



4K ENDOSCOPE SYSTEM

UNMATCHED VISUALIZATION TO ADVANCE YOUR SURGERY DELICACY



+254 742 844 419



larioxkenya@gmail.com



www.larioxhealth.com

4K ENDOSCOPE SYSTEM

Our 4K Endoscope System offers enhanced image quality, improved surgical visibility and a user friendly experience. Leveraging our unique 4K technologies and advanced algorithms, including autofocus and fog-free functions, this system delivers ultra-high-definition visuals, a wide color spectrum and expanded field of view for Minimally Invasive Surgery. It empowers surgeons to precisely identify lymphatic fat , nerve, membrane structures and crucial blood vessels, thereby enhancing surgical safety, precision and reducing postoperative complications.

4K Monitor



Camera Head



Camera Control Unit



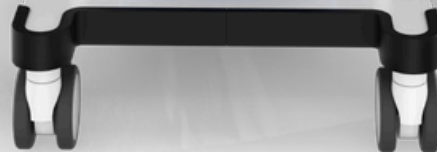
Light Source



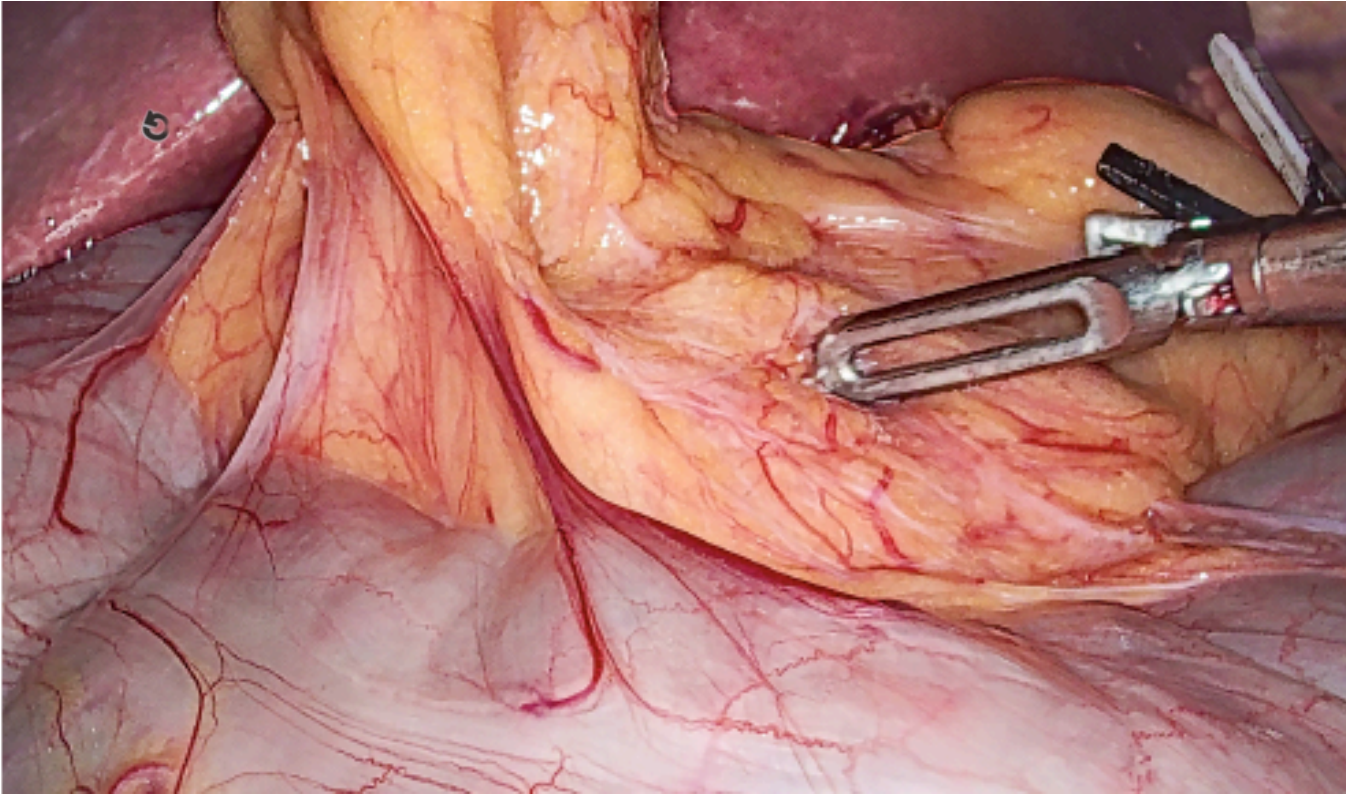
Insufflator



Cart



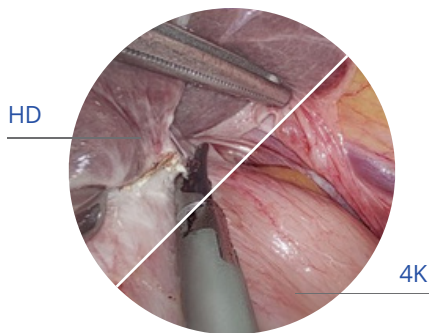
01. Superior Visibility, Upgraded Surgical View



02. Ultra High Definition, Further Enhanced Safety

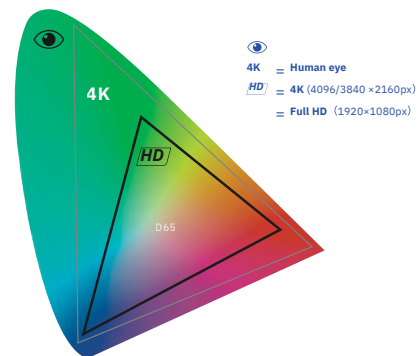
4K Ultra High Definition

Delivers four times the resolution of Full HD

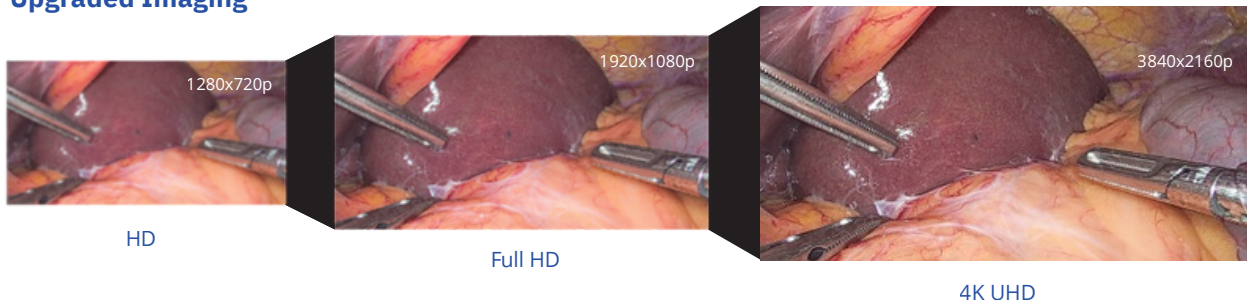


4K Wide Color Gamut

Provides rich color accuracy and is adaptable to various clinical applications.

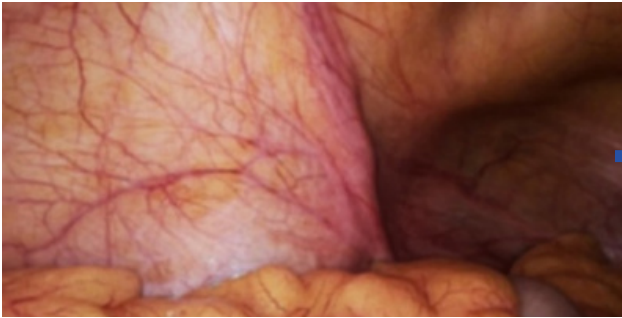
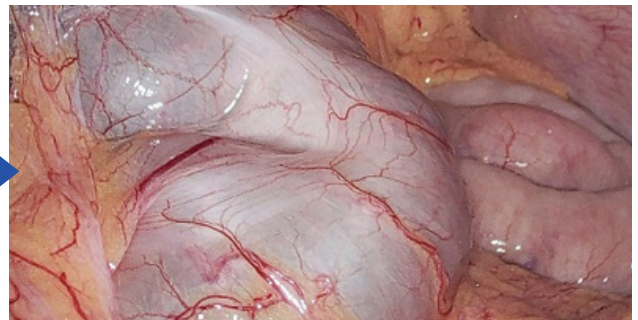
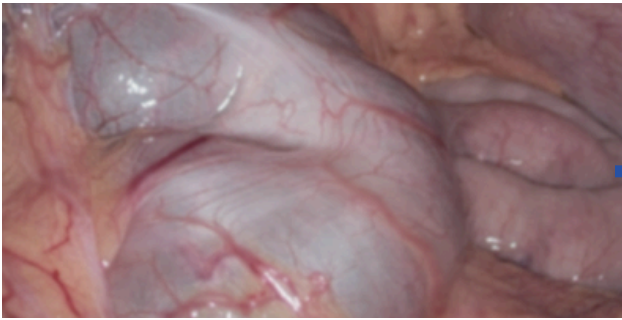


