6. This enables precise motorized tilting and swiveling of the focal point in the XY direction with a fixed working distance. The stand does not move in the process.

- Motorized "Stand" XY movement mode

  The microscope can be moved by motor in the three axes 1, 2 and 3 in the XY focal plane without tilting or swiveling; the alignment of the eyepieces always remains the same (e.g. horizontal). This enables precise motorized XY movement of the focal point at a fixed working distance. Only the axes of the stand move in the process.

- Motorized movement to the system park position

  The device can be automatically moved to its park position, thus enabling a constantly identical and compact park position.

- Motorized movement to a drape position

  The drape position is saved as a factory setting, however, can be changed arbitrarily. This drape position can be redefined and saved by the user in order to enable more efficient draping always performed in the same position.

3.2.2 QEVO hand-held, digital exploration tool (option)

QEVO (option, see Instructions for Use G-30-1776) is a new type of hand-held, digital and completely sterilizable exploration tool for the display of anatomic details not accessible with the microscope (e.g. a view behind an aneurysm to be clipped). It can be plugged into the console of the KINEVO 900 easily and quickly as required, thus replacing an additional endoscope system which would require both time and effort to prepare. The clear high-resolution HD video image of QEVO is displayed on the system monitor or an externally connected video monitor by pressing a button on the handgrip or the FCP.

3.2.3 Integrated 3D video system for observation without eyepieces (option)

4.3. „KINEVO 900“ turi pasirenkamą antrą sistemos vaizdo monitorių (HD), esantį simetrinės konsolės gale. Sistemą galima naudoti su atitinkama konfigūracija (visiškai integruota pasirenkama 3D stereo vaizdo kamera) ir kaip skaitmeninę vizualizavimo sistemą. Priklausomai nuo chirurginės situacijos ir individualių naudotojo pageidavimų, sistemą galima naudoti su tubusu ir okuliarais ir (arba) su atitinkamai išdėstytu išoriniu 3D vaizdo monitoriumi, skirtu chirurginės srities vaizdui rodyti. Naudojant vietoj pasirenkamo antrojo HD sistemos monitoriaus, antras 3D vaizdo monitorius (kaip stereo parinkties komponentas) sistemos konsolėje papildomai leidžia stebėti chirurginę sritį stereoskopiniais akiniais.

The KINEVO 900 features an optional 2nd system video monitor (HD) on the back of the symmetrical console. The system can be used with a corresponding configuration (fully integrated optional 3D stereo video camera) and as a digital visualization system. Depending on the surgical situation at hand and the user's individual preference, the system can be used with a tube and eyepieces and/or with a correspondingly positioned external 3D video monitor for display of the surgical area. When used instead of the optional second HD system monitor, a second 3D video monitor (as a component of the stereo option) on the system console additionally enables observation of the surgical area with stereoscopic glasses.

⚠ CAUTION!

Application of BLUE 400 only with eyepiece-based optical observation!

- ▶ The use of tubes and eyepieces is required for the BLUE 400 option.

3.2.4 Data management

- Data storage in a shared network (option)

  The KINEVO 900 can be connected to the clinic network via a LAN connection (and optionally via WLAN, see below). A correspondingly configured server directory enables fast and easy data transfer of images and videos to this network drive for central data storage and fast accessing of this data from every PC/laptop connected to the network for editing and processing (e.g. with a video editor). This option also enables parallel video recording (option) on this network drive and prevents e.g. time-consuming data transfer using USB media.

- Wireless WLAN data transfer (option)

  An optional WLAN module with a WiFi hotspot function simplifies the management of images and videos stored with the KINEVO 900 enormously. With this option, a wireless connection to the clinic network or server directory can be configured instead of a LAN connection for time-saving data transfer. A WiFi hotspot for connections to mobile devices (e.g. tablets or smartphones) can be additionally activated and used, thus enabling users to access the patient data directory in the KINEVO 900 and download the desired images and video clips quickly and easily. All network, WLAN and WiFi connections are password-protected.

3.2.5 Navigation functionality

The KINEVO 900 is prepared for the display of navigation information and the connection of external navigation systems (factory-integrated standard navigation interface and MultiVision system). In connection with an extended navigation license, the new robotic positioning capabilities featuring motors in all system axes permit automatic alignment of the microscope to a trajectory predefined in the navigation planning software, provided that the connected navigation system supports this function.

3.2.6 Video recording functionality (option)

18. 2. „KINEVO 900“ siūlo naudotojui žymiai efektyvesnę vaizdo įrašymo funkciją. Stereo vaizdo kamera leidžia naudotojui pasirinkti 2D arba 3D įrašymą.

The KINEVO 900 offers the user a considerably more effective video recording functionality. A stereo video camera enables the user to choose a 2D or a 3D recording. In addition to the normal HD video recording (activated via handgrip, FCP or touchscreen user interface), a disk space optimized recording with a reduced resolution also can be activated, e.g. in order to record and save daily surgical procedures in their full length. An intuitive video editor with a cut & merge function enables fast and easy video editing on the system prior to downloading. A video streaming option can be activated if the system is connected to the clinic network. This option makes it possible to transmit the surgical procedure via LAN/WLAN e.g. to a remote auditorium with any accessible IP address or to a connected mobile device via WiFi.

18. 2. Jei sistema prijungta prie klinikos tinklo, galima įjungti vaizdo transliacijos parinktį.

3.3 Device marking

3.3.1 Labeling on the microscope

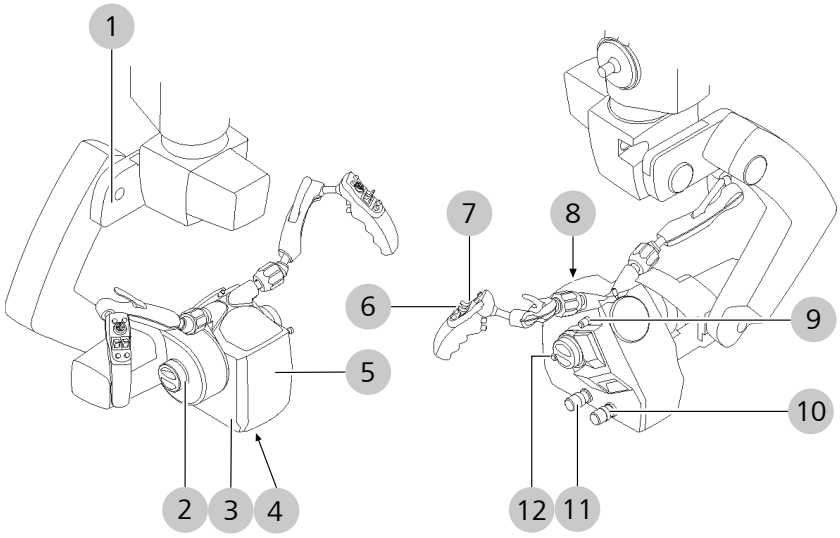


Figure 1: Labeling on the microscope

Item	Symbol	Explanation
1		Max. load 6 kg
2		Open, right/left co-observation port
3		Warning of laser beam (labeling for autofocus option)
4	Varioskop	Brand name

Item	Symbol	Explanation
5	ZEISS	Brand / ZEISS logo
6	**Z**	Zoom
7	**F**	Focus
8	302584-9000-000 XXXXXXXXX	Microscope identification label (inside)
9		Switch over, right/left co-observation port
10		Luminous-field diaphragm
11		Focus/working distance
12		Adjust zoom magnification manually

3.3.2 Rating label/UDI label

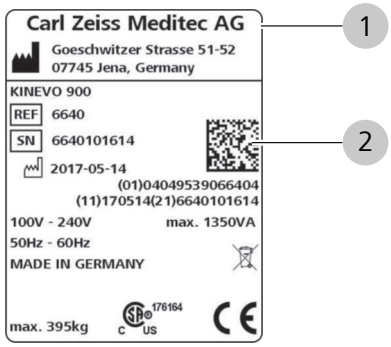


Figure 2: Rating label/UDI label

Item	Explanation
1	Rating label ■ Manufacturer: Carl Zeiss Meditec AG ■ Manufacturer's address: Goeschwitzer Strasse 51 - 52 07745 Jena, Germany ■ Manufacturer symbol: ■ Device name: KINEVO 900 ■ Rated voltage: 100V - 240V ■ Max. connected load: 1350VA ■ Line frequency range: 50Hz - 60 Hz ■ Designation of origin for industrial products: MADE IN GERMANY ■ WEEE mark: ■ CSA mark: 176164 C US ■ CE marking: This medical device is labeled according to Appendix XII of Medical Device Directive 93/42/EEC. ■ Maximum total mass: Max. 395 kg
2	UDI label ■ Machine-readable label (barcode) ■ Date of manufacture, year-month-day ■ UDI Device Identifier (UDI-DI) ■ UDI Production Identifier (UDI-PI)

3.3.3 Labeling on stand, Part 1

Figure 3: Labeling on stand

Item	Symbol	Explanation
1	KINEVO 900	Device name
2	ZEISS	Brand / Logo
3		Seal for drape suction
4		Risk of crushing!
5		Transport position: ■ Observe the Instructions for Use ■ Pushing position ■ General warning

3.3.4 Labeling on stand, Part 2

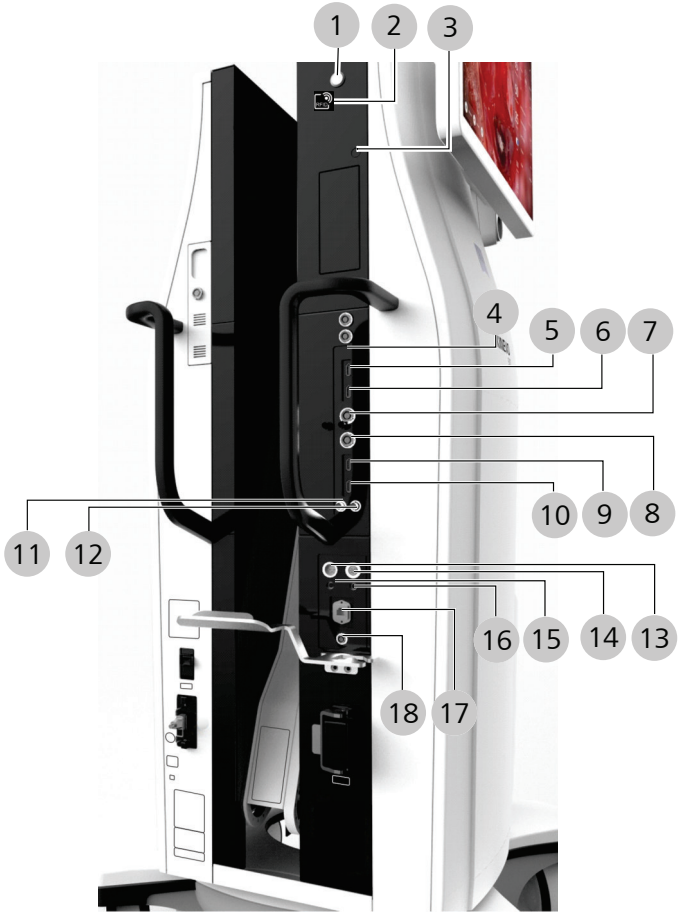


Figure 4:

Item	Symbol	Explanation
1		Standby/ON-OFF switch
2	RFID	RFID capture or reading device
3	**USB OPEN**	Open USB cover
4	4K	Video output: 4K (2x)
5		Video input: Display port
6		Video input: Display port
7		Video input: HDMI / DVI
8		Video output: DVI
9		Video output: Display port
10		Video output: Display port

Item	Symbol	Explanation
11		Video output: HD-SDI / 3G-SDI
12		Video output: HD-SDI / 3G-SDI
13		Remote connector
14		Foot control panel, 14-function
15		Audio out
16		Audio in
17	**LAN**	Ethernet port (LAN)
18		Rock switch

3.3.5 Labeling on stand, Part 3

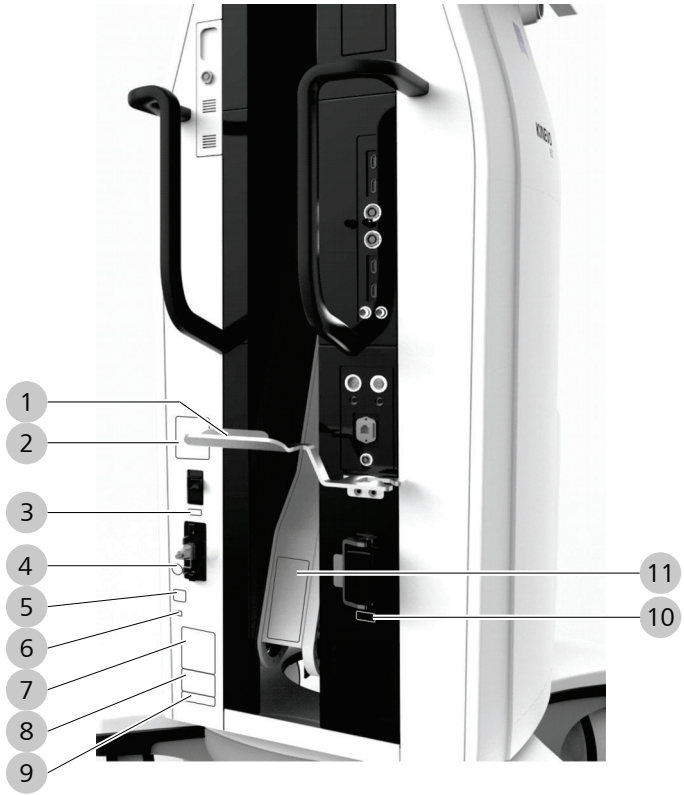
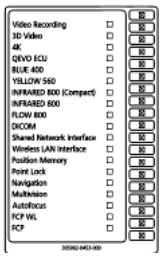


Figure 5: Labeling on stand, Part 3

Item	Symbol	Explanation
1		Risk of crushing!

