The new definition of sharp

ENDOCAM Logic 4K
Excellent endoscopic image quality for a better differentiation of superfine structures

With four times the resolution of regular HD, 4K technology gives sharpness a new meaning. Fine details are more visible. Spatial depth is magnified. And colors are truer.

The new **ENDOCAM Logic 4K** system from Richard Wolf brings the brilliance of 4K to the operating room.

**See for yourself**

Richard Wolf presents an impressive turnkey system with the **ENDOCAM Logic 4K** for application in endoscopy. The harmonized image visualization and processing are entirely optimized to 4K.

The result: clear, pin-sharp images in a very realistic color scheme make the difference in endoscopy.
A complete solution from a single source

The ENDOCAM Logic 4K provides a continuous chain of intelligent solutions – from the tip of the scope to the high resolution monitor, and everything in between.

- Brighter and sharper PANOVIE ULTRA Endoscopes
- Distortion-free objective lens
- Ergonomic ENDOCAM Logic 4K camera head
  Acquisition of 4K UHD resolution from three sensors
- Innovative ENDOCAM Logic 4K Camera Controller
  Integrated processing of the recorded image data in 4K UHD resolution
- Robust fusion light cables
  For improved illumination
- Energy efficient ENDOLIGHT LED 2.2 Light Source
  Extremely long-life and very quiet
- Bright, color-intense monitors
  With special tuning

„This is a genuine advance, the image quality is significantly better than the quality we have been familiar with up to now. This relates specifically to sharpness. Particularly in situations when there is some bleeding. This is when the image normally becomes blurred and dark but the image quality here continues to remain excellent.“

Prof. Dr. med. Dr. h.c. Manfred Wirth
Director of the Hospital and Polyclinic for Urology, University Hospital “Carl Gustav Carus”, Dresden

You can find user opinions and additional information on our website: 4k.richard-wolf.com
The ENDOCAM Logic Platform is a pioneer and trendsetter for groundbreaking new technologies. The ENDOCAM Logic 4K continues this tradition with a large number of impressive characteristics.

- **Brilliant 4K resolution** of 3840 x 2160 pixels or alternatively 4096 x 2160 pixels
- **Integrated Special Imaging Modes (SIM):** Digital algorithms for easier tissue differentiation
- **Compatible** with all user components and camera heads of ENDOCAM Logic HD
- **Storage** of high-resolution images and videos on USB storage media
- **User-friendly** Clinically developed presets for different disciplines
- **Fully integratable in core nova,** the Operating Room integration system from Richard Wolf

**SIM – Special Imaging Modes: The difference is in the detail**

Alongside visualization of natural colors 6 digital algorithms are available as options. Depending on the situation, the Special Imaging Modes can improve tissue differentiation. The stored SIM can be switched on and off at the touch of a button using the camera head button.

**COLOR CONTRAST I-III**
Differentiated color reproduction as a result of targeted false color representation and contrast enhancement

**CONTRAST I – II**
Enhancing structures without changing the original color shades

**HDR – High Dynamic Range**
Lightening dark image areas and reducing over-exposures
Compact high-power package

The newly developed **ENDOCAM Logic 4K** Camera Head generates 4K UHD resolution. This enables the recorded image data to be directly processed without extrapolation. This light weight camera head combined with its ergonomic design helps to reduce hand fatigue making it ideal for endoscopic applications.

- **3 x 1/3 inch CMOS image sensor**
  - Aspect ratio 16:9
- **Universal C-mount lens connector**
- **2 freely programmable camera head buttons**
  - Each with two functions
- **Autoclavable, disinfectable and gas sterilizable (V-PRO™ 1)**
  - Suitable for STERRAD NX, special reprocessing basket supplied

„I found the weight, the ergonomics and most importantly fatigue-free working when carrying out laparoscopies extremely impressive.“

Dr. Holger Böhme // Managing Senior Physician, Urological Oncology, Laparoscopy, Endoscopic Urology, Asklepios Hospital Barmbek, Hamburg
The new high-resolution telescope generation

Outstanding results are achieved if the entire image chain has been harmonized from the endoscope to the monitor. This is the case at Richard Wolf – with the PANOVIEW ULTRA Telescopes at the start of the process and an outstanding monitor at the end.

A true image with optical zoom

The optical zoom lens enlarges the image captured by the sensor by up to 2.25 times – for a complete and true image.

All lenses are bright, service friendly and represent outstanding image quality:

- Distortion-free display
- Hermetically sealed enclosure
- Autoclavable
- C-mount connector and interchangeable snap-on lock for endoscopes
- Parfocal zoom lens

Furthermore, the ENDOCAM Logic 4K Camera Controller provides an integrated 1.5-fold digital zoom.

The new high-resolution telescope generation

The PANOVIEW ULTRA Telescopes offer perfect balance between depth sharpness and luminous intensity:

- Improved edge sharpness and optimized sharpness gradient
  Over the entire endoscopic image
- Advanced high-tech glass fibers
  With particularly high light transmission
- Optimum illumination
  Of the endoscopic operating site
- Natural color visualization
- 5.5 mm and 10 mm telescopes
  In different directions of view and lengths
Brilliant visualization experience

The monitors supplied by Richard Wolf are harmonized in-house to match the requirements of ENDOCAM Logic 4K in order to provide ideal reproduction for the fourfold higher resolution of the 4K image:

- **4K UHD resolution**
- **Special presets**
  For outstanding visualization of the ENDOCAM Logic 4K image
- **Easy cleaning**
  With smooth, wipeable front panel
- **Light-intense, anti-glare OptiContrast Panel™**
  for vibrant and high-contrast images
- **Multiple screen size options**
  Available in 31" and 55"
An important contribution to the outstanding efficiency of the overall system is provided by the illumination: This is why the new Fusion Light Cables now conduct the luminous intensity of the high-power LED light source even better.

