

# ENDOCAM Logic 4K

## Camera controller



- 4K resolution with either 3840 x 2160 pixels or 4096 x 2160 pixels
- Continuous processing of captured 4K imaging data with 4K resolution
- Optimally matched system consisting of telescopes, lenses, camera head, camera controller, light source, light cables and monitors
- All available light sources and applied parts of the ENDOCAM Logic HD are compatible with the ENDOCAM Logic 4K Controller and can continue to be used
- Dialog function:
  1. Control of connected, dialog-capable ENDOLIGHT light source for optimum illumination with maximum protection for the endoscope
  2. Monitor display of major parameters for further devices (e.g. pressure indication, set flow, residual gas display)
- USB port on camera controller for directly saving HD images and HD videos to USB storage media
- Including "Special Imaging Modes" (SIM) for enhanced tissue differentiation
- Extremely easy to use thanks to pre-programming of clinically-devised presets for various disciplines, effortless saving of personal settings
- Patient data can be entered via a USB keyboard
- Direct printing possible
- Future-proof investment, updates can be imported at any time via the USB port
- Central component of the **core nova** OP Integration

### ENDOCAM Logic 4K camera controller

**bndl** ..... **55253011**

Comprising:

1x ENDOCAM Logic 4K camera controller .....	5525301
1x hand-held remote control .....	5525401
1x USB flash memory 32GB .....	72321829
1x HDMI/HDMI cable, lockable, 3.0 m .....	103847
1x power cable .....	2440.03

# ENDOCAM Logic 4K

## Technical data of camera controller

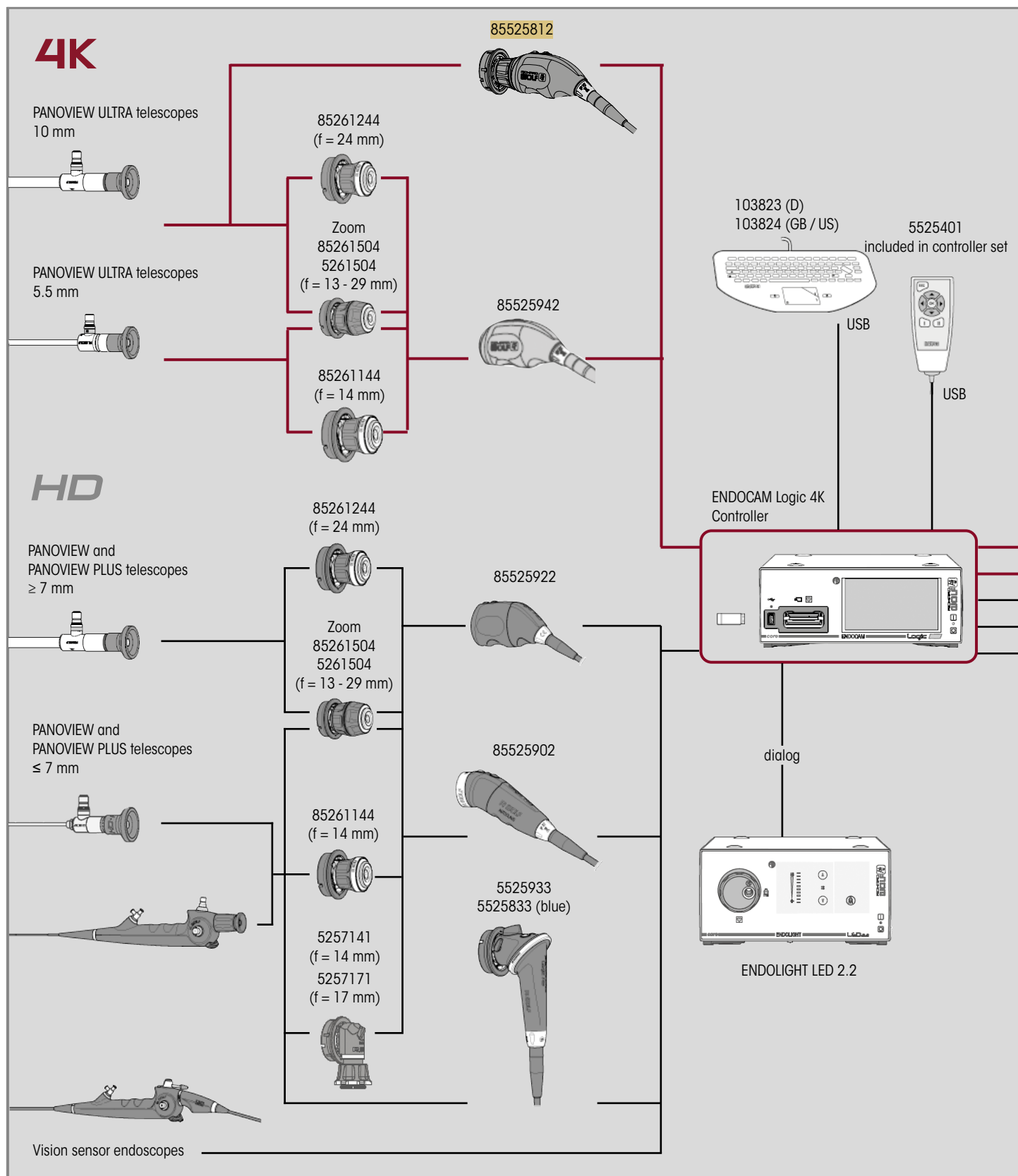
Camera controller		5525301		
Device properties				
Type of controls	Touchscreen			
Max. video signal resolution	4096 x 2160 pixels			
White balance, color temperature range	2300 K to 7000 K			
Noise level	34 dB to 48 dB max.			
Digital zoom	1.5x max.			
Individually configurable profiles	at least 5 profiles			
Brightness control	Automatic shutter control + automatic gain control			
Image format of saved pictures / videos	JPEG, TIFF (max. 1920 x 1200) / MPEG4 (max. 1920 x 1080/60P)			
Operating conditions	+10°C to +40°C, 30% to 75% rel. humidity, atmospheric pressure 700 hPa to 1060 hPa			
Operating mode	Continuous operation			
Equipment				
IP rating	IP20			
Cooling method	Controlled fan			
Power supply				
Mains + frequency	100-240 VAC, 50/60 Hz			
Power consumption	120 VA			
Current rating	max. 1.2 A			
Regulatory standards				
Safety	US/ CA: UL 2601-1 / CSA C22.2 NO.601.1, EU: EN 60601			
EMC	EN 60601-1-2 / IEC 601-1-2			
Medical device class	Class 1			
Classification of applied part	CF			
Interfaces				
Video outputs	2x HDMI 4K, 2x HDMI HD, 2x 3G-HD-SDI			
PiP input	1x 3G-HD-SDI			
Remote output	2 x 3.5 mm jack, stereo			
USB port (on front panel, for external storage media)	USB 2.0 (FAT32/NTFS formatting)			
Resolution (HDMI output)	Adjustable in the user menu 1280 x 1024/60P (5:4) 1920 x 1080/60P (16:9) 1920 x 1200/60P (16:10) Only for HDMI 4K: 4K 3840 x 2160/60P (16:9) 4K 4096 x 2160/60P (17:9)			
Resolution (3G-HD-SDI output)	Adjustable in the user menu 1280 x 720/50P (16:9) 1280 x 720/50P (16:9) 1920 x 1080/50I (16:9) 1920 x 1080/50P (16:9) 1920 x 1080/60P (16:9)			
Resolution of picture-in-picture input (3G-SDI)	1280 x 720/50P (16:9) 1280 x 720/60P (16:9)	720 x 486/60I (16:9) 720 x 576/50I (16:9)	1920 x 1080/50P (16:9) 1920 x 1080/60P (16:9)	1920 x 1080/50I (16:9) 1920 x 1080/60I (16:9)
Dimensions and weights				
Weight	6.2 kg			
Dimensions (W x H x D)	300 x 120 x 416 mm			

# ENDOCAM Logic 4K

## System overview

ENDOCAM

1



X24 || Subject to modifications. Please note that some products may not be available in all countries. Please always take note of the information that is provided with the product. For more detailed information, please consult with your contact partner or directly with Richard Wolf GmbH.

