1.8 Pirkimo dalis

1. Kameros galvutė LENYS 4K

LENS 4K

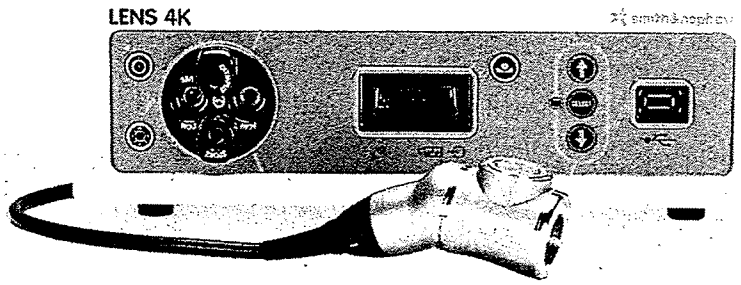
SN

1.1 3 lusty

Maximum performance in one efficient design
Designed for arthroscopy and multi-specialty surgery

Latest 3-Chip 4K CMOS
True end-to-end 4K image

Vaizdo kameros galvutė, ultra aukštos raiškos 4K – 3 lusty
1.1.



Precise color reproduction (1 billion colors)
Excellent depth of field
Exceptional image quality

Kopija tikra

2. Valdymo prenginys suderinamas su Ultra aukštos raiškos vaizdo kameros galvute ir skirtas vaizdo vaizdų ir nuotraukų įrašymui

LENS 4K Camera Head

Balance, comfort and durability

Matte finish secures your grip

Autoclavable or EO sterilization (Sterrad or Steris) withstands minimum of 300 cycles

2-year warranty

Welded stainless steel housing

CF rated for stringent safety classification preventing electrical shock

12' cable with durable connection to minimize wear

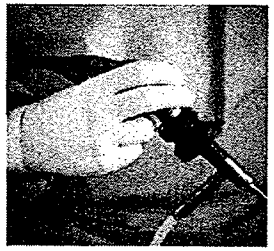
Shaped and balanced for comfort

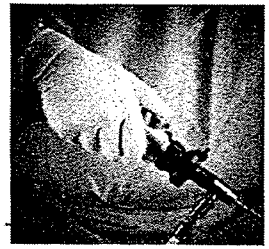
3 programmable buttons (6 selectable settings)

Buttons provide tactile reference and rotational stability

Latest 3CMOS 4K 1/3" sensor (3840 x 2160p)

C-mount design fits 19.5 or 26.5 mm couplers





Comfort for every grip

Button Function

Table 1, Live Video Functions and Table 2, OSD (On screen Display) Menu Functions summarize the default button functions for the camera head for both the Live Video and OSD Menu modes. Table 3 provides Optional Programmable Button Functions. Refer to the Operations/Service Manual for the LENS 4K camera control unit (REF 10601350) for more information regarding default and customized button settings and a complete list of the associated functions.

Camera Head Control	Short Press (<1.0 seconds)	Long Press (>1.0 seconds)
Left Button	Frame Capture (Single from Primary)	Light Mode
Middle Button	Brightness (Up/Down)	Menu Access
Right Button	Zoom	White Balance

Table 1. Live Video Functions

Camera Head Control	Default Button Function
Left Button	Move the cursor UP to highlight a menu choice
Middle Button	SELECT the highlighted menu choice
Right Button	Move the cursor DOWN to highlight a menu choice

Table 2. OSD Menu Functions

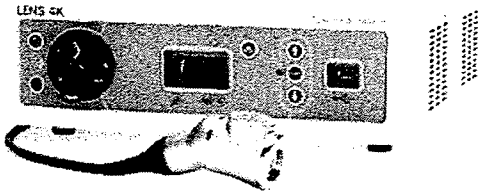
Function	Effect
BRIGHTNESS	Control the luminance level of the video output
ENHANCEMENT	Enhance the sharpness of the displayed video
ZOOM	Digital zoom of field of view
ALT PAUSE	Pause the video while recording to a device connected to a rear panel port
PAUSE VIDEO	Pause the video from camera head
ALT VIDEO	Start or stop video capture from the secondary input source and save to the Tablet Application or USB
ALT FRAME	Capture a still picture from the secondary input source and save to the Tablet Application
FRAME CAPTURE	Capture a still picture from the endoscopic field of view and save to the Tablet Application or USB
LIGHT MODE	Activates and deactivates the illumination device on the control unit
VIDEO CAPTURE	Start or stop video capture from the endoscopic field of view and save to the Tablet Application or USB
LAST IMAGE	Displays the last known frame captures to the Tablet Application for review
MENU ACCESS	Access the graphical menu system of the control unit (MAIN MENU)
WHITE BALANCE	Correct for ambient color temperature
Peripheral Port 1 (Top port)	Triggers the accessory connected to the top port
Peripheral Port 2 (Bottom port)	Triggers the accessory connected to the bottom port

Table 3. Optional Programmable Button Functions*

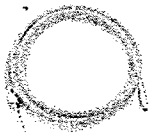
* **Note:** Software updates to either the LENS 4K Camera Head or Camera Control Unit, may reset the button-mappable functions to the factory settings.

LENS 4K solution

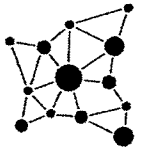
Value you have been waiting for



LENS 4K Camera Control Unit (CCU)
LENS 4K Camera Head

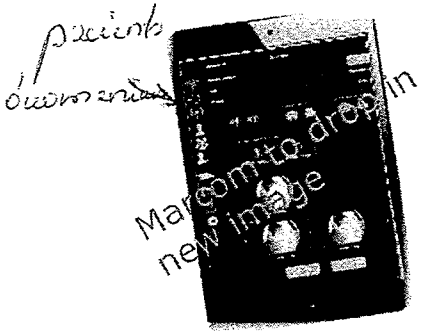


LENS Light Guides

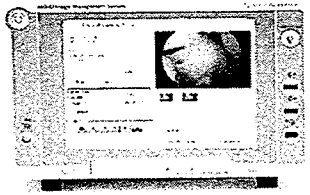


Integration Broker

LENS Scopes



LENS Tablet Application *(optional)*



660 HD-E Image Management *(optional)*

LENS 4K solution

Performance you expect

- ✓ Designed for arthroscopy and multi-specialty surgery
- ✓ Latest in 4K Ultra High Definition (UHD) technology

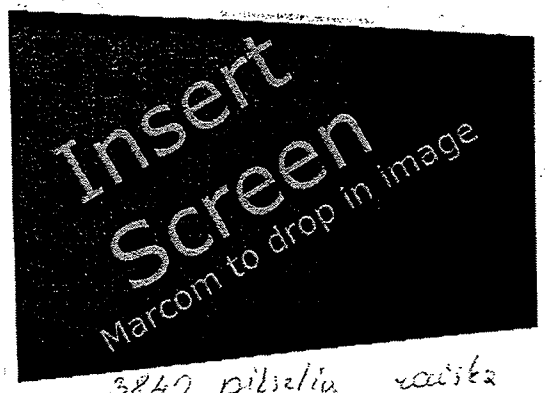
  4-times pixel resolution of HD

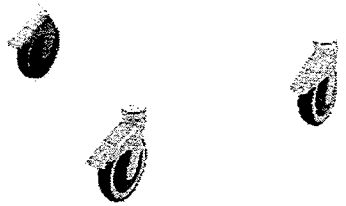
  Over 1-billion colors creates vivid images and color reproduction

  4K UHD native 3-CMOS sensor with S+N proprietary real-time image processing

  Precision alignment improves pixel shifting to reduce artifact and optimize resolution

- ✓ Control camera functions and image management outside the sterile field with the LENS Tablet application
- ✓ Flexible integration and connectivity options to support your unique workflow





Rear Panel Overview

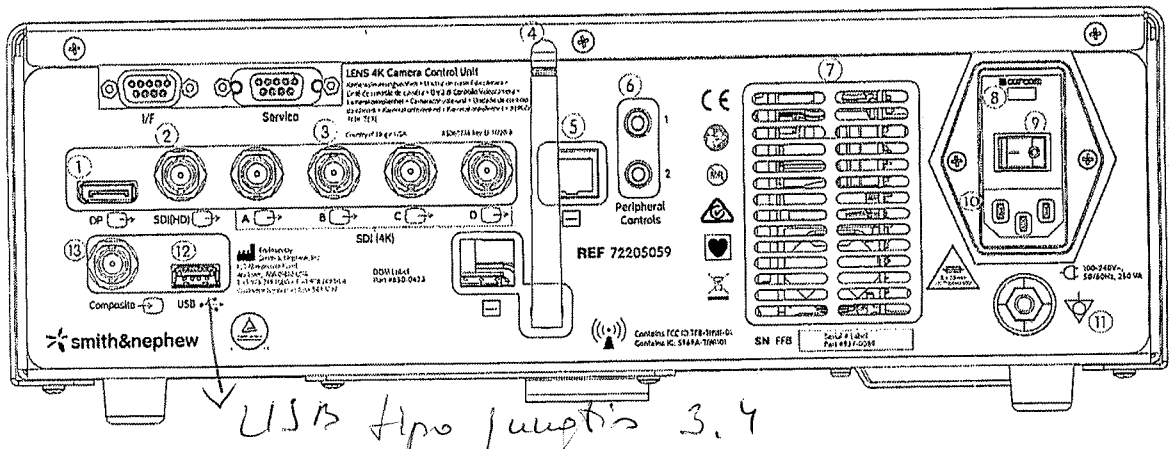


Figure 2. LENS 4K Camera Control Unit Rear Panel (REF 722050059 - Wi-Fi enabled)

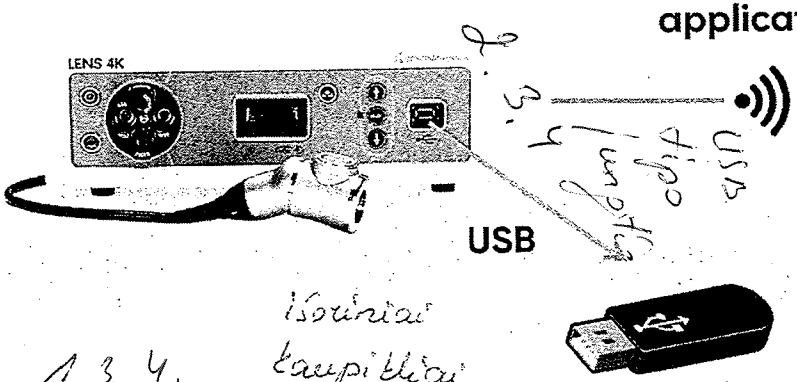
Note: The rear panel of the non-Wi-Fi (REF 72205185), not shown, is the same as the Wi-Fi; minus the antenna and Wi-Fi symbol.

	Rear Panel Connections	Function
1	DP	DisplayPort Connector: Video output port supporting Native 4K 60fps output.
2	HD-SDI Output	Serial digital interface with component digital video output for HD-SDI-compatible video displays or video transmission equipment. The HD-SDI connector support 1080i and 1080p. To configure the connector, select the **Advanced Settings** icon from the SYSTEM CONFIGURATION MENU screen.
3	HD-SDI (A, B, C, D)	Quad 3G HD-SDI video output connectors supporting native 4K video resolutions.
4	Wi-Fi antenna connector	Accommodates the removable antenna for communication with supported Wi-Fi devices.
5	Top Ethernet Port	For service use only.
	Bottom Ethernet Port	For use with Integration Broker installation.
6	Peripheral Controls	Two standard 1/8" mini phono plug (3.5 mm) peripheral cable connectors allow control of peripheral devices such as printers and image capture devices from the Camera Head.
7	Exhaust port for power supply	Exhaust port for venting of air through the system. To avoid the risk of the System overheating, do not block.
8	Fuse Holder	The clip holds a dual fuse. Refer to the System Specifications section of this manual.
9	AC Mains Power	The switch applies power to the control unit. The switch can be set to off (O) or on (I).
10	Power Cord Connector	Accommodates the hospital grade power cord accessory. This receptacle is an integral part of the power input module.
11	Equipotential Compensator Terminal (case ground)	Brings other equipment to the same case potential as the device.
12	USB Receptacle	The LENS 4K supports compatible USB storage devices with partition scheme as Master Boot Records (MBR) and keyboards.
13	Composite Input	Standard composite video (CV) provides a video input for the supported composite output devices (C-arms, operating room cameras, etc.). This input supports NTSC or PAL, but it must be configured for the desired input. Refer to the Advanced Settings section of this manual for information about how to configure the composite input but must be configured from the Advanced Settings screen to match the input to be used.

LENS 4K

S+N

3-in-1 video system



Organize your own workflow

1. Vaizdo kameros galvutė

72205058

Ordering information

Wi-Fi Camera Control Units

Reference #	Description
72205211	LENS 4K CCU, US (Wi-Fi Version)
72205212	LENS 4K CCU, German (Wi-Fi Version)
72205213	LENS 4K CCU, Spanish (Wi-Fi Version)
72205214	LENS 4K CCU, French (Wi-Fi Version)
72205215	LENS 4K CCU, Swedish (Wi-Fi Version)
72205216	LENS 4K CCU, Portuguese (Wi-Fi Version)
72205217	LENS 4K CCU, Danish (Wi-Fi Version)
72205218	LENS 4K CCU, Norwegian (Wi-Fi Version)
72205219	LENS 4K CCU, Dutch (Wi-Fi Version)
72205220	LENS 4K CCU, Korean (Wi-Fi Version)
72205221	LENS 4K CCU, Italian (Wi-Fi Version)
72205059	LENS 4K CCU, International (Wi-Fi Version)
72205224	LENS 4K CCU, UK (Wi-Fi Version)

Non-Wi-Fi Camera Control Units

72205239	LENS 4K CCU, US (Non-Wi-Fi)
72205240	LENS 4K CCU, German (Non-Wi-Fi)
72205241	LENS 4K CCU, Spanish (Non-Wi-Fi)
72205242	LENS 4K CCU, French (Non-Wi-Fi)
72205243	LENS 4K CCU, Italian (Non-Wi-Fi)
72205244	LENS 4K CCU, Swedish (Non-Wi-Fi)
72205245	LENS 4K CCU, Portuguese (Non-Wi-Fi)
72205246	LENS 4K CCU, Danish (Non-Wi-Fi)
72205247	LENS 4K CCU, Norwegian, (Non-Wi-Fi)
72205248	LENS 4K CCU, Dutch, (Non-Wi-Fi)
72205249	LENS 4K CCU, Korean (Non-Wi-Fi)
72205250	LENS 4K CCU, International (Non-Wi-Fi)
72205252	LENS 4K CCU, UK, (Non-Wi-Fi)

Cameras

Reference #	Description
72205343	LENS 4K Camera Head, USA
72205058	LENS 4K Camera Head, International

1. vaizdo kameros adapteris

Accessories

72200315	LENS Coupler, 19.5mm
72200422	LENS Coupler, 26.5mm

72200315

2. Vaizdo kameros valdymo įrenginys 72205059

Learn more at smith-nephew.com

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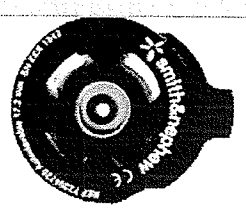
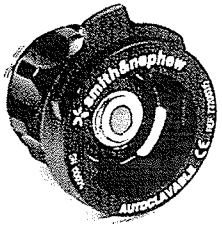
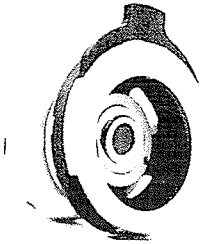
Andover, MA 01810

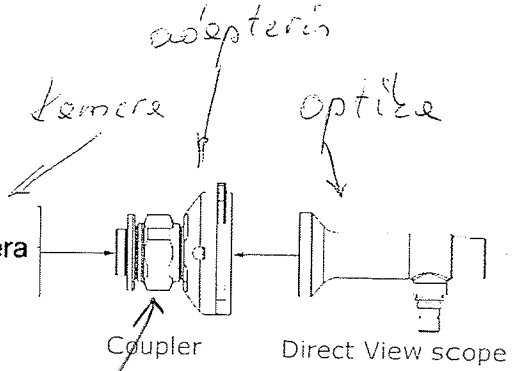
www.smith-nephew.com
T +978 749 1000
US Customer Service
+1 800 343 5717

References

1. [illegible] 2. [illegible] 3. [illegible]
Validation report 15000975 Rev A, 09/19

72204725	17.2 mm Coupler		EtO, Sterrad	●	●	×
72200315	19.5 mm Coupler		EtO, Sterrad	●	●	●
72200422	26.5 mm Coupler		EtO, Sterrad	●	●	●

optikos prijungimo adapteris



fokusavimo žiedas

● Applicable
× Not applicable

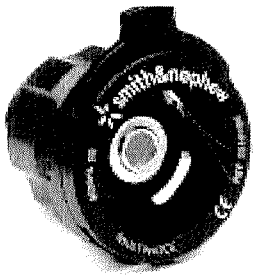
Video Couplers and Adaptors

Autoclavable Couplers

Superior clarity and brightness
Unparalleled brightness
Sharp images throughout the entire field-of-view
Sapphire lenses for improved scratch resistance over conventional glass
Epoxy-free, proprietary seal design guarantees leak-free autoclave performance
Compatible with steam and chemical (EtO, Steris®, and Sterrad®) sterilization modalities

High Definition Endocouplers – 560H head only

REF	Description
72200315	19.5 mm High Definition, C-mount, Black ring
72200422	26.5 mm High Definition, C-mount, Silver ring

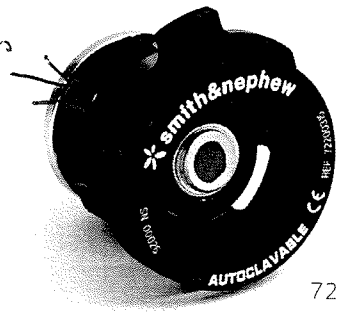


Standard Definition Endocouplers

REF	Description
7210192	18 mm Smith & Nephew mount for use with 370 and 470H Camera Heads only

Couplers and accessories

72200422



72200315

72204725

Part no.	Description	Chemical sterilization	Autoclavable	LENS HD	LENS 4K
72201599	16mm Coupler	STERRAD	No	Yes	Yes
72204725	17.2mm Coupler	STERRAD	Yes	Yes	Yes
72200315	19.5mm Coupler	STERRAD	Yes	Yes	Yes
72200422	26.5mm Coupler	STERRAD	Yes	Yes	Yes
8001701	Replacement O-ring for C-mount couplers	STERRAD	Yes	Yes	Yes
*7205548	Aluminum oxide, abrasive powder for light polishing of lens glass				
7207900	For Storz® Light Guide, outside threads, full length	STERRAD	Yes	Yes	Yes
4347	For Smith+Nephew /Wolf® Light Guide	STERRAD	Yes	Yes	Yes

*Only for use in Autoclavable Arthroscopy Assistance Set

smith&nephew

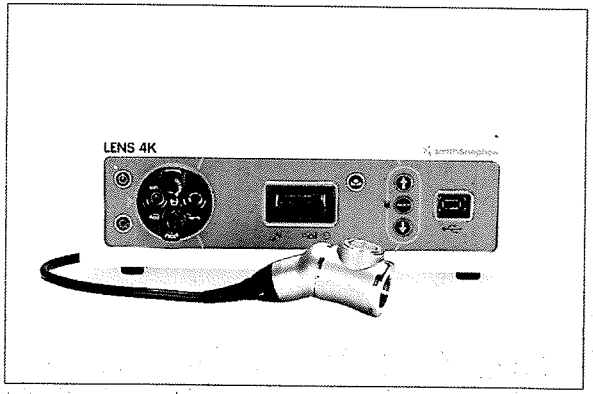
1. 2.

What can we conclude about LENS 4K technology

4K raiškos

4K video is an exciting technology, and has quickly become the new standard in surgical video.

Smith and Nephew has entered into the 4K camera market with the LENS 4K Camera System. LENS 4K utilizes the latest in 4K chip technology, along with proprietary video processing software to achieve very high image quality.



Some of the key characteristics of the LENS 4K are:

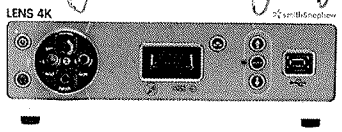
- Higher light sensitivity — didesnis šviesos jautrumas
- Increased dynamic range — padidintas dinaminis diapazonas
- High Signal-to-Noise ratio — didelis signalo ir triukšmo santykis
- High color reproduction — didelis spalvų atkūrimas
- High spatial resolution — didelė erdvinė skiriamoji geba
- Video processing technology designed in-house to process the full 4K resolution data
- Proprietary video processing software algorithms designed to be optimized specifically for endoscopic and arthroscopic video needs

2.

Native 4K imaging system allowing flexibility and value

LENS 4K Camera Control Unit (CCU) includes integrated light source

Minimize equipment without compromising on the deployment options you need.

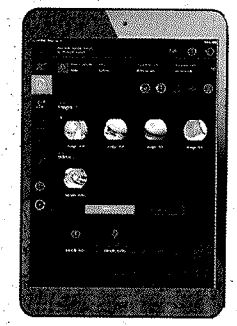


LENS 4K Camera Head

Ergonomics and balance in your hand for arthroscopy and endoscopic surgeries.

The LENS Tablet Application

Extend your reach beyond the surgical field.



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72205218	LENS 4K CCU, Norwegian (Wi-Fi Version)
72205219	LENS 4K CCU, Dutch (Wi-Fi Version)
72205220	LENS 4K CCU, Korean (Wi-Fi Version)
72205221	LENS 4K CCU, Italian (Wi-Fi Version)
72205222	LENS 4K CCU, International (Wi-Fi Version)
72205224	LENS 4K CCU, UK (Wi-Fi Version)

Non-Wi-Fi Camera Control Units

Reference #	Description
72205239	LENS 4K CCU, US (Non-Wi-Fi)
72205240	LENS 4K CCU, German (Non-Wi-Fi)
72205241	LENS 4K CCU, Spanish (Non-Wi-Fi)
72205242	LENS 4K CCU, French (Non-Wi-Fi)
72205243	LENS 4K CCU, Italian (Non-Wi-Fi)
72205244	LENS 4K CCU, Swedish (Non-Wi-Fi)
72205245	LENS 4K CCU, Portuguese (Non-Wi-Fi)
72205246	LENS 4K CCU, Danish (Non-Wi-Fi)
72205247	LENS 4K CCU, Norwegian, (Non-Wi-Fi)
72205248	LENS 4K CCU, Dutch, (Non-Wi-Fi)
72205249	LENS 4K CCU, Korean (Non-Wi-Fi)
72205250	LENS 4K CCU, International (Non-Wi-Fi)
72205252	LENS 4K CCU, UK, (Non-Wi-Fi)

Cameras

Reference #	Description
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72205344	LENS 4K Camera Head, International

Accessories

72200315	LENS Coupler, 19.5mm
72200422	LENS Coupler, 26.5mm

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Printed in USA 12273 V1 09/19

1. Navigate to **ENHANCEMENT**. When **ENHANCEMENT** blinks, press **Select** to select it. The current setting will blink.
2. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to scroll through the **ENHANCEMENT** level settings. Press **Select** to select the desired level.
3. To save the changes and exit the CAMERA SETUPS SETTINGS screen, select **SAVE AND EXIT**.