Item	Symbol	Explanation
2		Rating plate with certification data for INFRARED 800 (option), specifying: ■ Manufacturer ■ License data ■ UDI labeling ■ CE marking
3	F1	Fuse display F1
4		Read and observe the Instructions for Use.
5		Non-ionizing electromagnetic radiation
6		Potential equalization
7		Rating plate with certification data for KINEVO 900, specifying: ■ Manufacturer ■ Device data ■ Power data ■ UDI labeling ■ Type of disposal ■ Total weight ■ CSA mark ■ CE marking
8		SIP label, specifying: ■ Manufacturer ■ Manufacturer's contact details ■ SIP number of device (SIP = Service Identification Program)
9	**664010xxxx**	Serial number of device
10	NAV	Port for navigation system

Item	Symbol	Explanation
11		Identification label, options
		Identification for installed options

3.3.6 Labeling on stand base

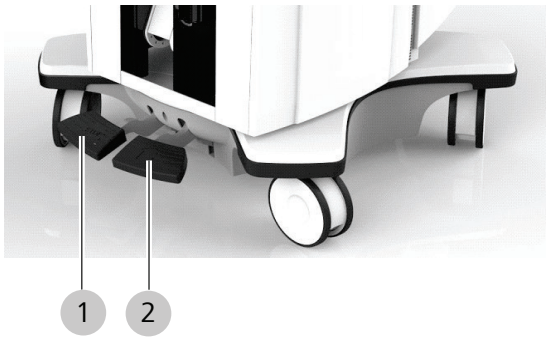


Figure 6:

Item	Symbol	Explanation
1		Pedal locking tabs
2		Straight-ahead travel pedal

3.3.7 Labeling on light source

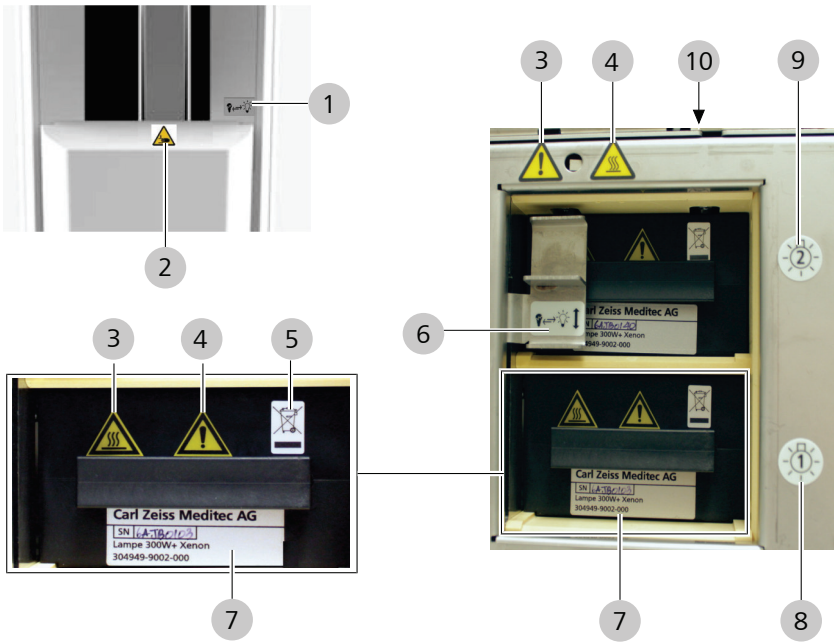
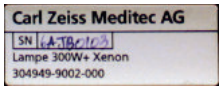


Figure 7: Labeling on light source

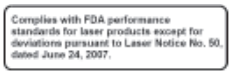
Item	Symbol	Explanation
1		Lamp replacement/manual lamp replacement (removal of light source cover)
2		Risk of crushing!
3		Hot surface
4		General warning
5		"Observe disposal regulations" label Do not dispose of electrical or electronic devices along with normal domestic waste.
6		Manual lamp change
7		Identification label, lamp 30W+ xenon
8		Light 1

Item	Symbol	Explanation
9		Light 2
10		Identification label, “HLQ 300 Future” light source

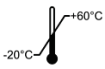
3.3.8 Labeling for autofocus option

Figure 8: Labeling for autofocus option

Item	Symbol	Explanation
1		Warning of laser beam
Country-specific labels: Class 2 laser - laser radiation - Do not look into the beam or view directly with optical instruments		
2		German label: Class 2 laser
3		Spanish label: Class 2 laser
4		English label: Class 2 laser

Item	Symbol	Explanation
5		French label: Class 2 laser
6		US label: Class 2 laser

3.3.9 Labeling on packaging

Symbol	Symbol	Explanation
	Indication of direction “This side up"	Indicates the correct upright position of the package.
	Fragile	Handle with care
	Keep dry	Protect packaging and packaged contents from wetness.
	Do not stack	Stacking of the packages is not permitted. No load should be placed on the package.
	Permissible temperature	The product may only be transported and stored at a temperature range of min. -20°C to max. +60°C.
	Packing unit	Specification of the number of packing units
	Permissible relative humidity	The product may only be transported and stored at an humidity of min. 10% and max. 90% RH.
	Permissible atmospheric pressure	The product may only be transported and stored at an atmospheric pressure of min. 500 hPa and max. 1060 hPa.
KINEVO 900		Device name
		Brand / Logo
		Min. 1.2 m forklift length

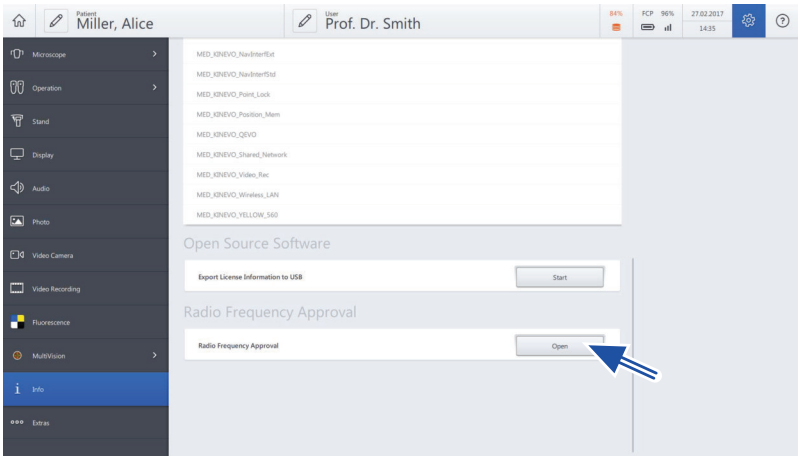
Symbol	Symbol	Explanation
	Center of gravity	Indicates the package's center of gravity.
		Shockwatch
		Tiltwatch

Table 1: Symbols for transport and storage

3.3.10 Displaying radio frequency approvals on the monitor

Action

1. Tap on ⚙ Settings ⟶ ℹ Info.



2. Scroll down in the "Info menu": Open ⟶ Radio Frequency Approval.
   ⇨ The markings of the existing radio frequency approval are displayed.
3. Scroll down in the "Radio Frequency Approval" display.
4. Close the "Radio Frequency Approval" display by tapping on the black surface next to the display.

3.4 Structure of the device

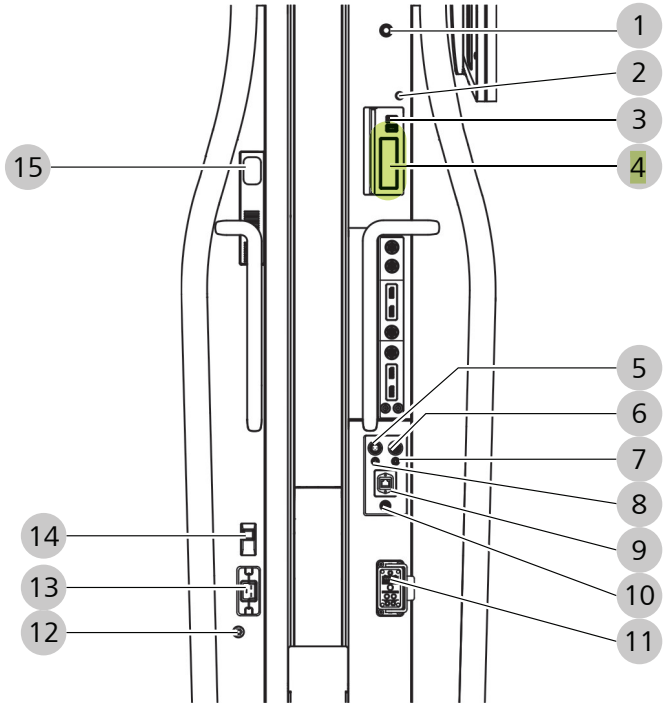
3.4.1 Device overview

Figure 9: Device overview

4. 1.

1	Main monitor (touchscreen) Pagrindinis monitorius (jutikliniu ekranu)	2	Vertical arm
3	Horizontal arm	4	Microscope suspension
5	Microscope	6	Console
7	Lamp housing	8	Stand base
9	Connector panel	10	Transport handle, 2x
11	Second monitor (option)		

3.4.2 Overview of connector panel



18. 1.

Figure 10: Overview of connector panel

Item	Symbol	Name
1	I/0	Powering the device up and down
2	USB OPEN	Open USB cover
3	2 x USB 3.0	USB port (3.0) (2x)
18. 1. 4		Shelf for external USB mini HDD Lentynėlė išoriniam USB mini HDD diskui
5		Remote connector (AUX)
6		Connector 14-function foot control panel
7		Audio in
8		Audio out
9	LAN	Ethernet port (LAN)
10		Rocker foot switch connector
11	NAV	Port for navigation system
12		Potential equalization: For connecting the system to the potential equalization system in compliance with IEC 60601-1.

Item	Symbol	Name
13		Power inlet socket
14		Automatic circuit breaker
15		Connection socket for hand-held, digital exploration tool QEVO

3.4.3 Overview of video connector panel

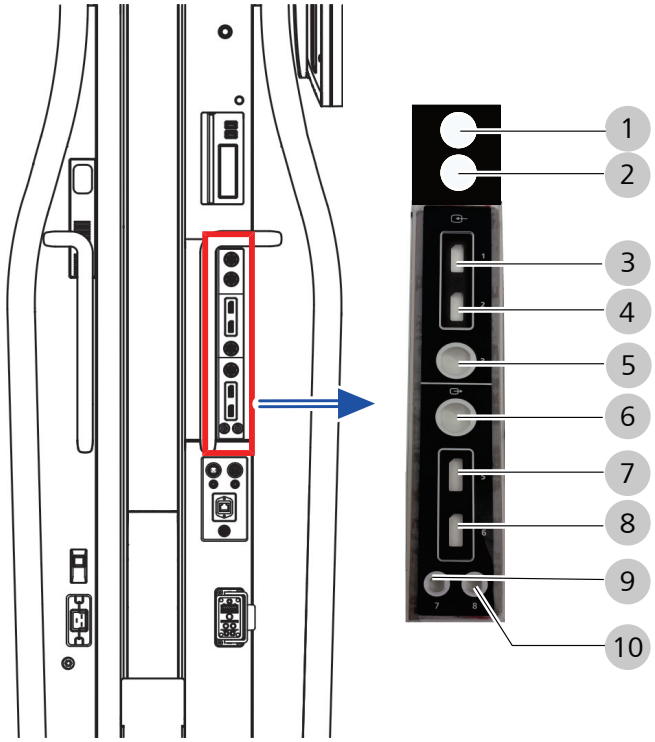


Figure 11: Overview of video connector panel

Item	Symbol	Type	Use
1	4 K	Video output	4 K: Video output, left
2	4 K	Video output	4 K: Video output, right
3		Video input: Display port	Connection of navigation video source for MultiVision overlay
4		Video input: Display port	
5		Video input: HDMI / DVI	Video input for external endoscope camera

Item	Symbol	Type	Use
6		Video output: DVI	■ 2D/3D for stereo option ■ Live full screen/endo/PIP ■ Touchscreen imaging
7		Video output: Display port (stereo)	Camera signal video output, e.g. also for external monitor (option)
8		Video output: Display port (mono)	2D live image touchscreen, mono left
9		Video output: HD-SDI / 3G-SDI	Live camera image (corresponds to eyepiece view) with MultiVision overlay (option) Mono camera (HD): Video output, left Stereo camera (3D HD): Video output, left
10		Video output: HD-SDI / 3G-SDI	Live camera image (corresponds to eyepiece view) with MultiVision overlay (option) HD-SDI (1080i) 3G-SDI (1080p) Stereo camera (3D HD): Video output, right

3.4.4 Overview of microscope

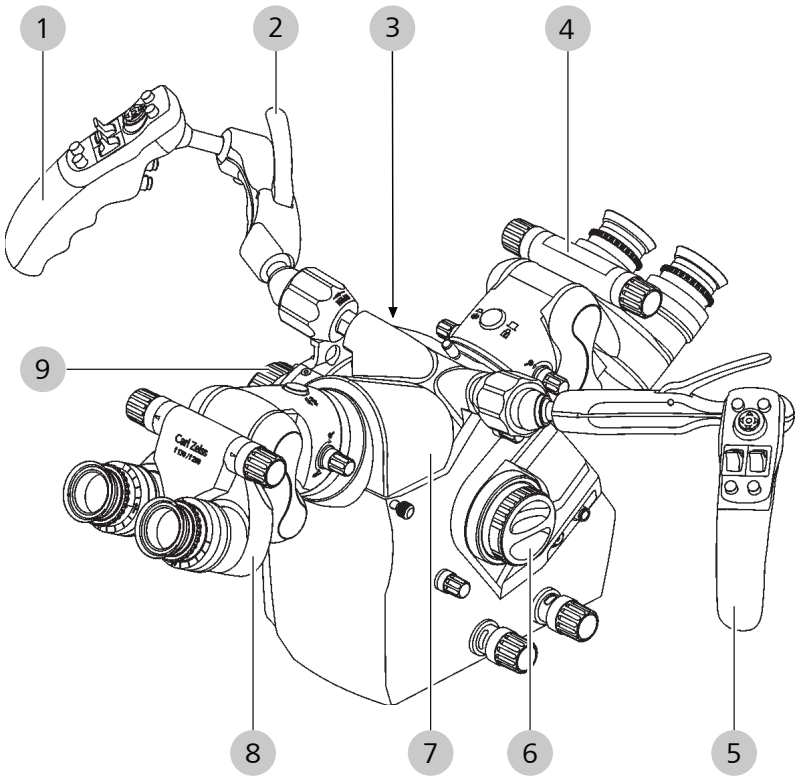


Figure 12: Overview of microscope

1	Left hand grip	2	Hand grip clamp
3	Microphone	4	Assistant tube (face-to-face)
5	Right hand grip	6	Right co-observation port
7	Angle optics	8	Tube for surgeon
9	Left co-observation port		

3.4.4.1 Configuration options

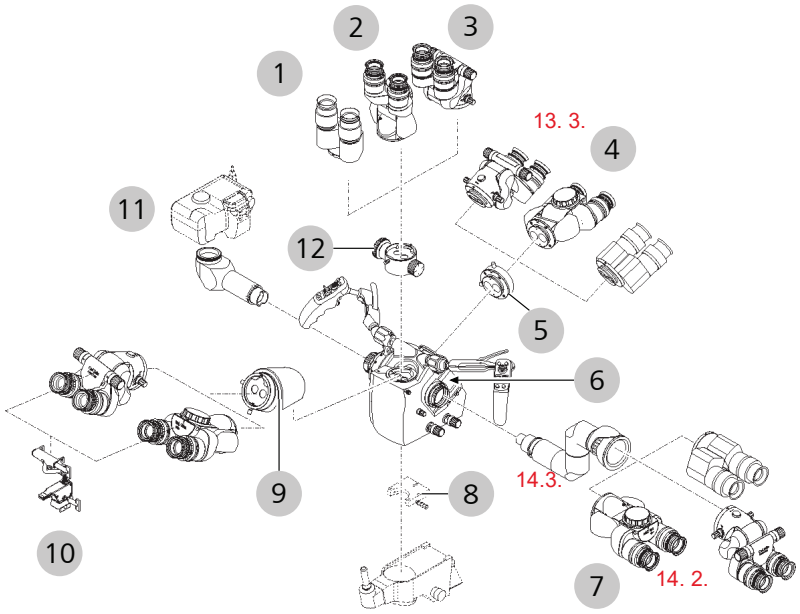


Figure 13: Configuration options

	1	Straight binocular tube	2	Tiltable binocular tube
	3	Folding binocular tube	4	Tubes for face-to-face viewing (items 1, 2, 3)
	5	Rotating adapter Stereo bendro stebėjimo modulis su vamzdžiais	6	Navigation system antenna connector
14. 3.	7	Stereo co-observation module with tubes (items 1, 2, 3)	8	Adapter plate for connecting laser micromanipulator
	9	Angle optics*	10	Mouth switch
	11	Photo adapter for DSLR	12	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.