Upgraded Imaging



03. More Clear, More Details

Lariox 4K endoscope system offers clear and authentic images, enabling surgeons to meticulously examine and identify blood vessels, nerves, fat, and membranes, allowing for precise control over the dynamic changes of lymph, fat and pancreas in body cavities



Unclear Blood Vessel Image

Clear Blood Vessels Image

04. Magnified Visualization for Immersive Experience

The 4K big screen offers a broad surgical field of vision, creating an immersive operating experience




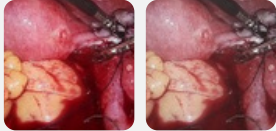
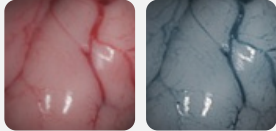
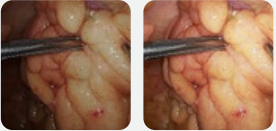
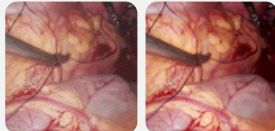


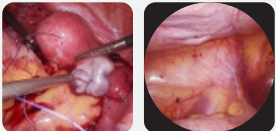
27-Inch Small Screen







55-Inch Big Screen

05. Core Imaging Algorithm to Meet Various Imaging Needs

Lariox 4K endoscope system offers clear and authentic images, enabling surgeons to meticulously examine and identify blood vessels, nerves, fat, and membranes, allowing for precise control over the dynamic changes of lymph, fat and pancreas in body cavities

<p>Defogging</p> <p>The unique smoke recognition algorithm can lift the "veil" in surgical view by reducing fogging.</p>  <p>Before After</p>	<p>Anti-Red Overflow</p> <p>The unique red statistical scheduling algorithm reduces visual impact of large red scenes and alleviates visual fatigue of surgeons caused by large red scenarios.</p>  <p>Before After</p>	<p>Detail Filter</p> <p>Using the principle of spectral shift, the prominent display of hemoglobin makes the distribution of subtle blood vessels clear.</p>  <p>Before After</p>	<p>Dark Area Optimization</p> <p>In the case of uneven illumination, the dark area of visual field is automatically identified and improved to make the whole visual field more transparent.</p>  <p>Before After</p>
<p>Demoireing</p> <p>Eliminate the bad grid under the fiber, make surgical view clean to distinguish.</p>  <p>Before After</p>	<p>Detail Enhancement</p> <p>The upgraded sharpening 2.0 algorithm further enhances the details of the whole view, enabling details more clearly.</p>  <p>Before After</p>	<p>Highlight Suppression</p> <p>Automatically identify and depress the overexposure, to alleviate surgeon visual fatigue caused by directly looking at overexposure area.</p>  <p>Before After</p>	<p>Dual-Endoscope Display</p> <p>Under dual-endoscope surgery mode, both images of two cavities can be viewed on the screen in real time. And the image can be recorded for clinical convenience.</p>  <p>Before After</p>

Clinical Application

Clinical Discipline	Clinical Function	Application Example
 General Surgery	Dual-endoscope display	Laparoscopic cholecystectomy
	Dark area improvement, highlight suppression, defogging	Gastrointestinal surgery
 Gynecology	Defogging, highlight suppression	Laparoscopic surgery
	Detail filter	Hysteroscopic surgery
 E.N.T.	Dark area improvement, anti-red overflow, detail enhancement	Nasal endoscopic surgery
 Urology	Demoireing	Ureterolithotomy
	Detail filter	Cystoscopy surgery

Camera Control Unit



Features and Advantages

- Provides 10 kinds of user scenarios, suitable for different surgical scenes
- Various advanced image algorithms assist surgeons to perform surgery efficiently and accurately
- Convenient and quick adjustment of brightness
- Dual-endoscope mode (dual images record available) supports multiple perspectives of hysteroscopy and laparoscopy
- USB 3.0 stores 4K videos and images, helping to collect surgical data and information