## System green

### Camera head green

for the ICG/NIR Application

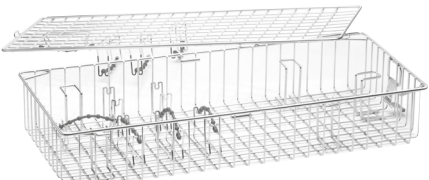


- Compatible with ENDOCAM Logic 4K und HD
- 2 programmable camera head buttons with 4 available functions
- Autoclavable camera head
- Use in ICG/NIR fluorescence endoscopy and in standard white light endoscopy
- Integrated lens
- Digital image processing and signal transmission
- Snap-on mechanism with locking function

#### ENDOCAM

**Logic HD camera head green** ..... **85525812**

2-chip, cable length 3 m

Recommended accessories		Product no.
	<p><b>Perforated basket for camera head</b> (L x W x H) 448 x 200 x 73 mm</p>	<p><b>38002</b></p>



## System green

### Technical data camera head green

Camera head 85525812	
Device properties	
Sensor	2 x 1/3" CMOS
Operation	2 programmable head buttons with 4 functions
Focal length range integrated lens	24 mm
Operating conditions	+10°C to +30°C, 20% to 85% rel. humidity, atmospheric pressure 700 hPa to 1060 hPa
Equipment	
Degree of protection against the ingress of moisture	IPX7
Service	Cable and eyepiece snap-in coupling can be replaced on site
Dimensions and weight	
Camera head weight (without cable)	196 g
Housing dimensions (W x H) - without cable and anti-kink protection	48 x 48 x 136 mm
Camera head length (without cable)	136 mm
Cable length	3 m
Cable outlet	30°

# ENDOCAM Logic

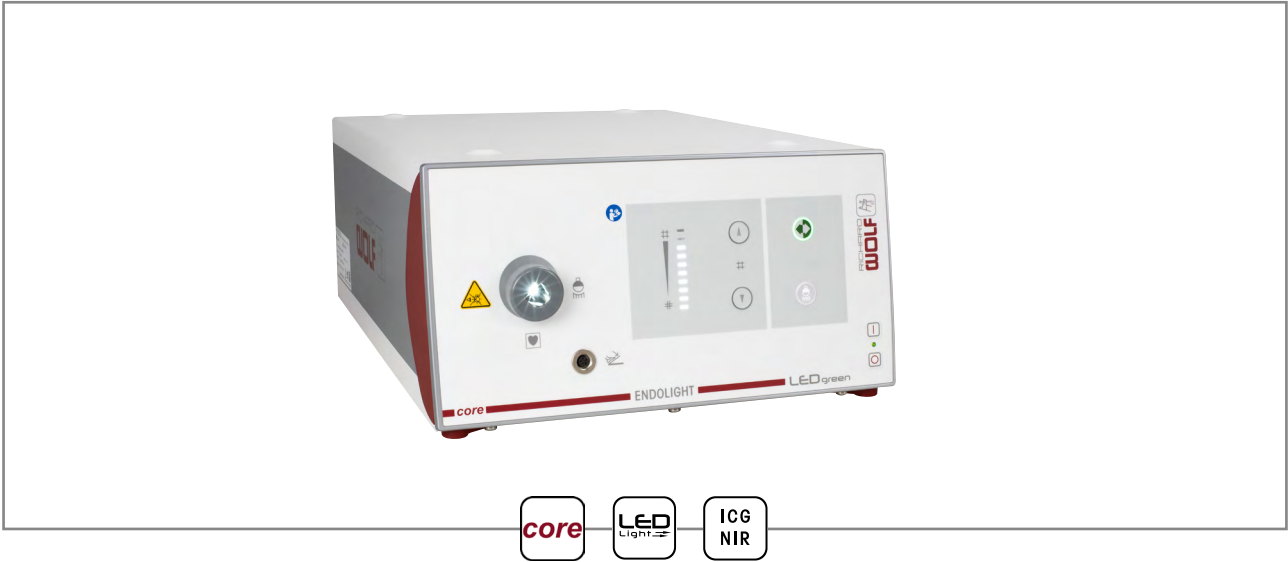
## Camera controller comparison

Camera controller				
Properties	ENDOCAM Logic HD		ENDOCAM Logic HD lite	
				
	Product no.		Product no.	
	55251011	With 3G-SDI output 55251051 55251061	55252011	55253011
Saving of single images to USB memory stick (image archive)	•	•	•	•
Saving of videos to USB memory stick (video archive)	-	•	-	•
Entry of patient data via keyboard	•	•	•	•
Touchscreen	•	•	-	•
On-screen display	•	•	•	•
Compatible with <b>core nova</b>	•	•	•	•
<i>Dialog</i> function via Ethernet	•	•	•	•
Mirroring of images	•	•	-	•
<b>4K signal processing</b>	-	-	-	•
<b>Special Imaging Modes</b>	•	•	•	•
PDD functionality	•	•	-	•
<b>ICG/NIR functionality</b>	•	•	-	•
Connection of flexible endoscopes	•	•	•	•
Picture-in-picture input (only applies to 5525106 and 5525108)	-	•	-	•

System green

ENDOLIGHT LEDgreen

LED light source



- LED light source for the endoscopic ICG/NIR application
  - Switchable between ICG/NIR and white light endoscopy
  - Powerful ICG/NIR illumination
  - The light output is comparable to a 300W xenon light source
  - Guaranteed LED lamp service life in white light mode 15000h
- Compatible with core nova
  - Automatic exposure control and adjustment of light intensity in conjunction with ENDOCAM Logic 4K/HD (dialog functionality) for optimal illumination
  - Light output for rigid and flexible endoscopes

Light source LEDgreen bndl ..... 51650021

Comprising:

- 1x light source LEDgreen ..... 5165002
- 1x patch cable, RJ45 SFTP, 0.5 m ..... 72325378
- 1x power cable ..... 2440.03

Optional accessories:			
Foot control rockerswitch			2030.105
<i><b>fusion</b></i> Fiber light cable bndl comprising: Fiber light cable, Adapter, projector side (8095.07), and adapter, endoscope side (809509)	Ø of fiber bundle 5.0 mm and color code grey	2.3 m long	806550231
		3.0 m long	806550301
		3.5 m long	806550351