CHROMA (SAT)

The CHROMA (SAT) setting allows the user to set the color saturation level of the video output during the camera setup. Increase saturation to increase the intensity of the colors. Decrease saturation to decrease the intensity of the color. A saturation level of zero produces a monochrome image.

CHROMA (SAT) settings range from 0 to 10 in whole number increments. The default value is +5. To customize the **CHROMA (SAT)** level:

1. Navigate to **CHROMA (SAT)**. When **CHROMA (SAT)** blinks, press **Select** to select it. The current setting will blink.
2. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to scroll through the **CHROMA (SAT)** level settings. Press **Select** to select the desired level.
3. To save the changes and exit the CAMERA SETUPS SETTINGS screen, select **SAVE AND EXIT**.

PHASE (HUE)

The PHASE (HUE) setting allows the user to set the color hue of the video output during the camera setup. PHASE (HUE) settings range from 0 to 10 in whole number increments. Higher settings (longer wavelengths) will contain more red. Mid-range settings (medium wavelengths) will contain more green, and lower range (shortest wavelengths) settings will contain more blue. The default value is +5. To customize the PHASE (HUE) level:

1. Navigate to **PHASE (HUE)**. When **PHASE (HUE)** blinks, press **Select** to select it. The current setting will blink.
2. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to scroll through the **PHASE (HUE)** level settings. Press **Select** to select the desired level.
3. To save the changes and exit the CAMERA SETUPS SETTINGS screen, select **SAVE AND EXIT**.

ZOOM

Digital increase or decrease from 1.0X to 3.0X. Each time the button is pressed, the zoom factor increases by approximately 10%.
Optical increase or decrease from 0X to 1.5X.

CONFIGURE ICONS

The CONFIGURE ICONS setting allows the user to customize which icons appear in the status bar on the OSD. The default setting for all icons is **YES**.

To customize the icons display in the status bar:

1. Navigate to the camera setup to be customized and press **Select**. The CAMERA SETUPS screen opens.
2. Navigate to **CONFIGURE ICONS** and press **Select** to select it. The CONFIGURE ICONS screen opens (Figure 40). Each icon listed can be configured to **YES** (display) or **NO** (do not display).

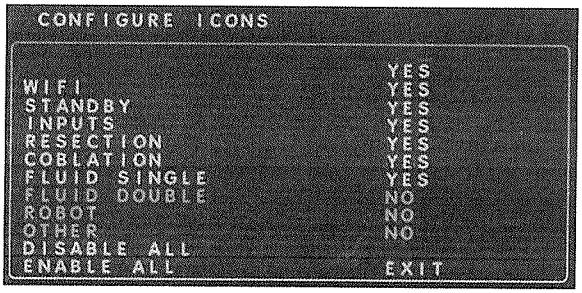


Figure 40. Configure Icons

3. Navigate to the desired icon. When the icon blinks, press **Select** to select it. The current setting will blink.
4. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to switch between **YES** and **NO**. Press Select to select the desired setting.

Note: The icons Fluid Double, Robot and Other are not available at this time.

Icons displayed can be enabled or disabled individually or as a group.

To **ENABLE** all icons in the status bar, navigate to **ENABLE ALL**. When **ENABLE ALL** blinks, press Select to select it. All icons listed on the screen will immediately be reconfigured to YES and will appear in the status bar on the OSD.

To **DISABLE** all icons in the status bar, navigate to **DISABLE ALL**. When **DISABLE ALL** blinks, press **Select** to select it. All icons listed on the screen will immediately be reconfigured to **NO** and will not appear in the status bar. This is not recommended.

To exit the CONFIGURE ICONS screen, highlight the **EXIT** option and press **Select** to return to the CAMERA SETUP SETTINGS screen.

MORE SETTINGS

The MORE SETTINGS menu (Figure 41) is an extension of the Camera setup Selection menu.

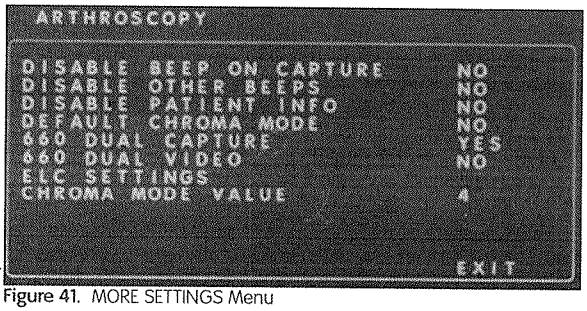


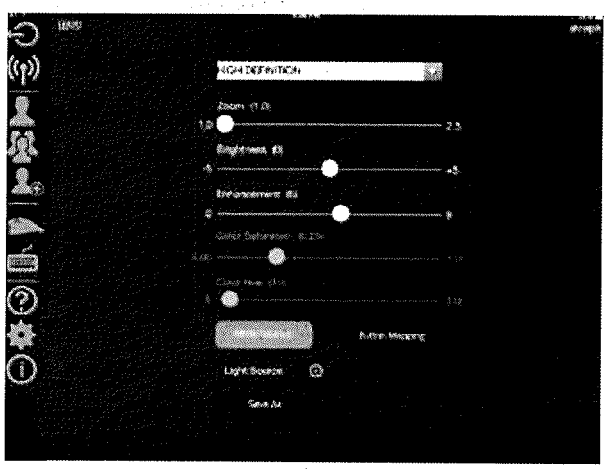
Figure 41. MORE SETTINGS Menu

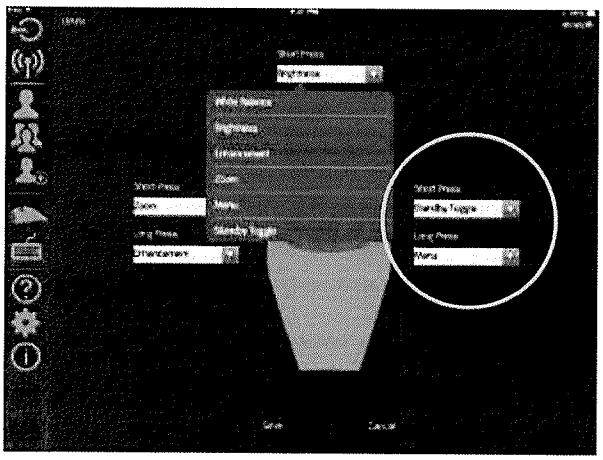
1. From the MAIN MENU, highlight the **camera setups** icon and select it to open the Camera setup Selection menu.
2. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to navigate to the **Customize Camera Setups** icon and press Select to open the Setup Selection setup screen.

1.5 Kyptuty programowania

Camera Control Programming

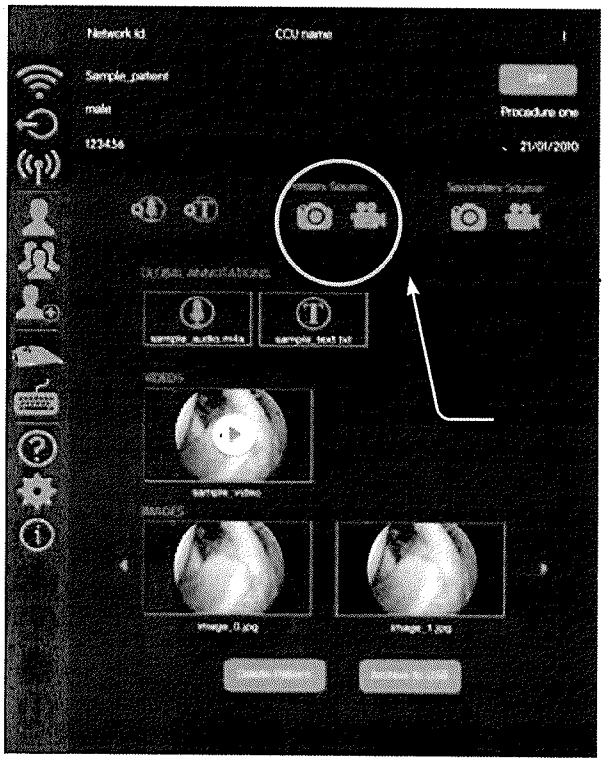
1. Camera functions can be changed during surgery if temporary changes or adjustments are necessary. Tap the **Camera** icon. Use the sliders in the **Camera** menu to adjust functions. Use the **Button Mapping** feature to program the **Camera Head** buttons by selecting the **Button** drop-down menu.
2. To program the **Camera Head** buttons, use the **Button Mapping** feature.





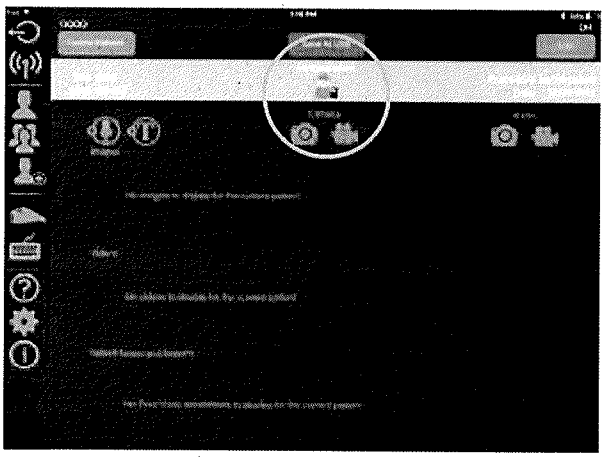
3. Select the **Button** drop-down menu and use it to pick the correct function.

To Take a Picture or Video



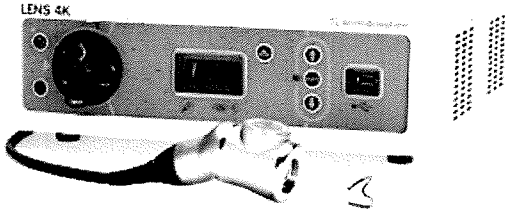
Once the CCU is live and connected to the LENS® Local Annotations, Tap **Patient** on the Navigation Tool Bar. Tap the **Camera** icon to take picture or the **Video Camera** icon to take a video.

Note: Images and video may also be captured directly from the Camera Head.



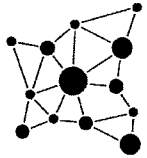
LENS 4K solution

Value you have been waiting for

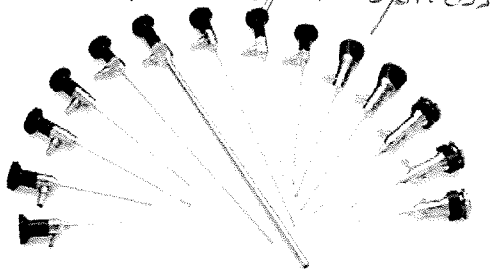


LENS 4K Camera Control Unit (CCU)
LENS 4K Camera Head

LENS Light Guides

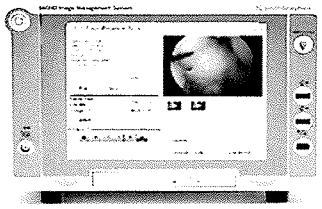


Integration Broker



LENS Scopes

LENS Tablet Application



660 HD-E Image Management *(optional)*

LENS 4K solution

Performance you expect

- ✓ Designed for arthroscopy and multi-specialty surgery
- ✓ Latest in 4K Ultra High Definition (UHD) technology

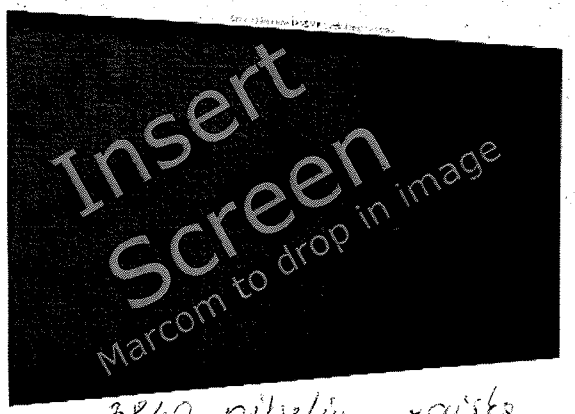
  4-times pixel resolution of HD

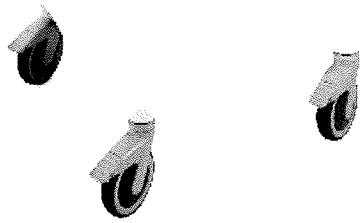
  Over 1-billion colors creates vivid images and color reproduction

  4K UHD native 3-CMOS sensor with S+N proprietary real-time image processing

  Precision alignment improves pixel shifting to reduce artifact and optimize resolution

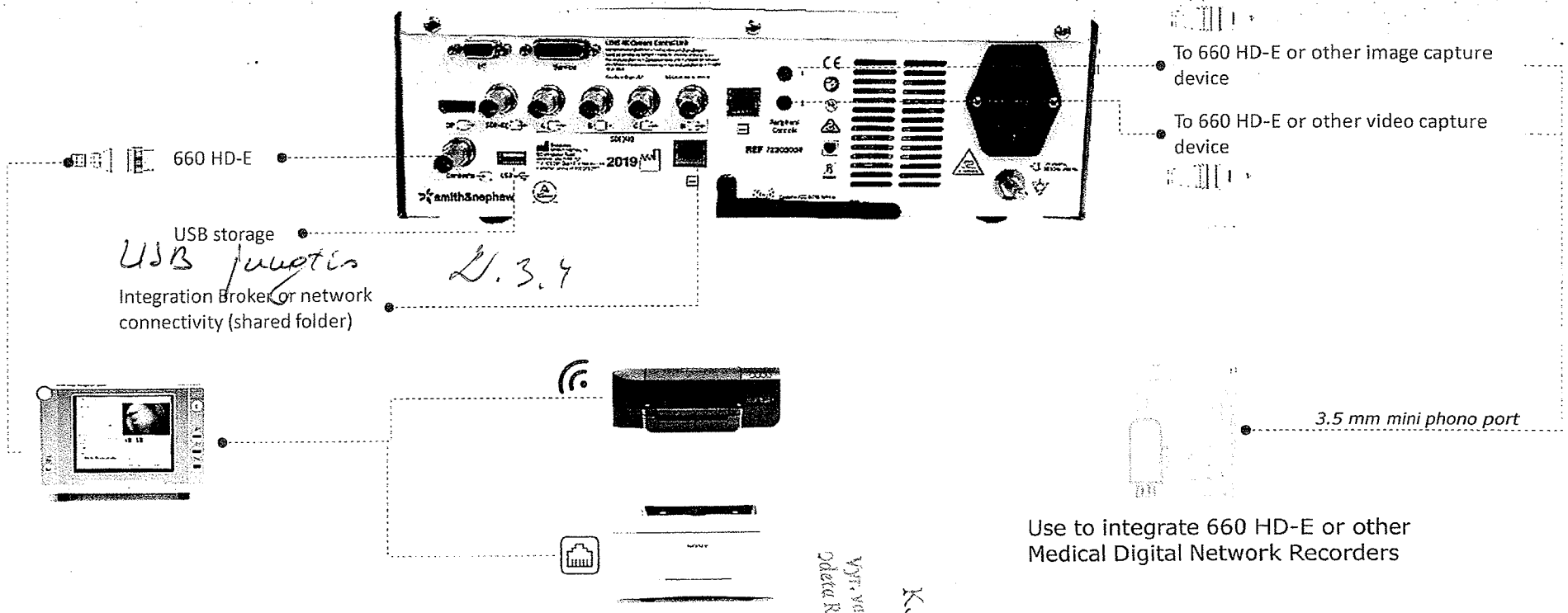
- ✓ Control camera functions and image management outside the sterile field with the LENS Tablet application
- ✓ Flexible integration and connectivity options to support your unique workflow





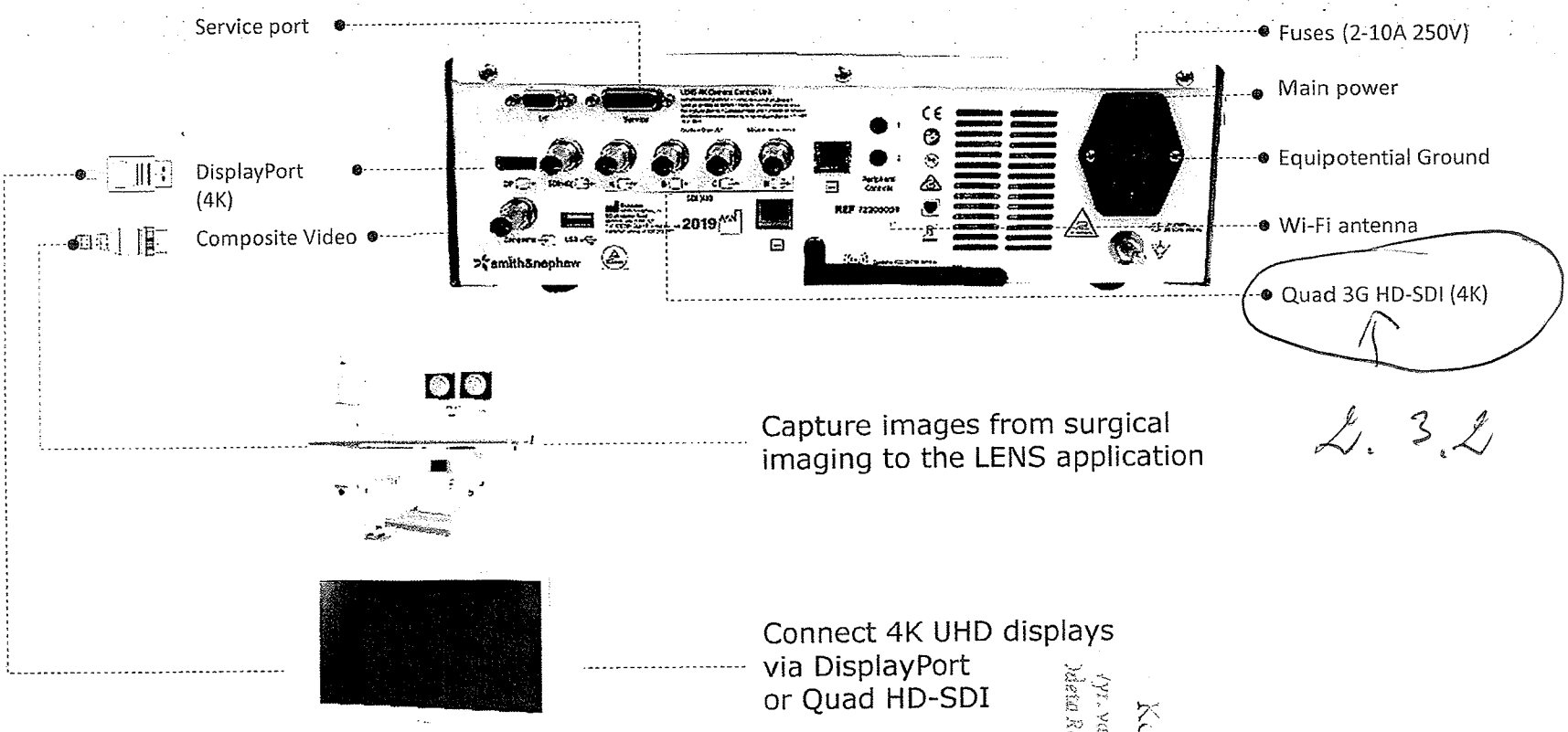
LENS 4K CCU

Data connectivity to support your unique surgical environment



LENS 4K CCU

Image connectivity to support your unique surgical environment



Rear Panel Overview

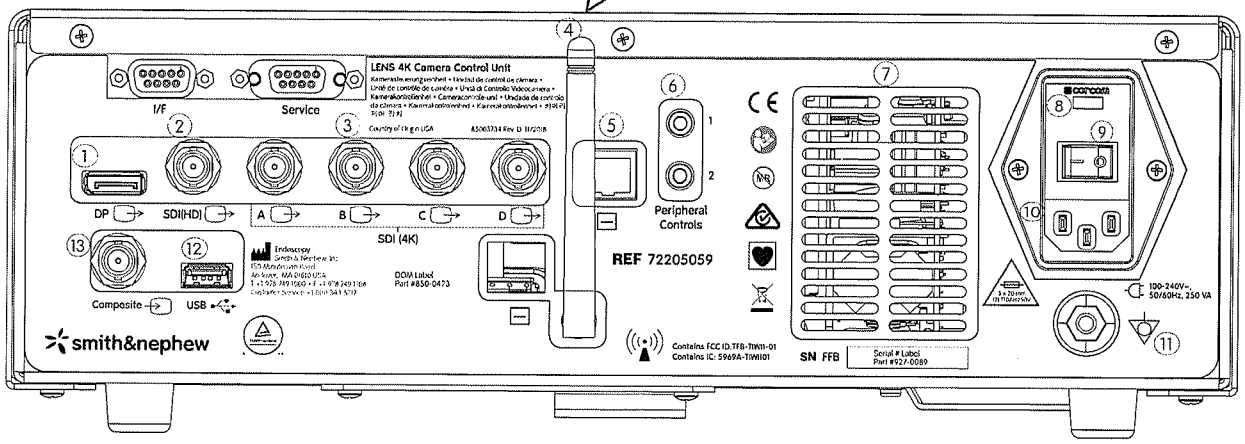
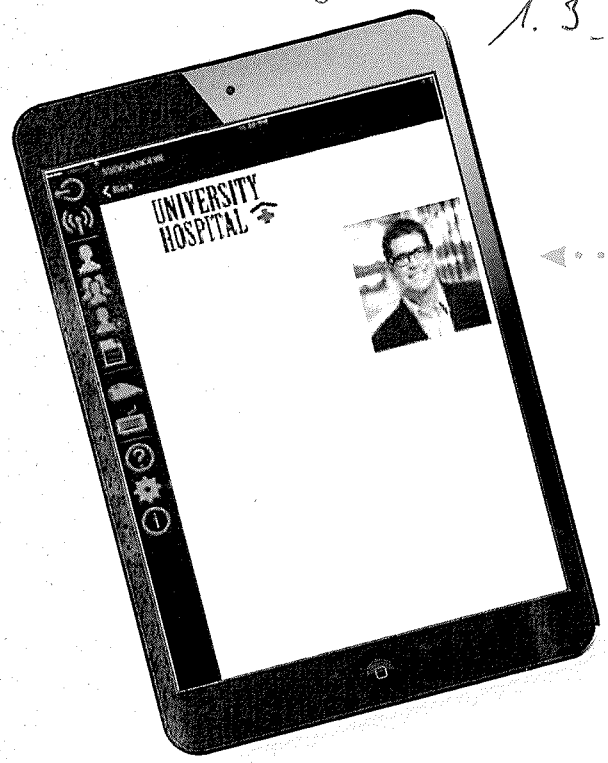


Figure 2. LENS 4K Camera Control Unit Rear Panel (REF 722050059 - Wi-Fi enabled)

Note: The rear panel of the non-Wi-Fi (REF 72205185), not shown, is the same as the Wi-Fi; minus the antenna and Wi-Fi symbol.

