

## Let's Be Clear

Elevating the Standard of Endoscopy

**RDI**  
The Safeguard for  
Endoscopic Therapy



**TXI**  
The New White Light



**EDOF**  
The Phenomenon  
of Full Focus



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# Let's Be Clear: Elevating the Standard of Endoscopy

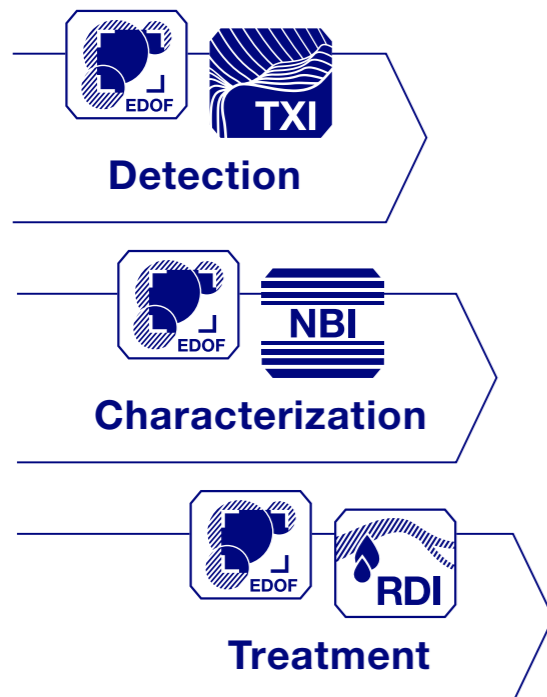
## EVIS X1

**As the world leader in gastrointestinal endoscopy<sup>1</sup>,  
we are proud to present our most advanced endoscopy system.**

EVIS X1 introduces a range of new, easy-to-use technologies that aim to revolutionize the way gastrointestinal disorders can be detected, characterized and treated.

**We want to support every endoscopist. In every procedure. Every day.**

# EVIS X1





# TXI: The New White Light

## Texture and Color Enhancement Imaging (TXI)



**Early detection is critical for cancer prevention and decreasing mortality.<sup>2</sup> However, precursor lesions are often tiny and easy to overlook.**

TXI technology aims to enhance the visibility of potentially suspicious tissue, which includes inflammations, flat or depressed lesions, using a white-light imaging effect that improves the color, structure and brightness.

**By supporting better visibility of potential lesions, TXI aims to contribute to higher detection rates.**





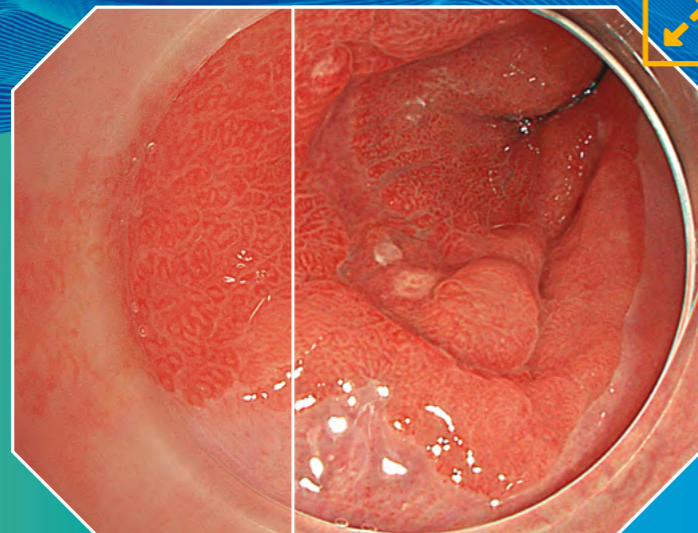
# TXI: The New White Light

## Technological Principle

**TXI**

### Texture and Color Enhancement Imaging

The incoming image is split and the texture and brightness are enhanced before the separate images are merged back together. Additional color enhancements are made to more clearly define subtle tissue differences.