Technical Parameter

Type	Item	Parameter
Basic Performance	Sensor Type	Back-Illuminated 4K/CMOS
	Effective Pixel	3840×2160
	Horizontal Resolution	1800 Lines
	Output Frame Rate	60FPS, 50FPS, 30FPS, 25FPS
	Signal-to-Noise Ratio	50dB
	Minimum Illumination	F1.6 < 3Lux
	Still Image Latitude	300
	Brightness Response Characteristics	≥ 0.98
	Light Source Synchronization	Support
	Dual-Endoscope Mode	Support
	USB Flash Disk Recording	Support
	Control Mode	Touch Screen / Button
	User Scenario	10 Scenarios. Customization is supported
	White Balance Mode	AWB, ATW, MWB
	DNR (Digital Noise Reduction)	High, Medium, Low, and Off Modes
Digital Zoom	Zoom In: X1.0~X5.0, Zoom Out: X0.5~X1.0	
Security Feature	Type of Electric Shock Protection	Type I
	Type of Electric Shock Protection Level	Type CF
	Protection Level	Camera Control Unit IPX0, Camera Head IPX8

Camera Head

Features and Advantages

- Image Resolution: 3840x2160 Pixel, 8.29 Million Pixels
- Horizontal Resolution: ≥ 1800 Lines
- Compatible with 4K optical interface, non-destructive optical zoom to meet needs of different surgical disciplines
- Comprehensive features in 4 keys
- IPX8 waterproof grade, supporting immersion disinfection, low-temperature plasma (LTPT) and ethylene oxide (ETO) disinfection
- Moderate temperature rising design makes the handfeel temperature within 37°C
- 0.5s one-touch autofocus to provide convenient operation with digital zoom



A black 4K camera head with a silver ring and a control panel with four buttons labeled 1, 2, 3, and 4. The text '4K' is visible on the side.




A circular diagram showing the control panel layout. The top button (1) is labeled 'AWB', the bottom button (2) is 'Recording', the left button (3) is 'Zoom out', and the right button (4) is 'Zoom in'.

4K Camera Head

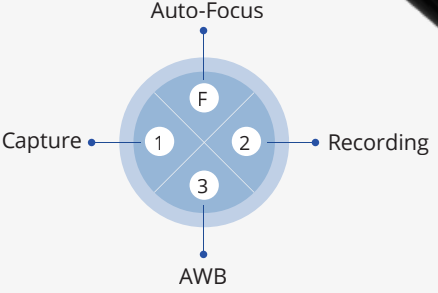
Effective Pixels 3840x2160
Horizontal Resolution 1800 Lines

Programmable Function in 4 Keys:

AWB	Recording	Zoom out	Zoom in
Light Source Brightness+	Light Source Brightness-		
Freeze	Hue	DNR	Dark Area Optimization
Flip	Saturation	Contrast	Demoireing



A yellow and black 4K camera head with a silver ring and a control panel with four buttons labeled 1, 2, 3, and 4. The text '4K' is visible on the side.



A circular diagram showing the control panel layout. The top button (1) is labeled 'Auto-Focus', the bottom button (2) is 'Recording', the left button (3) is 'Capture', and the right button (4) is 'AWB'.

4K Auto-Focus Camera Head

Automatic Focus Technology
0.5s Fast Autofocus

Programmable Functions in 3 Keys:

AWB	Recording	Zoom out	Zoom in
Light Source Brightness+	Light Source Brightness-		
Freeze	Hue	DNR	Dark Area Optimization
Flip	Saturation	Contrast	Demoireing

Light Source

Features and Advantages

- /// The color rendering performance ≥ 90 , which can effectively restore the true object color without distortion
- /// The color temperature is 4000-7000k, which is closer to ordinary daily light and can truly restore object color
- /// The service life of the light source LED lamp module is ≥ 30000 hours, which is power-saving and maintenance convenient
- /// It can be linked with generator to control the brightness of light source, and enable adjustments during procedure for surgical convenience
- /// Automatic mode to identify and adjust light source brightness according to different surgical scenarios