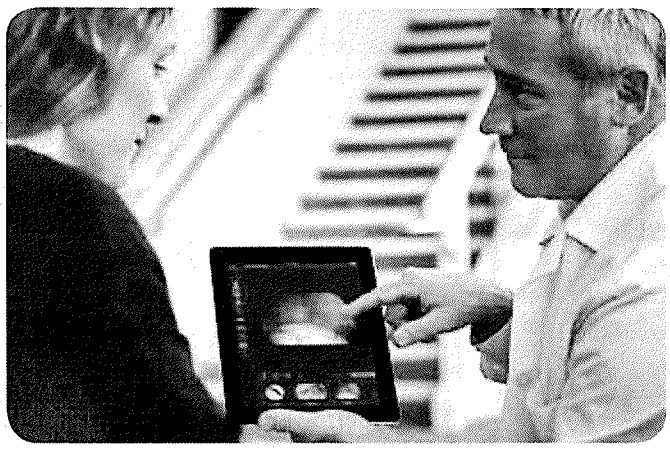
	Rear Panel Connections	Function
1	DP	DisplayPort Connector: Video output port supporting Native 4K 60fps output.
2	HD-SDI Output	Serial digital interface with component digital video output for HD-SDI-compatible video displays or video transmission equipment. The HD-SDI connector support 1080i and 1080p. To configure the connector, select the **Advanced Settings** icon from the SYSTEM CONFIGURATION MENU screen.
3	HD-SDI (A, B, C, D)	Quad 3G HD-SDI video output connectors supporting native 4K video resolutions.
4	Wi-Fi antenna connector	Accommodates the removable antenna for communication with supported Wi-Fi devices.
5	Top Ethernet Port	For service use only.
	Bottom Ethernet Port	For use with Integration Broker installation.
6	Peripheral Controls	Two standard 1/8" mini phono plug (3.5 mm) peripheral cable connectors allow control of peripheral devices such as printers and image capture devices from the Camera Head.
7	Exhaust port for power supply	Exhaust port for venting of air through the system. To avoid the risk of the System overheating, do not block.
8	Fuse Holder	The clip holds a dual fuse. Refer to the System Specifications section of this manual.
9	AC Mains Power	The switch applies power to the control unit. The switch can be set to off (**O**) or on (**I**).
10	Power Cord Connector	Accommodates the hospital grade power cord accessory. This receptacle is an integral part of the power input module.
11	Equipotential Compensator Terminal (case ground)	Brings other equipment to the same case potential as the device.
12	USB Receptacle	The LENS 4K supports compatible USB storage devices with partition scheme as Master Boot Records (MBR) and keyboards.
13	Composite Input	Standard composite video (CV) provides a video input for the supported composite output devices (C-arms, operating room cameras, etc.). This input supports NTSC or PAL, but it must be configured for the desired input. Refer to the Advanced Settings section of this manual for information about how to configure the composite input but must be configured from the Advanced Settings screen to match the input to be used.

Connected beyond the OR



LENS System iPad® App

The app is intuitive and user friendly and connects easily to a built-in LENS Wireless Network.



PDF Report Customization

- Patient-specific report can include hospital logo, notes, direction and several images
- Available for free with product purchase at the Apple App Store

Auto Print Functionality

- Automatically print during the operative use mode as images are acquired
- Fully printed report can be available at the end of the case with little or no wait during the postoperative phase

Email

- Email images, videos and reports directly to the patient, office or colleagues

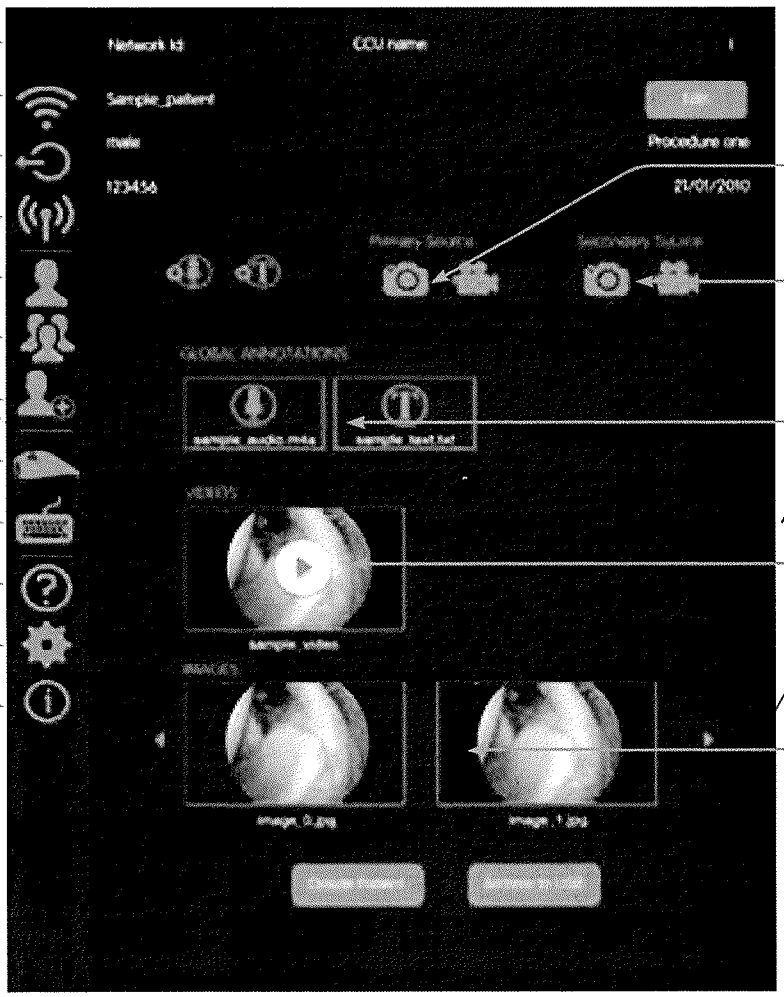
PACS Compatibility via Integration Broker

- Direct connection into the hospital's PACS system with additional software
- Pull worklist data directly into the system each day to save time and potentially minimize errors

Consultation with patients or colleagues

- Use the app to counsel patier and their families
- Email directly to colleagues
- Save assets for use in presentations

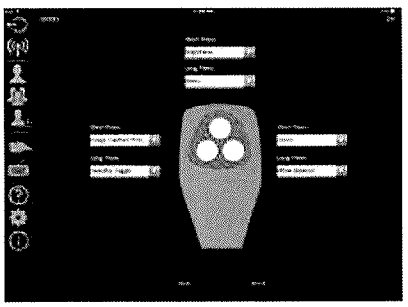
One of the many unique features of the LENS® System is a proprietary iPad® application* (app) that can be used to control the system and manage media. The features of the app are laid out below.



LENS System Camera Head Functions

The LENS Camera Head has three buttons that can be programmed to control up to six different Console functions with either a "short press" or a "long press" of the Camera button.

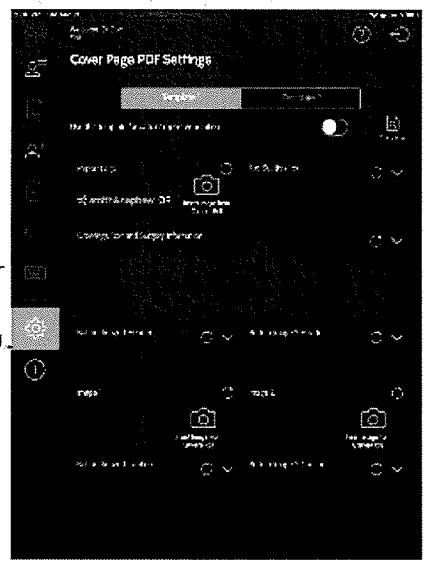
The Camera Head buttons can be individually programmed either through the LENS Application or the Console Menu functions.

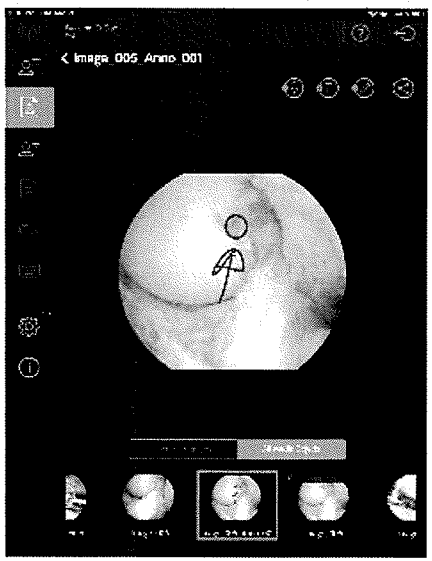


*Currently, the LENS Application is only available for iPads® with iOS7.0 - iOS9.02.

LENS Application

- Capture images and videos from the LENS 4K camera
- Capture images from other imaging machines (e.g. CT)
- Draw and annotate directly on images
- Create voice annotations
- Add free text or structures notes (up to 32 text shortcuts)



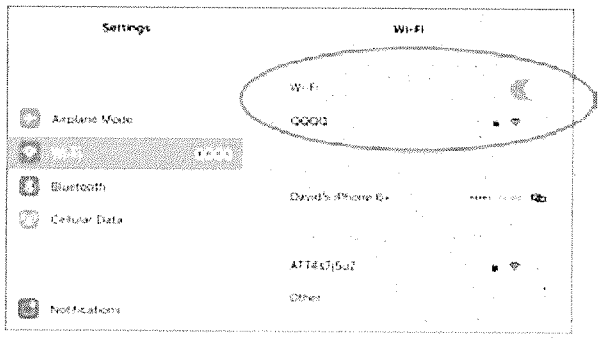


LENS® Wireless Network

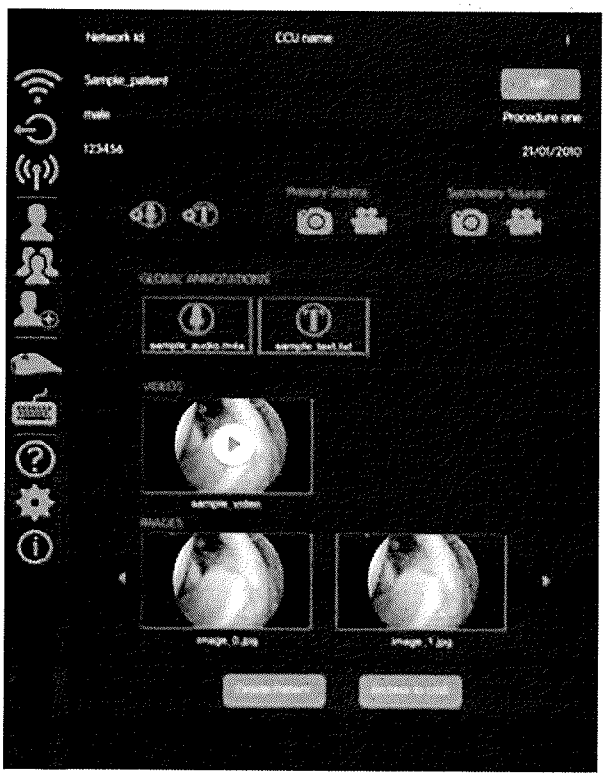
gs and select the LENS Wi-Fi network
e networks. The network should be
automatically.

is 12345678. After the initial login, the
ged.

the Navigation Bar to connect the
LENS Wi-Fi network.



s if links up to the LENS Camera.
ill change to orange on the console
Fi icon will light up on the



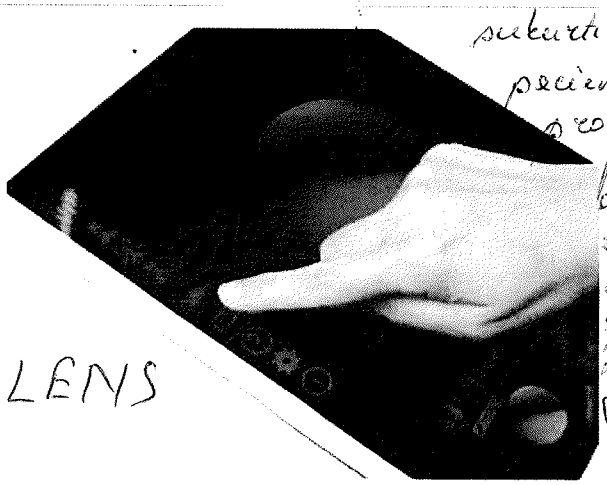
To Connect to t

1. Go to the iPad® Se
from the list of ava
identified by the i
2. The default passw
password can be
3. Tap the Wi-Fi icon
iPad LENS App to

The icon will fade to gr
Once linked up, the ico
Navigation Bar and the
on the console displa

Kopija tikra
Vyr. vadyb
Odeta Rakl

ENS System iPad Application



Functions of th

- Create new patient
- Patient view
- Procedure creation
- Engage picture and
- Create annotations
- View annotations
- Camera programmir
- Printing
- Image files

Planšetinis kompiuteris APPLE iPad 10.2" Wi-Fi 32GB

2.4.

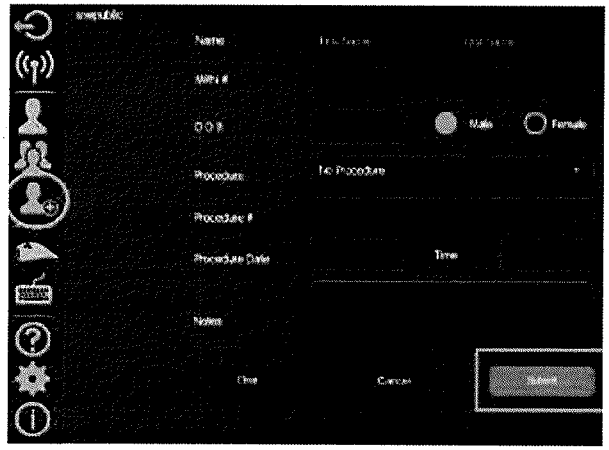
Prekės kodas	993001010948
Barkodas	1901991887306
Komplektacija	Laidas iš Lightning į USB, USB maitinimo adapteris
Svoris (g)	483
Procesoriaus modelis	A10
Bevielis ryšys (Wi-Fi)	Yra
3G	Nėra
4G	Nėra
Taktinis dažnis (MHz)	2,34
Programinė įranga	iOS 12
Baterija	Ličio-polimerų
Jungtys	Ausinių lizdas, Lightning
Papildomos funkcijos	Pirštų atspaudų jutiklis (Touch ID), Akselerometras, barometras, Šviesos jutiklis
Garsiakalbiai	yra
Įstrižainė	10.2" (~25,9cm) 2.7.1
Galinė fotokamera (MP)	8.0
Bluetooth	Yra
Ekrano raiška	2160 x 1620 2.7.2
Navigacija (GPS)	Nėra
Atminties kortelės tipas	nėra
Ekrano tipas	IPS technologija
Branduoliai	Keturių branduolių (Quad core)
Vidinė atmintis (GB)	32
Didžiausia atminties kortelė (GB)	-
Priekinė fotokamera (MP)	1,2
SIM jungtis	nėra
Spalva	Pilka
Planšetės įstrižainė	10"+
Garantija (mėn.)	24

Kopija tikra

25

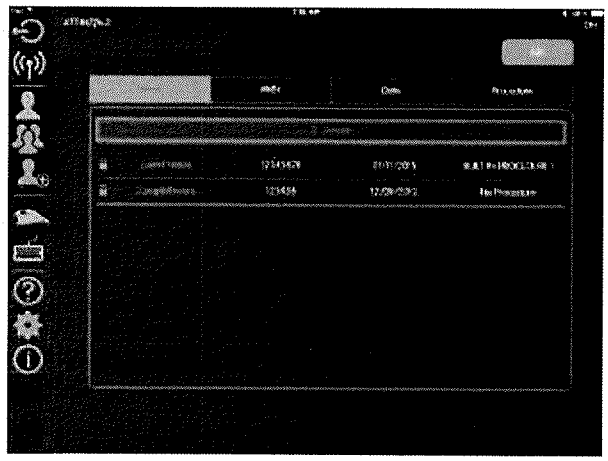
To Create a New Patient

1. From anywhere in the LENS® Application, select the Create Patient on the Navigation Bar.
2. Fill in the required information and tap Submit.



To View a Patient Record

You can view a list of all patients from the Navigation Bar.



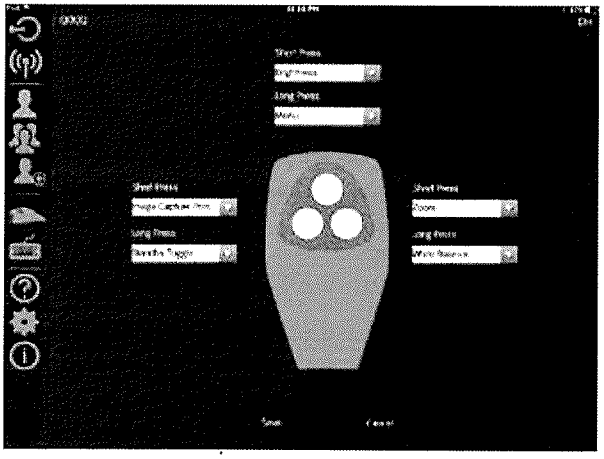
To Create a New Procedure

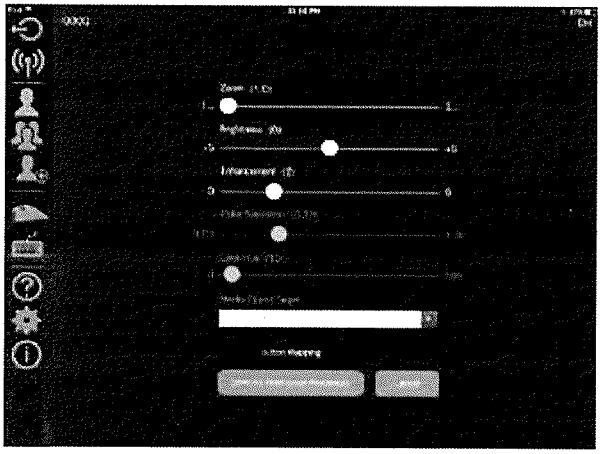
You can create or edit existing customized camera settings for a particular type of procedure, which can then be selected for a patient.

1. Tap the empty slot in the Local Procedures list to create a new procedure.

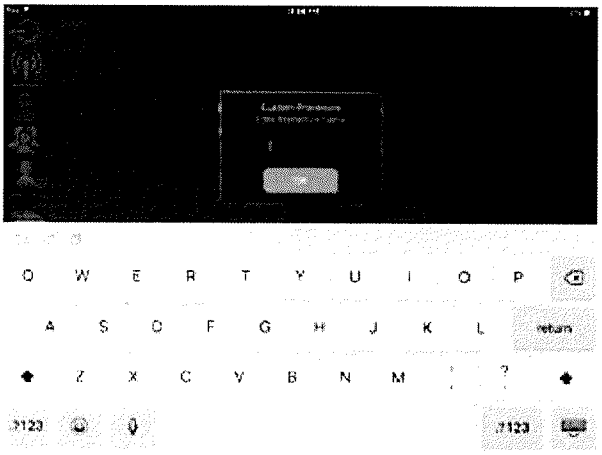
To Create a new Procedure (cont.)

2. Change the settings to match the preferred performance.
3. Tap **Button Mapping** to set the Camera Head buttons to the preferred settings.

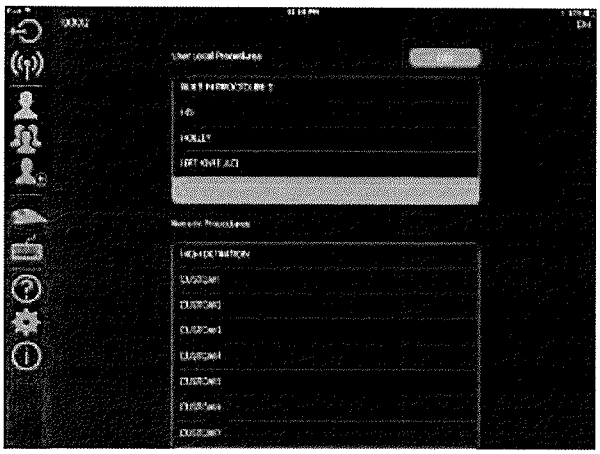




4. Make the necessary changes to the **Long** and **Short** button functions. Tap **SAVE**.



5. Type the name for the new procedure. In this example, it is,**Left Knee ACL**.



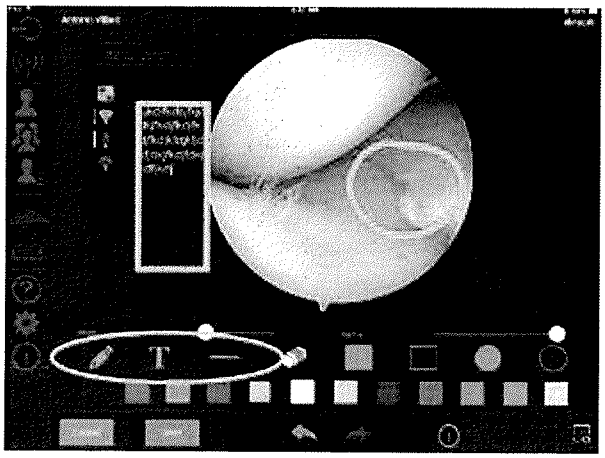
6. The new procedure is finished.