3.4.4.2 Overview of binocular tubes

14. 1. Papildomas binokuliarinis vamzdis asistentui

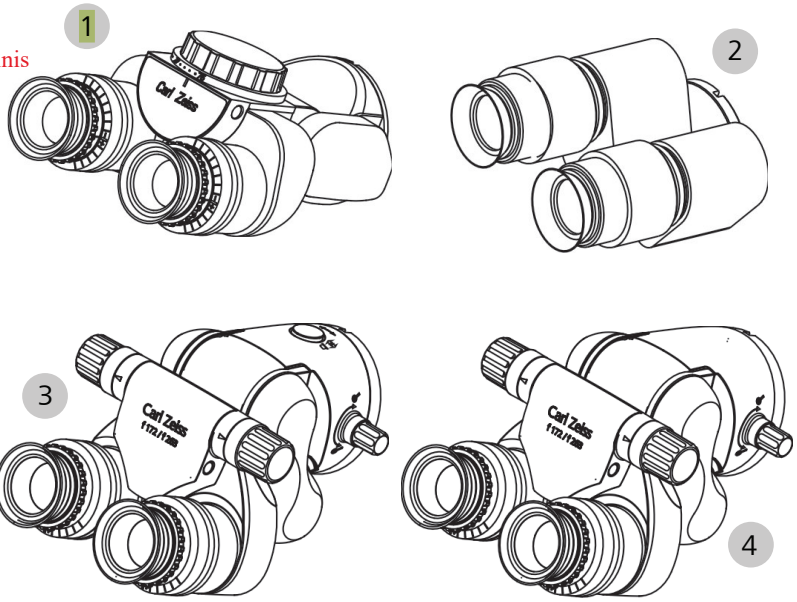


Figure 14: Binocular tubes

14. 1. Lankstomas 0 -180° binokuliarinis vamzdis

1	180° tiltable tube, focal length f= 170 mm	2	Straight tube, focal length f= 170 mm
3	Foldable tube, focal length f= 170/260 mm	4	Foldable tube for mouth switch, focal length f=170/260 mm

Plataus lauko okuliarai (10x arba 12,5x)

12. 3. 13. 4. 14. 4. **3.4.4.3 Widefield eyepiece (10x or 12.5x)**

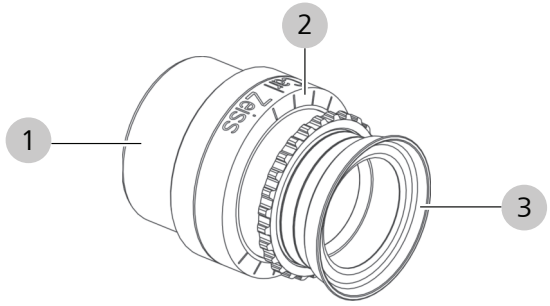


Figure 15: Widefield eyepiece (10x or 12.5x)

1	Magnetic coupling	2	Diopter scale
3	Eyecup		

3.4.4.4 Stereo co-observation module

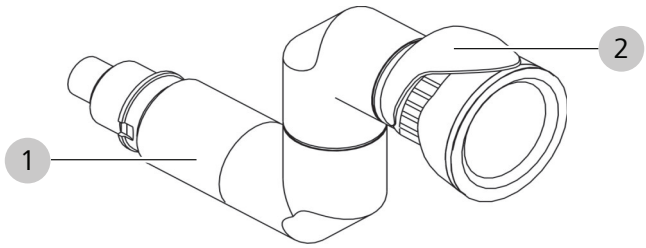


Figure 16: Stereo co-observation module

Stereo bendro stebėjimo modulis su 2 lankstymo šarnyrais

14. 3.

1	Stereo co-observation module with 2 pivot joints
2	Locking lever

2. 3. ### 3.4.4.5 Additional Light Papildoma šviesa

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

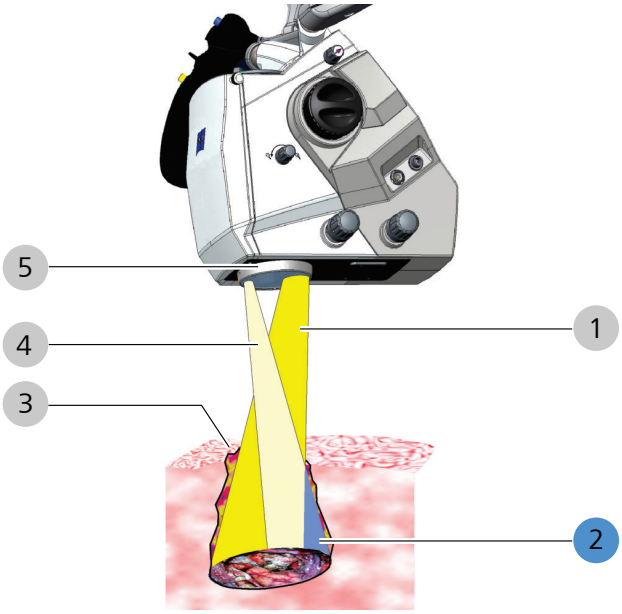


Figure 17: Additional Light

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

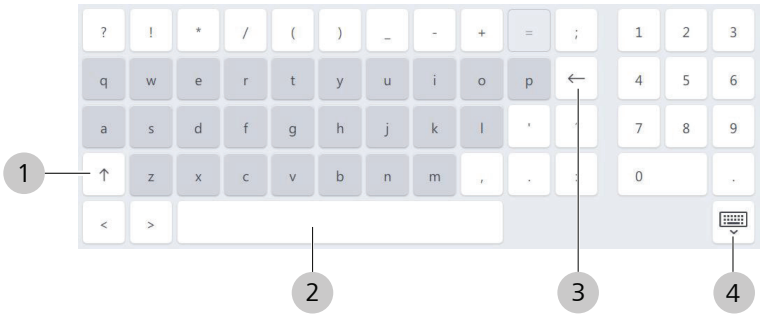


Figure 18: Screen keyboard key assignment

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.

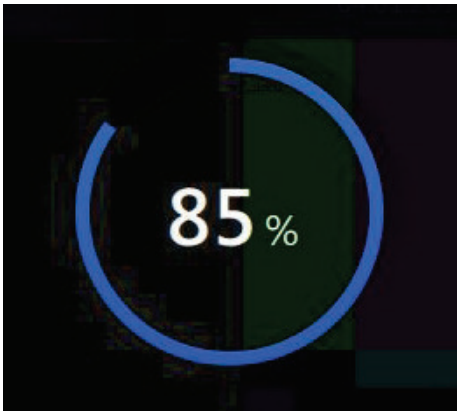


Figure 19: Progress display

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

3.5.3 Online help

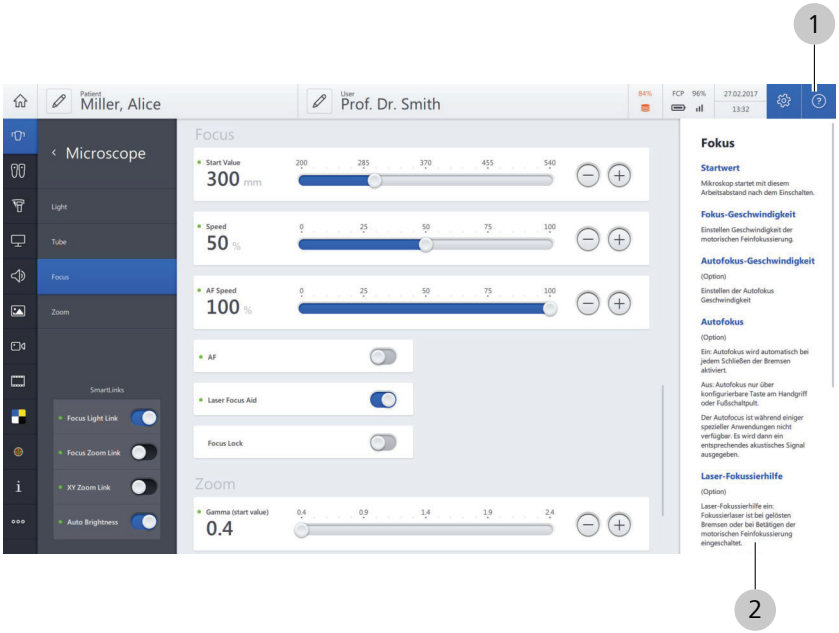


Figure 20: Call-up and display of online help

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 21: 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

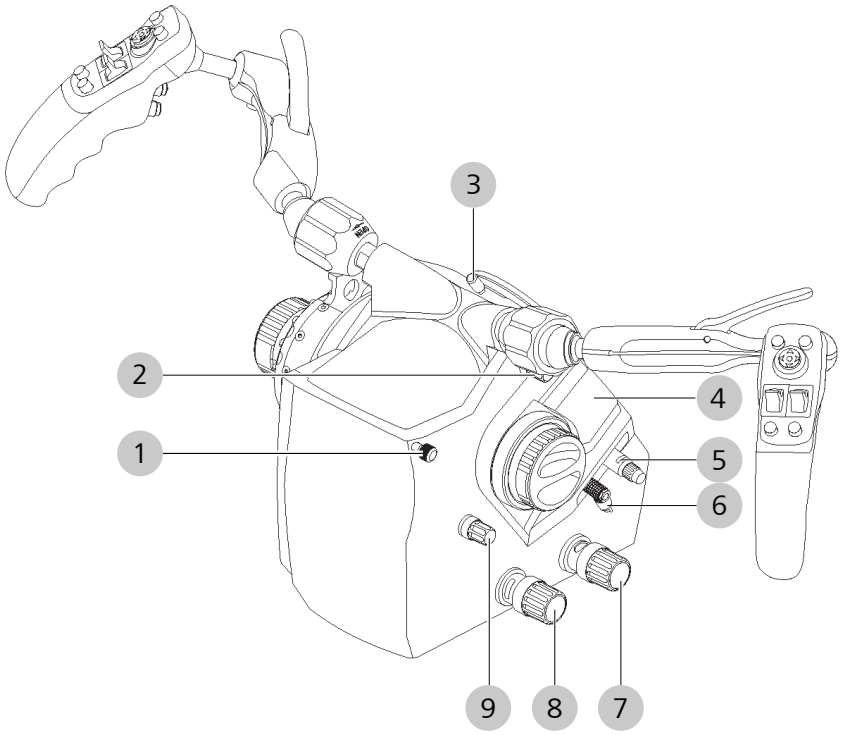


Figure 22: Controls on the microscope

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 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 Turn CW: Smaller
8		Adjust focus/ working distance manually	Turn CCW: Larger Turn CW: Smaller

Item	Symbol	Name	Explanation
9		Adjust zoom magnification manually	Turn CCW: Smaller Turn CW: Larger

3.5.6 Controls of binocular tubes

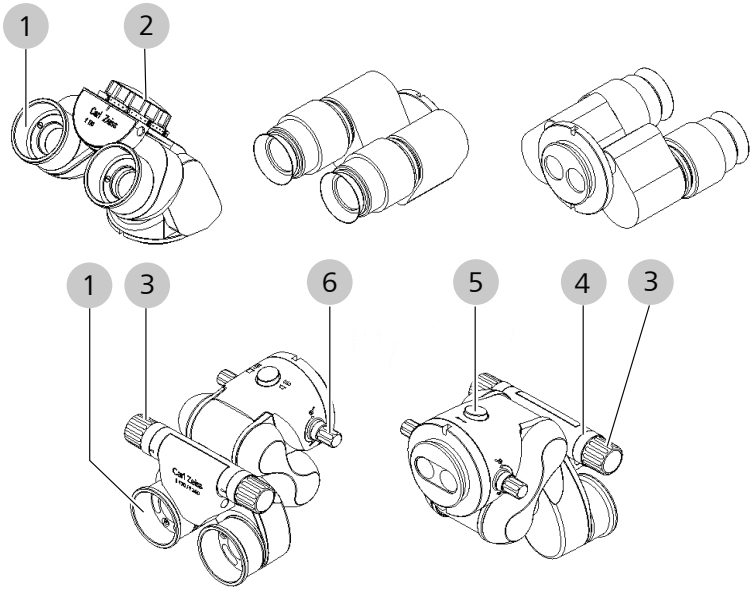


Figure 23: Controls of binocular tubes

Item	Symbol	Name	Explanation
1		Eyepiece mounting	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 the locking device is pressed, the tube can optionally be rotated CW or CCW.
6		Adjustment wheel for integrated magnification changer (PROMAG)	Changing to a higher magnification.

3.5.7 Controls for widefield eyepieces

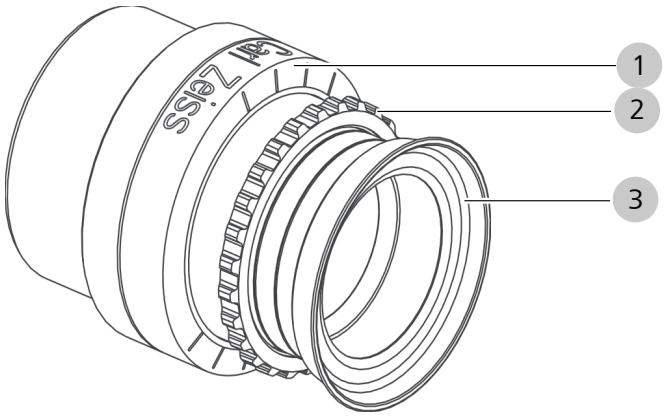


Figure 24: Controls on widefield eyepiece

Item	Name	Explanation
1	Diopter scale	Adjustable from -8 dpt. to +5 dpt.
2	Diopter setting ring	For adjusting the diopter setting.
3	Adjustable eyecup	Prevents the entry of scattered light.

Rankenos valdymo elementai

3.5.8 Controls of handgrips

Both handgrips are of the same design. You can configure the left and the right handgrip with the same functions or with different functions.

15.

Jūs galite sukonfigūruoti kairią ir dešinę rankenas su tomis pačiomis funkcijomis arba su skirtingomis

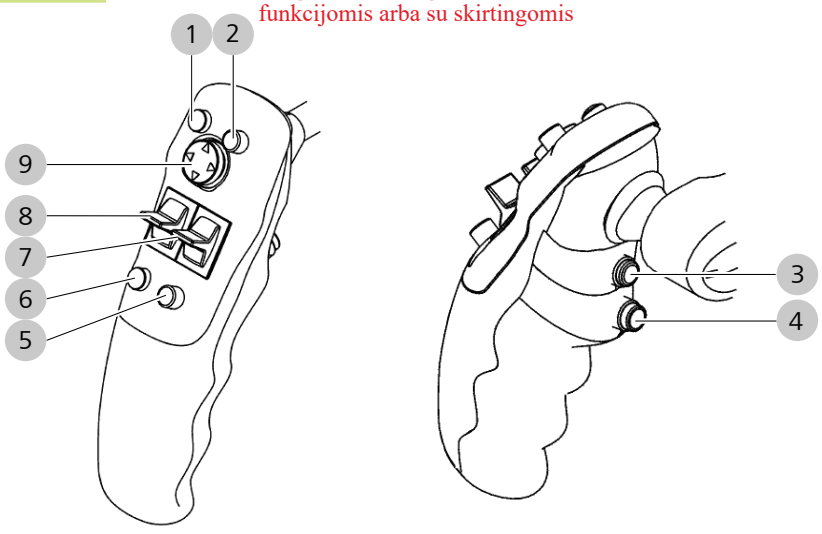


Figure 25: Button assignment of handgrips

Item	Name	Explanation
1	Button **A**, config-urable	Factory setting: Take photo

Item	Name	Explanation
2	Button **B**, configurable	Factory setting: Autofocus
3	Brake release button (**SB**)	Brake release button for selected rotary axes and positioning modes (factory setting: stand axes)
4	Brake release button (**AB**)	Brake release button for all stand and microscope axes
5	Button **D**, configurable	Factory setting: Increase illumination intensity
6	Button **C**, configurable	Factory setting: Reduce illumination intensity
7	Rocker switch **G / H**	Zoom + / Zoom - (factory setting)
8	Rocker switch **E / F**	Focus + / Focus - (factory setting)
9	Joystick	Motorized XY fine adjustment Depending on the current operating mode, the joystick of the right handgrip may have certain special functions (see separate description in the corresponding chapters). Messages displayed on the touchscreen can be acknowledged by pressing the center position of the joystick button on the **left** handgrip.

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	Button	Explanation
	Live image	Touchscreen with live image, status bar and main menu bar
	Configuration menu (config)	All configurations and settings are accessible via this menu.
	Switch	Function switched on
	Switch	Function switched off
	Button	Triggers a function.
	Controller	Continuously variable The values displayed (SI units) are rounded. They serve only to enhance the display and do not represent a measurement function.