# System green

## ENDOLIGHT LEDgreen

### Technical data

ENDOLIGHT LEDgreen		5165002
Device properties		
Type and number of lamps	2x high-power LED	
Lamp service life	15,000 h	
Brightness in Lumen	1,400 lm	
Light output compared to xenon in W	300 W	
Color temperature	8000 K	
Brightness control	0 - 100%	
Noise level	30 dB(A)	
Operating mode	Continuous operation	
Operating conditions	+10°C to +40°C, 20% to 75% rel. humidity, atmospheric pressure 700 hPa to 1060 hPa	
Equipment		
Supported light cables	Wolf	
IP rating	IP20	
Cooling method	Passive heatpipe	
Power supply		
Mains + frequency	100-240 VAC, 50/60 Hz	
Power consumption	225 VA	
Current rating	1.5-0.6 A	
Regulatory standards		
Safety	EU: EN 60601-1	
EMC	EN 60601-1-2 / IEC 601-1-2	
Medical device class	Class 1	
Classification	CF	
Dimensions and weight		
Weight	10.3 kg	
Dimensions (W x H x D)	300 x 160 x 424 mm	



## Universal device cart RIWOmobil



### All RIWOmobil variants

have the following properties in common:

- Integrated cable duct
- 3 shelf units (width 370 mm), 2 of which continuously adjustable
- 4 double casters, 2 of which with dual-function locking (directional locking/freewheeling/full locking)
- Side profiles made of aluminum with mounting points for installing swivel arms and attaching a wide range of accessories
- Dimensions (W x H x D): 720 x 1518 x 700 mm
- 2 casters with dual conductivity
- Color: White, RAL 9016

RIWOmobil features the following advantages:

- Order-specific production  
Each cart is configured and built according to the customer's individual demands.  
Any additionally selected shelf units and drawers are installed, adjusted and tested directly in the production process.
- Quality and value preservation  
All components are designed for longevity and high loads.
- Safety  
All mechanical and electrical components are subjected to our permanent quality control process.
- Ergonomics  
On all RIWOmobil variants, the monitor position can be adapted to the demands of the operating team.  
Height-adjustable shelf units and device handles on the cart provide individual adaptation options.

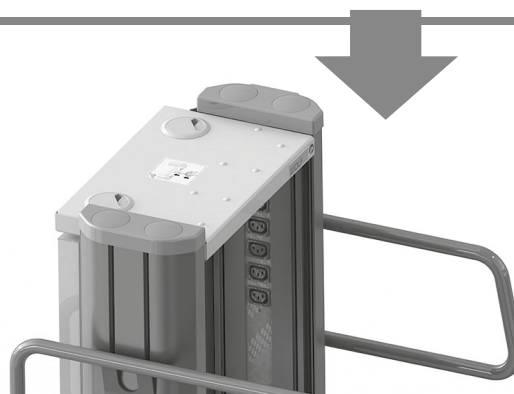
## Universal device cart RIWomobil

### Your optimum RIWomobil in just 3 steps

#### 1. Where to place the monitors?

RIWomobil provides the option of positioning a swivel arm either in the center on the bridge or laterally in the side profile. As an alternative, a monitor mount can also be used to position a monitor in the center of the bridge.

Bridge



#### 2. Which electrics variant?

The **baseline electrics** with a main switch integrated in the aluminum profile, distributor strip with 12 device connections.

The **premium electrics variant for highest demands** includes the following elements in addition to the baseline equipment: isolating transformer and insulation monitoring unit with safety monitoring.

#### 3. Which operating voltage?

##### RIWomobil with premium electrics

(for accessories, see section Device cart accessories)

Comprising:

Basic housing (premium version) with integrated isolating transformer, insulation monitoring unit, socket strip with main switch module, insulation monitor display and 12 sockets, 6 device connection cables, power cable 5.5 m,

Isolating transformer 220-230V, 2000VA.....**32116015**

Isolating transformer 100-120V, 1700VA.....**32116013**

##### RIWomobil with baseline electrics

(for accessories, see section Device cart accessories)

Comprising:

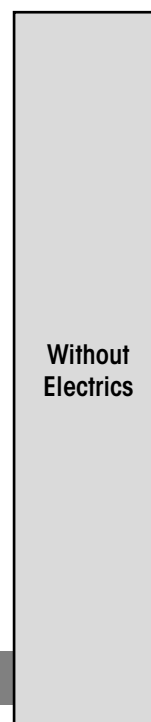
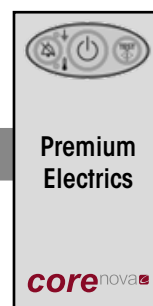
Basic housing (baseline version), socket strip with 12 sockets and integrated main switch module, 6 device connection cables, power cable 5.5 m,

Version with 220-240V, 2000VA .....**32116014**

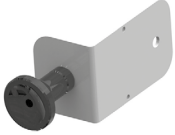
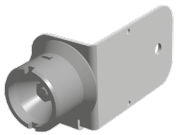

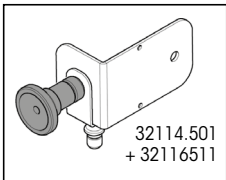
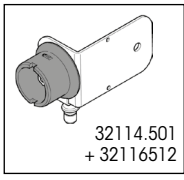
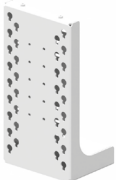

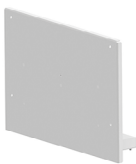


Version with 100-120V, 1700VA .....**32116012**

##### RIWomobil without electrical equipment







For mounting swivel arms .....**32116011**



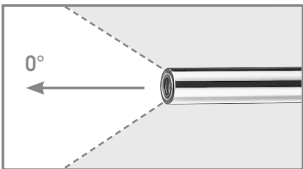
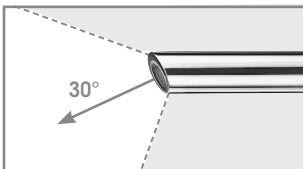
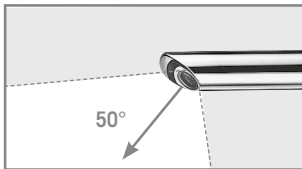


## RIWomobil Accessories

Camera holding bracket for universal use with standard and RIWO lenses		Product no.
	<b>Camera holding bracket</b> For universal use with standard and RIWO lenses	<b>32116511</b>
	<b>Camera holding bracket</b> for mounting 3DHD camera heads	<b>32116512</b>
Light cable holder for mounting light cables with R.Wolf connection		
  32114.501 + 32116511  32114.501 + 32116512	<b>Light cable holder</b>	<b>32114501</b>
Monitor mounting bracket		
 Front view  Rear view	<b>Monitor mounting bracket VESA 75 x 100</b> Monitor mounting bracket for installation on the bridge.	<b>321165001</b>
 Front view  Rear view	<b>Monitor mounting bracket VESA 200 x 400</b> Monitor mounting bracket for installation on the bridge.	<b>32116472</b>
	<b>Monitor mounting bracket, lateral, VESA 75/100</b> incl. adapter plate for lateral installation on RIWomobil. Inclining or swiveling, maximum load: 15 kg, length: 5.5 cm	<b>32116451</b>