Kopija tikra

Vyr. vadybininkė
Odeta Raklevič

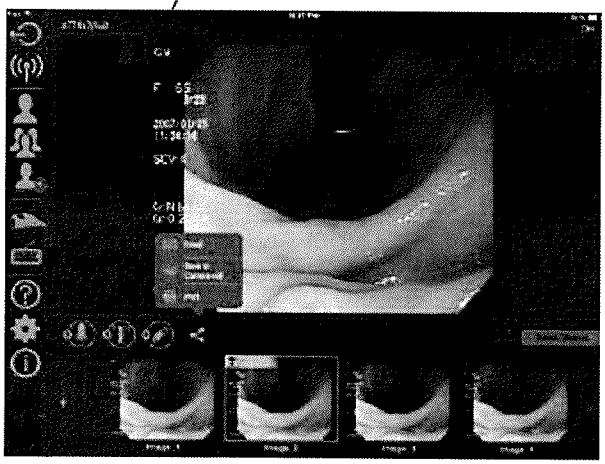
To Create Annotations

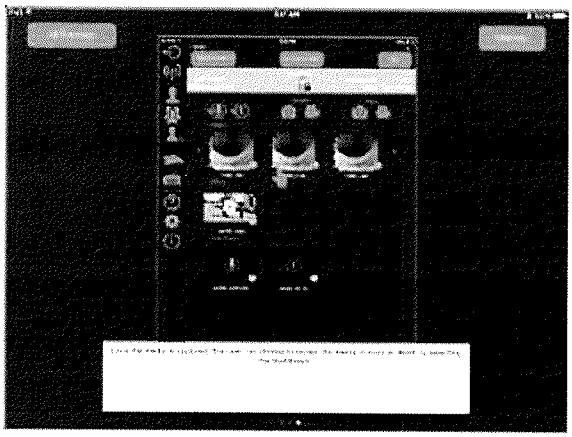
Text, voice or drawing annotations can be made to patient files by tapping the corresponding annotation icons. To view images after annotations are added, at the bottom of the selected image, on the right side of the screen, tap **Local Annotations**.



To View Annotations and Media

To view images after adding Voice, Text or Draw, at the bottom of the image selected, on right side of screen, tap **Local Annotations**.





Once the media is selected, the user can choose to view the media in more detail.

Camera Head Specifications*

Equipment Classification	Protection against electrical shock Class 1, type CF equipment
Video Sensor Technology	4K 3-Chip MOS
Video Data Transmission	High-speed, low-voltage differential serial (LVDS), digital transmission via 12-foot camera cable
Video Output Format	Full UHD 2160p, 100% compatible with SMPTE ST 425-5 when used with the LENS 4K Camera Control Unit
Video Field Rate	60 Hz
Transport Shock and Vibration Compliance	ISTA 3A
Camera Head Dimensions	1.7" W x 2.0" H x 3.5" L 43.18 mm W x 50.8 mm H x 88.9 mm L
Camera Head Weight	1.5 lbs (0.7 kg)
Camera Head Cable	12 ft (366 cm)
Lens Mount	1.00 - 32 UN 2B C-mount thread
Compatible Control Units	Smith & Nephew LENS 4K Camera Control Unit
Compliance	Complies with IEC 60601-1:2005 + A1:2012, IEC 60601-2-18:2009, IEC 60601-1-2:2014
Modes of Operation	Continuous

*Specifications subject to change without notice.

Environmental Conditions

	Transport and/or Storage Use	Use
Ambient Temperature	-20 – +140 °F -29 – +60 °C	+50 –77 °F +10 –25 °C
Relative Humidity	15–85%	30–75%
Atmospheric Pressure	70–106 kPa	70–106 kPa
Operating Altitude	3000 meters maximum	3000 meters maximum

Ordering Information

REF 72205058 Smith & Nephew LENS 4K Camera Head

REF 10601349 Smith & Nephew LENS 4K Camera Head Instructions for Use (all countries)

Automatinis ir rankinis parametrų reguliavimas

automatinis — vaizdo kameros valdymo įrenginys su integr. šviesos šalt.

rankinis — aplikacijos pagalba — planšetė

rankinis — mygtukų pagalba — kameros galvutė

2,8

LENS 4K

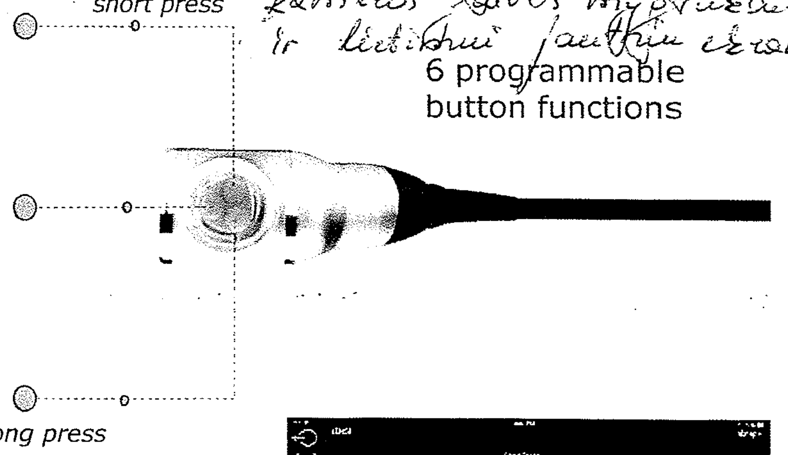
S+N

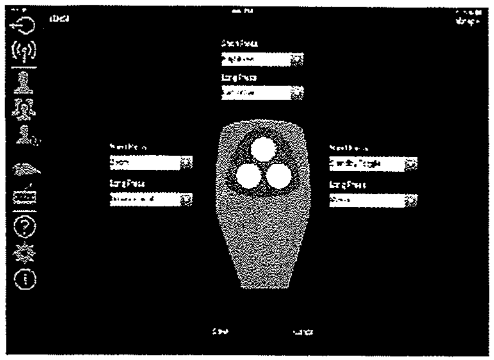
Putting you in control

Common Functions	CCU	LENS App	Camera Head
ALT Frame	●		●
ALT Pause			●
Brightness	●	●	●
Bottom Port (fokusavimas)			●
Enhancement (spalvų nustatymas)	●	●	●
Frame Capture	●	●	●
Last image	●	●	●
Light mode (šviesos intensyvumas)	●	●	●
Menu access	●	●	●
Pause Video	●	●	●
Top Port			●
Video Capture (baltos spalvos balansas)			●
White Balance	●	●	●
Zoom (priartinimas)	●	●	●
Chroma (skaitmeninis priartinimas)	●	●	
Phase	●	●	
Capture image	●	●	●
Audio Record		●	
Configure camera head buttons	●	●	
Print	●	●	

rankinis valdomas kameros galvos mygtukais ir liečiamu jautriu ekranu

6 programmable button functions





Vyr. vadybir Odeta Raklev

Kopija tikra

30,

Customize Procedure Settings

Zoom

See trace for detail (560: ZOOM - Increase or decrease from 1.0X to 2.5X. Each time the button is pressed, the zoom factor increases by approximately 10%, going through the following discrete zoom factors: 1.0X, 1.2X, 1.3X, 1.5X, 1.7X, 1.9X, 2.1X, 2.3X, 2.5X.)

Configure Icons

The **CONFIGURE ICONS** setting allows the user to customize which icons appear in the status bar on the OSD. The default setting for all icons is **YES**.

To customize the icons display in the status bar:

1. Navigate to the procedure to be customized, and press **Select**. The CUSTOMIZE PROCEDURE screen opens.
2. Navigate to **CONFIGURE ICONS** and press **Select** to select it. The CONFIGURE ICONS screen opens (Figure 40). Each icon listed can be configured to **YES** (display) or **NO** (do not display).

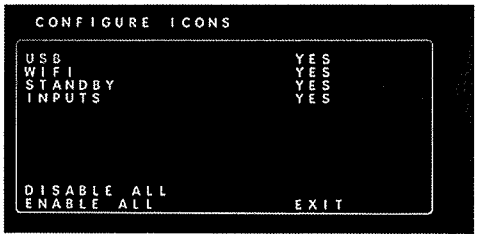


Figure 40.

3. Navigate to the desired icon. When the icon blinks, press **Select** to select it. The current setting will blink.
4. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to switch between **YES** and **NO**. Press **Select** to select the desired setting.

Icons displayed can be enabled or disabled individually or as a group.

To **ENABLE** all icons in the status bar, navigate to **ENABLE ALL**. When **ENABLE ALL** blinks, press **Select** to select it. All icons listed on the screen will immediately be reconfigured to **YES** and will appear in the status bar on the OSD.

To **DISABLE** all icons in the status bar, navigate to **DISABLE ALL**. When **DISABLE ALL** blinks, press **Select** to select it. All icons listed on the screen will immediately be reconfigured to **NO** and will not appear in the status bar. This is not recommended.

To exit the CONFIGURE ICONS screen, highlight the **EXIT** option and press **Select** to return to the CUSTOMIZE PROCEDURE SETTINGS screen.

ELC Settings

Elektrinė šviesos kontrolė (ESK)

ELC (Electric Light Control) Settings allows the user to customize the response of the ELC. The recommended setting is **AUTO**, which is also the default setting. It can also be set to sensitivity levels 1–16.

If flicker occurs while the ELC is set to **AUTO**, reset the ELC to 1 to remove the flicker, then increase the sensitivity level until the speed of the ELC response is sufficient. When sensitivity is set to 1, the response time of the ELC is slow, but more stable. At 16, the response time is quick, but less stable.

To customize **ELC Settings**:

1. Navigate to **ELC Settings** and press **Select** to select it. The ELC Settings screen (Figure 41) opens.

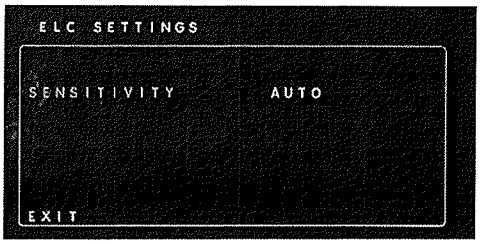


Figure 41.

2. Press **Select** to select **SENSITIVITY**. The current setting will blink.
3. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to scroll through the settings options. Press **Select** to select the desired sensitivity level or **AUTO**.

To exit the ELC SETTINGS screen, highlight the **EXIT** option and press **Select** to return to the CUSTOMIZE PROCEDURE SETTINGS screen.

Save and Exit

To save all changes to the procedure, navigate to **SAVE AND EXIT**. Press **Select** to save changes and exit to OSD. To exit without saving changes, custom settings will need to be changed manually to their original settings prior to selecting **SAVE AND EXIT**.

Set the Default Startup Procedure

Set Default Startup Procedure allows the user to set the procedure that is highlighted on the STARTUP screen and so can be selected immediately. To set the default startup procedure:

1. Navigate to the **Procedures** icon and press the **Select** button to select it.
2. Highlight the **Set Default Startup Procedure** icon (Figure 42) and press the **Select** button to select it. A screen showing the available procedures opens.
3. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to scroll to the procedure to be set as the default procedure. Press **Select** to select the procedure and return to the OSD.

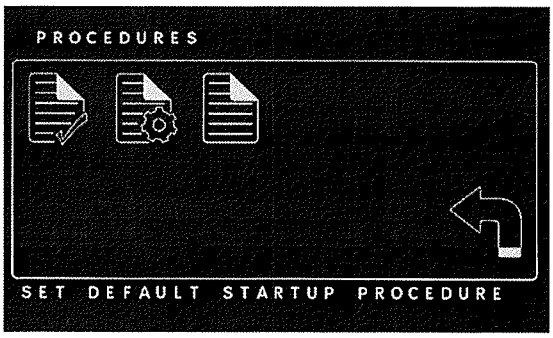


Figure 42.

2.8

Elektrinės šviesos kontrolės nustatymai leidžia naudotojui keisti (ESK) nustatymus. Rekomenduojamas nustatymas yra AUTO, kuris taip pat yra ir numatytas parametras. Jis gali būti nustatomas lygiuose nuo 1 iki 16.

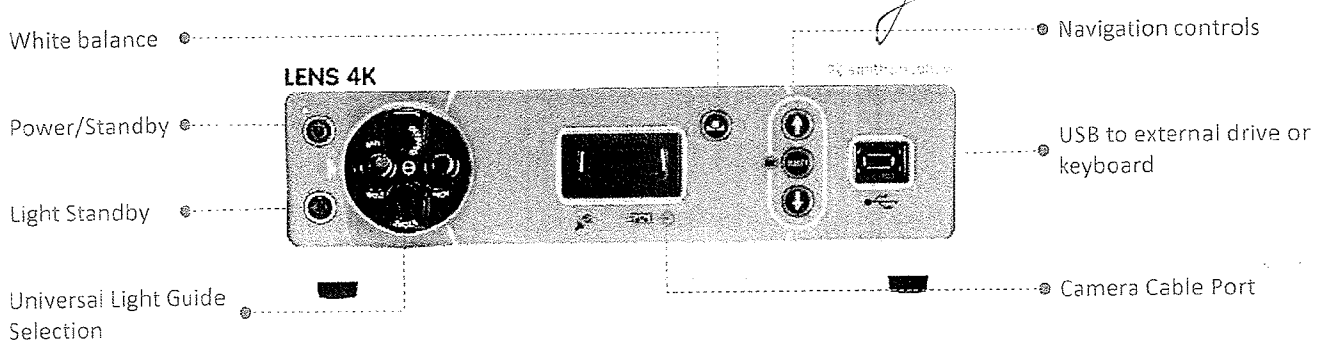
Jam bad perstatyti ESK į 1, reikia mirkti „flikerį" ir tada padidinti jautrumo lygį iki norimo.

3.1.

Simplicity helps to minimize OR complexity

2. integruotas LED tipo SN šviesos šaltinis

Olympus.



2.9 Šviesos šaltinis Lens 4K integruotas į naikės kameros valdymo įrenginį.

Compact design houses camera control, light source and connectivity in single unit (3-in-1)

- Less than 5" height (11.6 cm) x 14" (35.5 cm) depth

Flexible use of Smith & Nephew, Olympus, Wolf, Storz or ACMI light guides Naudojimas su SMITH&NEPHEW, Olympus, Storz arba ACMI šviesolaidžiais

- Light source operates for minimum 30,000 hours

Lempos darbo laikas > 30000 valandų.

Smooth input buttons allow for wiping for disinfection/cleaning

Integrated Wi-Fi for connectivity to LENS Tablet application integruotas belaidis interneto ryšys

1-year warranty, extended warranty options available

Upgradeable platform for future enhancements

Software languages: EN, DE, ES, FR, IT, SE, PT, DK, NO, NL, KO

2.9.1

Device Description

The Smith & Nephew LENS 4K Camera Control Unit (CCU), Wi-Fi and non-Wi-Fi systems is a state-of-the-art video system designed for use in arthroscopic and endoscopic surgical procedures. The System enables control of camera features (enhancement features and zoom capabilities) and accessories (video printers, and image management systems) through either the Camera Head, Control Unit buttons, or the optional Tablet Application (Wi-Fi enabled CCU version only). The System includes an integrated LED Light Source, which provides illumination during the procedure via designated light guides and endoscopes.

The Wi-Fi enabled version of the System provides image management features in conjunction with the Tablet Application. These features Include image capture, video capture, patient management, media object management, sharing, and archiving.

Refer to the Tablet Application Instructions for Use (REF 10601295) for information regarding the Tablet Application.

Refer to the LENS 4K Camera Head Instructions for Use (REF 10601349) or (REF 10601459 US Only) for information regarding the Camera Head.

Intended Use

The LENS 4K Camera Control Unit and Camera Head are intended to provide illumination, visualization and capture of still and motion pictures of surgical sites.

Indications for Use

The LENS 4K Camera Control Unit and Camera Head are used in diagnostic and operative procedures for arthroscopic and endoscopic procedures to provide illumination, visualization and capture of still and motion pictures of surgical sites within articular cavities, body cavities, hollow organs and canals. Additionally, the LENS 4K Camera Control Unit and Camera Head are indicated for use in endoscopic surgical procedures in the thoracic cavity when used with an appropriately indicated thoracoscope.

Contraindications

None known.

⚠ Warnings

- It is the surgeon's responsibility to be familiar with the appropriate surgical techniques prior to use of this device.
- Read these instructions completely prior to use.
- DANGER: Risk of explosion if used in the presence of flammable anesthetics.
- Use aseptic technique in accordance with standard operating room procedures.
- To prevent electric shock, do not remove any covers or screws from the control unit. There are no user-serviceable components inside. Dismantling the equipment will void the warranty.
- To prevent electric shock, unplug the unit from the electrical outlet before attempting to replace the fuses.
- To avoid fire hazard, use only fuses of the correct type, voltage rating, and current rating.
- If this unit is configured as part of a system, the entire system should be tested for compliance with IEC 60601-1.
- If the leakage current of the configured system exceeds the limits of IEC 60601-1, install an appropriately rated IEC 60601-1 approved isolation transformer with a minimum of 1000 VA and retest the system.
- To avoid System power loss, use an uninterruptible power supply (UPS).
- The use of accessory equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety. Consider the following when choosing accessory devices:
  - Use of the accessory in the patient vicinity.
  - Evidence that the safety certification of the accessory has been performed in accordance with IEC 60601-1.
- Use of accessories and cables with this equipment, other than those specified or provided by the Smith & Nephew, could result in increased electromagnetic emissions or decreased electromagnetic immunity and result in improper operation.

2.9

Įrenginio apibūdinimas

The Smith & Nephew LENS 4K kameros valdymo blokas (CCU), su Wi-Fi ir be Wi-Fi sistemos yra pažangiausia vaizdo sistema, skirta naudoti atliekant artroskopines ir endoskopines chirurgines procedūras. Sistema leidžia valdyti fkameros funkcijas (geresnio vaizdo funkcijas ir mastelio keitimo galimybes) ir priedus (vaizdo spausdintuvus ir vaizdo valdymo sistemas) naudojant kameros galvutę, valdymo bloko mygtukus arba pasirinktinę planšetinių kompiuterių programą (tik Wi-Fi įgalintoje CCU versijoje). Sistemoje yra integruotas LED šviesos šaltinis, kuris procedūros metu šviečia, naudojant tam skirtus šviesos kreipiklius ir endoskopus. 1. 3

Wi-Fi įgalinta sistemos versija teikia vaizdo valdymo funkcijas kartu su planšetinių kompiuterių programa. Šios funkcijos apima vaizdo fiksavimą, video įrašymą, paciento valdymą, medijos objektų valdymą, bendrinimą ir archyvavimą. Informacijos apie planšetinių kompiuterių programą ieškokite Tablet naudojimo instrukcijose (REF 10601295). Informacijos apie fotoaparato galvutę ieškokite LENS 4K kameros galvutės naudojimo instrukcijose (REF 10601349) arba (REF 10601459 tik JAV).

Numatytas naudojimas

LENS 4K kameros valdymo blokas ir kameros galvutė skirti chirurginėse srityse esančių nejudančių ir judančių vaizdų apšvietimui, vizualizavimui ir fiksavimui.

Naudojimo indikacijos

LENS 4K fotoaparato valdymo blokas ir kameros galvutė naudojami artroskopinių ir endoskopinių procedūrų diagnostiniams ir operaciniams tikslams, kad būtų galima apšviesti, vizualizuoti ir fiksuoti chirurginių sričių sąnarių ertmėse, kūno ertmėse, tuščiaviduriuose organuose ir kanaluose esančius nejudančius ir judančius vaizdus. Be to, LENS 4K kameros valdymo blokas ir kameros galvutė yra skirti naudoti atliekant endoskopines chirurgines operacijas krūtinės ertmėje, kai jie naudojami su tinkamai nurodytu torakoskopu.

Kontraindikacijos

Nėra žinomos.

⚠ Įspėjimai

- **Prieš pradedant naudotis šiuo prietaisu, chirurgas yra atsakingas už tai, kad būtų susipažinęs su tinkamomis chirurgijos metodikomis.**
- **Prieš naudojimą pilnai perskaitykite šias instrukcijas.**
- **PAVOJUS: Sprogimo pavojus, jei naudojamas kartu su degiais anestetikais.**
- **Laikykitės aseptikos technikos pagal standartines operacinės procedūras.**
- **Kad išvengtumėte elektros smūgio, nuo valdymo bloko nenuimkite jokių dangčių ar varžtų. Viduje nėra naudotojo prižiūrimų komponentų. Išardžius įrangą, garantija negalioja.**
- **Norėdami išvengti elektros smūgio, prieš bandydami pakeisti saugiklius, atjunkite įrenginį nuo elektros lizdo.**
- **Norėdami išvengti gaisro pavojaus, naudokite tik tinkamo tipo, įtampos ir srovės saugiklius.**
- **Jei šis įrenginys sukonfigūruotas kaip sistemos dalis, reikia patikrinti, ar visa sistema atitinka IEC 60601-1 standartą.**
- **Jei sukonfigūruotos sistemos nuotėkio srovė viršija IEC 60601-1 standarte numatytas ribas, įdiekite atitinkamo reitingo IEC 60601-1 patvirtintą izoliacijos transformatorių, turintį mažiausiai 1000 VA, ir patikrinkite sistemą iš naujo.**
- **Norėdami išvengti sistemos maitinimo praradimo, naudokite nepertraukiamo maitinimo šaltinį (UPS).**
- **Naudojant papildomą įrangą, kuri neatitinka lygiaverčių šios įrangos saugos reikalavimų, gali sumažėti saugos lygis. Pasirinkdami priedų įrenginius, atkreipkite dėmesį į šiuos veiksnius:**

  - Priedo naudojimas šalia paciento.