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WLI

TXI



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Learn More in  
the TXI Video





# NBI: The Power of Accurate Diagnosis

## Narrow Band Imaging (NBI)

**Accurate optical diagnosis is important when assessing lesions to determine potential histology, confirm the lateral extent, and thereby guide therapy decisions and suitable patient surveillance intervals.**

NBI is a powerful and proven optical technology that allows for a reliable optical diagnosis of all major indications in the gastrointestinal tract.<sup>3-10</sup>

**Efficient lesion management strategies that are empowered by NBI include:**

- Targeted biopsies in the upper gastrointestinal tract.<sup>3, 7</sup>
- Easier decision-making for suitable endoscopic resection techniques.<sup>6, 7</sup>
- Potentially avoiding histological assessment of low-risk lesions (e.g. diminutive rectosigmoid polyps under the resect and discard paradigm).<sup>8-10</sup>





# NBI: The Power of Accurate Diagnosis

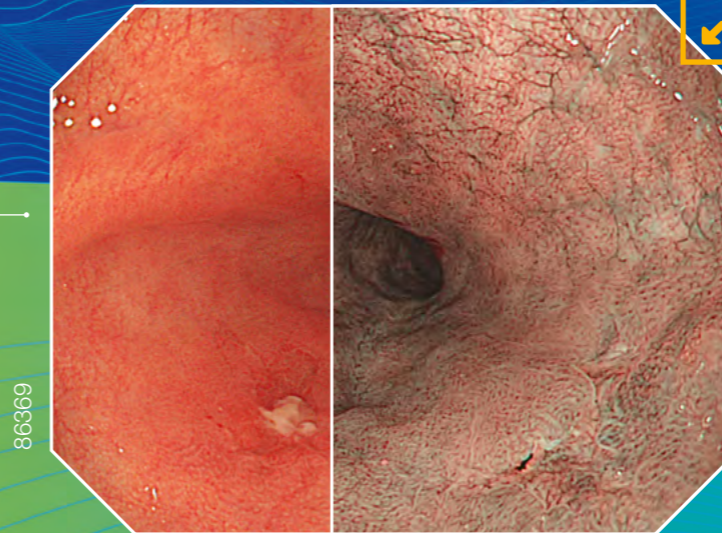
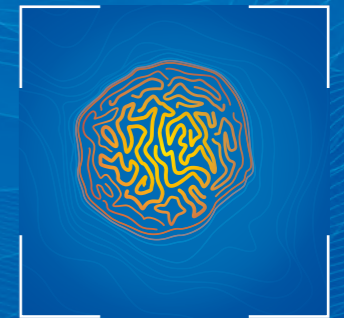
## Technological Principle



### NBI

## Narrow Band Imaging

Utilizing specific blue and green wavelengths absorbed by hemoglobin, NBI creates a strong contrast between vessels and surrounding mucosa.<sup>11</sup> This facilitates the visibility of highly vascularized areas, blood vessel patterns and surface structures that are predictive for distinct histopathologies.<sup>12-15</sup>



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WLI

NBI



Learn More in the NBI Video





# RDI: The Safeguard for Endoscopic Therapy

## Red Dichromatic Imaging (RDI)



**Gastrointestinal bleeding is a serious challenge, involving considerable mortality of 5-15% and high management costs.<sup>16, 17</sup> Consequently, prevention of complications is crucial.**

**RDI is designed to enhance the visibility of deep blood vessels and bleeding sources.**

**Easier identification of bleeding spots makes hemostasis quicker and easier. This helps to reduce the stress of the physician during endoscopic therapy.**