## RIWomobil Accessories

Infusion bottle holder		Product no.
		<p><b>Infusion bottle holder</b> adjustable from 1.6 m to 2.6 m, load capacity max. 8 kg</p> <p><b>32114.521</b></p>
CO <sub>2</sub>		
 CO <sub>2</sub> bottle holder, 1 L  CO <sub>2</sub> bottle holder, 10 L	<p><b>CO<sub>2</sub> bottle holder, 1 L</b> for bottle ø up to max. 90 mm, load capacity max. 5 kg</p> <p><b>32114.531</b></p>	
	<p><b>CO<sub>2</sub> bottle holder, 10 L</b> for bottle ø up to max. 160 mm, load capacity max. 35 kg</p> <p><b>32114.535</b></p>	
Lateral holder		
		<p><b>Holder</b> for hand-held remote control or camera head connector</p> <p><b>64030.106</b></p>
Footswitch tray and bracket		
 Footswitch tray  Universal holder	<p><b>Footswitch tray</b> load capacity max. 3 kg</p> <p><b>32114.541</b></p>	
	<p><b>Universal holder</b> load capacity max. 3 kg</p> <p><b>32114.545</b></p>	











 <p>8934461 / 8934462 / 8934463</p> <p><b>AUTOCLAVE</b> <b>134° C / 273° F</b></p>					
   					
	Direction of view	WL	GL	Ø	Product no.
PANOVIEW ULTRA Telescope 0° Ø 10 mm WL 305 mm	0°	305 mm	375 mm	10 mm	<b>8934461</b>
PANOVIEW ULTRA Telescope 30° Ø 10 mm WL 305 mm	30°				<b>8934462</b>
PANOVIEW ULTRA Telescope 50° Ø 10 mm WL 305 mm	50°				<b>8934463</b>

**Note:** Compatible with System green (see Imaging Catalog) (ICG/NIR-capable) and its recommended Fusion fiber light cable.

Recommended accessories	Product no.	
<b>Perforated basket for standard telescope 2</b>	(W x H x D) 481 x 54 x 59 mm	<b>38016</b>
<b>Fiber lightcable bndl</b> consisting of: Fiber light cable Ø 5 mm TL 2.3 m (80665023), projector-side adapter (8095.07), and endoscope-side adapter (809509)	Ø 5.0 mm, 2.3 m long	<b>806650231</b>
<b>Fusion</b> <b>Fiber light cable bndl</b> consisting of: Fiber light cable Ø 5 mm TL 2.3 m (80655023), projector-side adapter (8095.07), and endoscope-side adapter (809509)	Ø 5.0 mm, 2.3 m long	<b>806550231</b>

# TROCAR SLEEVE 10 MM

## WITH INSUFFLATION STOPCOCK

RIWO-ART trocar sleeves with magnetic ball valve 				<b>Tip tapered/blunt</b> 	<b>Tip tapered/pointed</b> 	<b>Tip triangular</b> 
				<b>Trocar tip blunt</b> Size 10 mm	<b>Trocar tip pointed</b> Size 10 mm	<b>Trocar tip triangular</b> Size 10 mm
<b>Stainless steel sheath tube</b>	<b>WL</b>	<b>Capacity</b>	<b>Product no.</b>	<b>WL 164 mm</b>	<b>WL 164 mm</b>	<b>WL 164 mm</b>
<b>Trocar sleeve straight</b> capacity 10 mm WL 100 mm 	100 mm	10 mm	<b>8923.014</b>	<b>8923.103</b>	<b>8923.113</b>	<b>8923.123</b>
<b>Trocar sleeve slanted</b> capacity 10 mm WL 100 mm 	100 mm	10 mm	<b>8923.013</b>	<b>8923.103</b>	<b>8923.113</b>	<b>8923.123</b>
<b>Trocar sleeve straight</b> capacity 10 mm WL 100 mm with thread 	100 mm	10 mm	<b>8923.024</b>	<b>8923.103</b>	<b>8923.113</b>	<b>8923.123</b>
<b>Trocar sleeve slanted</b> capacity 10 mm WL 100 mm with thread 	100 mm	10 mm	<b>8923.023</b>	<b>8923.103</b>	<b>8923.113</b>	<b>8923.123</b>
				<b>WL 214 mm</b>	<b>WL 214 mm</b>	<b>WL 214 mm</b>
<b>Trocar sleeve straight</b> capacity 10 mm WL 150 mm 	150 mm	10 mm	<b>8923.016</b>	-	<b>8923.115</b>	<b>8923.125</b>
<b>Trocar sleeve straight</b> capacity 10 mm WL 150 mm with thread 	150 mm	10 mm	<b>8923.026</b>	-	<b>8923.115</b>	<b>8923.125</b>

Accessories	Product no.
Spare ball capacity 7 mm	<b>8923901</b>
Spare O rings capacity 7 mm (PACK= 10 PCS), capacity Ø 7–12.5 mm	<b>8923951</b>
Sealing cap capacity 9.5–10.1 mm (PACK= 10 PCS) red	<b>8908</b>
Stopcock insert bndl cap. 3.0 mm (PACK= 5 PCS)	<b>896.0002</b>

# INSUFFLATOR HIGHFLOW 45 EVAC + HEAT

## WITH SMOKE GAS EVACUATION AND GAS HEATING



		Artikel-Nr.
<b>Insufflator 45 EVAC + HEAT bndl</b> consisting of: Insufflator 45 EVAC + HEAT FR 45 l/min(2235031), power cable, 3 m long (2440.03) and footswitch with 1 pedal (20301031)		<b>22350312</b>
<b>Accessories: Tube sets for insufflation with heating and smoke gas evacuation</b>		
<b>Insufflation tube set L 3m</b> high-flow with heating coil and integrated hygiene filter, (PACK=10 PCS), sterile, for single use		<b>4170502</b>
<b>Insufflation tube for 2235021/031 L 3m</b> , high-flow with heating coil, autoclavable Up to 100 uses are possible with the reusable hose.		<b>8170202</b>
<b>Insufflation filter</b> (PACK= 50 PCS)		<b>6421/04BAUA0010001</b>
<b>Smoke gas evacuation tube set</b> , steril, sterile, for single use (PACK= 10 PCS)		<b>2200/72BTUA1230001</b>
<b>Accessories for gas supply CO<sub>2</sub> bottle</b>		
<b>Qualityreg CO<sub>2</sub></b> , Inlet pressure connection DIN ISO 477-6 outlet connection NIST, pressure gauge Flow meter	DIN ISO 477-6	<b>DM-DIN6-MS-NISTCO2</b>
<b>Qualityreg CO<sub>2</sub></b> , Inlet connection DIN EN ISO 407 PIN INDEX, outlet connection NIST ,pressure gauge Flow meter	DIN EN ISO 407 PIN INDEX	<b>DM-PIN-MS-NIST-CO2</b>
<b>Qualityreg CO<sub>2</sub></b> , Inlet connection ISO 5145 outlet connection NIST, pressure gauge Flow meter	ISO 5145	<b>DM-ISO-MS-NIST-CO2</b>
with		
<b>Connection hose, quality CONNECT</b> , CO <sub>2</sub> 1.5 m long		<b>DINCO2NIST-NIST1.5</b>
<b>Optional for faster CO<sub>2</sub> bottle changes</b>		
<b>Quick plug adapter NIST</b> , (2 pieces recommended) DIN with safety chain, adapter NIST / coupling with chain and ring		<b>DM-AD-CO2NISTDINKU</b>
<b>Connection hose DIN, CO<sub>2</sub></b> , ZGV plug to NIST fitting, ISO-colored, 1.5 m long (Ceiling light)		<b>DIN-CO2-ZGVNIST1.5</b>
<b>ZGV connection</b>		
<b>Connection hose, quality CONNECT</b> , CO <sub>2</sub> 5 m long, DIN for centralized CO <sub>2</sub> gas supply (Dräger)		<b>RW-CO2-ZGV-NIST5.0</b>
<b>Connection hose, quality CONNECT</b> , CO <sub>2</sub> 5 m long, NF for centralized CO <sub>2</sub> gas supply (Liquid Air)		<b>NF-CO2-ZGV-NIST5.0</b>
<b>Connection hose DIN, CO<sub>2</sub></b> , ZGV plug to NIST fitting, ISO-colored, 1.5 m long (Ceiling light)		<b>DIN-CO2-ZGVNIST1.5</b>
<b>Software modules (optional)</b>		
<b>Software module CAN bus</b> CAN bus interface for integration in CORE		<b>2235101</b>
<b>Software module BABY MODE</b> BABY MODE for special use in pediatrics		<b>2235102</b>
<b>Software module VIDEO DISPLAY</b> : video display using DIALOG via CAN bus		<b>2235103</b>