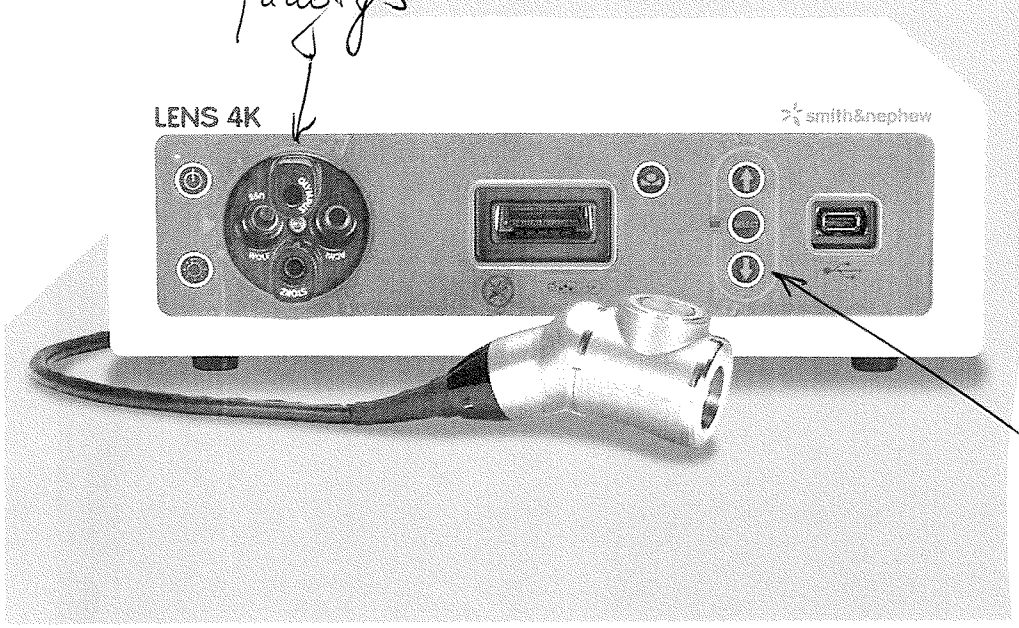
  - Įrodymai, kad priedo saugos sertifikatas buvo atliktas pagal IEC 60601-1.
- **Naudojant priedus ir kabelius su šia įranga, išskyrus tuos, kuriuos nurodo ar pateikė Smith & Nephew, gali padidėti elektromagnetiniai spinduliai arba sumažėti elektromagnetinis atsparumas ir įrenginys gali netinkamai veikti.**

34

LENS 4K CCU

Designed
with your surgical needs in mind

Optional integrated Wi-Fi for connectivity to LENS Tablet Application



Compact design houses camera control, light source, and connectivity in single unit (3-in-1)

Height: 5" (11.6 cm) X Depth: 4" (35.5 cm)

Flexible use of Smith & Nephew, Olympus®, Richard Wolf®, STORZ™ or ACMI ™ light guides

Light source operates for minimum 30,000 hours[1]

Camera head is designed for ease of cleaning, autoclavability and chemical sterilization modes

2-year warranty, extended warranty options available

Upgradeable platform for future enhancements

1.5 naudotojo programuojamos funkcijos

Table 2, Optional Programmable Button Functions, provides an overview of the programmable custom button functions available on the system. Customization can be set with the front panel buttons, Camera Head buttons, or with the Tablet Application. Refer to the Tablet Application Instructions for Use (REF 10601295) for information about how to customize settings with the Tablet Application.

Function	Effect
BRIGHTNESS	Control the luminance level of the video output
ENHANCEMENT	Enhance the sharpness of the displayed video
ZOOM	Digital zoom of field of view
ALT PAUSE	Pause the video while recording to a device connected to a rear panel port
PAUSE VIDEO	Pause the video from Camera Head
ALT VIDEO	Start or stop video capture from the secondary input source and save to the Tablet Application or USB
ALT FRAME	Capture a still picture from the secondary input source and save to the Tablet Application
FRAME CAPTURE	Capture a still picture from the endoscopic field of view and save to the Tablet Application or USB
LIGHT MODE	Activates and deactivates the illumination device on the control unit
VIDEO CAPTURE	Start or stop video capture from the endoscopic field of view and save to the Tablet Application or USB
LAST IMAGE	Displays the last known frame captures to the Tablet Application for review
MENU ACCESS	Access the graphical menu system of the control unit [MAIN MENU]
WHITE BALANCE	Correct for ambient color temperature
Peripheral Port 1 (Top port)	Triggers the accessory connected to the top port
Peripheral Port 2 (Bottom port)	Triggers the accessory connected to the bottom port

* **Note:** Software updates to either the LENS 4K Camera Head or Camera Control Unit, may reset the button-mappable functions to the factory settings.

Table 2. Optional Programmable Button Functions*

For information regarding how to customize Camera Head button settings, refer to the Button Settings section of this manual.

Preoperative

Prepare the Camera Head

Clean and sterilize the LENS 4K Camera Head as described in the cleaning and sterilization procedures in the Instructions for Use received with the Camera Head.

Notes:

- Allow the Camera Head to cool to room temperature after it has been autoclaved.
- The Camera Head may be used immediately after chemical sterilization.

Connect the Camera Head

CAUTION: *Do not plug the camera cable connector into the camera control unit if wet. Moisture on the camera cable connector, including the gold fingers, on the card edge of the camera head cable will damage the circuitry and void the warranty. Ensure that the camera cable connector is completely dry prior to plugging the camera head into the camera control unit.*

Note: The Camera Head is not specific to any single LENS 4K Camera Control Unit. It can be used with multiple LENS 4K Camera Control Units.

To connect the camera cable connector to the Control Unit, plug the card edge connector into the Camera Head receptacle on the front of the Control Unit and push in firmly (Figure 9).

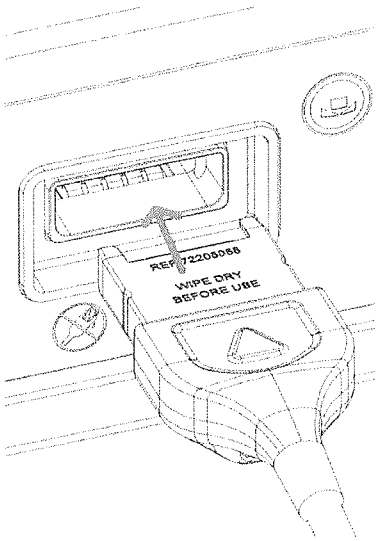


Figure 9. Connect the camera head to the control unit

Endocoupler focal length determines the image size on the monitor. For optimal image size use the LENS Coupler, 19.5 (72200315).

Connect the Coupler/Videoendoscope to the Camera Head

The System is designed to be used with instruments such as a videolaparoscope, videoarthroscope, or the coupler.

WARNING: Use aseptic technique in accordance with standard operating room procedures.

1. Attach a videoscope or coupler with a sterilized direct-view endoscope to the Camera Head.
2. Attach the fiber optic light guide from the light source to the scope.

Insert Light Guide

Warnings

- **During operation, avoid prolonged contact of the scope tip to patient tissue or flammable materials. The scope tip may reach high temperatures due to high intensity light transmission.**
- **Do not leave the operating light cable on a patient or the drapes. Failure to observe this warning may result in burns to the patient and/or the surrounding drapes.**

Set the multiport light guide adaptor turret for the light guide that will be used. To set the turret to the appropriate light port, rotate the turret in either direction until the desired light port is aligned with the orange arrow to the left of the turret (Figure 10).

Insert the light cable into the appropriate light port by pushing in firmly. To remove the light cable, grasp the cable connector and pull straight out of the light port. Do not pull out by pulling on the cable.

CAUTION: *Ensure that the light guide is inserted into the proper front panel port. Damage to the unit may occur if the light guide is not inserted into the port associated with the correct light guide manufacturer.*

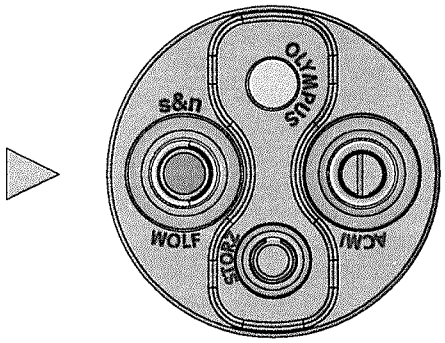


Figure 10. Multiport light guide adaptor turret

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150 Minuteman Road
Andover, MA 01810
U.S.A.

Tel 978-343-5717
Fax 978-343-8386
www.smith-nephew.com

Date 16, August 2017

Subject: LENS LED Light Source Specifications

2.9.2.
Šviesos srautas
maksimalus 2500 lum

The information below can be used in your tender submission concerning the light source in the LENS system.

Parameter	*Units*	*Min*	*Typical*	*Max*
Luminous flux	Lumens	1,390	1,690	2,500
Correlated Color Temperature (CCT)	°K	5,500	n/a	7,500
Input Power at 18V	Watt	n/a	n/a	132

Šviesos temperatūra K nuo 5.500 iki 7.500

Nominal operating lifetime of solid state LED: > 30,000 hours.

2.9.1

Sincerely,

Andy Knapik
Market Manager, Global Visualization
Andy.knapik@smith-nephew.com
520-395-5511

Memo

Button Function

1.5

Table 1, "Live Video Functions," below, summarizes the default button functions for the camera head in the Live Video mode. Refer to the "Button Settings" section of this Operations/Service Manual for more information regarding default and customized button settings.

Table 2, "Optional Programmable Button Functions", provides an overview of the programmable custom button functions available on the system. Customization can be set with the front panel buttons, camera head buttons, or with the App. Refer to the LENS Application Instructions for Use (REF 10601295) for information about how to customize settings with the App.

Table 1: Default Live Video Button Functions*

Camera Head Control	Short Press (<1.0 seconds)	Long Press (>1.0 seconds)
Left Button	Frame Capture	Light (control unit)
Middle Button	Brightness (Up/Down)	MAIN MENU
Right Button	Zoom	White Balance

*Button mapping is context-sensitive. Button settings may change, depending on the menu screen that that is displayed (on the monitor.

Table 2: Optional Programmable Button Functions*

For information regarding how to customize camera head button settings, refer to the "Button Settings" section of this manual.

Function	Effect
BRIGHTNESS	Control the luminance level of the video output
ENHANCEMENT	Enhance the sharpness of the displayed video
ZOOM	Digital zoom of field of view
ALT PAUSE	Pause the video while recording to a device connected to a rear panel port
PAUSE VIDEO	Pause the video from camera head
ALT VIDEO	Start or stop video capture from the secondary input source and save to the iPad™
ALT FRAME	Capture a still picture from the secondary input source and save to the iPad
FRAME CAPTURE	Capture a still picture from the endoscopic field of view and save to the iPad
LIGHT MODE	Activates and deactivates the illumination device on the control unit
STRETCH	Switch between an enhanced visualization mode and normal live video
VIDEO CAPTURE	Start or stop video capture from the endoscopic field of view and save to the iPad
LAST IMAGE	Displays the last known frame captures to the iPad for review
MENU ACCESS	Access the graphical menu system of the control unit [MAIN MENU]
WHITE BALANCE	Correct for ambient color temperature
Peripheral Port 1 (Top port)	Triggers the accessory connected to the top port
Peripheral Port 2 (Bottom port)	Triggers the accessory connected to the bottom port

* **Note:** Button-mappable functions may change without notice as a result of updates to the software of the LENS Integrated System.

Operation

During a procedure, the user can access any of the functions available in the system either through the camera head button mappings or via the **Select/Menu Access** button on the front panel of the control unit. Any settings changed during the procedure will be temporarily saved until the system is powered down. To customize procedures and save settings permanently, refer to the "Customize the System" section of this manual. Refer to the menu maps for an overview of how to access System screens.

When setup is complete and safety checks have been performed, the System is ready for the surgeon to use. The list below sumarizes the initial portion of the operative case:

1. Obtain a sterile camera head.
2. Plug the camera head into the control unit.
3. Connect the light guide to the appropriate light guide recepticle on the front of the control unit.
4. Turn on the illumination by pressing the **Illumination** button
5. White Balance from within the sterile field.

For detailed information about how to operate the System, read this "Operations" section.

Select a Procedure

To select a procedure, use the **Up** and **Down arrow** buttons or the left and right camera head buttons to highlight the desired procedure. Press the **Select** button. The default procedure is the High Definition procedure.

To change the default procedure, refer to the "System Configuration" section of this manual. To customize a procedure, refer to the "Customize a Procedure" section of this manual.

To access the MAIN MENU screen, select the **Menu Access** icon on the STARTUP screen (Figure 12).

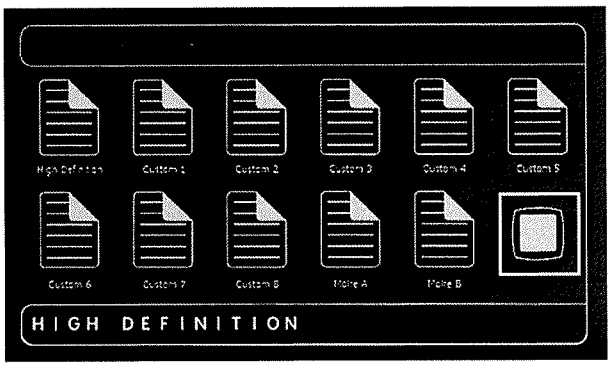


Figure 12.

MAIN MENU

The MAIN MENU screen (Figure 13) allows the user to access and change settings for the various features and functions of the System. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to navigate to the desired feature or function.

Note: Settings changed directly from the MAIN MENU are temporary settings and will not be saved after the system is powered down or another procedure is selected. To save settings permanently, refer to the "Customize Procedure Settings" section of this manual.

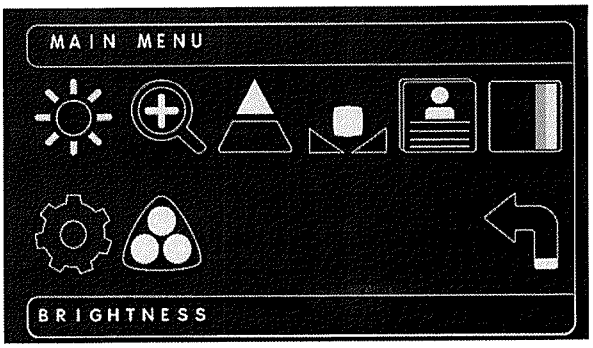


Figure 13. MAIN MENU screen

Brightness

To adjust Brightness, navigate to the **Brightness** icon and press **Select**. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to adjust Brightness to the desired level.

Zoom

To adjust Zoom, navigate to the **Zoom** icon and press **Select**. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to adjust Brightness to the desired level.

Enhancement

To adjust Enhancement, navigate to the **Enhancement** icon and press **Select**. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to adjust Enhancement to the desired level.

White Balance

To perform a White Balance, a camera head and scope must be connected to the front of the control unit. Point the end of the scope at a white object (a 4" x 4" gauze pad or flat white piece of paper) and focus (Figure 14). Fill as much of the screen as possible with the white object, but do not hold the scope close enough to touch the white object. Press the **White Balance** button at the upper right corner of the camera head connector (Figure 1). When the camera completes the White Balance process, the message "White Balance Complete" appears briefly on the screen, and a long tone sounds to indicate that the White Balance is complete. If the White Balance fails, a chirping tone will sound.

Note: Each time the **White Balance** button is pressed, a single tone will sound. Press **Select** to return to the MAIN MENU.

Note: When a procedure is chosen from the STARTUP screen, the camera automatically performs a White Balance.

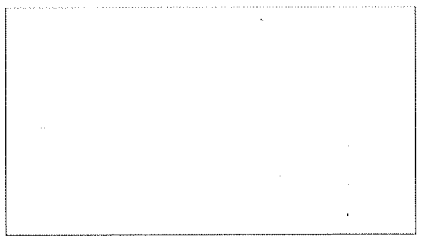


Figure 14.

Customize Procedure Settings

1. From the MAIN MENU, highlight the **Procedures** icon and select it to open the Procedure Selection menu.
2. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to navigate to the **Customize Procedure Settings** icon and press **Select** to open the SELECT PROCEDURE screen.
3. Navigate to the procedure to be customized and press **Select** to open that procedure's customization screen. The CUSTOMIZE BUTTON SETTINGS option will blink (Figure 36).

Note: Changes to the procedure are not saved until **SAVE AND EXIT** is selected.

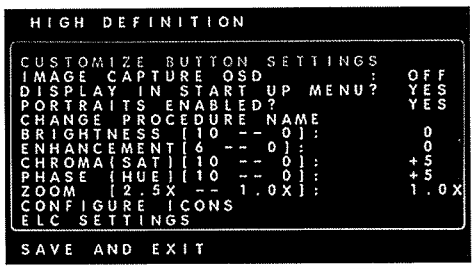


Figure 36. CUSTOMIZE PROCEDURE SETTINGS screen

Button Settings

Camera head button settings can be customized to the user's preferred settings for short and long button presses. To customize button settings:

1. Press **Select** to open that procedure's button customization screen (Figure 37).

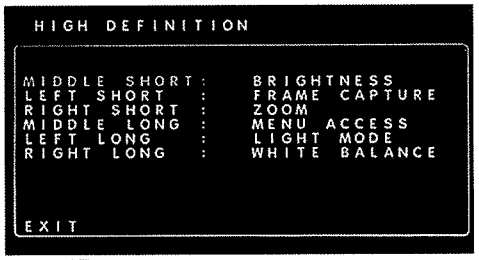


Figure 37.

2. Use the **Up** and **Down** buttons on the control unit or the right and left buttons on the camera head to navigate to the button press to be customized (**MIDDLE SHORT**, **RIGHT LONG**, etc.).
3. Press **Select** to select the desired button press. To the right of the button press name, the current setting for that button press will begin to blink.
4. Use the **Up** and **Down** buttons on the control unit or the right and left buttons on the camera head to scroll through the list of options (Figure 38). Press **Select** to select the setting for that button press.

Figure 38. Refer to Table 2 in the "System Controls" section of this manual for an explanation of each setting option.

5. When all button presses have been customized as desired, use the **Up** and **Down** buttons on the control unit or the right and left buttons on the camera head to navigate to the **Exit** button. Select **Exit** to save the settings, exit the button settings screen, and return to the procedure's customization menu.

Image Capture OSD

The **IMAGE CAPTURE OSD** setting allows the user to determine if the on screen display graphics appear in the image and video captures. The default setting is **OFF**. To customize **Image Capture OSD**:

1. Navigate to **IMAGE CAPTURE OSD** (Figure 39). When **IMAGE CAPTURE OSD** blinks, press **Select** to select it. The current setting will blink.

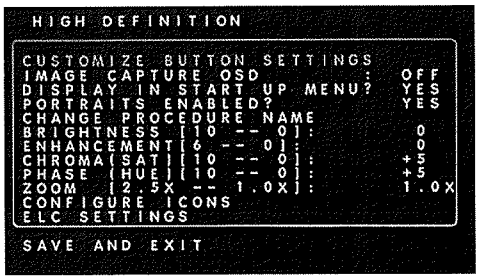


Figure 39.

2. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to switch between **OFF** and **ON**. Press **Select** to select the desired setting.
3. To save the changes and exit the CUSTOMIZE PROCEDURE SETTINGS screen, select **SAVE AND EXIT**.

Display in Startup Menu?

The **DISPLAY IN STARTUP MENU?** setting allows the user to choose whether or not to display the customized procedure in the **STARTUP** menu. To customize **DISPLAY IN STARTUP MENU?**:

1. Navigate to **DISPLAY IN STARTUP MENU?**. When **DISPLAY IN STARTUP MENU?** blinks, press **Select** to select it. The current setting will blink.
2. Use the **Up** and **Down** arrows on the control unit or the left and right camera head buttons to switch between **OFF** and **ON**. Press **Select** to select the desired setting.

Optimizing LENS 4K Camera Control Unit (CCU) Settings

	Arthroscopy*		Gen Surg/Laparoscopy		ENT		Settings Notes
	Default	Recommended Adjustment	Default	Recommended Adjustment	Default	Recommended Adjustment	
Brightness	5	3 to 6	5	4 to 6	5	4 to 6	General and ENT surgeons may prefer a more de-saturated image with brightness turned up. A setting of 10 (highest) increases brightness, the lowest level of 0 decreases the brightness. NOTE: Use of 4KO scopes may result in a lower Brightness setting.
Enhancement	3	3 or 4	3	3 or 4	3	3 or 4	Sharpens and defines images adding more contrast. A setting of 10 (highest) increases the sharpness, the lowest level 0 decreases sharpness.
Chroma Sat	5	2 to 5	5	2 to 6	5	3 to 5	Adjusts intensity of color (reds are redder, greens are greener). The lowest level of 0 introduces a grey/monotone image. Adjusting too far to either extreme, it makes it difficult to visualize differences in color variations within tissues.
Phase	5	5	5	5	5	5	Adjusts the hue of an image. A higher value will shift the image towards more red and eventually orange. A lower value shifts the color towards more magenta and eventually bluer.
Zoom	1	1	1	1	1	1	increases the size of the image on the display (11 settings from 1.0 to 2.5 times)
Chroma Mode	No	No	No	Yes or No	Yes	Yes	Setting of Yes enables an alternate color reproduction suitable for tight and dark spaces (ENT/Hernias) where normal color reproduction produces overly saturated and off color reproduction. If No is selected, a Chroma Mode Value will not be available.
Chroma Mode Value				1 or 2	4	2 to 4	
Electronic Light Control (ELC)	Auto	Auto	Auto	Auto	Auto	Auto	Recommend ELC remains on Auto to automatically detect scope size. Should adjustment of ELC be done, it is highly recommended that a customized procedure is created for that particular scope. Lower values make the ELC more sensitive to hot spots and will produce overall darker background in presence of a hot spot but for small scopes will ensure that image brightness is not too bright. Larger Values will ignore hotspots and also help in reducing flicker.