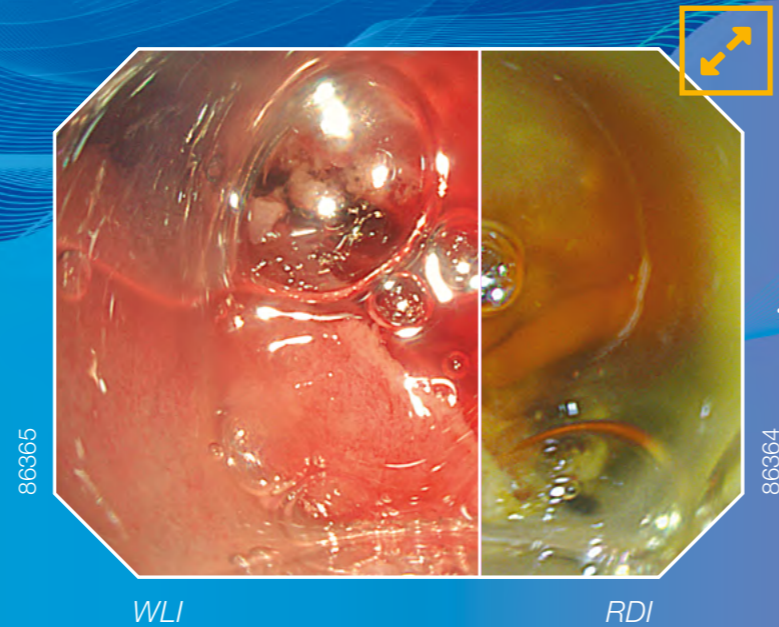
# RDI: The Safeguard for Endoscopic Therapy

## Technological Principle



### **RDI** Red Dichromatic Imaging

RDI works by employing specific green, amber and red wavelengths. The latter two penetrate deep into the mucosa, enabling the visualization of deep blood vessels. In case of acute bleeding, RDI increases the contrast between highly concentrated and diluted blood, thereby clearly visualizing the bleeding point.



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### Learn More in the RDI Video

Tissue





# EDOF: The Phenomenon of Full Focus

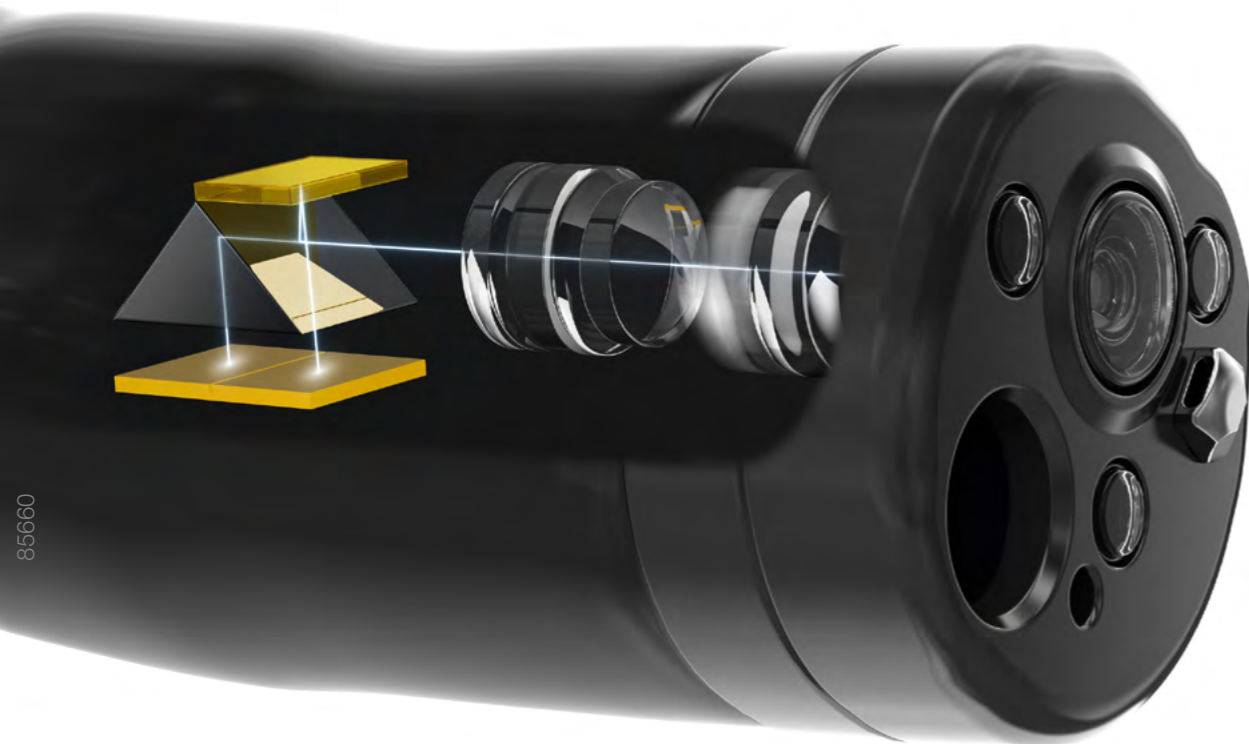
## Extended Depth of Field (EDOF)