# TECHNICAL DATA

## INSUFFLATOR HIGHFLOW 45 EVAC + HEAT

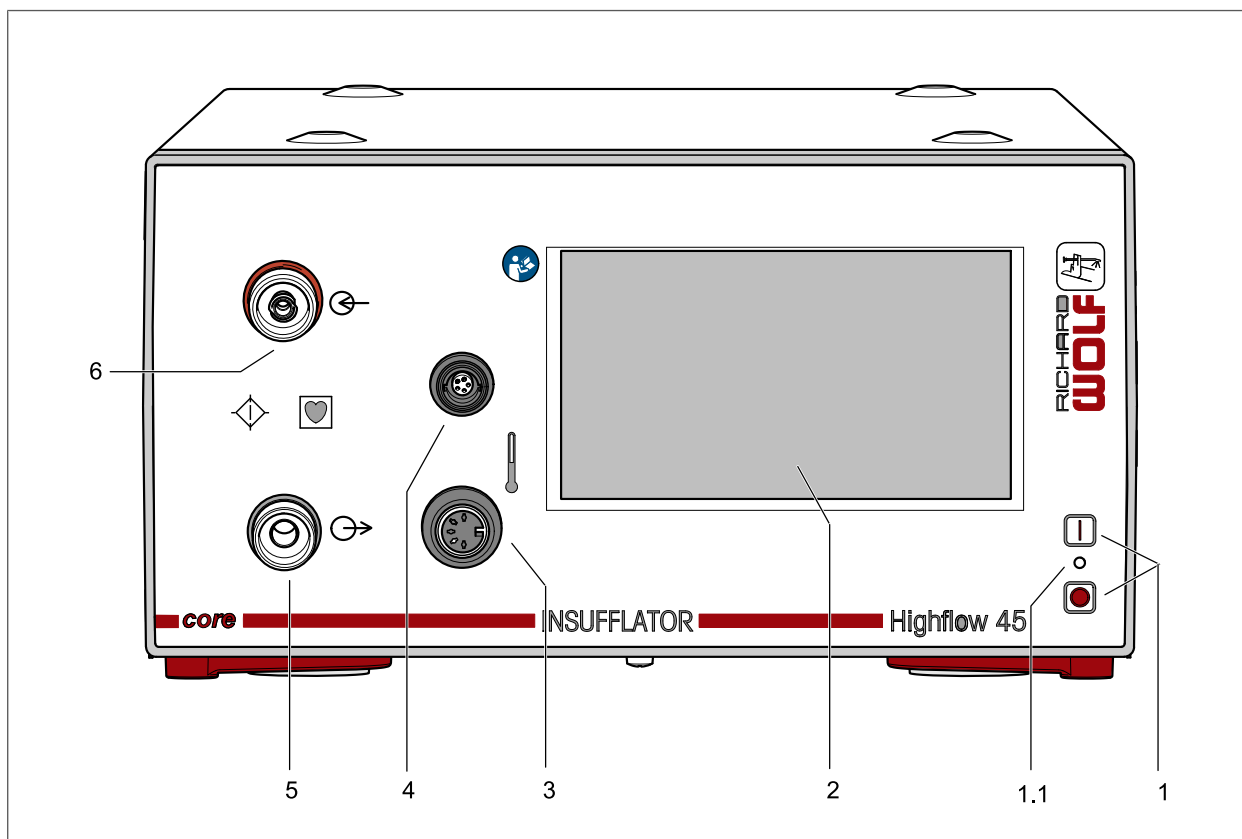
Insufflator 45 EVAC + HEAT		2235031
Device properties		
Operating mode	Continuous operation	
Operating conditions	+10°C to +40°C, 30% to 75% rel. humidity, atmospheric pressure 700 hPa to 1,060 hPa	
Storage and transport conditions	-20°C to +60°C, 10% to 90% rel. humidity, atmospheric pressure 700 hPa to 1,060 hPa	
Power supply		
Mains + frequency	100–127/220–240 V~, 50/60 Hz	
Power consumption	80 VA	
Current rating	0.8–0.3 A	
Fuse	T 3.15 AH 250 V	
Regulatory standards		
Protection class to IEC/EN 60601-1 (UL 60601-1/CSA C222 No6011 – for USA)	I	
Electromagnetic compatibility (EMC)	IEC/EN 60601-1-2	
Medical Devices Directive 93/42/EEC	Class IIb	
Protection against electric shock	Type CF applied part	
Degree of protection against the ingress of liquids	IP 20 (not protected)	
Degree of protection in the presence of flammable mixtures	Device is not protected against explosions (do not operate this device in explosive atmospheres)	
Dimensions and weights		
Weight	11.0 kg (23.3 lbs)	
Dimensions (W x H x D)	300 x 160 x 455 mm	

Relevant application parameters	
Insufflation medium	Medical-grade CO <sub>2</sub> (degree of purity > 99.5%)
Intraabdominal pressure	3 mmHg to 25 mmHg (± 2 mmHg) selectable in increments of 1 mmHg
Gas flow rate primary filling	1 l/min (± 50%)
Gas flow rate, High Flow	2 l/min to 45 l/min (± 20%) selectable in increments of 1 l/min
Consumption indicator	0 l to 9,999 l (± 20%)



### 3 Illustration

#### 3.1 Front view



	Legend
1	Power switch
1.1	Power on/off LED
2	Touchscreen
3	Connector for disposable high flow insufflation tube with heating wire ' only 2235021, 2235031 / 2235621, 2235631
4	Connector for reusable high flow insufflation tube with heating wire ' only 2235021, 2235031 / 2235621, 2235631
5	Connector for insufflation tube (type CF applied part)
6	Connector for smoke gas evacuation (type CF applied part) ' only 2235011, 2235031 / 2235611, 2235631

## 6 Use

### 6.1 Operating principle

A pneumoperitoneum is established by insufflating CO<sub>2</sub> gas into the abdominal cavity. The gas is supplied to the INSUFFLATOR Highflow 45 either from CO<sub>2</sub> bottles or from a centralized gas supply. The gas pressure and gas flow rate are controlled by INSUFFLATOR Highflow 45 in accordance with the specifications of the user.