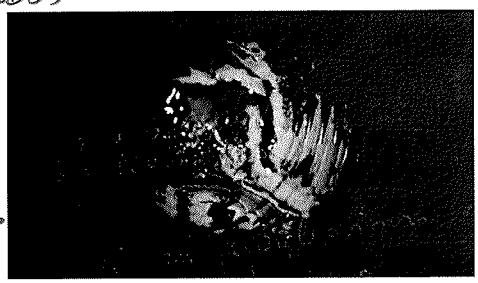
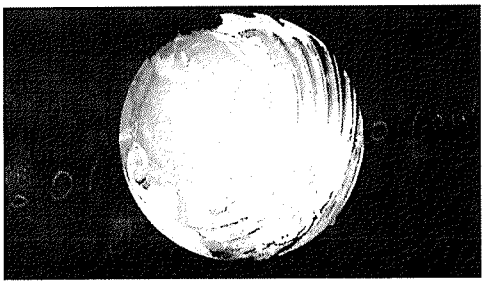
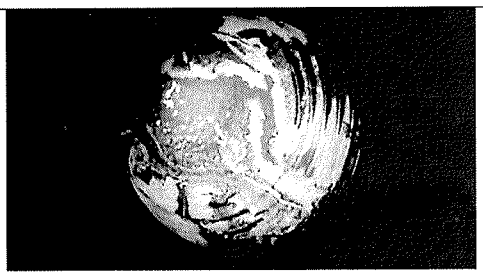
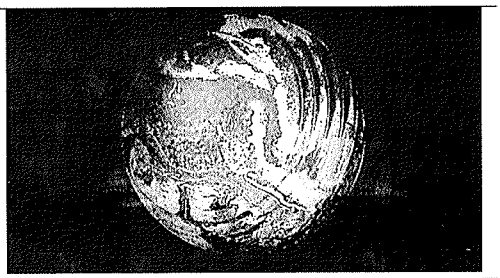
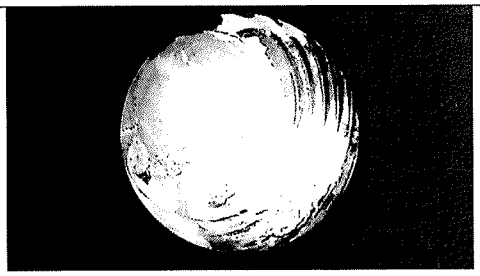
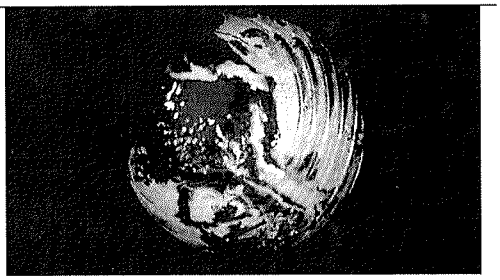
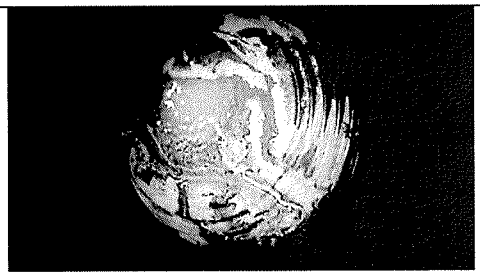
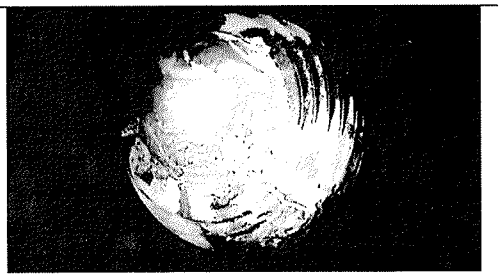
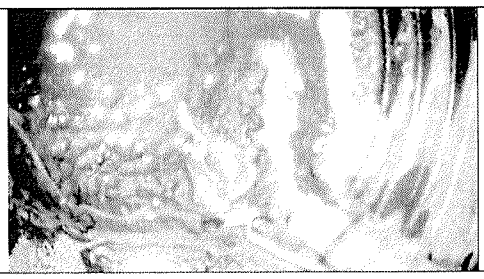
Proper white balance is important to manage presentation of overall image representation!

White light is the sum of all other colors, therefore proper White Balancing ensures the system "balances" and displays all colors correctly. White balance by pointing the scope tip at a stack of white gauze or a clean white surface.

*Also includes cystoscopy, urology, small joint

LENS 4K Camera Control Unit (CCU) Settings

Examples of Settings Behaviors

	Lowest Setting	Highest Setting
Brightness		
Enhancement		
Chroma Sat		
Phase		
Zoom		

32 colių 4K rašto medicininis monitorius

3,

32" 4K Medical Display

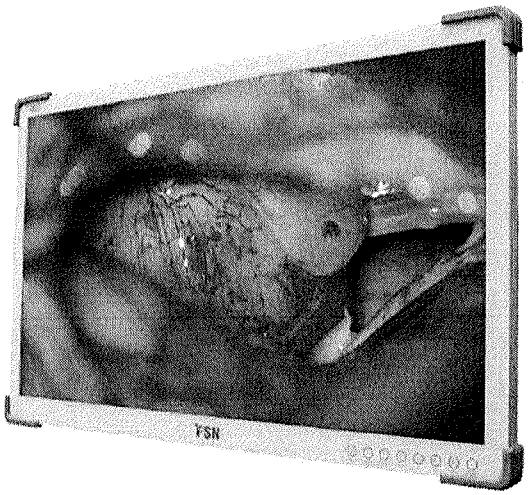
FM-E3203D FM-E3203DG

FSN Medical Technologies

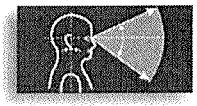
- *Vivid colors plus high brightness level.*
- *Optical bonding for improved picture contrast.*
- *Fast detection of MIS camera system video.*

See Every Detail

The 4K UHD technology found in this monitor produces ultra-sharp picture clarity and high levels of detail. This greatly enhances images from endoscopic camera systems. The input source options on this monitor include DVI, HDMI, and DisplayPort. The FM-E3203DG model adds 3G and 12G SDI to the impressive selection of signal input choices.

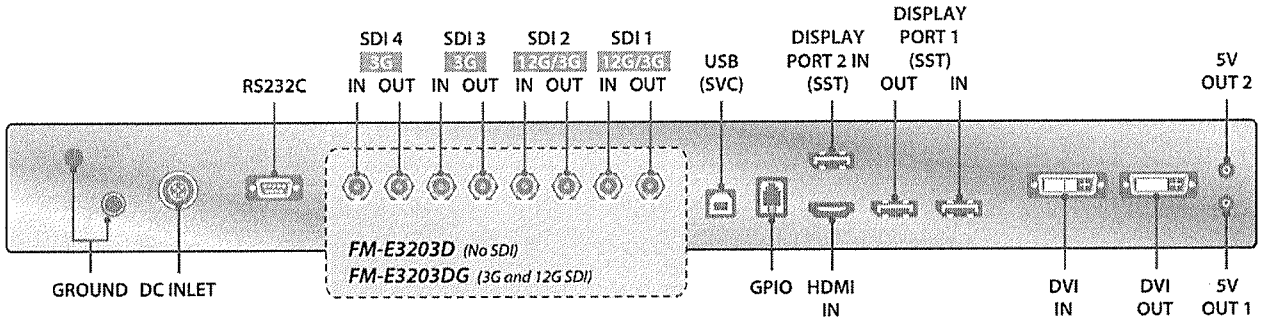


Edge-to-edge protective front glass gives this monitor a slim, sleek appearance, and allows for easy cleaning of the front surface. Protective guards on the bezel corners help reduce bumping injuries, especially in today's active operating room environments. A back cable cover is provided with each monitor to manage cords and wires.



Ergonomic Design

If an installation requires additional components to be used with the monitor, such as fiber optic or wireless receivers, there are built-in connections for DC 5 volt power. FSN monitors are designed with maximum viewing angles, allowing several clinicians to view the display in the same room without loss of image quality or distortion.



www.fsnmed.com

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2210 E. Winston Road
Anaheim, CA 92806 USA
Tel: 714-300-0540
Fax: 714-300-0546

Latin America
Aventura, FL 33180 USA
Tel: 714-507-3855

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Room 307, 3F
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Caohejing Development District
Xuhui, Shanghai 200233
Tel: 86-21-6113-4188

Specifikacija

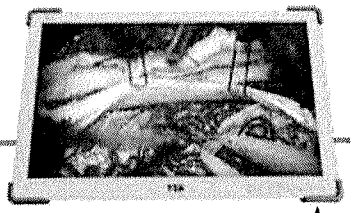
FM-E3203D, FM-E3203DG

Prekė		Aprašymas
Skydelis		32 col. TFT LCD (LED) 3.1
Rezoliucija		3840 x 2160 pikselių 3.3.
Vaizdo proporcija		16: 9 3.2.
Aktyvi sritis		708,48 (H)mm x 398,82 (V)mm
Pikselių tankis (mm)		0,1845 x 0,1845
Atsakymo laikas (įprastas)		8 ms (pakilimo laikas)
Spalvų skaičius		1,07 milijardo 3.6
Ryškumas (tipinis)		700 cd/m^2 3.4.
Gama		Suderinama su BT.709 ir BT.2020
Kontrasto santykis (tipinis)		1350: 1
Paviršiaus apdorojimas		Apsauga nuo akinimo
Žiūrėjimo kampas (CR>10)		R/L 178°, U/D 178°
Įvesties signalas		1 x HDMI 2.0 2 x DP 1.2 (SST) 1 x DVI (viena nuoroda) 4 x SDI (3G), 2 x SDI (12G) prieinami FM-E3203DG
Išvesties signalas		1 x DP 1.2 (SST) 1 x DVI (viena nuoroda) 4 x SDI (3G), 2 x SDI (12G) prieinami FM-E3203DG
Maitinimas		AC/DC adapteris (AC 100~240V, DC 24V/6.6A)
Energijos sąnaudos		FM-E3203D 105W maks. FM-E3203DG 125W maks.
Vieneto matmuo		773(W) x 478(H) x 75,2(D) mm 30,43(W) x 18,82(H) x 2,96(D) col.
Pakuotės matmuo		914,4(W) x 749,3(H) x 234,95(D) mm 36(W) x 29,5(H) x 9,25(D) col.
IP klasė		IP33 - iš viso
Svoris	FM-E3203D	11,56 kg, 25,49 svaro (monitorius su dangteliu) 16,83 kg, 37,10 svaro (siuntimo paketas)
	FM-E3203DG	11,80 kg, 26,01 svaro (monitorius su dangteliu) 17,5 kg, 38,58 svaro (siuntimo paketas)

4K Medicinerai monitorai

FSN 4K Medical Monitors

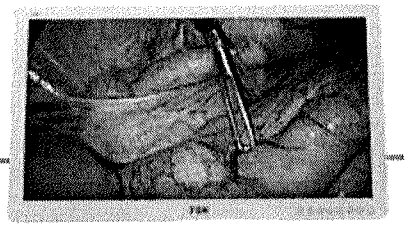
FM-B2702D
FM-B2702DG



27 inch
- 3840 x 2160 resolution
- Brightness (typical) 800 cd/m²
- Contrast Ratio (typical) 1400 : 1

Protective Bumpers!

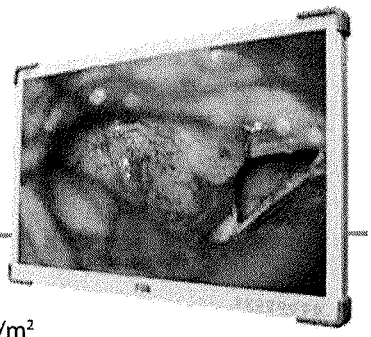
FS-P3102D
FS-P3102DS (3G-SDI)
FS-P3102DG



31.5 inch
- 4096 x 2160 resolution
- Brightness (typical) 350 cd/m²
- Contrast Ratio (typical) 1500 : 1
- Compatible with HD and SD

3.

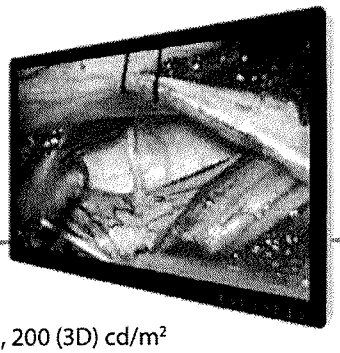
FM-E3203D
FM-E3203DG



32 inch
- 3840 x 2160 resolution
- Brightness (typical) 700 cd/m²
- Contrast Ratio (typical) 1350 : 1
- Fast detection of sources

Protective Bumpers!

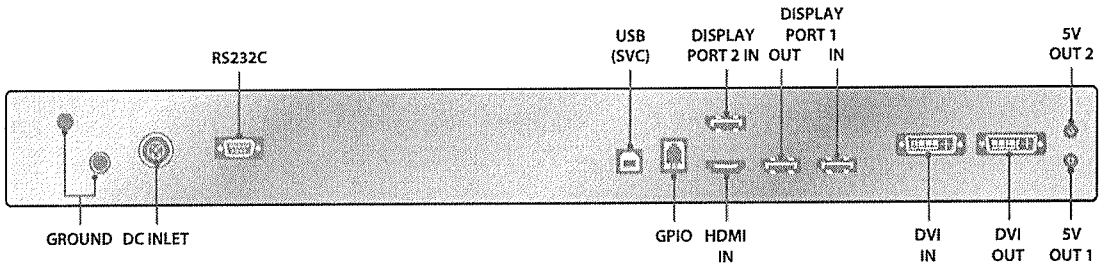
FM-E3204DGC

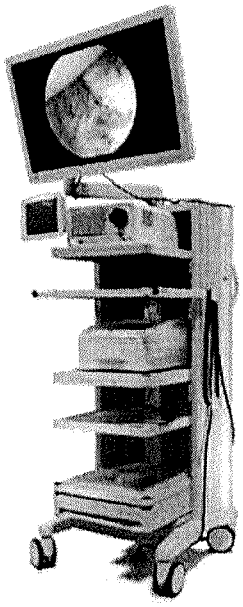


32 inch
- 3840 x 2160 resolution
- Brightness (typical) 500 (2D), 200 (3D) cd/m²
- 2D/3D is enabled or disabled in OSD
- 3D formats: Side-by-side, line-by-line, top bottom

3.3
3.4

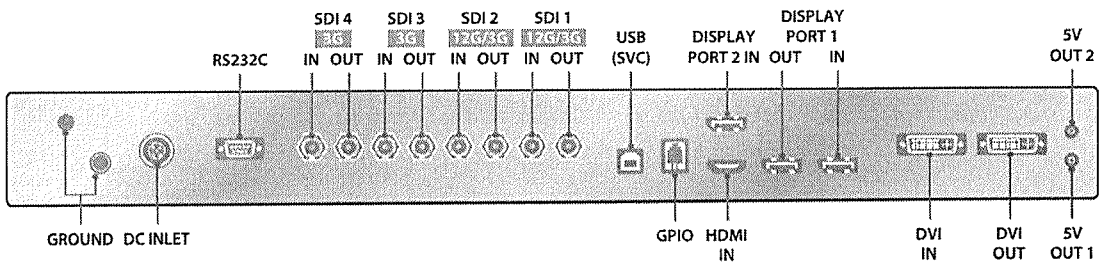
Connections for above model numbers ending in D.





FSN monitors are designed for cart or boom arm mounting.

Connections for above model numbers containing DG. (3G-SDI, 12G-SDI)



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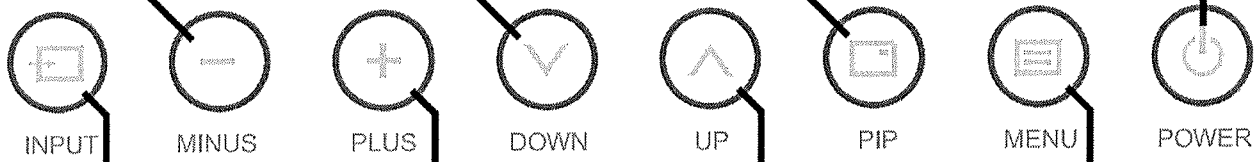
Valdikliai

Rodymas ekrane (OSD)

3.5.

PIP funkcija

Įjungus OSD meniu, paspauskite , kad sumažintumėte pasirinktos funkcijos koregavimą.	Įjungus OSD meniu , paspauskite meniu pasirinktį į apačią.	Paspauskite, kad įjungtumėte PIP („Picture in Picture") funkciją. Neveikia, kai įjungta „Smart Input" išmanioji įvestis.	Paspauskite, kad įjungtumėte/ išjungtumėte LCD ekrano maitinimą. Jeigu šis simbolis neapšviestas, energijos jungiklis ekrano gale yra išjungtas.



Paspauskite, kad pasirodytų įvesties pasirinkimo meniu irnorėdami pakeisti ekrano signalo šaltinį. Norėdami pasirinkti norimą šaltinį, paspauskite UP (į viršų) arba DOWN (į apačią), tada paspauskite PLUS.	Įsijungus OSD meniu, paspauskite ENTER submeniu, arba padidinkite pasirinktos funkcijos koregavimą.	Įsijungus OSD meniu, paspauskitemeniu pasirinktį į viršų.	Paspauskite norėdami suaktyvinti OSD meniu. Įsijungus OSD meniu, paspauskite išeiti iš pagrindinio meniu arba sub-meniu.

Norėdami įjungti arba išjungti klavišų užrakto funkciją, kartu paspauskite „PLUS" ir „UP".

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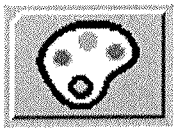
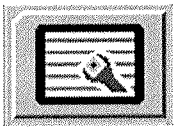
Rodymas ekrane (OSD) Meniu



Meniu COLOR (spalva) submeniu

1. GAMMA Pasirinkite tinkamą gamą. (BYPASS,1.8, 2.0, 2.2, 2.4, 2.6, DICOM). Gama negali būti pakeista, kai spalvų tarpas yra BT.709.
2. COLOR SPACE Pasirinkite spalvų tarpo nustatymą. (NATIVE, BT.709, BT.2020, arba AUTO)
   NATIVE: natūralios spalvos nustatymui.
   BT.709: HD signalo nustatymui.
   BT.2020: HD signalo nustatymui.
   AUTO: automatiškai pasikeičia į BT.2020, jei naudojamas UHD, arba į BT.709, jei naudojamas HD signalas.
3. COLOR MODE Pakeičia vaizdo spalvų nustatymą. (C1, C2, C3, NAUDOTOJAS)
4. RED Raudonos pusiausvyra. (Veikia tik USER (NAUDOTOJAS) režimu) (Diapazonas: 0~100)
5. GREEN Žalios pusiausvyra. (Veikia tik USER (NAUDOTOJAS) režimu) (Diapazonas: 0~100)
6. BLUE Mėlynos pusiausvyra. (Veikia tik USER (NAUDOTOJAS) režimu) (Diapazonas: 0~100)

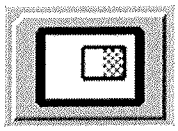


Meniu IŠPLĖSTINIAI submeniu

1. ASPECT RATIO Pakeičia rodomo vaizdo matmenis. (Pilnas, automatinis, užpildymo H)
2. OVER SCAN Sureguliuoja rodomą dydį. (0~6)
3. FREEZE Užfiksuoja vaizdą.
4. ROTATE/ MIRROR (PASUKTI/ATSPINDĖTI) Pakeičia rodomo vaizdo kryptį. (Normalus, 180, H atspindys, V atspindys)
5. SMART INPUT Įgalina automatinį perėjimą prie atsarginio šaltinio, kai pagrindinis šaltinis yra išjungtas.
6. SMART MAIN Kai įjungta išmanioji įvestis, dabartinis šaltinis keičiamas į pagrindinį.
7. SMART 2ND Kai įjungta išmanioji įvestis, pagalbinis šaltinis keičiamas į antrąjį šaltinį.

Meniu NUSTATYMAI submeniu

1. LANGUAGE Pakeičia OSD kalbą. (10 kalbų)
2. OSD OVERLAY Koreguoja OSD skaidrumą.
3. OSD POSITION Pakeičia OSD padėtį. (9 pozicijos)
4. OSD MENU TIME (OSD MENIU LAIKAS) Nustato, kiek laiko OSD rodomas ekrane. (diapazonas: 10~60 sek.)
5. BACKLIGHT Padidina arba sumažina apšvietimą. (Diapazonas: 0~100)
6. POWER ON DC5V Įjungia arba išjungia DC5V išvestį.
7. RESET Pakeičia visas OSD reikšmes į gamyklinius nustatymus.



Meniu LAYOUT (IŠDĖSTYMAS) submeniu - Vienas

1. LAYOUT Pakeičia vaizdo išdėstymą. (VIENAS, PBP, PIP)

Meniu LAYOUT (IŠDĖSTYMAS) submeniu - PBP

1. LAYOUT Pakeičia vaizdo išdėstymą. (VIENAS, PBP, PIP)
2. WINDOW SELECT Pasirinkite aktyvų langą PBP ar PIP metu.
3. INPUT SWAP Keičia pirminio ir antrinio vaizdo padėtį.

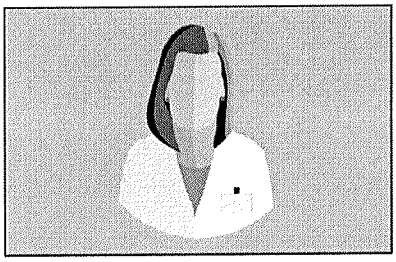
Meniu LAYOUT (IŠDĖSTYMAS) submeniu - PIP 3, 5

1. LAYOUT Pakeičia vaizdo išdėstymą. (VIENAS, PBP, PIP)
2. WINDOW SELECT Pasirinkite aktyvų langą PBP ar PIP metu.
3. INPUT SWAP Keičia pirminio ir antrinio vaizdo padėtį.
4. PIP SIZE Pakeičia PIP dydį. (diapazonas: 0~10)
5. PIP POSITION Pakeičia PIP padėtį. (L-Top (viršus), R-Top (viršus), Mid (vidurys), L-Bot (apačia), R-Bot (apačia))
6. PIP OVERLAY Pakeičia PIP vaizdo skaidrumą. (diapazonas: 0~8)

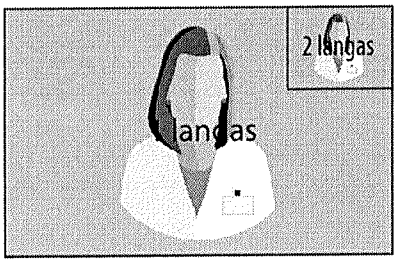
Lango išdėstymas

3.5

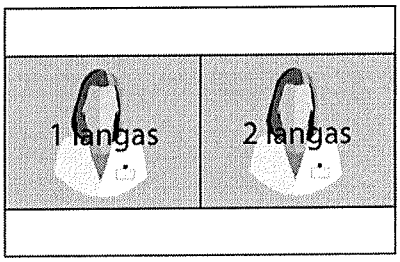
Vienas langas



Paveikslėlis paveikslėlyje (PIP)

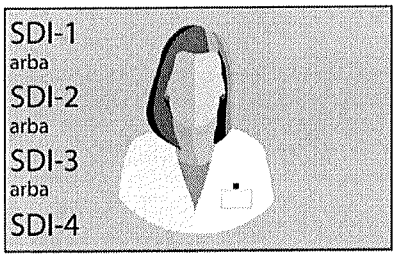


Nuotrauka po nuotraukos (PBP)

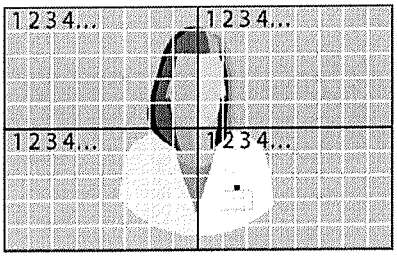


SDI šaltinio suderinamumas

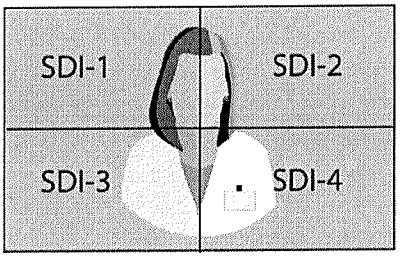
3G-SDI Vieng (1080p 60Hz)



3G-SDI 2-SI

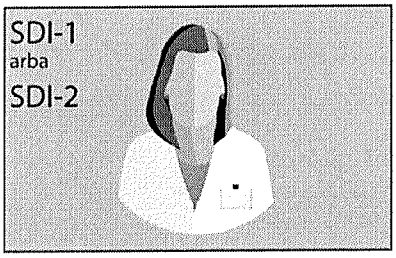


3G-SDI Keturg



Norint nustatyti SDI keturgubo vaizdo rodinį, kiekviena jungtis turi atitikti keturias vaizdo sritis, kaip parodyta aukščiau.