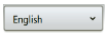
Symbol	Button	Explanation
	+/- buttons	Adjustable in steps
	Record button	Records and saves the current display.
	Video On button	Video recording running
	Video Stop button	Video recording stopped
	Selection field	Selection between functions (blue: selected)
	Functions	Selection of various functions (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 settings for handgrips and FCP.
	Selection menu	Selection of various system languages
	Functions	Create new user or patient
	Functions	Edit patient/user profile
	Functions	Filter patient data/filtering direction
	Functions	Search for patient record
	Functions	Import/Export data
	Functions	Hide keyboard
	Functions	Delete

Table 2: Interactive buttons

KINEVO 900 vartotojo

4. 2. 3.6.3 User interface of the KINEVO 900

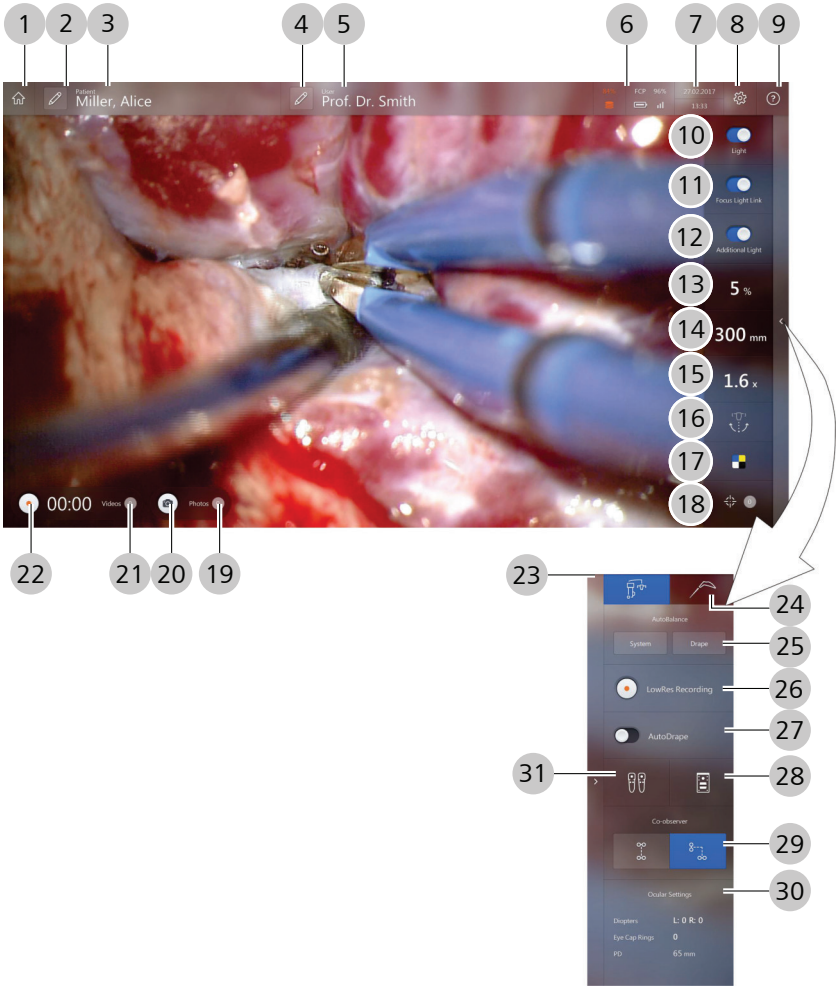


Figure 26: Design of the KINEVO 900 user interface

Item	Name	Explanation
1	Main menu (Home)	Navigation to the main menu with live image, status bar and main menu bar
2	Edit patient data	Used to edit the patient data.
3	Patient	Displays name of current patient, tapping on the button opens the patient directory.
4	Edit user data	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, tapping on the button opens an overview [▷ 59].
7	Date, time	Displays current date and time.
8	Configuration menu	Opens the configuration menu.

Item	Name	Explanation
9	Help	Opens the help window on the right-hand edge of the screen.
10	Light	Switch the light 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 focus adjustment.
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 recording	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 probing instrument.
25	Autobalance	Tap on the [System] button to balance the device. Tap on the [Drape] button to perform fine balancing with a drape.
26	Video recording with low resolution	Start and stop video recording with fine resolution. Suitable for recording long-term videos.
27	Autodrape	Starts the drape suction automatically. When the RFID label of your SMARTDRAPE has been read-in, the system starts when the drape suction button is tapped.

Item	Name	Explanation
28	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	This value also can be set manually on the microscope body.
30	Settings of current users	Displays the user-specific eyepiece settings.
31	Handgrips	Tap on the button in order to assign functions to the buttons of the handgrips.

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 the fullscreen mode. If you tap on the monitor again, all control elements, the status bar and the main menu bar will reappear. The display values (SI units) are rounded. They serve to enhance the display and do not represent a measurement function.

3.6.4 Status information

Figure 27: Status information overview

Item	Symbol	Name	Explanation
1		Internal Hard Drive	Available internal hard disk space
2		USB	Available space on connected USB medium
3	Eject	Remove Hard-ware	The hardware (e.g. USB medium) can be removed now
4		Connection Sta-tus	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
8		Show Hotspot Password	Hotspot password display ON/OFF
9		Web interface address	Displays the address of the web in-terface

3.6.5 “Patient data” menu

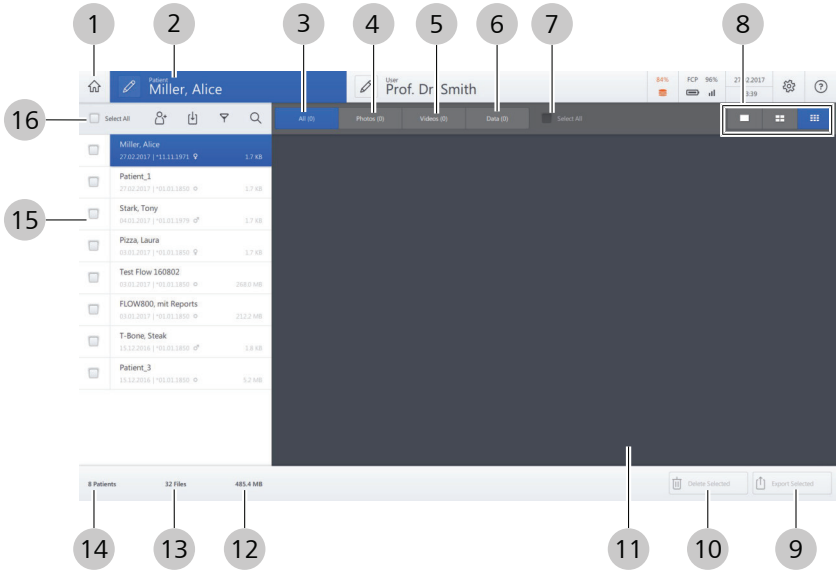


Figure 28: Design of “Patient data” menu

Item	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).
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.

Item	Name	Explanation
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

3.6.6 “Import patient data from the DICOM Worklist” menu”

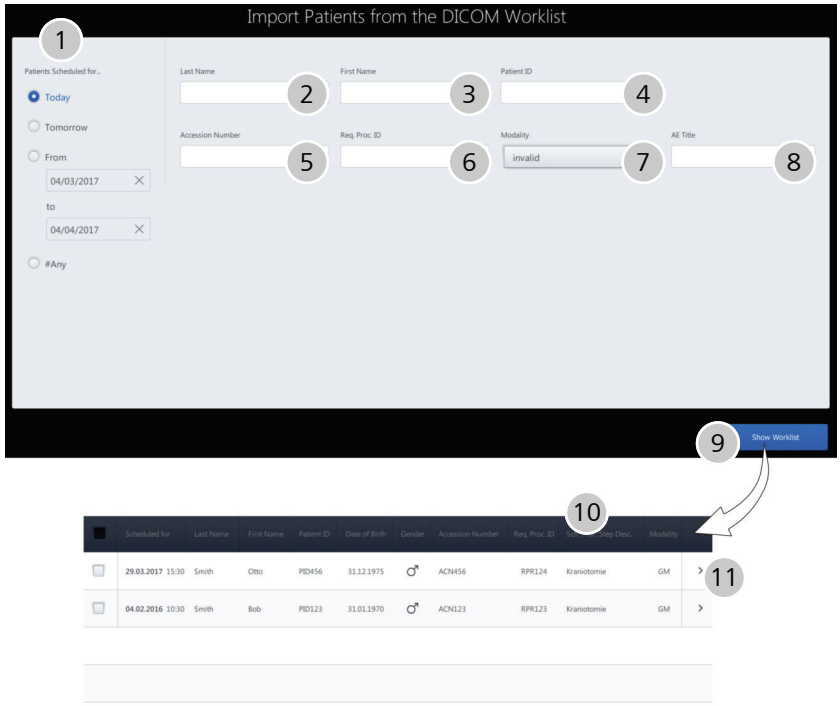


Figure 29: Input mask and DICOM Worklist display window

Item	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.

Item	Name	Explanation
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	**Requested Procedure ID** Identification number which identifies the procedure requested 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.
10	Sch. Proc. Step Desc.	**Scheduled Procedure Step Description** 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.	**Requested Procedure Description** Administrative description specified by the hospital or classification of the requested procedure.
-	Req. Proc. Code	**Requested Procedure Code** Code value that describes the requested procedure according to a specific coding scheme.
-	Ref. Phys. Name	**Referring Physician’s Name** Name of the referring physician who requested the procedure.
-	Sch. Proc. Step Start	**Scheduled Procedure Step Start** Scheduled start time for the procedure step.
-	Sch. Protocol Code	**Scheduled Protocol Code** Code value that describes the scheduled protocol according to a specific coding scheme.

3.6.7 “Edit video recording” menu

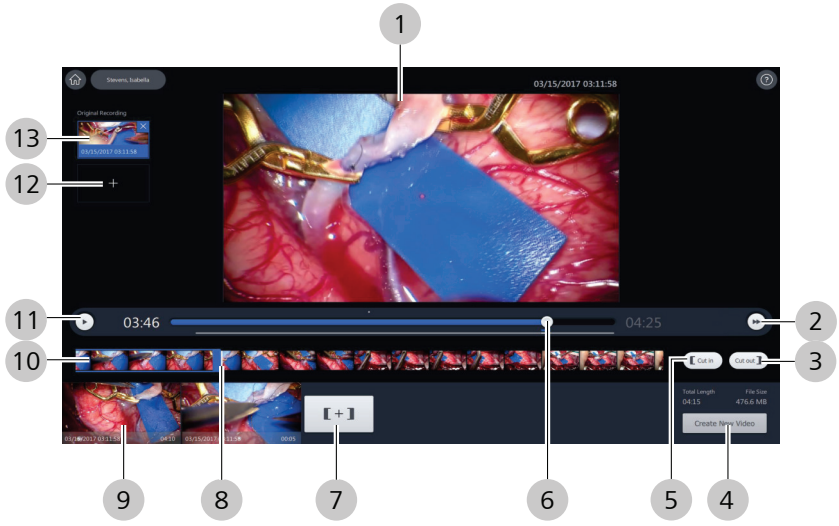


Figure 30: “Edit video recording” menu

Item	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 slider 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).
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.

Item	Name	Explanation
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.

3.6.8 SmartLinks

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

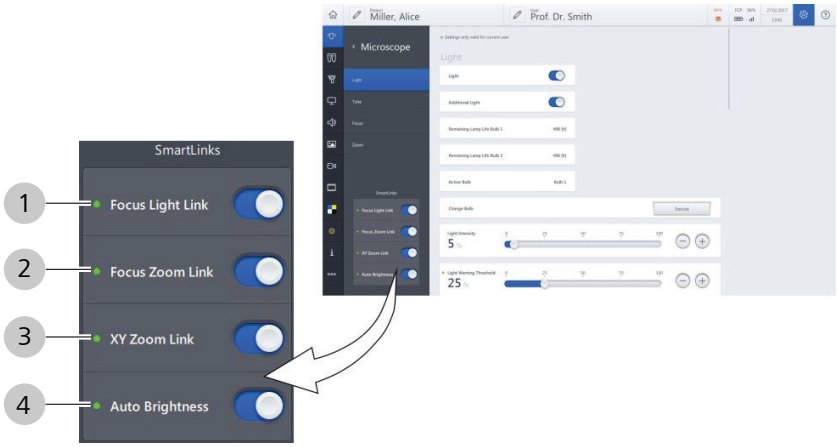


Figure 31: SmartLinks

Item	Name	Explanation
1	Focus Light Link	Limits the maximum light intensity for the selected working distance.
2	Focus Zoom Link Fokusavimo Didinimo Sąsaja	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.
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.

11.3

Automatiškai pritaiko fokusavimo greitį prie didinimo. Iš anksto pasirinktas fokusavimo greitis automatiškai sumažinamas, kai yra naudojamas didesnis didinimas.

3.6.9 Light

In this menu, you configure the microscope illumination settings.

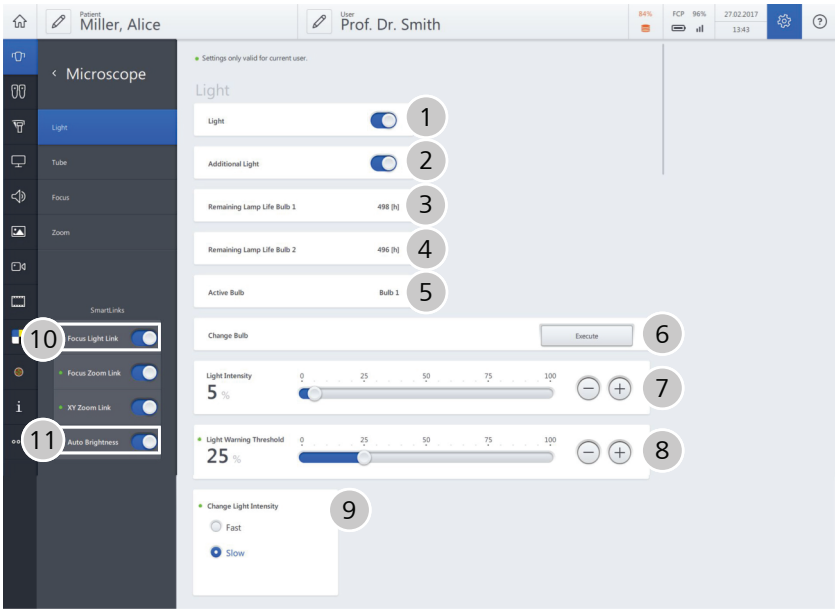


Figure 32: "Settings Microscope" menu, "Light" submenu

Item	Name	Explanation
1	Light	Switch the light 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	Change 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.
9	Light intensity change	Select speed of light intensity change (fast or slow).
10	SmartLinks: Focus Light Link	Limits the maximum light intensity for the selected working distance.

Item	Name	Explanation
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.

3.6.10 Tube

Select the tubes and eyepieces used for the surgeon. The total magnification is calculated with these stored values and displayed on the monitor. Bendras padidinimas apskaičiuojamas pagal šias saugomas vertes ir rodomas monitoriuje.

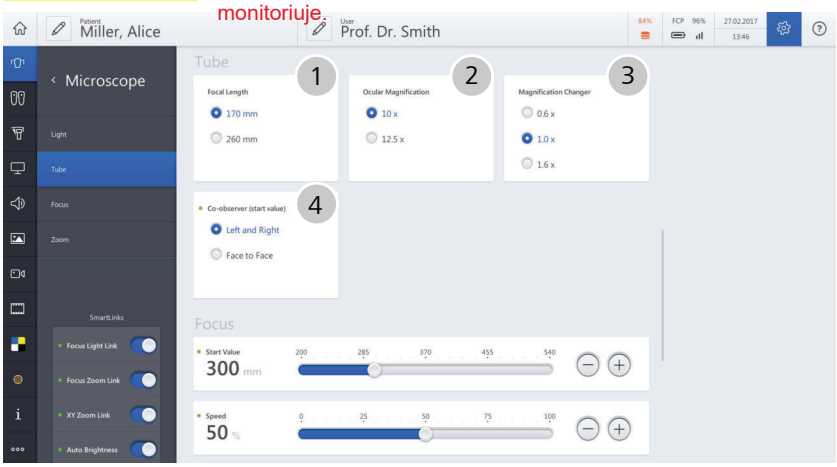


Figure 33: "Settings Microscope" menu, "Tube" submenu

Item	Name	Explanation
1	Focal Length	Focal length of tube used: (170 mm for tiltable tube and foldable tube, 260 mm for foldable tube with magnification).
2	Ocular Magnification	Magnification of the eyepieces used: (10x or 12.5x).
3	Magnification Changer	Magnification of the optional 3-position magnification changer.
4	Co-observer (start value)	Selection of co-observer: ■ Image outputs face-to-face: Face-to-face for tiltable tube or foldable tube ■ Image outputs left and right: Right and left for stereo co-observation module or photo adapter for external camera The "co-observer (start value)" can be adjusted on the monitor in the additional menu "Extended operation" and manually on the microscope body.

3.6.11 Focus

In this menu, you configure the focus settings.