Microprocessor control and display of the pressure and flow values as well as several independent safety functions guarantee safe insufflation.

We recommend heating the gas to body temperature using a heating tube (8170202, 4170502) which only connects to device variants 2235021, 2235031, 2235621, and 2235631.

### 6.2 Control elements and operating modes

#### 6.2.1 Operation and display




The device is controlled via the touchscreen and the displays and messages are also displayed on the touchscreen.

#### 6.2.2 Display of remaining CO<sub>2</sub> gas supply in the status display

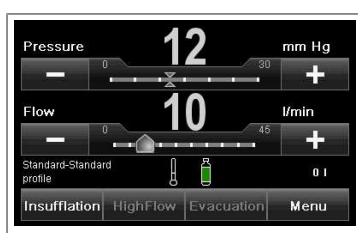
◇ The CO<sub>2</sub> gas supply is displayed in the status display.

⇒ If the gas supply is insufficient during the self-test, a device message is displayed and the device is not ready for operation.

**The following fill levels of the gas bottle are displayed:**

	Display	Description
	Lights up green	Sufficient gas supply
	Lights up yellow	Have spare gas bottles ready or display when connected to centralized gas supply
	Flashes red + audio signal	Change the gas bottle or, in the case of centralized gas supply, check the connection

#### 6.2.3 Gas consumption in status display








The gas consumption is displayed in liters on the touchscreen under the status display and deleted automatically during switch-off (> 1 min).

The consumption display can be reset in the menu level using reset.

## 6.2.4 Indicator for gas heating (only 2235021, 2235031 / 2235621, 2235631)

◇ When connecting a high flow insufflation tube with heating wire, the CO<sub>2</sub> gas is heated to body temperature.

The following modes are displayed in the status display:

	Display	Description
	Flashes green	Heating
	Lights up green	Operating temperature
	Flashes red	Overtemperature
	Failure/fault	Heating module deactivated
	Symbol empty	No heating tube connected

## 6.2.5 Footswitch for smoke gas evacuation (optional)

The footswitch switches smoke gas evacuation ON / OFF.

Smoke gas evacuation (pump) is only active at pressures > 3 mmHg.

## 6.2.6 Video on-screen display with dialog function (optional)

In conjunction with a dialog-capable interactive camera control unit, the dialog function allows the display of device parameters on the monitor.

The prerequisite for this is a connection between the devices using a CAN bus connection cable (core 5590 system) or a LAN (Ethernet) cable (core nova system) – see connection diagram in section 1.

### core 5590 system (CAN bus)

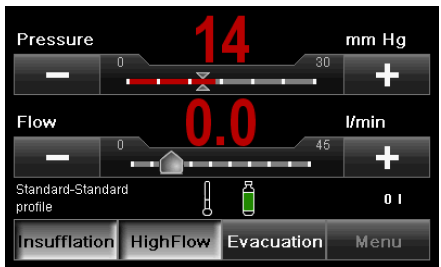
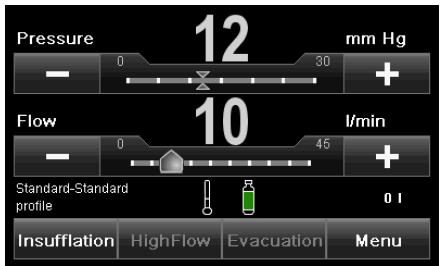

To use the dialog function, the optional video on-screen display software module must be activated.

On-screen display of the device parameters on the monitor is the default setting. The on-screen display can be deactivated in the service menu.

### core nova system (LAN (Ethernet))

The on-screen display of the device parameters on the monitor is the default setting. The on-screen display can be deactivated on the camera control unit.

## 6.12 Display of actual and nominal values

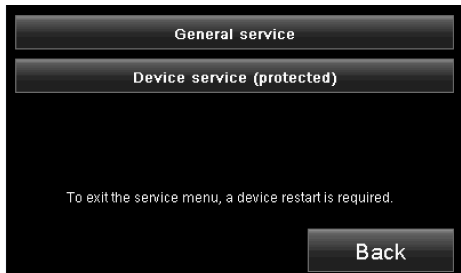
	<p>Display of numerical value in red = actual value Display of numerical value in gray = nominal value Bar indicator = actual value</p>
	<p>The nominal value cannot be adjusted via this slider When touched, the nominal value is displayed in gray as a numerical value</p>
	<p>The nominal value can be adjusted via this slider When touched, the nominal value is displayed in gray as a numerical value</p>

## 6.13 Service



### NOTE

All menu screens in the service area are exclusively in English.

	<p>General service: Service area for the user. Device-related display, resets, and settings. Please note: To exit the service area, the device must be switched off and then on again. Device service (protected): Only for authorized persons with a password.</p>
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To whom it may concern  
Moldova



spirit of excellence

Knittlingen, September 02, 2025

### Letter of Confirmation

We, **Richard Wolf GmbH, Pforzheimer Str. 32, 75438 Knittlingen, Germany**, a manufacturer and supplier of Medical Endoscopic Equipment, duly organized under the laws of Germany, hereby confirm that our item code 8934461 has an anti-fog coating at the distal tip.

Yours faithfully,  
**RICHARD WOLF GMBH**

Marco Schlenker  
Sales Director International EMEA

RICHARD WOLF  
GmbH  
75438 KNITTLINGEN

Sebastian Breit  
Area Sales Manager

LMD-XH550MT

55-inch 4K 3D/2D LCD medical monitor



Specifications

Picture Performance	
Panel	TFT Active Matrix LCD
Picture Size (Diagonal)	1387.8 mm (54 3/4 inches)
Effective Picture Size (H x V)	1209.6 x 680.4mm (47 5/8 x 26 7/8 inches)
Pixel pitch	0.315 x 0.315 mm (0.0124 x 0.0124 inches)
Resolution (H x V)	3,840 x 2,160 pixels
Aspect	16:9
Pixel Efficiency	99.99%
Backlight	LED
Panel Technology	LCD with IPS
Luminance (Panel Specification)	550cd/m2 (Typical) 1500cd/m2 (Typical, Peak)
Contrast Ratio	1,000,000:1 (Typical)
Colors	10 bit colors (1,073,741,824)
Panel Frame Rate	50/60 Hz
Viewing Angle (Panel Specification)	89°/89°/89°/89° (Typical) (up/down/left/right, contrast > 10:1)
Vertical Viewing Angle (3D Mode)	37°at a viewing distance more than 1,000mm, crosstalk ratio less than 7% (Typical)
Gamma	1.8, 2.0, 2.2, 2.4, 2.6, DICOM, Highlight, HLG
Input	
HDMI Input	HDMI (x1) (HDCP 2.3 correspondence)
DVI-D Input	DVI-D (x1) (TMDS single link, HDCP 1.4 correspondence)