**The High-Power Model**

**ENDOLIGHT LED 2.2** offers a light power comparable with a 300 watt xenon light source. The high level of detail in the visualization of the operating site is achieved by homogenous illumination and harmonized light color:

- **Very long service life**
  - For the LED lamp with approximately 30,000 hours
- **Approximately 80 % lower electricity consumption**
  - Compared with xenon
- **Virtually inaudible**
  - With an innovative cooling system
- **Constant brightness**
- **Effectively uniform light power**
  - Over the entire service life

**In dialog**

Richard Wolf endoscopy instruments operate automatically as a system in dialog operation for even simpler handling.

This permits automatic adjustment of the light power to suit the surgical situation. Furthermore, the most important device parameters of other devices, e.g. pressure, flow or residual gas display can be overlaid in the monitor image.

- **Continuous control**
  - Of illumination to match the surgical scene
- **Status display of the light source possible**
  - In the camera image
- **Compensation for color fluctuations**
  - On account of different luminous intensity (dialog.lightbalance)
I can only say that I am extremely impressed by the technology: It really was a quite outstanding image. In particular, this technology achieved optimum success for illumination across all image sections.

Prim. Univ-Prof. Dr. Mag. Alexander Klaus // Director of the Department of Surgery, Hospital of the Merciful Sisters, Vienna

Illuminating characteristics

Fusion Light Cables are part of high-power systems. They represent simple handling, efficient organization and high retention of asset value. The fused glass fibers on the light-source side ensure 20 % higher transmission.

- Very high temperature resistance
- Significantly longer service lifetime
- Particularly resistant to chemicals
- Easier handling and lower susceptibility to fiber fracture
  With improved flexibility and steel anti-kink protection
- Recommended for 4K systems
  On account of improved efficiency

Standard Light Cable
with bonded fibers

Fusion Light Cable
with fused fibers
Mobile on RIWOmobil

Richard Wolf supplies the RIWOmobil Equipment Cart as a compact, multi-functional system, which can be individually configured. The 55" 4K monitor is recommended for assembly on this equipment cart.

The 31" 4K Monitor should ideally be mounted on spring arms designed for this purpose. Alternatively, it can be attached to a dedicated, mobile roll stand so that it can be used in different operating theaters.

We will be delighted to send you detailed information on request.

Integrated in core nova

The core nova OR Integration System from Richard Wolf impresses with convenient documentation options, integrated device control, intuitive video routing, simple operation and low installation expenditure.

An ENDOCAM Logic Camera System forms the heart of OR integration – now also in 4K.

You will find additional information as follows: www.core-nova.com
**Camera controller**

ENDOCAM Logic 4K Camera Controller bundle consisting of:
- ENDOCAM Logic 4K Camera Controller (5525301), handheld remote control (5525401), USB Flash Storage 32 GB (72321829), HDMI / HDMI cable interlock 3.0 m (103847), power cable (2440.03) ........................................ 5525301

**Camera head**

ENDOCAM Logic 4K Camera Head
3-Chip, cable length 3.0 m .................. 85525942

**Objective lenses**

RIWO Lens, C-mount
- 14 mm .................................................. 85261144
- 24 mm .................................................. 85261244

RIWO Zoom Lens, C-mount
- 13 - 29 mm ............................................ 85261504

**Telescopes**

PANOVIEW ULTRA Telescope, Ø 5.5 mm,
- WL 300 mm
  - 0° .................................................. 8935461
  - 30° .................................................. 8935462
- WL 430 mm
  - 0° .................................................. 89354416
  - 30° .................................................. 89354426

PANOVIEW ULTRA Telescope, Ø 10 mm,
- WL 305 mm
  - 0° .................................................. 8934461
  - 30° .................................................. 8934462
  - 50° .................................................. 8934463
- WL 440 mm
  - 0° .................................................. 89344416
  - 30° .................................................. 89344426
  - 50° .................................................. 89344436

**Light source**

ENDOLIGHT LED 2.2 bundle consisting of:
- ENDOLIGHT LED 2.2 (5164001), patch cable, RJ45 SFTP, 0.5 m (72325378) and power cable (2440.03), 100-240 V~, 50/60 Hz ............................ 5164001

**Light cable**

Fusion Fiber Light Cable bundle, Ø 5.0 mm consisting of:
- Adapter on the projector side (8095.07), adapter on the endoscope side (809509) and
- Fusion Fiber Light Cable (80655023), 2.3 m long ........................................... 806550231
  - 3.0 m long ........................................... 806550301
  - 3.5 m long ........................................... 806550351

**Monitors**

LCD Monitor 4K
- 31" .................................................. LMD-X310MD
- 55" .................................................. LMD-X550NB

**Reprocessing**

Reprocessing basket for camera head
(L x W x H) 445 x 200 x 73 mm .............. 38047111

**Keyboard**

Mini Cleanboard USB
- Wipeable USB keyboard incl. mousepad
  - German (QWERTZ) ................................. 103823
  - American / English (QWERTY) ................. 103824

**Printer**

Digital Color Printer SONY UP-DR80MD .......... 5651051
Color Photo Print Package
- DIN-A4 UPC-R80MD ............................... 5651926