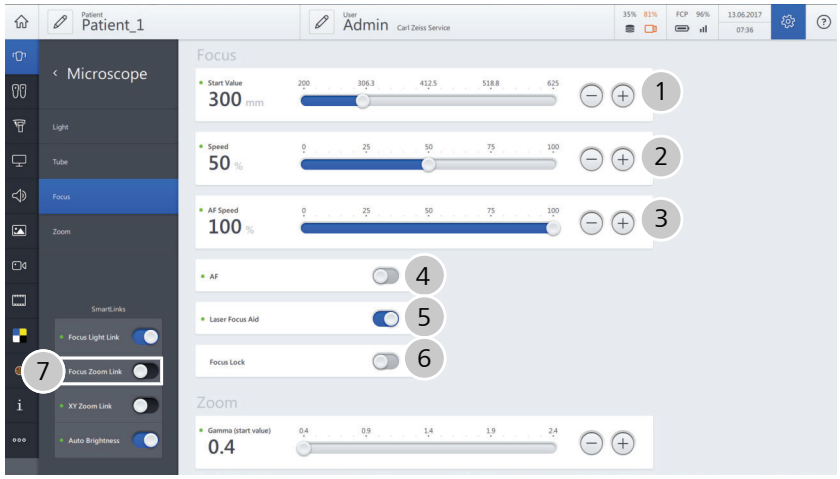


Figure 34: "Settings Microscope" menu, "Focus" submenu

Item	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) Adjust the autofocus speed.
4	Autofocus (AF)	(option) On: Autofocus is automatically activated each time the brakes are closed. Off: Autofocus only via configurable button on the handgrip or foot control panel. The autofocus is not available during a few specific applications. A corresponding acoustic signal is then emitted.
5	Laser Focus Aid	(option) Laser Focus Aid on: The focusing laser is switched on when the brakes are released or the motorized fine focus adjustment is actuated. Laser Focus Aid off: The focusing laser is switched off.

11. 4.
Įjungta: Automatinis fokusavimas automatiškai įjungiamas kiekvieną kartą uždarius stabdžius.
Išjungta: Automatinis fokusavimas atliekamas tik konfigūruojamu mygtuku ant rankenos arba kojinio valdymo skydelio.

Item	Name	Explanation
6	Focus Lock	For the application of an optional micromanipulator with a fixed working distance. Focus Lock on: Autofocus out of operation. Focus rocker switch on handgrip/foot switch out of operation. Focus Lock off: Autofocus functioning. Focus rocker switch on handgrip/foot control panel active.
7	Focus Depth	High: High depth of field - less light - lower image resolution. Low: Low depth of field - more light - high image resolution. The [Focus Depth] selection field is **not** displayed when the BLUE 400 and YELLOW 560 options are activated.
8	SmartLinks: Focus Zoom Link	Automatic adaptation of the focusing speed to the magnification. The preselected focusing speed is automatically reduced when a higher magnification is used.

3.6.12 Zoom

In this menu, you configure the zoom settings.

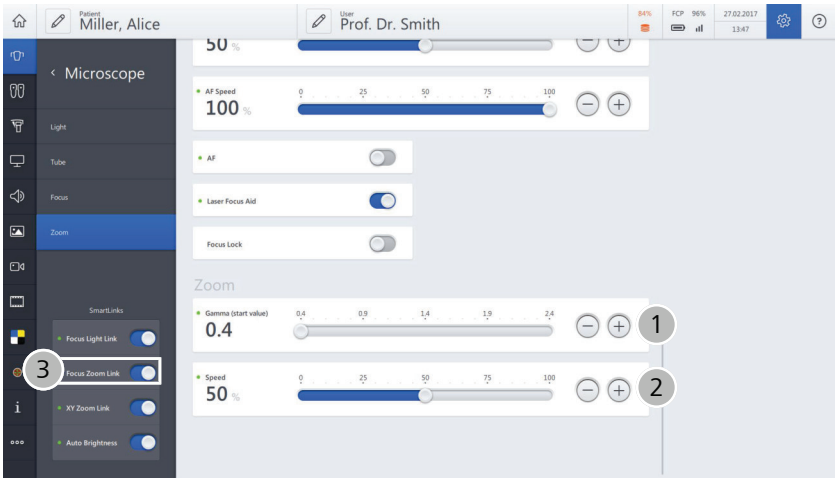


Figure 35: Zoom

Item	Name	Explanation
1	Gamma (start value)	Set the zoom factor (0.4 ... 2.4) at which the zoom system is to start after the device is switched on.
2	Speed	Set the zoom speed.
3	SmartLinks: XY Zoom Link XY Didinimo Sąsaja	Automatic adaptation of the motorized XY travel speed to the magnification. The preselected travel speed is automatically reduced when a higher magnification is used. Automatinis motorizuoto XY judesio greičio pritaikymas prie didinimo. Iš anksto pasirinktas judesio greitis automatiškai sumažinamas, kai naudojamas didesnis didinimas.

1. 2.

3.6.13 Handgrips

Šiame meniu jūs sukonfigūruosite rankenų valdymo elementus.

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

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

Item	Name	Explanation
1	Factory settings	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	Assign PIN	By activating this button, you can protect your button assignment for the handgrips with a four-digit PIN.
A	Button [A], configurable	Tapping on handgrip button [A] opens a selection window on the right side where the available functions can be selected.
B	Button [B], configurable	Tapping on handgrip button [B] opens a selection window on the right side where the available functions can be selected.
C	Button [C], configurable	Tapping on handgrip button [C] opens a selection window on the right side where the available functions can be selected.
D	Button [D], configurable	Tapping on handgrip button [D] opens a selection window on the right side where the available functions can be selected.

XY valdymo svirtis. Motorizuotam XY tiksliam reguliavimui.

1. 2.

Item	Name	Explanation
S	XY Joystick	For motorized XY fine adjustment The XY joystick of the right handgrip can have certain special functions, depending on the option activated. Messages displayed on the touchscreen can be acknowledged by pressing the center position of the joystick button on the left handgrip.
E	Rocker switch [E] for focus zoom	Tapping on button [E] opens a selection window on the right side for selecting the direction (+/-) or changing the zoom/focus functions.
F	Rocker switch [F] for focus-zoom	Tapping on button [F] opens a selection window on the right side for selecting the direction (+/-) or changing the zoom/focus functions.
G	Rocker switch [G] for zoom-focus	Tapping on button [F] opens a selection window on the right side for selecting the direction (+/-) or changing the zoom/focus functions.
H	Rocker switch [H] for zoom-focus	Tapping on button [H] opens a selection window on the right side for selecting the direction (+/-) or changing the zoom/focus functions.
SB	SB brake handgrip button (Selected brakes)	Tapping on the [SB] handgrip button opens a selection window on the right side where certain brake and movement functions can be selected.
AB	AB brake button (all stand and microscope axes)	As long as [AB] button is pressed, the entire system can move freely. When you let go of the [AB] button, the system locks stably and with vibration damping.

3.6.14 Foot control panel (FCP)

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

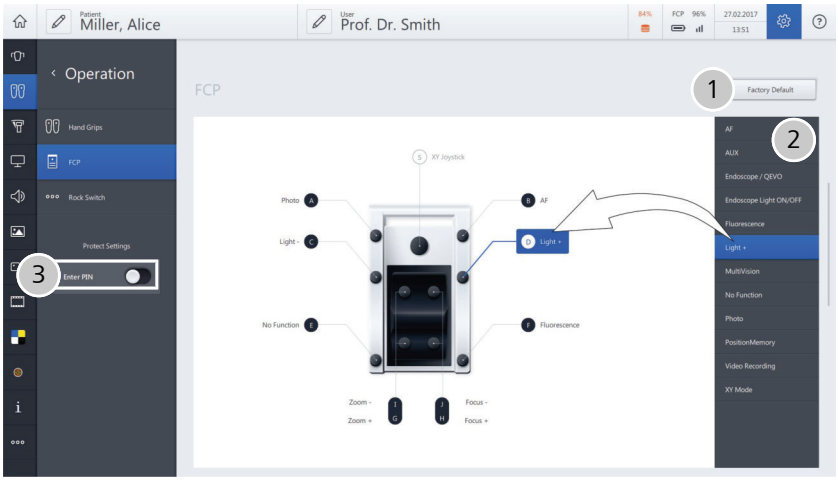


Figure 37: "Settings Microscope" menu, "Handgrips" submenu

Item	Name	Explanation
1	Factory settings	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: Displays all available functions for each foot control panel button.
3	Assign 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	Button [A], configurable	Tapping on foot control panel button [A] opens a selection window on the right side where the available functions can be selected.
B	Button [B], configurable	Tapping on foot control panel button [B] opens a selection window on the right side where the available functions can be selected.
C	Button [C], configurable	Tapping on foot control panel button [C] opens a selection window on the right side where the available functions can be selected.
D	Button [D], configurable	Tapping on foot control panel button [D] opens a selection window on the right side where the available functions can be selected.

Item	Name	Explanation
E	Button [E], configurable	Tapping on foot control panel button [E] opens a selection window on the right side where the available functions can be selected.
F	Button [F], configurable	Tapping on foot control panel button [F] opens a selection window on the right side where the available functions can be selected.
G	Rocker switch [G] for zoom-focus	Tapping on foot control panel button [G] opens a selection window on the right side for selecting the direction or changing the zoom/focus functions.
H	Rocker switch [H] for zoom-focus	Tapping on foot control panel button [H] opens a selection window on the right side for selecting the direction or changing the zoom/focus functions.
I	Rocker switch [I] for focus-zoom	Tapping on foot control panel button [I] opens a selection window on the right side for selecting the direction or changing the zoom/focus functions.
J	Rocker switch [J] for focus-zoom	Tapping on foot control panel button [J] opens a selection window on the right side for selecting the direction or changing the zoom/focus functions.

3.6.15 Rock switch

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

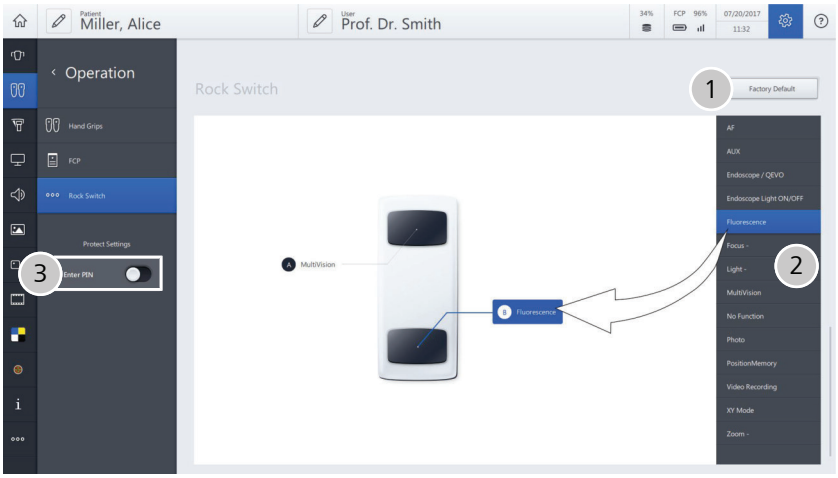


Figure 38: "Settings Microscope" menu, "Rocker foot switch" submenu

Item	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: ■ Light: Light brighter (top button) / darker (bottom button) ■ Zoom: + (top button) / - (bottom button) ■ Focus: + (top button) / - (bottom button)
3	Assign PIN	By activating this button, you can protect your button assignment for the rocker foot switch with a four-digit PIN.

3.6.16 Stand

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

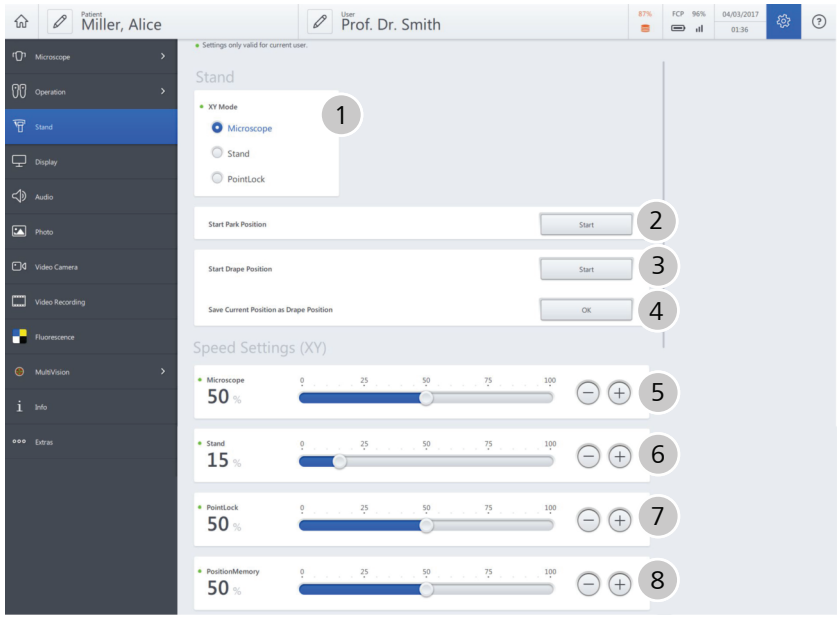


Figure 39: "Settings Stand" menu

Item	Name	Explanation
1	XY Mode	Selection of the movement modes for motorized fine adjustment using the joystick on the handgrip or on the foot control panel: ■ Microscope movement only in three axes ■ Stand, XY movement in the focal point plane ■ PointLock, adjustment around the focal point
2	Start Park Position	Device moves to park position.
3	Start Drape Position	Device moves to drape position.
4	Save Current Position as Drape Position	Save drape position.
5	Microscope	Preselect speed.
6	Stand	Preselect speed.
7	PointLock	Preselect speed.
8	PositionMemory	Preselect speed.

3.6.17 Displays

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

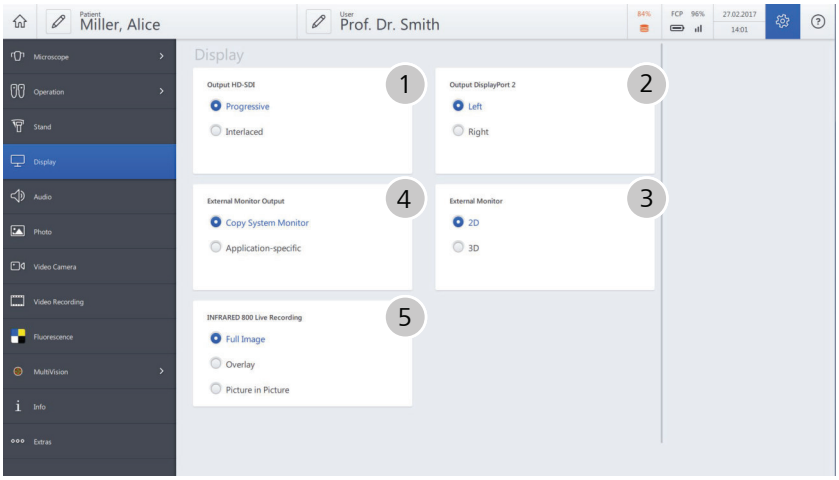


Figure 40: "Settings Display" menu

Item	Name	Explanation
1	Output HD-SDI1	Selection window: ■ Progressive 3G-SDI: Full Image ■ Interlaced HD-SDI Video output: 9 or 10
2	Output Display Port 2	Selection window: ■ Left camera ■ Right camera Video output: 7 or 8
3	External monitor DVI	Camera signal video output, e.g. also for external monitor (option). Video output: 6
4	External Monitor Output	Selection window - Display on external monitor: ■ Touchscreen copy ■ Application-specific Video output: 6
5	INFRARED 800 Live Display	Selection window: Touchscreen imaging ■ 2D/3D for stereo option ■ Live Full Screen/Endo/PIP ■ Picture in picture display Video output: 6

3.6.18 Audio

In this menu, you configure the audio settings.