12G-SDI Vieng (2160p 60Hz)



Norėdami pasirinkti SDI vieno rodinio nustatymą, naudokite meniu INPUT ir pasirinkite, kuris SDI šaltinis turėtų būti įjungtas.

49

1. kameros galvutė 3 lusty CMOS

1, 2. LENS 4K

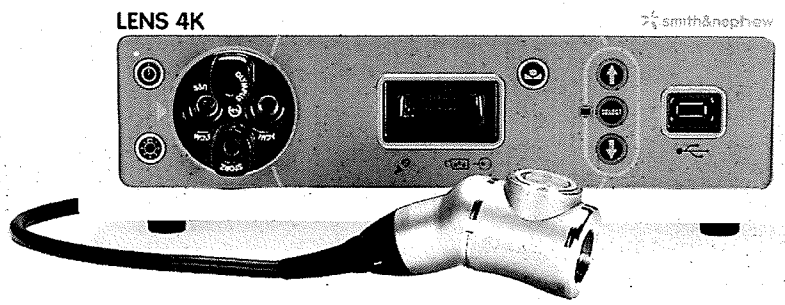
LENS 4K

Maximum performance in one efficient design
Designed for arthroscopy and multi-specialty surgery

Latest 3-Chip 4K CMOS
True end-to-end 4K image

Vaizdo kameros galvutė, ultra aukštos raiškos 4K – 3 lusty

1.



Precise color reproduction (1 billion colors)
Excellent depth of field
Exceptional image quality

2. Valdymo įrenginys suderinamas su Ultra aukštos raiškos vaizdo kameros galvute ir skirtas vaizdo vaizdų ir nuotraukų įrašymui

LENS 4K Camera Head

Balance, comfort and durability

Matte finish secures your grip

Shaped and balanced for comfort

3 programmable buttons (6 selectable settings)

Autoclavable or EO sterilization (Sterrad or Steris) withstands minimum of 300 cycles

Buttons provide tactile reference and rotational stability

2-year warranty

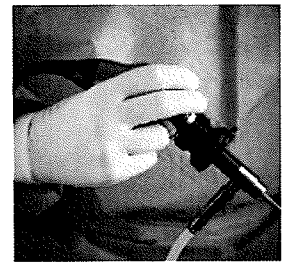
Welded stainless steel housing

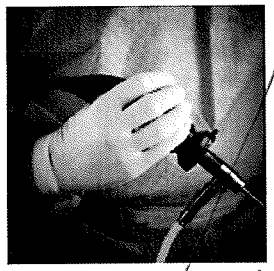
Latest 3CMOS 4K 1/3" sensor (3840 x 2160p)

CF rated for stringent safety classification preventing electrical shock

C-mount design fits 19.5 or 26.5 mm couplers

12' cable with durable connection to minimize wear





Comfort for every grip

LENS 4K Features and Benefits

smith&nephew

Camera Head

1.

1.5

Autoklavuojama

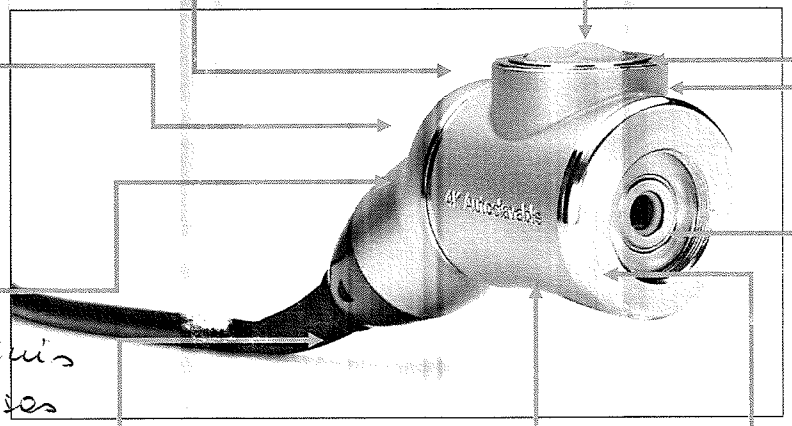
Autoclavable (steam) or ethylene oxide (EO) sterilization, withstands up to X cycles, backed by a 2-year warranty

Elevated button turret provides tactile reference point for buttons as well as rotational stability

3 programuojami valdymo mygtukai

3 programmable buttons that provide 6 customizable settings the surgeon can control from the camera head

Matte finish provides a secure grip helping reduce hand slippage



Buttons offer tactile feedback and triangular design allowing for sight-free button presses

Titanium housing minimizes seams for improved cleaning and reduced soil collection

Titanio korpusas

C-mount design is compatible with all Smith&Nephew scopes and couplers

CF rated, most stringent safety classification for preventing electrical shock

Ergonomic shape designed to fit comfortably in a surgeons hand.

Latest 3CMOS 4K chip technology for high image quality and depth of field

3 plusty, ultra aukštos raiškos 4K

1.1.

Vaizdo įrašymas / perdavimas

LENS 4K

S+N

3-in-1 video system

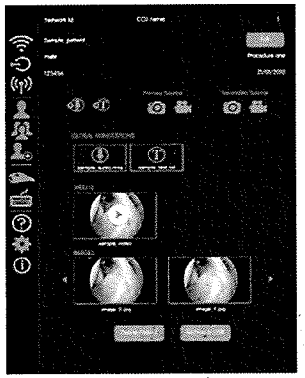
usb jungtis

2.4.

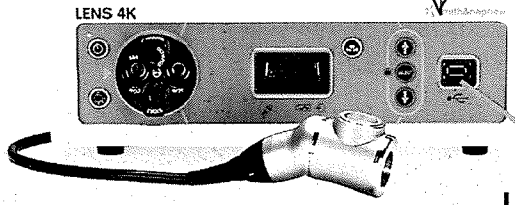
2.7 Planšetė iPad 10"

Printing

iPad application



E-mail



USB

2.6 bevielis ryšys

Išorinių laikmenų ir USB

Integruotas vaizdo ir vaizdo įrašymas į USB laikmeną

Organize your own workflow

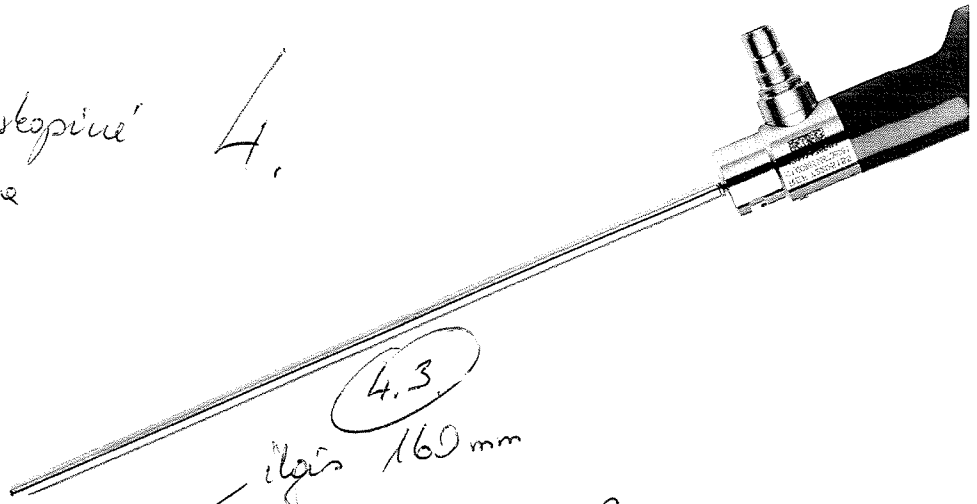
Kopija tikra

Vyr. vaid. Odeta Ra

Shoulder ✚ Hip ✚ Knee

Indications: Illumination and visualization in diagnostic and operative arthroscopic procedures for the hip, knee, shoulder, wrist, temporal-mandibular joint, ankle, elbow, toes, heel and fingers.

- Both distal and proximal ends soldered to provide lasting durability
- Sapphire distal lenses and rear ocular windows for scratch resistance
- Stainless steel construction to withstand various sterilization modalities



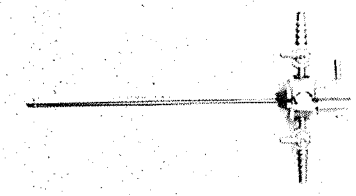
Direct view arthroscopes

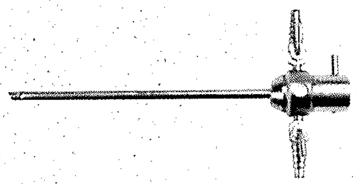
Part no.	Outer diameter	Direction of view	Field of view	Working length mm [in]	Light post direction	Chemical sterilization	Autoclavable	Recommended light cable	Resolution
72205153	4.0mm	0°	115°	160mm [6.29in]	Opposite	STERRAD, STERIS	Yes	4.0mm	4K
72205154	4.0mm	30°	115°	160mm [6.29in]	Opposite	STERRAD, STERIS	Yes	4.0mm	4K
72205155	4.0mm Round tip	70°	115°	160mm [6.29in]	Opposite	STERRAD, STERIS	Yes	4.0mm	4K
72205156	4.0mm	45°	115°	160mm [6.29in]	Opposite	STERRAD, STERIS	Yes	4.0mm	4K
*72201845	4.0mm	30°	115°	163mm [6.29in]	Same Side	STERRAD, STERIS, EtO	Yes	4.0mm	HD
72202088	4.0mm	70°	115°	160mm [6.29in]	Opposite	STERRAD, STERIS, EtO	Yes	4.0mm	HD
**7208132	4.0mm	30°	115°	175mm [6.88in]	Opposite	STERRAD, STERIS, EtO	Yes	4.0mm	HD
72201597	4.0mm	30°	115°	278mm [10.94in]	Opposite	STERRAD, STERIS, EtO	Yes	4.0mm	HD
72201598	4.0mm	70°	115°	280mm [11.02in]	Opposite	STERRAD, STERIS, EtO	Yes	4.0mm	HD

*Light post direction also referred to as "Reverse"
**Storz connection

Cannulas, Trocars and Obturators

Diagnostic Cannula Sets

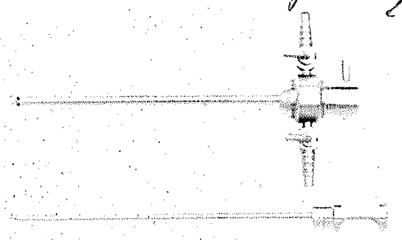




Diagnostic Cannula Sets

Reference #	Description
72200829*	6.0 mm High Flow Diagnostic Cannula, double-valve, rotatable
72200830	6.0 mm High Flow Diagnostic Cannula, single-valve, rotatable
8006653	O-ring for both cannulae
72201439	6.0 mm High Flow Diagnostic Cannula, single-valve, rotatable, for use with Stryker™ scopes
72201440	6.0 mm High Flow Diagnostic Cannula, double-valve, rotatable, for use with Stryker scopes
72201627	6.0 mm High Flow Diagnostic Cannula, single-valve, rotatable, for use with Storz™ scopes
72201628	6.0 mm High Flow Diagnostic Cannula, double-valve, rotatable, for use with Storz scopes
72201693	5.0 mm Medium Flow Diagnostic Cannula, single-valve, rotatable
72201712*	5.0 mm Medium Flow Diagnostic Cannula, double-valve, rotatable

5. Artroskopo įmova dviejų vožtuvų, rotacinė su



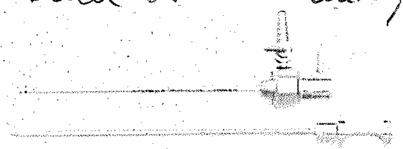
6.0 mm High Flow Diagnostic Cannula Set, double-valve

Reference #	Description
3868	6.0 mm High Flow Diagnostic Cannula Set, double-valve, rotatable

Set includes	
72200829	6.0 mm High Flow Diagnostic Cannula, double-valve, rotatable
4356	Obturator, conical tip

5.

kūgio obturatoriumi, tinkanti greito jungimo 4 mm Ø sistemai optikai



6.0 mm High Flow Diagnostic Cannula Set, single-valve

Reference #	Description
7204711	6.0 mm High Flow Diagnostic Cannula Set, single-valve, rotatable

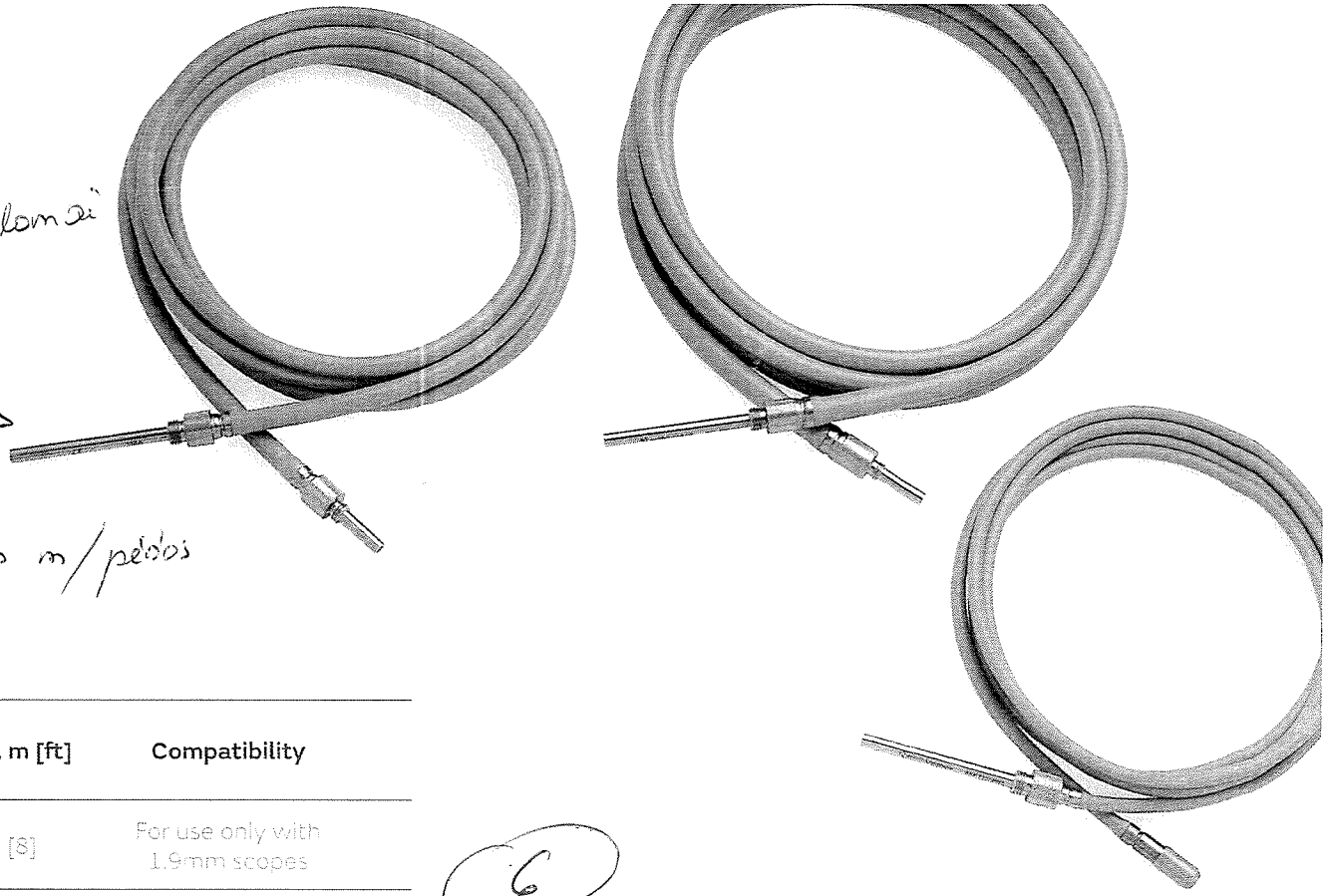
Set includes	
72200830	6.0 mm High Flow Diagnostic Cannula, single-valve, rotatable
4356	Obturator, conical tip

Vyr. vadybin
Odeta Raklevi
Kopija

* Item shown

Call **+1-800-343-5717** (U.S.) or contact your local representative.

✚ Light cords



Outer diameter mm	Part no.	Length, m [ft]	Compatibility
2.0	72204926	2.43 [8]	For use only with 1.9mm scopes
4.0	72204858	2.43 [8]	Recommended for use with 2.7 and 4mm scopes
	72204921	3.04 [10]	
	72204922	3.65 [12]	
5.0	72204923	2.43 [8]	Recommended use with 4, 5.5 and 10mm scopes
	72204924	3.04 [10]	
	72204925	3.65 [12]	

Inspect the System Components

Prior to using the LENS 4K Camera Control Unit, it is essential that all system components be inspected for damage which can negatively impact the system's performance. Inspection should include all equipment to be used in surgery, including cables and peripheral devices.

CAUTION: *Prior to each use, inspect the device to ensure it is functioning properly and is not damaged. Do not use a damaged device.*

Electrical Connections

Examine the electrical connections.

- Electrocautery and other electrical noise-inducing medical equipment can interfere with the performance of control units and monitors. To prevent interference, plug monitors and camera equipment into an outlet on a wall separate from noise-inducing equipment.
- Check that the electrical equipment is properly grounded (i.e., plugs contain a ground prong). The control unit must be plugged into a hospital-grade AC outlet.
- If the monitor has a termination switch, it needs to be set to 75 Ω . If two or more monitors are used, only the termination switch on the last monitor needs to be on. If there is no termination switch on the last monitor, the monitor is self-terminating.

Double-check the equipment setup diagrams to ensure that all connections are correct.

Inspect the Fiber Optic Light Cable

WARNING: When inspecting the light cable, NEVER aim the light cable at, or peer directly into the light source. Retinal damage may occur.

- Check the sheath for damage. Cuts, abrasions, or tears in the cable's silicone sheath will reduce overall light transmission.
- Aim one end of the cable toward a bright light, such as a room light, and inspect the other end for damaged fibers, e.g., black dots or dark gray areas (Figure 7). A combination of broken fibers in the cable or endoscope will result in reduced light transmission. The combined percentage of dark spots viewed in the cable end should not exceed 20% of its total area.

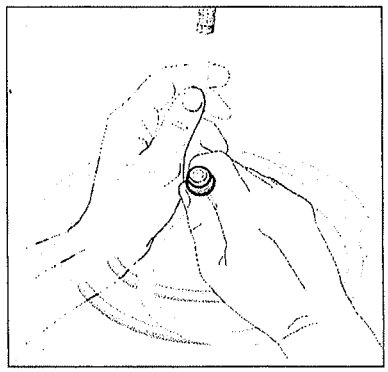


Figure 7. Inspect the fiber optic light cable

- Perform a visual fiber bundle diameter comparison. For optimal light transmission, the diameter of the fiber bundles in the endoscope's fiber optic light post should match the fiber bundle diameter of the light cable. This will prevent unnecessary heat buildup at the scope/ light guide connection

Service Life Checklist

Perform a performance check for the installation and before each use case begins.

Check the following items to ensure that they function properly and the system is ready to use.

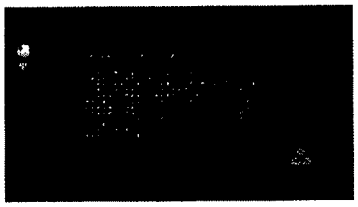
- ☐ Plug in the light guide and ensure that the light illuminates.
- ☐ Confirm that the video works correctly and that visualization is correct.
- ☐ Check the OSD status bar to confirm connection to the Wi-Fi.
- ☐ Check front panel to ensure that all buttons and connectors are functioning properly.
- ☐ Check the OSD status bar to confirm that the light is turned on and detected.
- ☐ Check the OSD status bar to confirm that the USB device is detected.
- ☐ Check for any damage to the camera head receptacle (cracks, corrosion, buildup or damage to the card edge receptacle).
- ☐ Check that the labeling information on the Camera Control Unit is still readable.

6.1 Fibreoptics Freeze button

Color and Image Correction for Surgery with the LENS° System (cont.)

Enhancement

Enhancement is sharpening of the digital image. While enhancement can lead to a sharper and more defined image, it can also over sharpen resulting in a grainy effect. Note that with fiber-based flexible scopes the recommendation is to slightly de-blur the image with the optical focus and ensure the enhancement is set to its lowest value on the LENS System.



Adjusting the surgical image

Depending on the type of surgery that is being performed, color correction and image enhancement may need to be adjusted. Keep in mind that there is no exact camera setting that can be used for everything. Color and image choice is very subjective and what one surgeon may see as good another may not.

You should always make sure that you are starting with the LENS System factory defaults:

- Toggle to Menu Access
- Toggle to System Configuration
- Toggle to Reset Factory Defaults

The LENS System factory defaults and ranges for the image adjustment functions are:

Function	Range	Default
Brightness	10 - 0	+5
Enhancement	6 - 0	+2
Chroma	10 - 0	+5
Phase	10 - 0	+5

When making adjustments to the LENS System surgical image, keep in mind what the surgeon is used to seeing and consider how this corresponds to the corrections you are able to make with the LENS System.

Tips for knowing how to set up the LENS System for a particular surgeon

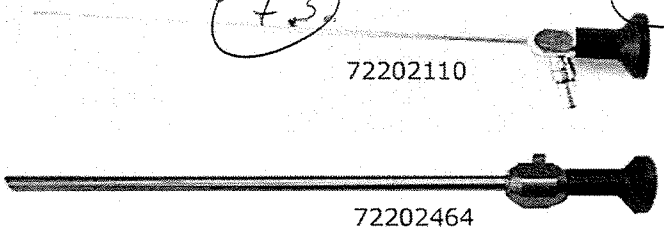
- Observe a surgery with the system they are currently using. Ask yourself, how does the image look, is it very bright with colors that "pop" or is it more dull in color but with more detail in the textures?
- Speak with the surgeon to understand what is important for him to gain an understanding of what he prefers.
- Create a few different custom profiles that have variations in the color/image settings so you can change them during surgery.