Technical Parameter

Type	Item	Parameter
Basic Performance	LED Numbers	White LED x1
	Color Rendering Index	≥ 90
	Correlated Color Temperature (CCT)	4000 K~7000 K
	Total Output Luminous Flux	1000LM
	Bulb Duration	White Light 30000h
	Communication Interface	Wolf
	Recommended Light Guide Bundle	$\Phi 4.8 \times 3m$, $\Phi 4.0 \times 3m$
	Sterilization Method of Light Guide Bundle	HTHP, LTPT, ETO
Security Feature	Type of Electric Shock Protection	Type I
	Protection Type of Electric Shock Protection Level	Type CF
	Protection Level	Host IPX0, Light Guide Bundle IPX7

4K Medical Monitor

Features and Advantages

- /// Provides excellent and clear image with IPS panel technology
- /// Panel size 32 inches, resolution $\geq 3840 \times 2160$, contrast $\geq 1300:1$, Peak brightness $\geq 1000cd/m^2$, display format 16:9, horizontal And vertical visual angles $\geq 178^\circ$
- /// Supports color gamut calibration: ITU709, DCI-P3 D-65, BT.2020
- /// Complies with DICOM3.14 medical standards



Endoscope

Features and Advantages

High temperature and high pressure resistance

Highest angular resolution: 10.8C/°

Interface compatible with international mainstream brands

autoclavable



Technical Parameter

Item	Parameter	
Direction of View	30°	0°
Field of View	75°	
Working Length	330mm	
Maximum Insertion Portion Width	10mm	
Angular Resolution at Optical Axis	8.7C/°	
Valid Depth of Field	5mm~150mm	
Light Guide Bundle Interface	Wolf, Storz, Olympus	
Sterilization Method	HTHP, LTPT, ETO	

Insufflator

Features and Advantages

- /// Gas heating
- /// Gas filtration
- /// Double filtration
- /// Cylinder pressure alarm
- /// High level of electric shock protection



Technical Parameter

Type	Item	Parameter
Basic Performance	Pressure Range	3mmHg~25mmHg, Step length: 1, Accuracy: ± 2mmHg
	Gas Flow Range	1L/min~40L/min, Step length: 1; When the setting flow is ≤ 10L/min, the tolerance is ± 2L/min; When the setting flow is > 10L/min, the tolerance is ± 20%
	Gas Filtration	The filtration rate of particles 0.5µm and above in the gas can reach more than 99%
	Pressure Setting	The pressure can be set to stop gas supply when reaches the set point; When the displayed pressure exceeds the set point by 2mmHg for more than 2s, the insufflator will alarm and release pressure
Security Feature	Type of Electric Shock Protection	Type I
	Type of Electric Shock Protection Level	Type CF

Configuration Table

No.	Name	Specification		Qty
1	System	<input type="checkbox"/> 110.021(4K Button)	<input type="checkbox"/> 110.022(4K Touch Screen)	1
2	Camera Control Unit	<input type="checkbox"/> 110.121	<input type="checkbox"/> 110.122	1
3	Camera Head	<input type="checkbox"/> 110.221 <input type="checkbox"/> 110.222(Auto-Focus)		1
4	Optical Interface	<input type="checkbox"/> 110.321 (Zoom 14-32) <input type="checkbox"/> 110.322 (Fixed Focus 22) <input type="checkbox"/> 110.323 (Fixed Focus 25) <input type="checkbox"/> 110.324 (Fixed Focus 28, Full Screen, Recommended)		1
5	Light Source	<input type="checkbox"/> 110.411		1
6	Light Guide Bundle	<input type="checkbox"/> Φ4x3m		1
7	Endoscope	<input type="checkbox"/> 130.011A (Φ10x330-30°) <input type="checkbox"/> 130.012A (Φ10x330-0°)		1
8	Insufflator	<input type="checkbox"/> 102.001-0000 (Cylinder) <input type="checkbox"/> 102.002-0000 (GB, Plug in the wall) <input type="checkbox"/> 102.003-0000 (DIN, Plug in the wall)		1
9	Monitor	<input type="checkbox"/> LMD-X3200MC (For 32", Recommended) <input type="checkbox"/> 110.801 (KANGJI 32") <input type="checkbox"/> LMD-X550MC (SONY 55")		1
10	Cart	<input type="checkbox"/> Integrated Design (For 32", Recommended) <input type="checkbox"/> Integrated Design (For 55") <input type="checkbox"/> Split Design (For 55")		1