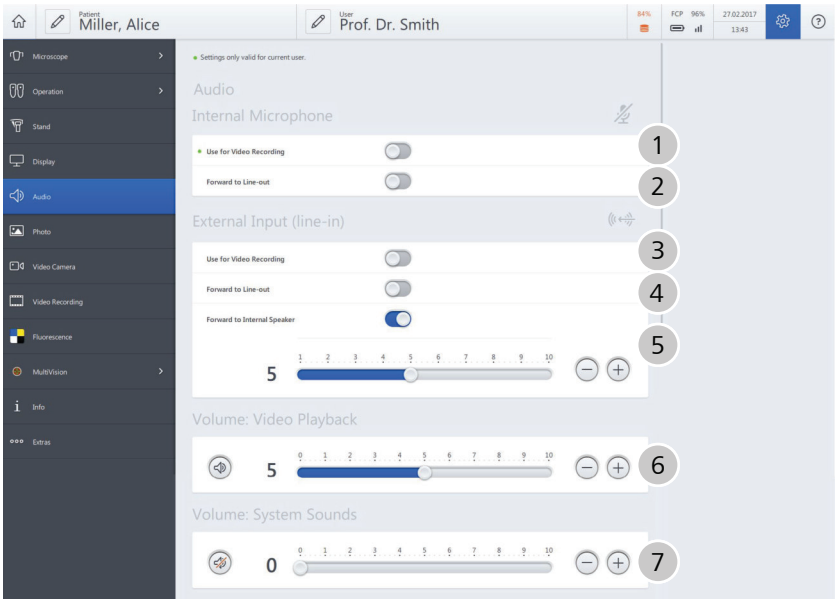


Figure 41: "Settings Display" menu

Item	Name	Explanation
1	Internal Microphone: Use for video recording	Switch microphone on/off.
2	Internal Microphone: Forward to line-out	Switch microphone on/off.
3	External Input (line-in): Use for video recording	Switch microphone on/off.
4	External Input (line-in): Forward to line-out	Switch microphone on/off.
5	External Input (line-in): Forward to internal loudspeaker	Switch microphone on/off. Adjust volume.
6	Volume: Video Playback	Switch playback on/off. Adjust volume.
7	Volume: System Sounds	Switch playback on/off. Adjust volume.

3.6.19 Photo

In this menu, you configure the photo settings.

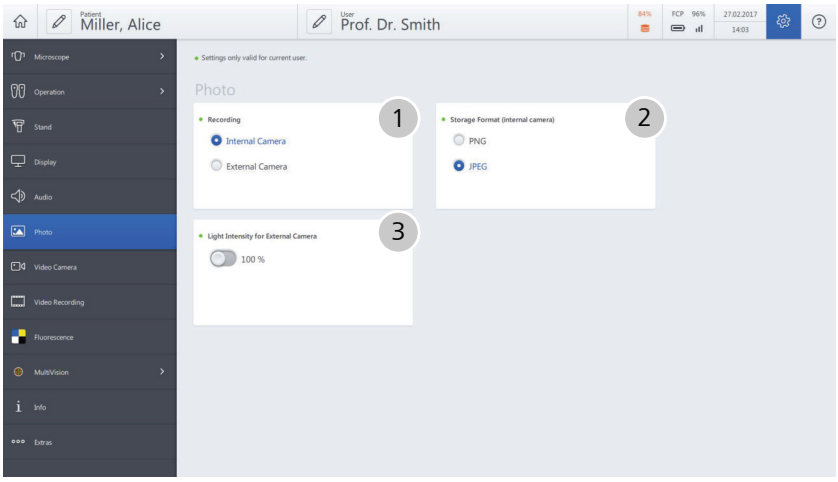


Figure 42: "Settings Photo" menu

Item	Name	Explanation
1	Exposure	Selection: ■ Single images with internal video camera ■ Images with external photo camera (DSLR, option)
2	Storage format of internal camera	Storage format for images taken: ■ PNG format ■ JPEG format
3	Light intensity for external camera	Utilization of maximum xenon light output (100%) for taking photos.

Vaizdo kamera

3.6.20 Video camera

Šiame "White Light" meniu jūs konfigūruosite vaizdo kameros nustatymus. Pasirinktinai jūs galite konfigūruoti vaizdo nustatymus "BLUE 400" ir "YELLOW" 560.

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.

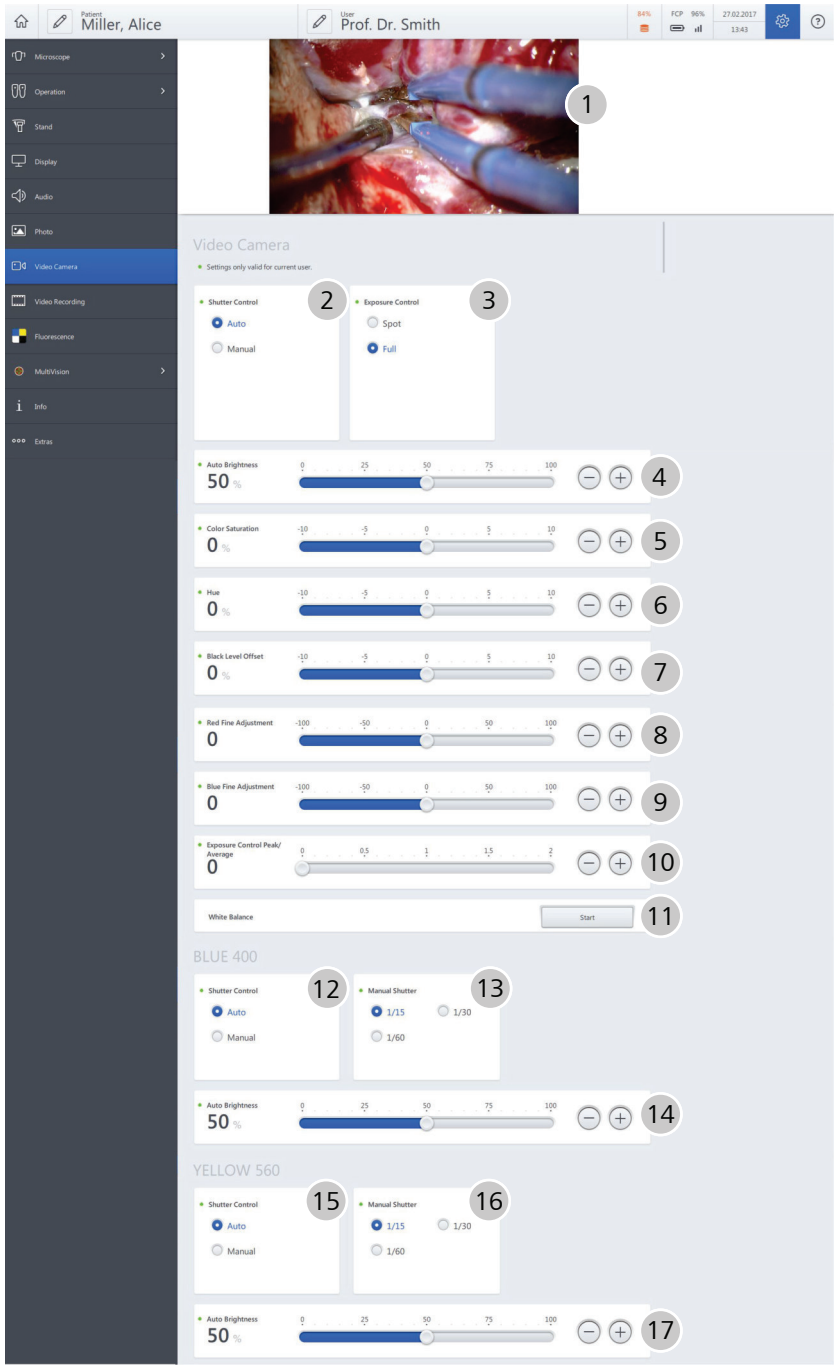


Figure 43: “Settings Video Camera” menu

Item	Name	Explanation
1	Preview window	Video image for checking the settings.

Item	Name	Explanation
2	Shutter control	Selection in the shutter control: ■ Auto: Automatic control of the exposure time ■ Manual: Manual control of the exposure time
3	Exposure Control	Selection of exposure control: ■ Spot: Exposure control in image center Suitable for working in narrow channels. ■ Full: Exposure control in the entire image For a completely illuminated surgical field or strong local reflections.
4	Auto Brightness	Set the brightness level of the automatic brightness control. This field appears only if the shutter control was set to “Auto” (Item 2).
5	Color Saturation	Set the color saturation.
6	Hue	Set the hue.
7	Black Level Offset	With a higher black level, dark image details are displayed brighter. This can lead to an enhanced recognizability.
8	Red Fine Adjustment	Set the red value.
9	Blue Fine Adjustment	Set the blue value.
10	Exposure Control Peak/Average	Set the peak value or the average value.
11	White balance	Start white balance.
12	Shutter Control BLUE 400	Selection in the BLUE 400 brightness mode: ■ Auto: Automatic control of the exposure time ■ Manual: Manual control of the exposure time
13	Manual Shutter BLUE 400	Set the desired exposure time for BLUE 400 manually. This field appears only if the BLUE 400 shutter control was set to “Manual” (Item 12).
14	Auto Brightness BLUE 400	Set the brightness level of the automatic brightness control for BLUE 400. This field appears only if the BLUE 400 shutter control was set to “Auto” (Item 12).

Item	Name	Explanation
15	Shutter Control YELLOW 560	Selection in the YELLOW 560 brightness mode: ■ Auto: Automatic control of the exposure time ■ Manual: Manual control of the exposure time
16	Manual Shutter YELLOW 560	Set the desired exposure time for YELLOW 560 manually. This field appears only if the YELLOW 560 shutter control was set to “Manual” (Item 15).
17	Auto Brightness YELLOW 560	Set the brightness level of the automatic brightness control for YELLOW 560. This field appears only if the YELLOW 560 shutter control was set to “Auto” (Item 15).

3.6.21 Video recording

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

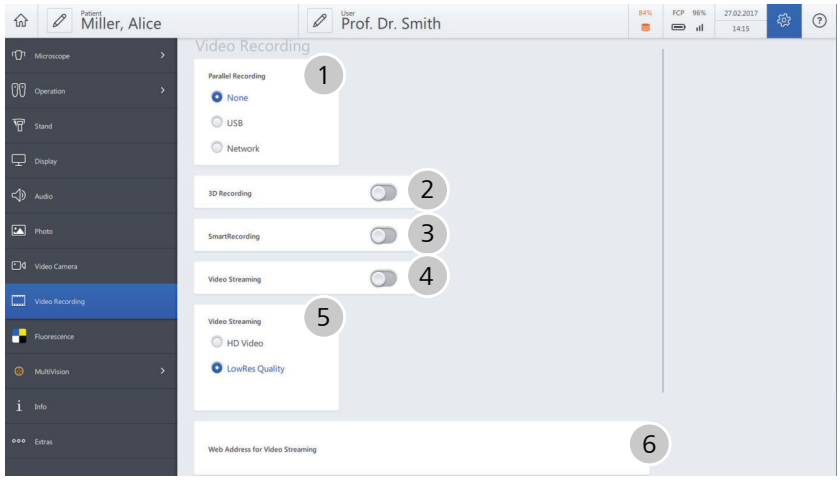


Figure 44: “Settings Video Recording” menu

Item	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 3D įrašymas	Option for a stereo video camera. Selection whether the internal recording is to be made in 3D format (ON). Stereo vaizdo kameros pasirinkimas. Pasirinkimas, ar vidinis įrašas turi būti atliekamas 3D formatu (ON).

18.3.
Duomenys visada saugomi vidiniame kietajame diske. Be to, galima lygiagrečiai saugoti duomenis prijungtoje USB laikmenoje arba sukonfigūruotame tinklo diske (USB arba tinklo diske).

18. 2.

Item	Name	Explanation
3	Smart Recording	If activated (ON), this function enables the user to create a video clip (via the video recording handgrip button/FCP) with a start time that lies in the past.
4	Video Streaming	Activates video streaming (LAN or WLAN); the source for the video streaming can be selected under item 1.
5	Video Streaming	Selection of video resolution. ■ HD Video: High resolution (1920 x 1080) ■ LowRes Video: Low resolution (960 x 540)
6	Web address for video streaming	Entry of intended web address for video streaming.

3.6.22 Fluorescence

(Option) Fluorescence settings for BLUE 400, YELLOW 560 and INFRARED 800 with FLOW 800.
Only activated fluorescence options are displayed on the touchscreen and can be configured.

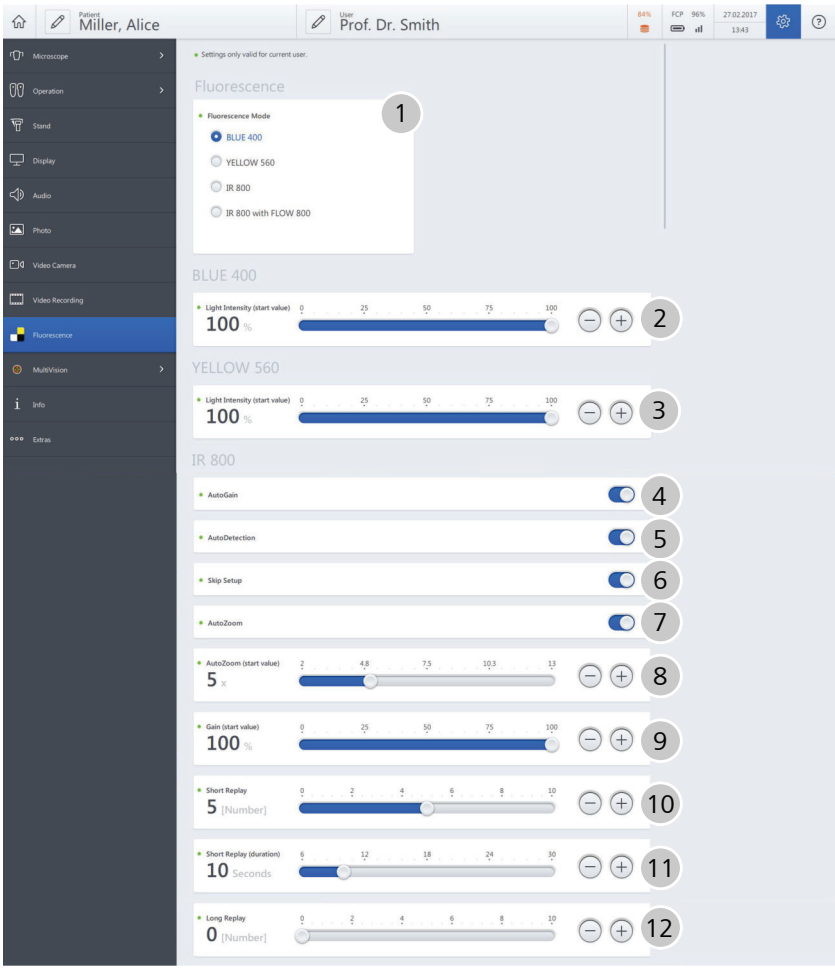


Figure 45: "Settings Fluorescence" menu

Item	Name	Explanation
1	Fluorescence: ■ BLUE 400 ■ YELLOW 560 ■ IR 800 ■ IR 800 with FLOW 800	Activating the fluorescence option Activating the handgrip button (for fluorescence). By pressing on the touchscreen, the configured handgrip button or the FCP button, you can activate the respective fluorescence application.
2	Light Intensity Start Value BLUE 400	Preselect the light intensity for BLUE 400.
3	Light Intensity Start Value YELLOW 560	Preselect the light intensity for YELLOW 560.

Item	Name	Explanation
4	Automatic Gain Control	Selection of auto gain control: ■ Auto: The camera gain is controlled automatically. ■ Manual: The camera gain is controlled manually.
5	AutoDetection	The automatic fluorescence detection detects the influx of the fluorescence dye during the recording. ■ ON: The black leader without any fluorescence signal is hidden during the replay. ■ OFF: The replay is played back incl. the black leader.
6	Skip Setup (One Push Activation)	On: INFRARED 800 starts immediately in the recording mode, the setup phase is skipped.
7	AutoZoom	On: The total magnification is automatically changed to the preconfigured value (3) without a notice dialog. Off: A setup dialog for changing the total magnification outside of the preconfigured range (3) is displayed.
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.
10	Short Replay (number)	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 (seconds)	The length of the short replay is adjustable from 6 to 30 seconds.
12	Long Replay (number)	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.