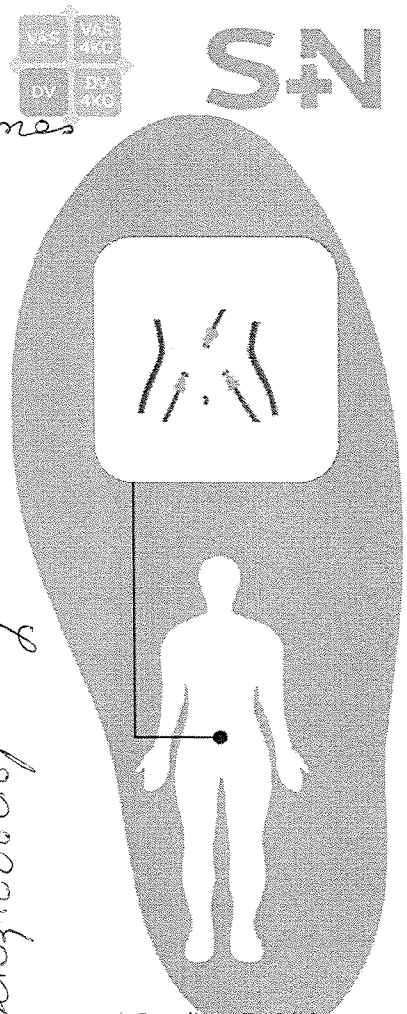
LENS/LENS 4K Scope Offering

Direct View

View Direction	Outer Dia, mm	Part No.	Working Length, mm [in]	Chemical Sterilization	Autoclavable	Field of View	Recommended Light Cable
0°	**5.5**	72202110	290 [11.41]	EtO, Sterrad	●	75°	
30°	**5.5**	72202111	290 [11.41]	EtO, Sterrad	●	75°	5.0 mm
45°	**5.5**	72202112	290 [11.41]	EtO, Sterrad	●	75°	
0°	**10.0**	72202463	330 [12.99]	EtO, Sterrad	●	75°	
30°	**10.0**	72202464	330 [12.99]	EtO, Sterrad	●	75°	6.0 mm
45°	**10.0**	72202465	330 [12.99]	EtO, Sterrad	●	75°	

Intended use: thoracic surgeries

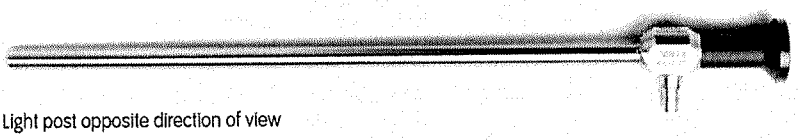




* Pending 510(k)
Δ End of Sale
● Applicable
× Not applicable

300

Laparoscopes



Light post opposite direction of view

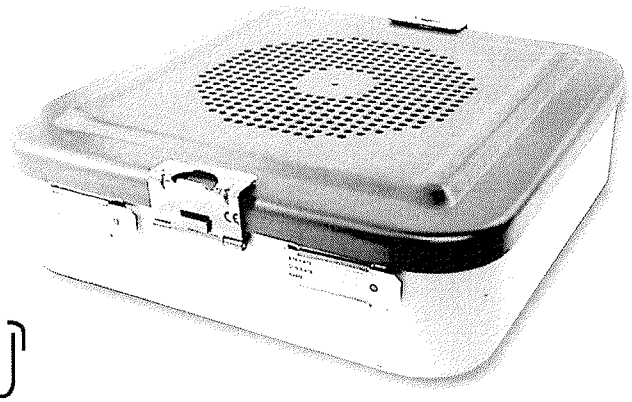
Direct-View Autoclavable Laparoscopes

- Stainless steel construction to withstand sterilization modalities (autoclave, EtO and Sterrad™)
- Fully autoclavable, with both distal and proximal ends uniquely soldered for longevity
- Autoclavable laparoscopes have sapphire distal lenses and rear ocular windows for much greater scratch resistance than conventional glass
- Indications include thoracic surgeries

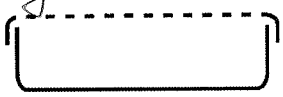
REF	Outer Diameter	Direction of View	Field of View	Working Length	Recommended Light Cable
72202463	10 mm	0	81°	330 mm	5.0 mm
72202464	10 mm	30	81°	330 mm	5.0 mm
72202465	10 mm	45	81°	330 mm	5.0 mm
72202110	5.5 mm	0°	84°	290 mm	5.0 mm
72202111	5.5 mm	30°	84°	290 mm	5.0 mm
72202112	5.5 mm	45°	84°	290 mm	5.0 mm

Flach- und Mini-Container, ALU eloxiert

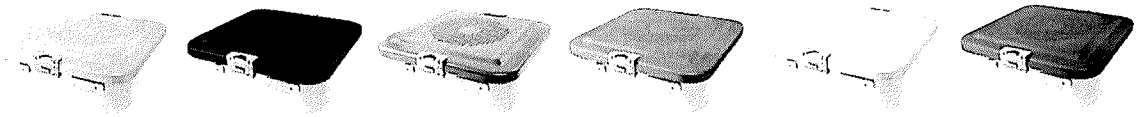
Flat- and Mini-Containers, ALU
Containers plates et mini en alumium
Contenadores planos y mini de aluminio
Contenitori piatti e mini in alluminio



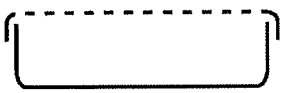
Deckel gelocht und farbig
Lid perforated and colored
Couvercle perforé et coloré
Tapas perforadas y coloreados
Coperchio perforato e colorato

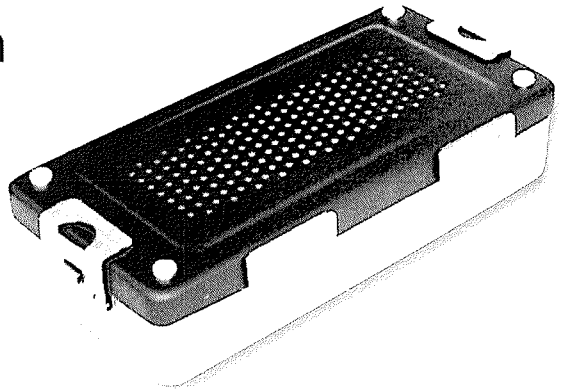


Flach – Flat – Plat – Plano – Platto

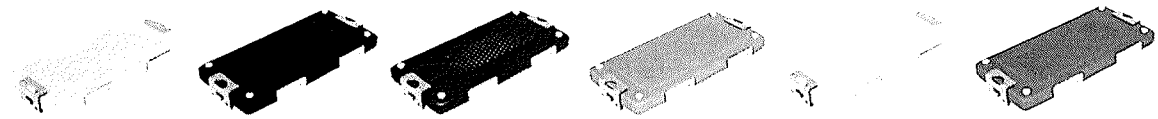


L x B x H mm						
285x280x55	80.7001	80.7002	80.7003	80.7004	80.7005	80.7006
285x280x85	80.7011	80.7012	80.7013	80.7014	80.7015	80.7016





Mini



L x B x H mm						
300x140x40	80.7301	80.7302	80.7303	80.7304	80.7305	80.7306
300x140x70	80.7311	80.7312	80.7313	80.7314	80.7315	80.7316
300x140x100	80.7321	80.7322	80.7323	80.7324	80.7325	80.7326

Zubehör · Accessories · Accessoires · Accesorios · Accessori

Langzeit-Textilfilter, 1 St.
Long-term textile filtres, 1 pc.
Filtres en textile, la pièce
Filtros de textil, 1 c/u
Filtri tessili, il pezzo

1 St.

FILTER, Textil für 1/2, 3/4, 1/1 Container
for 1/2, 3/4, 1/1 Containers
pour 1/2, 3/4, 1/1 Containers
para los 1/2, 3/4, 1/1 Containers
per 1/2, 3/4, 1/1 Container

Ø ca. 215 mm

80.8060

FILTER, Textil für MINI-Container
for MINI-Containers
pour MINI-Containers
para MINI-Containers
per MINI-Containers

1 St.

ca. 235x118 mm

80.8062

FILTER, Textil für DENTAL Container
for DENTAL-Containers
pour DENTAL-Containers
para DENTAL-Containers
per DENTAL-Containers

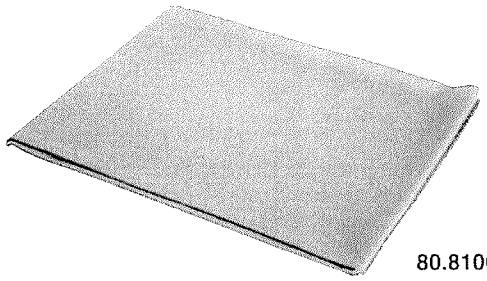
1 St.

ca. 230x170 mm

80.8064

Sterilisier-Tücher, Baumwolle
Sterilizing Drapes, cotton
Champs à stérilisation, coton
Paños de esterilización de algodón
Pannos di sterilizzazione, cotone

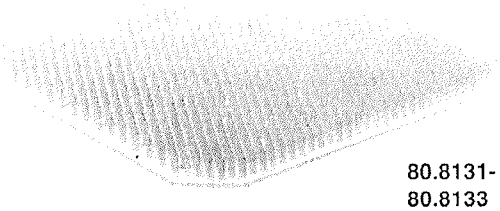
80.8100 40 x 60 cm
80.8105 85 x 85 cm
80.8110 100 x 140 cm
80.8115 275 x 125 cm
80.8120 245 x 245 cm



80.8100-
80.8120

Noppenmatten, Silikon
Silicone Pads
Tapis port-instruments, silicone
Tapices porta instrumentos de silicona
Tapetti porta-strumenti in silicone

80.8131 275 x 125 mm
80.8132 225 x 225 mm
80.8133 300 x 300 mm



80.8131-
80.8133

9.

LENS 4K
Kamera turi buti

Preoperative

Prepare the Camera Head

Clean and sterilize the LENS 4K Camera Head as described in the cleaning and sterilization procedures in the Instructions for Use received with the Camera Head.

Notes:

- Allow the Camera Head to cool to room temperature after it has been autoclaved.
- The Camera Head may be used immediately after chemical sterilization.

Connect the Camera Head

CAUTION: *Do not plug the camera cable connector into the camera control unit if wet. Moisture on the camera cable connector, including the gold fingers, on the card edge of the camera head cable will damage the circuitry and void the warranty. Ensure that the camera cable connector is completely dry prior to plugging the camera head into the camera control unit.*

Note: The Camera Head is not specific to any single LENS 4K Camera Control Unit. It can be used with multiple LENS 4K Camera Control Units.

To connect the camera cable connector to the Control Unit, plug the card edge connector into the Camera Head receptacle on the front of the Control Unit and push in firmly (Figure 9).

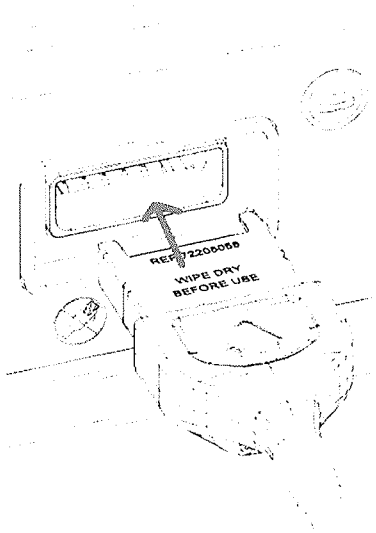


Figure 9. Connect the camera head to the control unit

Endocoupler focal length determines the image size on the monitor. For optimal image size use the LENS Coupler, 19.5 (72200315).

Connect the Coupler/Videoendoscope to the Camera Head

The System is designed to be used with instruments such as a videolaparoscope, videoarthroscope, or the coupler.

⚠ **WARNING: Use aseptic technique in accordance with standard operating room procedures.**

1. Attach a videoscope or coupler with a sterilized direct-view endoscope to the Camera Head.
2. Attach the fiber optic light guide from the light source to the scope.

Insert Light Guide

⚠ Warnings

- **During operation, avoid prolonged contact of the scope tip to patient tissue or flammable materials. The scope tip may reach high temperatures due to high intensity light transmission.**
- **Do not leave the operating light cable on a patient or the drapes. Failure to observe this warning may result in burns to the patient and/or the surrounding drapes.**

Set the multiport light guide adaptor turret for the light guide that will be used. To set the turret to the appropriate light port, rotate the turret in either direction until the desired light port is aligned with the orange arrow to the left of the turret (Figure 10).

Insert the light cable into the appropriate light port by pushing in firmly. To remove the light cable, grasp the cable connector and pull straight out of the light port. Do not pull out by pulling on the cable.

CAUTION: *Ensure that the light guide is inserted into the proper front panel port. Damage to the unit may occur if the light guide is not inserted into the port associated with the correct light guide manufacturer.*

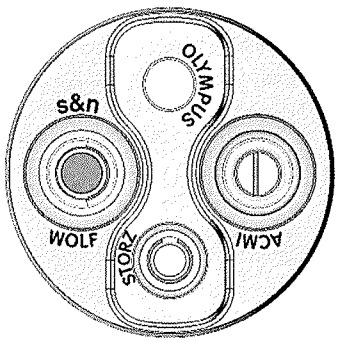


Figure 10. Multiport light guide adaptor turret

63.

9.

CHROMA MODE VALUE

Works in conjunction with the Default CHROMA Mode, when enabled, the user can adjust the CHROMA MODE VALUE level. Refer to DEFAULT CHROMA MODE section in this document.

1. To **INCREASE** or **DECREASE** the value, navigate to the CHROMA MODE VALUE. When the VALUE blinks, press Select to select.
2. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to navigate to the desired value on the keyboard.
3. To exit the CAMERA SETUPS SETTINGS screen, highlight the **EXIT** option and press **Select**.

Save and Exit

To save all changes to the camera setup, navigate to **SAVE AND EXIT**. Press **Select** to save changes and exit to OSD. To exit without saving changes, custom settings will need to be changed manually to their original settings prior to selecting **SAVE AND EXIT**.

Set the Default Startup Camera setup

Set Default Startup Camera setup allows the user to set the camera setup that is highlighted on the STARTUP screen and so can be selected immediately. To set the default startup camera setup:

1. Navigate to the **Camera setup** icon and press the **Select** button to select it.
2. Highlight the **Set Default Startup Camera setup** icon (Figure 43) and press the **Select** button to select it. A screen showing the available camera setup opens.
3. Use the **Up** and **Down** arrows on the control unit or the left and right Camera Head buttons to scroll to the camera setup to be set as the default camera setup. Press **Select** to select the camera setup and return to the OSD.

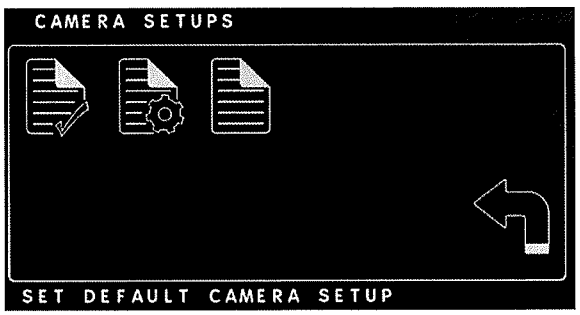


Figure 43. Set Default Startup Camera setup

Cleaning

To Clean the LENS 4K Camera Control Unit

CAUTION: *Disconnect the power cord before cleaning the unit or light source.*

- Prior to cleaning the equipment, turn off the control unit and disconnect the Camera Head.
- Wipe down the control unit with a clean, dry cloth after every procedure.
- Use a damp cloth or sponge to remove dirt or debris. Avoid getting liquid into the side vents, and never immerse the control unit in any solution.
- Wipe down the control unit with alcohol or a neutral pH cleaner.
- After cleaning, store the equipment in a cool, dry place out of direct sunlight or excessive heat.

Note: It is important to periodically inspect and clean the fan grill on the rear of the unit and the exhaust holes on the side of the unit. The most effective method is to use a vacuum with a soft brush attached. A soft, damp cloth may also be used to remove any accumulations in these areas.

To Clean and Sterilize the Camera Head

Refer to the Instructions for Use provided with the LENS 4K Camera Head (REF 10601349).

Note: It is important to select the appropriate sterilization method for each type of equipment.

For sterilization of a light guide, refer to the Sterilization section of that light guide's Instructions for Use.

For sterilization of a coupler, refer to the Sterilization section of that coupler's Instructions for Use.

For sterilization of an endoscope, refer to the Sterilization section of that endoscope's Instructions for Use.

kameros galvos
šviesolaidžio
kameros galvos movos
endoskopo

valymo ir sterilizavimo metodai aprašomi naudojimo instrukcijose, pateikiamose kartu su prekėmis.

64.

White Balance the Camera

When a procedure is selected from the LENS 4K System STARTUP menu, the system automatically starts the White Balance procedure to ensure proper color rendition. The scope and the fiber optic light guide should already be connected in order to perform the White Balance procedure.

Figure 3. White Balance the camera

1. Point the end of the scope at a white object (a 4" x 4" gauze pad or flat white piece of paper) and focus. Fill as much of the screen as possible with the white object, but do not hold the scope close enough to touch the white object.
2. Select the desired procedure from the STARTUP menu. The monitor will display the message **WHITE BALANCE IN PROGRESS**.
3. Hold the gauze pad or paper in front of the scope until the monitor displays the message **WHITE BALANCE COMPLETE** and a long tone sounds.

If an error occurs during White Balance, the message **WHITE BALANCE INCOMPLETE** will appear on the display and a chirping tone sounds. To White Balance without restarting system, select **WHITE BALANCE** from the MAIN MENU or press the **WHITE BALANCE** button on the front panel of the control unit.

Cleaning and Sterilization

Notes:

- Disinfection is not a substitution for sterilization. Always inspect for damage and debris prior to sterilization.
- The camera head requires sterilization because it is used in the sterile field. No protection is needed for the camera head connector during cleaning and sterilization. The camera head connector must be dry prior to plugging into the camera control unit.

CAUTION: *US Customers: Users should only use sterilizers and accessories (such as sterilization wraps, sterilization pouches, chemical indicators, biological indicators, and sterilization containers) that have been cleared by the US FDA for the selected sterilization cycle specifications (time and temperature).*

WARNING: The camera head is autoclavable and compatible with only one chemical sterilant throughout its lifetime. Use only chemical sterilants from the list of acceptable chemical sterilants. Once a sterilant has been used on the camera head, continue to use that same sterilant for the lifetime of that specific camera head. The use of multiple chemical sterilants during the lifetime of any one camera head will reduce the service lifetime of that camera head.

CAUTION: *Prior to use, inspect the device to ensure it is not damaged. Do not use a damaged device.*

CAUTION: *Use ENZOL™ to clean the camera head. If ENZOL is not available in your facility a neutral pH cleaner can be used. Non-neutral pH cleaners may cause residue buildup, which may cause interference or damage the optical seals. Such damage will result in internal fogging and image discoloration.*

CAUTION: *To avoid fogging during surgery, ensure that the VideoArthroscope or coupler and the camera head are entirely free of moisture prior to connecting them.*

CAUTION: *Do not plug the camera cable connector into the camera control unit if wet. Moisture on the camera cable connector, including the gold fingers, on the card edge of the camera head cable will damage the circuitry and void the warranty. Ensure that the camera cable connector is completely dry prior to plugging the camera head into the camera control unit.*

CAUTION: *Do not sterilize damaged equipment, as further damage may result. Clean and disinfect the camera head prior to returning it to Smith & Nephew.*

Cleaning and sterilization requires four steps in the following order:

- Cleaning
- Equipment inspection
- Equipment preparation
- Sterilization

Preparations at the point of use prior to processing

Keep instruments moist after use to prevent soil from drying on them.

Follow Universal Precautions for handling and transporting contaminated instruments to the designated cleaning area. Contaminated instruments should be transported to the area for cleaning in a way that avoids contamination of personnel and hospital.

Prior to cleaning, remove visible debris from the surfaces of the device. Dried-on soil is difficult and sometimes impossible to remove with automatic washing.

Clean instruments as soon as possible after use to prevent blood from drying on the devices.

Approved Cleaners/Pre cleaners

Use ENZOL a neutral pH enzymatic cleaner to clean or preclean the camera head. If ENZOL is not available in your facility a neutral pH cleaner can be used.

Water Quality

Warm tap water is recommended for cleaning the camera head assembly. Distilled water is recommended for rinsing the camera head assembly.

Service and Maintenance

Service

There are no user-serviceable components inside the control unit. Repairs and adjustments are to be performed only by Smith & Nephew authorized service centers.

If service becomes necessary, call an authorized Smith & Nephew Customer Service Representative prior to returning the device and request a Return Authorization (RA) number. A representative can also explain the available Service Replacement and Repair Programs.

Service items should be carefully disinfected, repackaged and returned post-paid to Smith & Nephew. A Smith & Nephew Customer Service Representative can provide additional instructions.

Note: Returned product that is found to have been serviced by an unauthorized third party repair facility and/or sterilized with a sterilization method other than one approved by Smith & Nephew will incur additional costs, regardless of warranty status.

It is not necessary to include accessory items (i.e., power cords, paper trays, footswitches, remote controls, etc.) when returning a device for service.

Do not remove any digital interface boards that may be installed in the unit.

Maintenance

Recommended Annual Performance Checks

Smith & Nephew recommends that dielectric strength, earth leakage current, and protective earth testing be performed annually to assure continued compliance with applicable safety requirements. These tests should be conducted in accordance with specifications IEC 60601-1:2005 + A1:2012 IEC 60601-2-18:2009, IEC 60601-1-2:2014

CAUTION: *Electrical safety testing should be performed by a biomedical engineer or other qualified person.*

To Replace Fuses

⚠ Warnings

- **To prevent electric shock, unplug the unit from the electrical outlet before attempting to replace the fuses.**
- **To avoid fire hazard, use only fuses of the correct type, voltage rating, and current rating.**

  Note: Fuses that require frequent replacement may indicate an internal problem with the control unit. If fuses continue to blow, contact Smith & Nephew Customer Service for assistance.

To change the fuse carrier:

1. Unplug the power cord from the power outlet and from the control unit.
2. Use a screwdriver to open the fuse compartment door on the AC receptacle (Figure 44) and slide out the two fuse carriers. Refer to the Rear Panel Layout section to locate the AC receptacle on the rear panel.

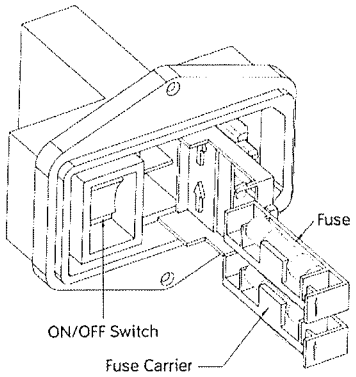


Figure 44. AC receptacle with fuses

3. Replace fuses. Refer to the System Specifications section for replacement fuse types.
4. Reinsert the fuse carriers using the arrows on the inside of the fuse compartment door as a guide.
5. Snap the fuse compartment door closed.