Input	
SDI Input	BNC (x2) 12G/3G/HD-SDI BNC (x1) 3G/HD/SD-SDI
Display Port	Display Port (x1) (SST HDCP 1.3 correspondence)
Serial Remote (LAN)	D-sub 9-pin (RS-232C) (x1), RJ-45 (x1) (Ethernet, 10BASE-T/100BASE-TX)
Remote	Stereo mini jack (x1)
AC input	AC input connector (x1) AC 100-240 V, 50/60 Hz
DC Input	-
Output	
SDI Output	BNC (x2) 12G/3G/HD-SDI BNC (x1) 3G/HD/SD-SDI
CLONE output	BNC (x1) 12G/3G-SDI
DC 5 V / 12 V Output	5 V Output (x1) 2.0 A max 12 V Output (x1) 2.5 A max
General	
Power Requirements	AC IN: 100 V - 240 V, 50/60 Hz, 3.1 A - 1.1 A
Power Consumption	Approx. 290 W (max.)
Operating Temperature	0°C to 40°C (32°F to 104°F)
Operating Humidity	30% to 85% (no condensation)
Storage/Transport Temperature	-20°C to +60°C (-4°F to +140°F)
Storage/Transport Humidity	20% to 90%
Operating/Storage/ Transport Pressure	700 hPa to 1060 hPa
Dimensions (W x H x D)	1249.6 x 763.3 x 92.8 mm (49 1/4 x 30 1/8 x 3 3/4 inches)
Mass	Approx. 27 kg (Approx. 59 lb 8.4 oz)
Mounting (W x H)	200 x 200 mm 400 x 200 mm
IP Code	IP45 (front)/IP32 (others)

[Principală](#) / [Catalog](#) / [Instrumente](#) / [Inventar pentru sudare](#) / [Reductor de dioxid de carbon UR 6-6 \(Z\)](#)

## Reductor de dioxid de carbon UR 6-6 (Z)

Articol: 259825

Țară producător: Concretizați la vânzător

Cod marfă: ZR-408A

Stoc   Detalii stocuriRating  0 [Recenzii](#)[Scrie recenzie](#)

## Furtun p/u O2, CO2, Argon "ARTIFEX"

Versiune de tipar

 2813

Furtun pentru aer/oxigen "ARTIFEX" este un furtun flexibil special conceput pentru furnizarea gazelor oxigen, aer, etc.

Utilizarea furtunurilor de oxigen acoperă o gamă largă de industrii care necesită asigurarea constantă a instalațiilor cu oxigen, aer etc.

De asemenea, furtunul "ARTIFEX" este folosit pentru furnizarea gazelor în procesele de sudare, taiere și topire a metalului.

Atat se folosește și în medicină - pentru a furniza oxigen pacienților în timpul operațiilor sau atunci când acordă primul ajutor.

Furtunul de oxigen "ARTIFEX" este fabricat din materiale de înaltă calitate, rezistență bună la presiune.

Diametru interior 6,0 - 8,0 - 9,0 mm.

Presiune maximă 20 Atm.

Mentine flexibilitatea la temperaturi scăzute.

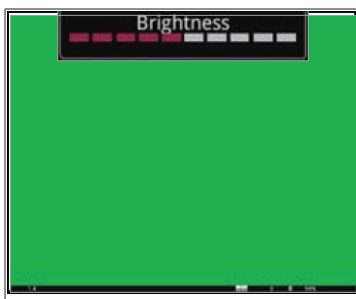


### Galerie Furtun p/u O2, CO2, Argon "ARTIFEX"


















### 11.5.6 Status display for camera head button actions















The actions of the camera head buttons (e.g., setting the image brightness) are displayed on the monitor.







Fig. 7

### 11.5.7 Symbols and display in the status line at the lower edge of the screen

Statuszeile		
Symbol	Meaning	In menu / status
	Color has been adjusted (e.g., a little redder)	Settings – Image / color processing
	Image has been mirrored	Operation – Image settings
	Frozen image	Setting – Assignment of head buttons / function buttons
	The volume has been reduced to minimum	Setting – Audio settings
	A Special Imaging Mode is active (e.g., HDR)	Status display
	A Special Imaging Mode is active (e.g., Contrast or Color Contrast)	Status display
	Media archive is active (the "Video to core.portal" function can be selected)	Status display
	Special Imaging Mode HDR is active	Status display
	Light source is connected via dialog and ready for operation	Status display
	Printer is connected and ready for operation	Status display
	Image is being printed	Status display
	Printing successfully completed	Status display
	Storage medium connected and ready for operation	Status display

Symbol	Meaning	In menu / status
	File is being saved	Status display
	Saved successfully	Status display
	No camera head connected	Status display
	Four-page print (page X of 4)	Status display
	Print is saved as a PDF file	Status display
	PDF file is being saved	Status display
	Saved successfully	Status display
	Record single image	Status display
	Save to USB data carrier	Status display
	Saving of single image completed	Status display
	Display flashes during video recording	Status display
	Video streaming into the Ethernet network	Status display



### 11.5.8 HDR on-screen display and white light modes (SIM)

HDR 	– HDR (High Dynamic Range)
Contrast I  Contrast II 	– Contrast I, II
Color Contrast I  Color Contrast II  Color Contrast III 	– Color Contrast I, II, III


### 11.5.9 On-screen display of blue light modes (SIM)

bluePDD 	– Blue light operating mode
bluePDD Color Contrast 	– Blue light operating mode (Color Contrast) – stronger enhancement of the fluorescence level


### 11.5.10 On-screen display of greenICG modes (SIM)

	– greenICGpure
	– greenICG


### 11.5.11 On-screen display of run time for applied parts with limited usage time

	<p>– Symbol for disposable product (not reusable)</p> <p>– Run time display during operation in conjunction with an applied part having a limited usage time</p>
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### 11.5.12 Display of function button assignment