3.6.23 MultiVision

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

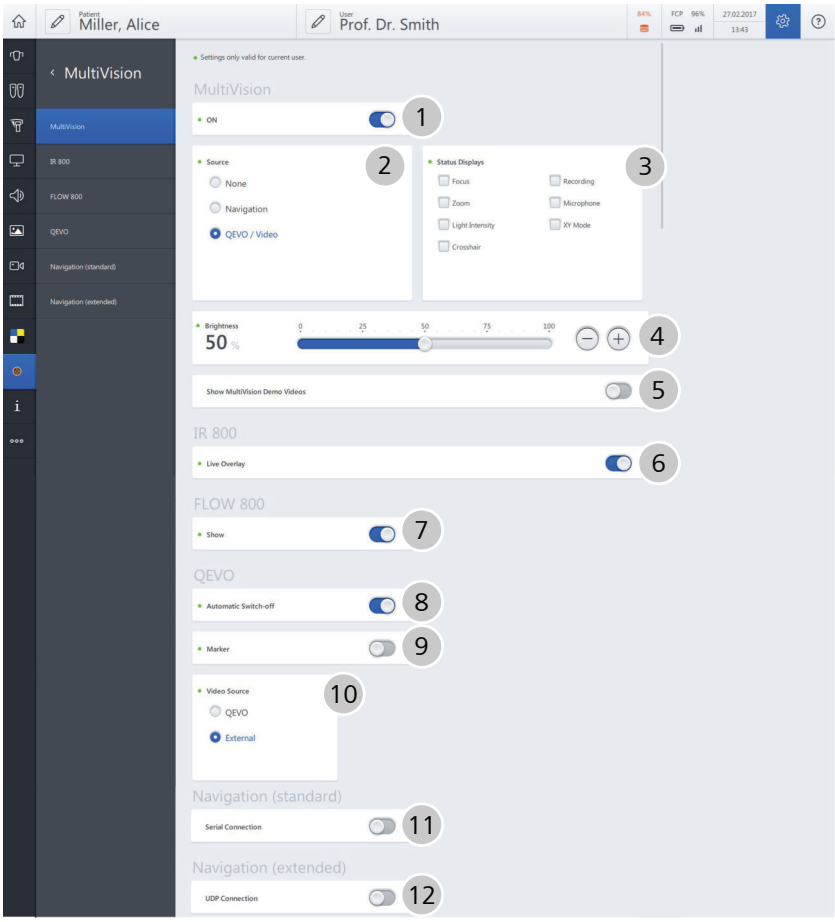


Figure 46: "Settings MultiVision" menu (option)

Item	Name	Explanation
1	MultiVision ON	Switch the MultiVision function (option) on/off.
2	Source	Selection of MultiVision data source for display: ■ None ■ Navigation: Data from the navigation system are displayed. ■ QEVO: Video recording is displayed.

Item	Name	Explanation
3	Status displays	Selection of displays which can be shown in the MultiVision display with a corresponding symbol: – Current magnification (Zoom) – Current working distance (Focus) – Current light intensity – Recording status: REC – Microphone – Reticle (optical axis, focal point) – XY Mode
4	Brightness	Set the brightness of the data injection.
5	Show MultiVision Demo Videos	Open shutter for MultiVision demo. Demo videos are displayed.
6	IR 800 Show	Show INFRARED 800 live image (recording).
7	FLOW 800 Show	Show FLOW 800 evaluation.
8	QEVO Automatic Switch-off (Auto rest mode)	Switch automatic switch-off for QEVO on/off.
9	QEVO Marker	Switch QEVO marker on/off.
10	Video source	Select video source (output 5).
11	Navigation (standard)	The navigation system is connected directly to the device: Activate / deactivate connection to navigation system with standard functions.
12	Navigation (extended)	The navigation system is connected to the device via the network: Activate / deactivate connection to navigation system with extended functions.

3.6.24 Info

INFO

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

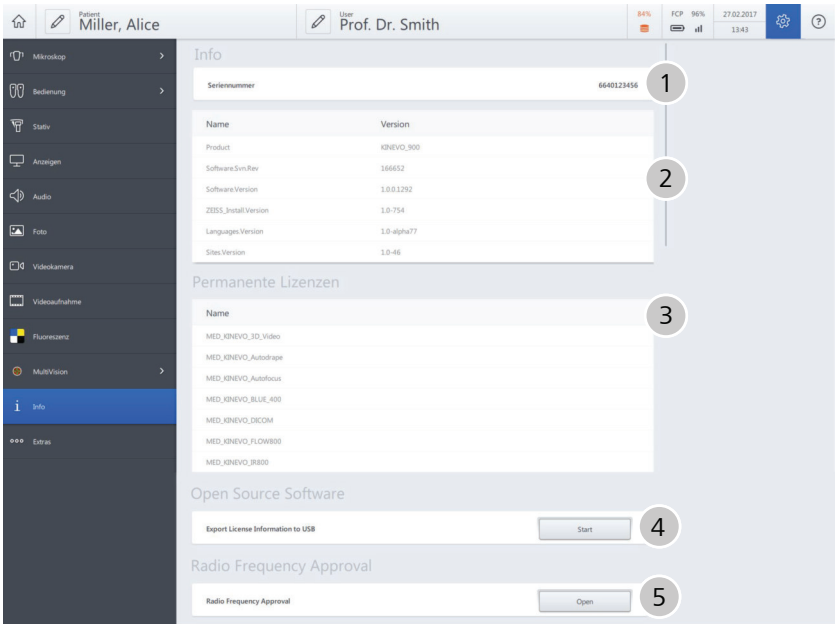


Figure 47: "Settings Info" menu

Item	Name	Explanation
1	Serial number	Displays serial number of device.
2	Name/Version	Displays the following values: ■ Product name ■ Software version ■ ZEISS install. version ■ Language version
3	Licenses	Lists all licenses installed in the device.
4	Export Licenses	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.

3.6.25 Extras

o o o

In this menu, you can perform license imports and log file exports.

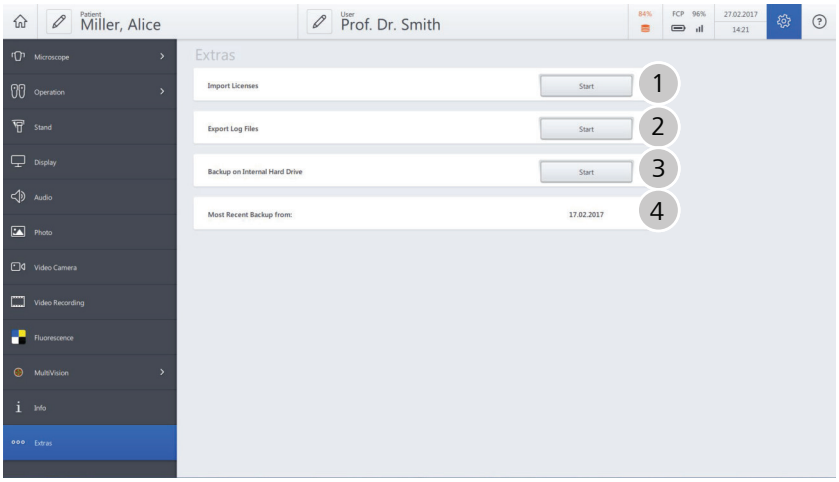


Figure 48: "Settings Extras" menu

Item	Name	Explanation
1	Import Licenses	Import additional licenses.
2	Export Log Files	When you press this button, the log files (error messages) are saved to a connected USB storage medium. You can then send this data to ZEISS Service as an e-mail attachment.
3	Backup on Internal Hard Drive	Available system backups.
4	Last Backup time:	Point of time of last backup.

3.6.26 Password-protected settings and configurations

The following settings and configurations can be performed only by authorized users who have the IT admin password required for this purpose.

If the rights for IT system administration are activated, an input window is displayed where the password for IT system rights must be entered.
The IT ADMIN password is contained in a sealed red envelope included in the scope of supply.

3.6.26.1 Service PC

Service PC - Service

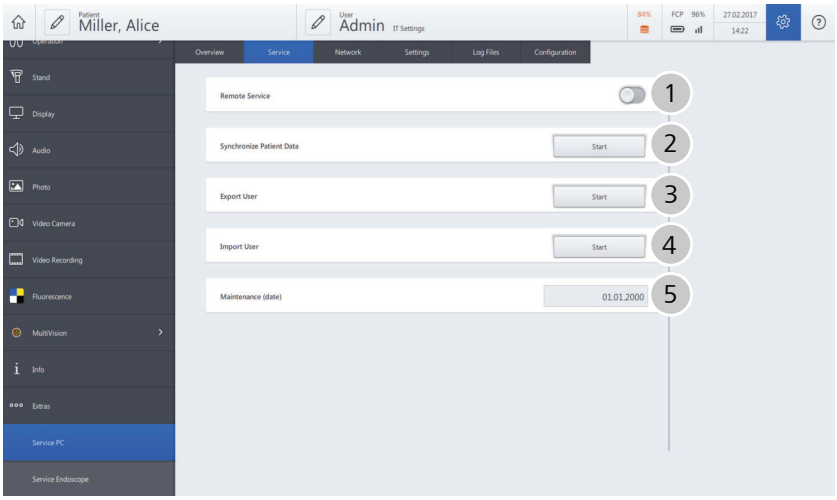


Figure 49: "Settings Service PC" menu, "Service" tab

Item	Name	Explanation
1	Remote Service	Switch remote service on/off.
2	Synchronize Patient Data	Synchronize patient data.
3	Export User	Export the existing user profile.
4	Import User	Import the existing user profile.
5	Maintenance (date)	Date of last maintenance call.

3.6.26.2 Network

Service PC - Network

In this menu, you configure the network settings.

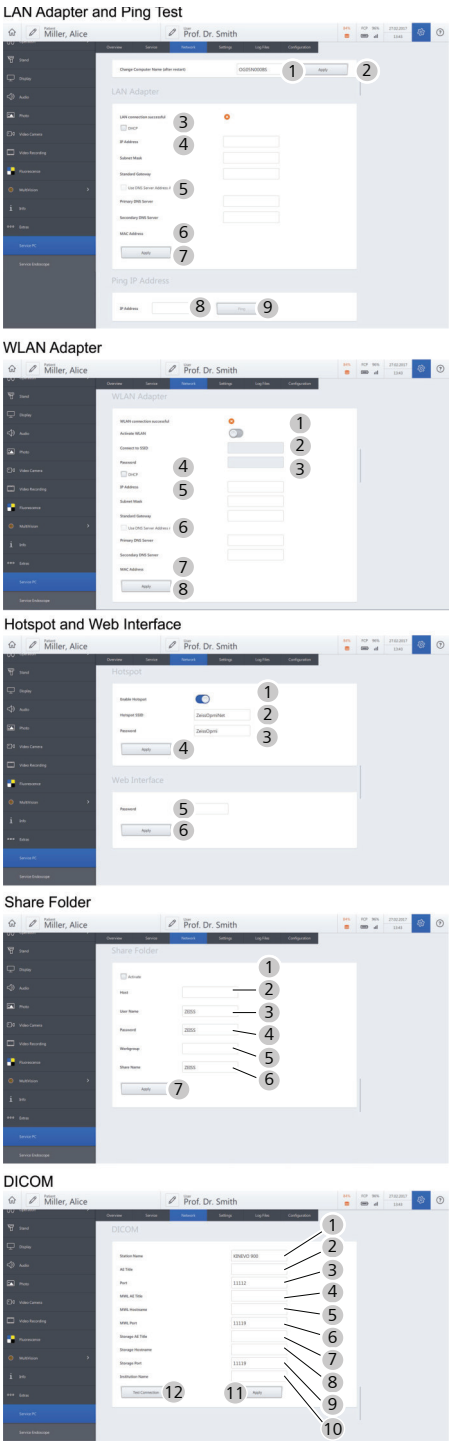


Figure 50: "Settings Service PC" menu, "Network" tab

Item	Name	Explanation
LAN adapter and ping		
1	Change PC Name	Change PC name (recommended), change takes effect after restart:
2	Assign	Confirm entry.
3	DHCP	Assign a network connection via DHCP.
4	IP Address	Specify IP address for LAN connection. **Important:** Do not specify an IP address from these address areas: ■ 192.168.173.xxx (used for the KINEVO 900 hotspot) ■ 192.168.100.xxx (used for an internal network connection to QEVO (option))
5	DNS Server Address	The DNS server address is automatically activated with DHCP.
6	MAC Address	Display of MAC address.
7	Assign	Confirm entry.
8	IP Address	Enter IP address for ping test.
9	Ping	Start ping test.
WLAN Adapter		
1	Activate WLAN	WLAN corresponds to WPK2 / PSK.
2	SSID	Enter SSID (Service Set Identifier - also called network name).
3	Password	Enter password.
4	DHCP	Assign a network connection via DHCP.
5	IP Address	Specify IP address for LAN connection. **Important:** Do not specify an IP address from these address areas: ■ 192.168.173.xxx (used for the KINEVO 900 hotspot) ■ 192.168.100.xxx (used for an internal network connection to QEVO (option))
6	DNS Server Address	The DNS server address is automatically activated with DHCP.
7	MAC Address	Display of MAC address.
8	Assign	Confirm entry.
Hotspot and web interface		
1	Hotspot	Switch on/off; first activate WLAN connection.

Item	Name	Explanation
2	Hotspot SSID	Enter SSID (Service Set Identifier - also called network name).
3	Hotspot Password	Enter password. For password, see: Touchscreen / Status bar / Network / Display hotspot password.
4	Assign	Confirm entry.
5	Web Interface Password	Factory setting: “ZEISS”.
6	Assign	Requirement: WLAN connection is activated. Confirm entry.
Network		
1	Activate	Activate network connection.
2	Host	Enter host name (sys. admin data).
3	User Name	Enter user name (sys. admin data).
4	Password	Enter password (sys. admin data).
5	Workgroup	Enter workgroup (sys. admin data).
6	Share Name	Enter share name (sys. admin data).
7	Assign	Confirm entry.
DICOM		
1	Station Name	KINEVO 900 Enter own readable name (human readable).
2	MWL AE Title	KINEVO 900 AET (Application Entity Title) Own DICOM name.
3	Port	Preset.
4	MWL AE Title	Enter name of worklist (sys. admin data).
5	MWL Hostname	Enter host name (sys. admin data).
6	MWL Port	Preset.
7	Storage AE Title	Enter storage AE Title (sys. admin data).
8	Storage Hostname	Enter storage host name (sys.admin data).
9	Storage Port	Preset.
10	Institution Name	Enter name of clinic/institution.
11	Assign	Confirm entry.
12	Test Connection	Test DICOM connection.

3.6.26.3 Setting values

Service PC - setting values

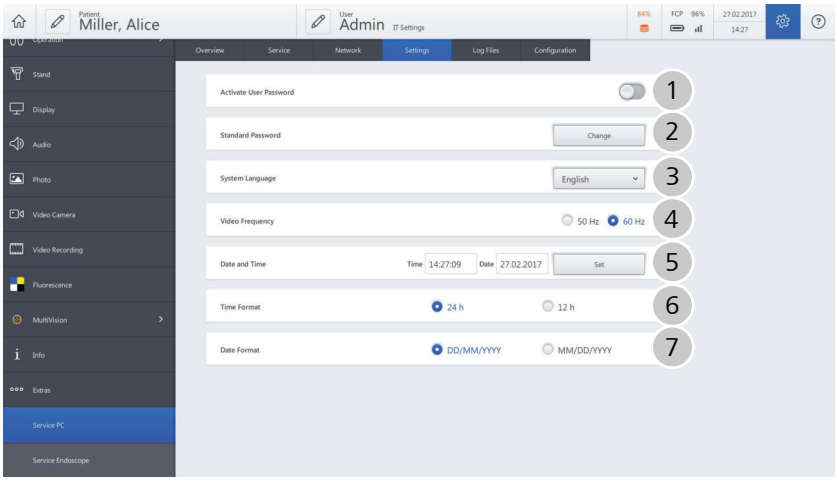


Figure 51: "Settings Service PC" menu, "Setting values" tab

Item	Name	Explanation
1	Activate User Password	User password is activated.
2	Standard Password	Change standard password for all users.
3	System Language	Select.
4	Video Frequency	Set: 50 Hz or 60 Hz.
5	Date and Time	Set and [Accept].
6	Time Format	Select: 24h or 12h.
7	Date Format	Select: DD/MM/YYYY or MM/DD/YYYY.