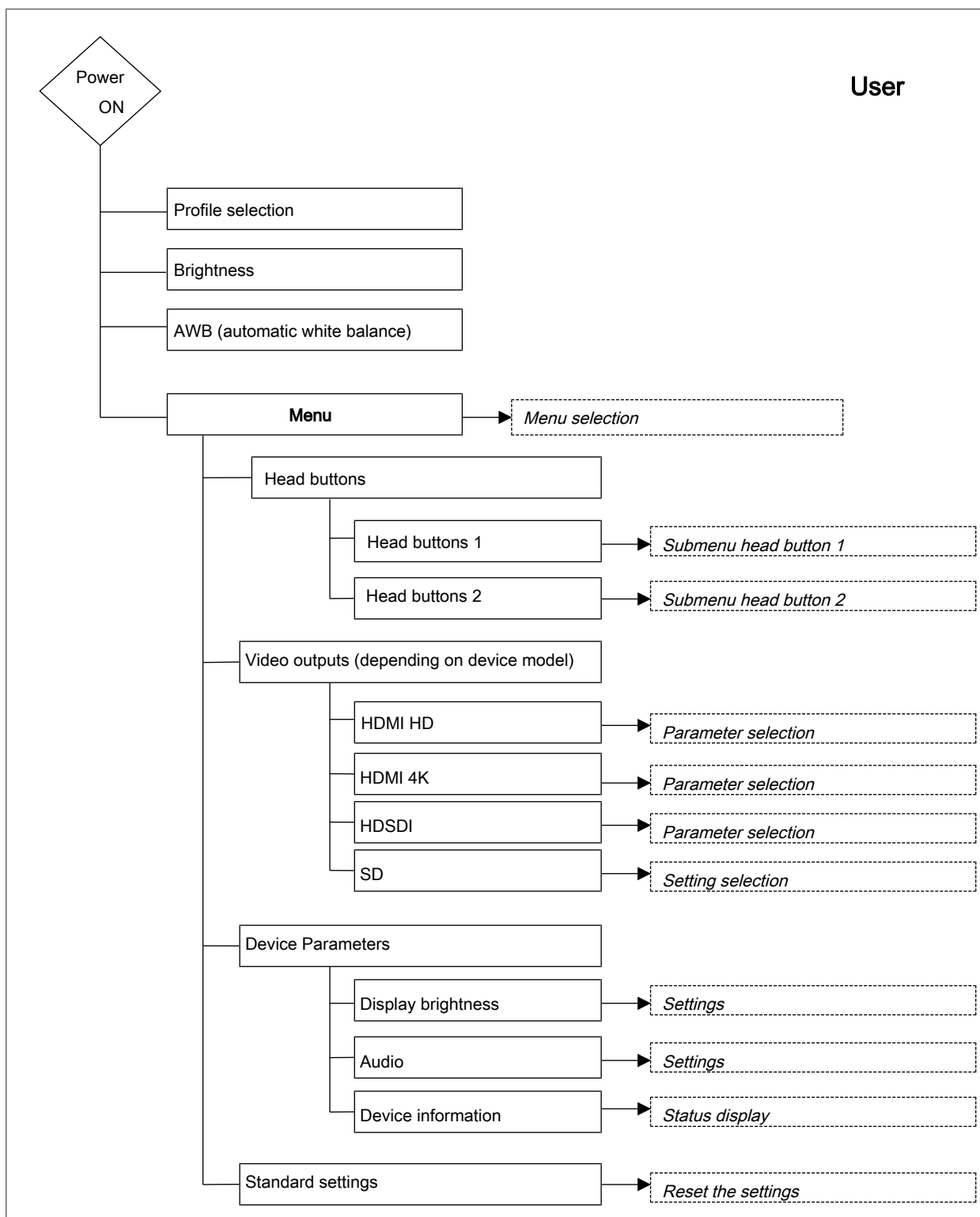
	<p>Display of function button assignment (from software version R15 or higher)</p> <p>off: no display</p> <p>auto: when switching on or changing the assignment, or switching to another profile, the function button assignment is displayed for approx. 5 s;</p> <p>on: continuously switched on</p>
--	--

## 11.6 Archiving with PIP camera control unit (optional)

	<p>Archiving with camera control unit (from software version R15 or higher):</p> <p>If the camera control unit is equipped with the optional modules PIP (picture in picture) (digital input) and 3G-SDI with video archive (digital output), the device can be used for archiving images and video sequences.</p> <p>During archiving, the camera head must be disconnected.</p> <p>The image and video signals are input in the camera control unit via the PIP input. The camera control unit converts the image signals to jpg / tif formats and the video signals to a compressed mp4 format. The USB connector is used to archive images (jpg / tif) or video sequences (mp4) to a USB stick, external hard disk, or via core.portal.</p> <p>In the Settings – service settings menu, switch the test pattern to PIP.</p>
---	---

## 11.7 Menu control via touchscreen functions on device

### 11.7.1 Overview – menu structure



## 12.1.2 Manual reprocessing

- Manual cleaning**
1. Rinse the product under cold running tap water.
  2. Immerse the product in a basin (e.g. model 509.81) filled with a certified cleaning solution for 6 minutes at room temperature. Make sure that the surfaces are completely covered by the disinfectant solution.  
⇒ Observe the concentration and exposure time specified by the manufacturer.
  3. Brush the outer surfaces (camera head and buttons) with a cleaning brush (model 86.90 or 8691) for at least 40 seconds with the product fully immersed in the liquid until the surfaces look clean.
  4. Rinse the snap-on locking mechanism for 20 seconds or in pulsed mode by applying 4 pressure surges (2.5 – 4 bar) using a cleaning gun (model 6199.00) and cold tap water.
  5. Immerse the camera head with camera cable in a basin (e.g. model 509.81) filled with demineralized water for 5 minutes at room temperature.
  6. Rinse the product for 10 seconds under running cold tap water.

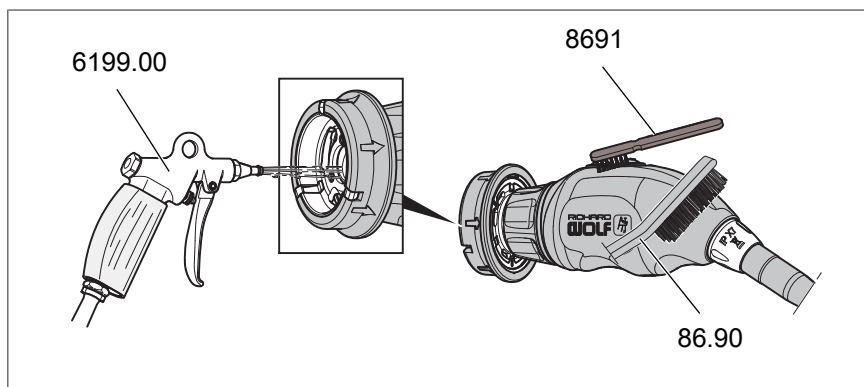


Fig. 9

- Manual drying**
1. Dry the product outside using a lint-free disposable cloth or alternatively dry in a drying cabinet.
  2. Dry hollow spaces with filtered compressed air.

- Manual disinfection**
1. Immerse the product in a basin (e.g. model 509.81) filled with a certified disinfectant solution at room temperature. Make sure that all surfaces make full contact with the disinfectant solution.  
⇒ Observe the concentration and exposure time specified by the manufacturer.
  2. Wipe the outside of the product with a lint-free disposable cloth until all air bubbles have been removed from the surface.
  3. Rinse the product under cold running tap water.

- Manual drying**
1. Dry the product outside using a lint-free disposable cloth or alternatively dry in a drying cabinet.
  2. Dry hollow spaces with filtered compressed air.
  3. Carry out checks and maintenance  
⇒ Please refer to section 12.1.3 Checks and maintenance

### 12.1.3 Checks and maintenance

#### Visual check

1. Check visually for cleanliness. Repeat the processing procedure if necessary until the product is clean.
2. Carry out a visual check.  
⇒ Please refer to section 9.1 Visual check

#### Ensure perfect functionality.

- ◇ Carry out a function check.  
⇒ Please refer to section 9.2 Function check

### 12.1.4 Packaging

- ◇ Place the product in a sterilization basket, e.g. a reprocessing basket (model 38047111).

**Packaging** Package the medical product to be sterilized in accordance with ISO 11607-1 taking into account the corresponding national requirements.

### 12.1.5 Sterilization

There are two sterilization procedures for sterilizing the camera head.

**Steam sterilization** Sterilize the products using the fractionated prevacuum cycle (ISO 17665) following the corresponding national requirements.

- Temperature exposure time: 3 minutes at 134 °C
- Evacuation phases: 3
- Drying time: 10-20 minutes (The drying time depends on the sterilization process used.)
- Maximum temperature: 138 °C

The prion program (134°C, 18 minutes) is permissible.

#### Low-temperature sterilization

#### ATTENTION

#### Damage due to interaction!

By no means must the two different low temperature sterilization procedures be used alternately.

Possible interaction between these sterilization procedures can lead to product damage.