3.6.26.4 Log files

Service PC - Log files

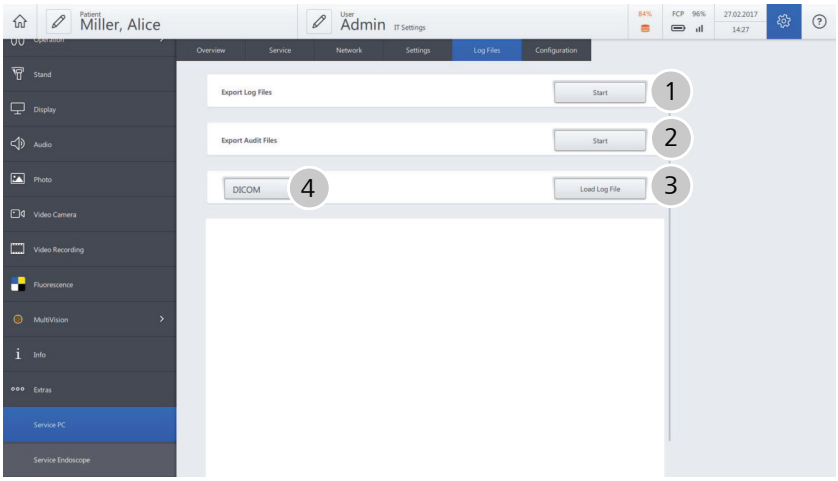


Figure 52: "Settings Service PC" menu, "Log files" tab

Item	Name	Explanation
1	Export Log Files	Export log files to a USB storage medium.
2	Export Audit Files	Export audit files to a USB storage medium.
3	Load Log Files	Load log files from USB storage medium.
4	DICOM	Load log files from DICOM.

3.6.26.5 Configuration

Service PC - Configuration

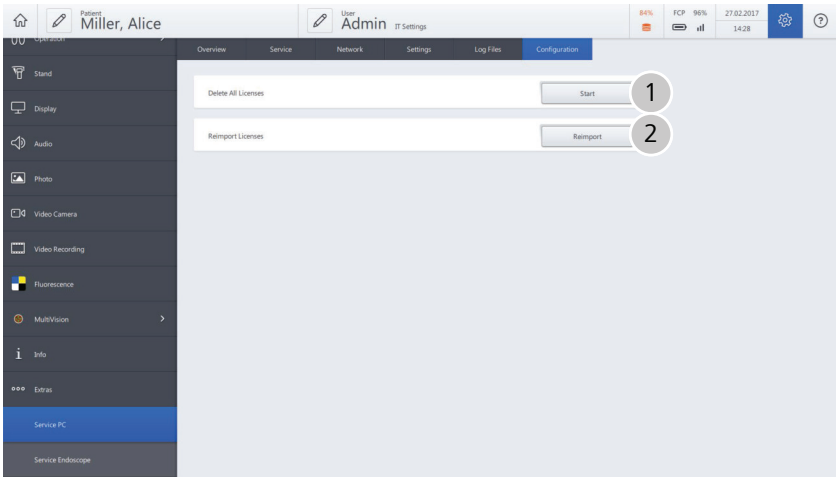


Figure 53: "Settings Service PC" menu, "Configuration" tab

Item	Name	Explanation
1	Delete	Delete all licenses installed on the device.
2	Reimport	Reimport previously exported licenses.

4 Installation

4.1 Requirements

Installation requires special knowledge and skills.
An installation by persons not authorized by ZEISS can lead to the injury of patients and operators, as well as to property damage.

Action

- ▶ Have the installation and initial startup performed only by persons authorized by ZEISS.

4.2 Attaching tubes and eyepieces

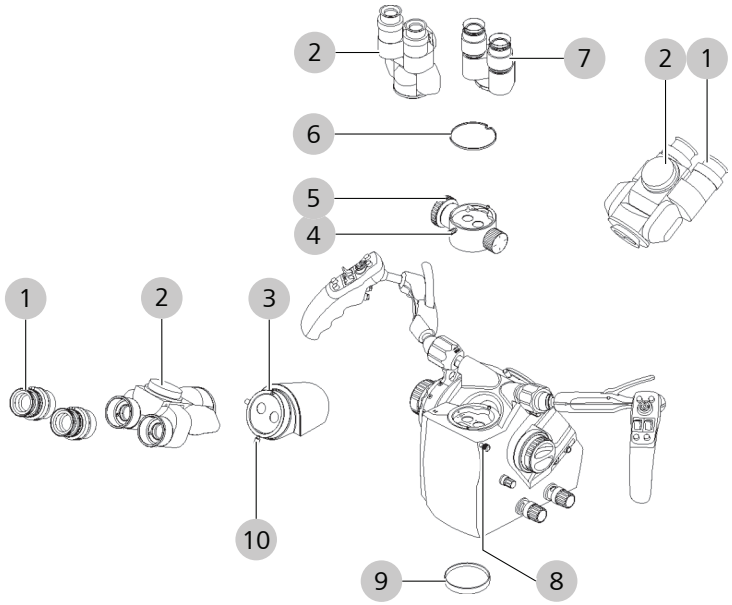


Figure 54: Attaching tubes and eyepieces

1	Widefield eyepieces	2	Tiltable tube, optional foldable tube
3	Angle optics (spine adapter)*	4	Fastening screw, magnification changer
5	Magnification changer, 3-position*	6	Dust protection cover
7	Straight tube	8	Fastening screw
9	Transport protection cover	10	Fastening screw, angle optics

* When assembling the microscope, be careful not to mount the 3-position magnification changer (item 5) and the angle optics (item 3) on the microscope body at the same time. In this case, the microscope body would be too heavy for the autobalance function.

NOTE

Widefield eyepieces with magnetic coupling!

Please keep in mind the usual rules for the handling of magnets with regard to eyepieces that have been removed from the tube:

- ▶ Do not place the eyepiece near instruments that could be magnetizable.
- ▶ Do not place the eyepiece on sensitive electronic devices such as infusion pumps, pacemakers, measuring devices or magnetic data media such as floppy disks, audio and video tapes or credit cards.
- ▶ Always store the eyepiece in its original packaging when not using it.

⚠ CAUTION!

Never stare directly into the sun or a light source with the tube!

An excessive light intensity can damage the retina of the eye.

- ▶ Never stare directly into the sun or a light source with the eyepieces or the binocular tube!

⚠ CAUTION!

Risk of injury to the patient caused by lowering of the surgical microscope or falling parts!

Never change modules and approved accessories during a surgical procedure or above the patient!

- ▶ Always make sure that the maximum permissible load is not exceeded.
- ▶ Balance the completely equipped surgical microscope before each application.

Action

1. Unscrew the fastening screw on the microscope body several turns.
2. Remove the dust protection cover.
3. As needed: Place the angle optics with dovetail (spine adapter) or the magnification changer (option) on the microscope body and tighten the fastening screw on the microscope body hand-tight.
4. Mount the binocular tube and tighten the fastening screw on the microscope body or on the angle optics with dovetail (spine adapter) hand-tight.
5. Insert widefield eyepieces as far as they will go in the mounts provided on the binocular tube.
6. Remove the transport protection cover from the objective lens.
7. Enter the tube focal lengths and eyepiece magnifications used in the “Settings Surgical Microscope” menu [▶ 129] so that the device can calculate the correct total magnification.

4.3 Using an integrated 3D video system for observation without eyepieces (option)

If your KINEVO 900 is equipped with the "3D video system" option, you can use the surgical microscope without tube and eyepieces. Via the 3D video system, the surgical field is displayed on the second 3D video monitor on a separate, external 3D video monitor. With this type of application, the magnification, and therefore the resolution on the monitor, is lower than it is when using the surgical microscope with tube and eyepieces.

⚠ CAUTION!

Do not use images and videos for diagnostic purposes!

The monitors are neither calibrated nor designed for diagnostic purposes.

- ▶ The video contents and images displayed on the monitors (cut sequences) must not be used for diagnostic purposes. They may contain deviations with respect to scale, shape, contrast and color.

To use the surgical microscope as an integrated 3D video system for observation without eyepieces, proceed as follows:

Action

1. Unscrew the fastening screw on the microscope body several turns.
2. Remove the binocular tube with the widefield eyepieces from the microscope body or from the angle optics with dovetail (spine adapter).
3. Remove the angle optics with dovetail (spine adapter) or the magnification changer (option) from the microscope body.
4. Place the Digiskop cover on the microscope body and tighten the fastening screw hand-tight.
5. Unscrew the fastening screw of the binocular assistant's tube several turns.
6. Remove the binocular assistant's tube with the widefield eyepieces from the microscope body.
7. Place the assistant's Digiskop cover on the microscope body and tighten the fastening screw hand-tight.
8. Switch the device on.
9. Check the image and color quality of the video display on the 3D video monitor.
   ⇨ If the image and color quality are perfect, you can start your operation.
10. If the 3D video system fails and no image is displayed on the 3D video monitor, switch the device off and disconnect it from the power supply.
11. Use a second device to finish your operation.

12. Contact your competent ZEISS Service organization and have them repair the defective device.

4.4 Attaching the documentation/co-observation equipment

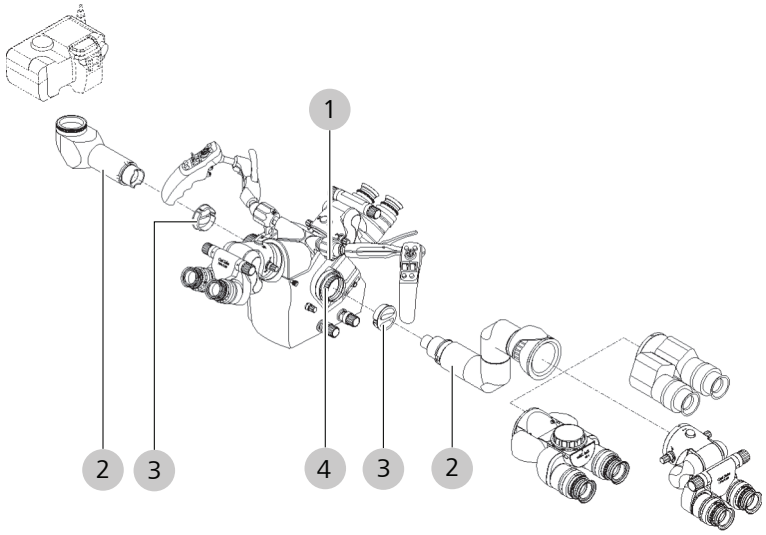


Figure 55: Attaching the documentation/co-observation equipment

1	[Pivoting mirror] adjustment knob	2	Co-observation module e.g. photo adapter for DSLR or stereo co-observer
3	Dust protection cap	4	Knurled ring, right Opposite knurled ring on the left not shown

Action

1. Loosen the knurled ring concerned.
2. Remove the dust protection cap.
3. Push the co-observation module into the mount of the image output as far as it will go.
   The mount of the image output is equipped with guide brackets.
4. Screw the knurled ring onto the co-observation module and tighten the knurled ring securely.
5. Set the [pivoting mirror] adjustment knob on the microscope body for the lateral co-observer connection .
6. Or configure the pivoting mirror setting on the monitor:
   Tap on Settings → Microscope → Tube [▷ 66].
7. In the [Co-observer (start value)] field, activate the function "Lateral".

4.5 Mounting the mouth switch

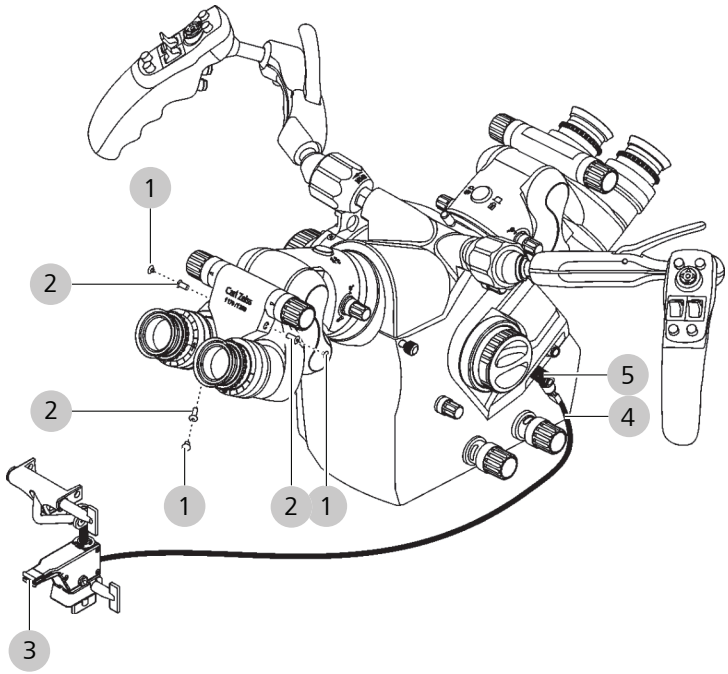


Figure 56: Mounting the mouth switch

1	Protective cap, 3 pcs	2	Fastening screw, 3 pcs
3	Mouth switch for 180° tiltable tube and foldable tube	4	Mouth switch cable with connector
5	Angle adapter for mouth switch		

Action

1. Remove the three protective caps from the tube.
   ⇨ Threads for attaching the mouth switch are located underneath the protective caps.
2. Position the mouth switch on the tube and attach it with three screws (included in the scope of supply).
3. Tighten the three screws hand-tight using a 4 mm Allen key.
4. Insert the mouth switch cable in the angle adapter for the mouth switch.
5. Connect the angle adapter for the mouth switch to the connection socket on the microscope.
6. Adjust the height, inclination and distance of the mouth switch with the corresponding clamping screws, tightening them properly.
7. Perform an autobalance for the system [▷ 124].

You will find an exact description of the mouth switch in the Instructions for Use of the Mouth Switch G-30-1469.

4.6 Moving the device

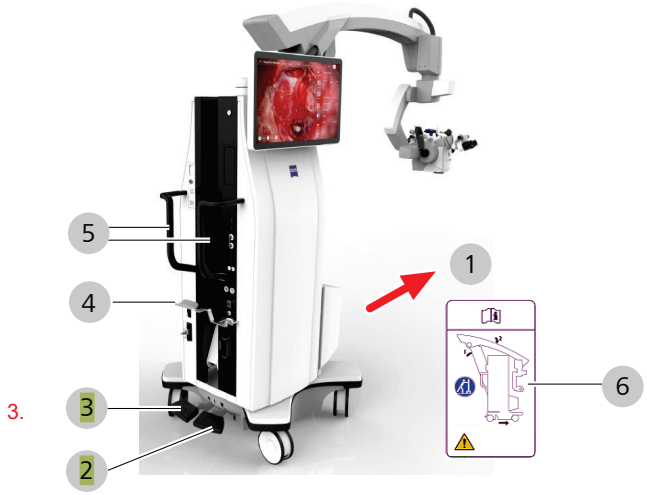


Figure 57: Moving the device

1	Transport direction	2	Locking tab button Padėties užrakinimo mygtukas
3	Straight-ahead travel button Tiesiai į priekį važiavimo mygtukas	4	Holder for cable and foot control panel
5	Transport handles	6	Park position [▶ 142]

⚠ CAUTION!

Risk of crushing!

Fingers may be crushed between the vertical arm and the horizontal arm.

- ▶ Never touch the area  between the vertical arm and the horizontal arm while moving the device.
- ▶ Use the transport handles to move, push and position the device.

⚠ CAUTION!

Risk of toppling!

The device may topple over and injure persons when being moved over thresholds and obstacles.

- ▶ Be careful when pushing or pulling the device over thresholds.
- ▶ Push or pull the device **grasping it only by its transport handles** in the transport direction.
- ▶ Be extremely careful when moving over sloped surfaces.
- ▶ Do not park the device on sloped surfaces.