**Sharp endoscopic images support accurate results in detection, diagnosis and treatment. However, the gastrointestinal tract poses challenges in keeping an endoscopic image stable and in focus.**

EDOF allows precise observations through continuous broad focus and seamless magnification. At the same time, the established Dual Focus function provides high magnification, which can be activated by the push of a button.

**This improved visibility and continuously sharp image is developed to reduce the necessity for focal adjustments and to help make endoscopy more convenient. It may even contribute to easier identification and a more confident abnormality diagnosis.**



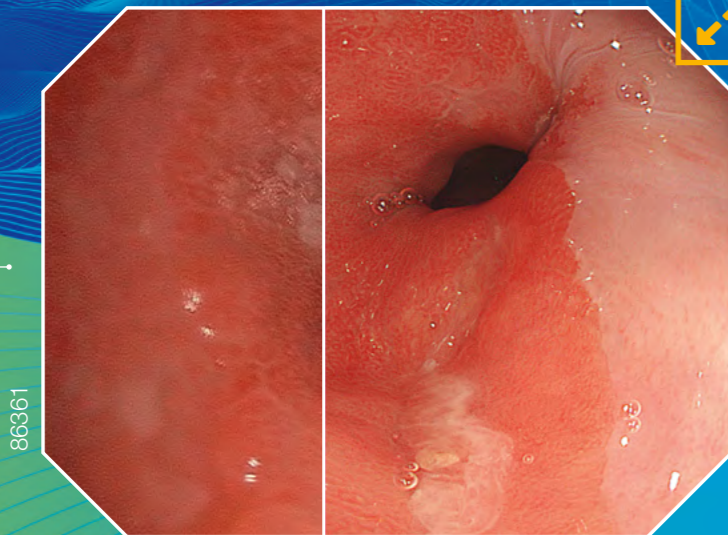


# EDOF: The Phenomenon of Full Focus

## Technological Principle

### EDOF Extended Depth of Field

Light entering the scope's objective lens is split into two separate beams, with different focal ranges, by the new optical unit. The beams are then simultaneously projected onto an image sensor. The EVIS X1 video system center combines the pictures to generate a single image with an extremely wide depth of field.



GIF-HQ190

GIF-EZ1500

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Learn More in the  
EDOF Video



# Let's Be Clear: A Unified Platform with Broad Compatibility

## Two Worlds Become One





**One box fits all: EVIS X1 combines advanced knowledge, experience and innovation into one endoscopic system.**

With newly established cross-compatibility between formerly two separate systems, our range of products can be combined to provide an extended portfolio of endoscopes for special procedures — expanding the possibilities for every endoscopist.

EVIS LUCERA  
ELITE

EVIS EXERA III

**Watch the Video on  
System Compatibility:**

-  **EVIS EXERA III**
-  **EVIS LUCERA ELITE**

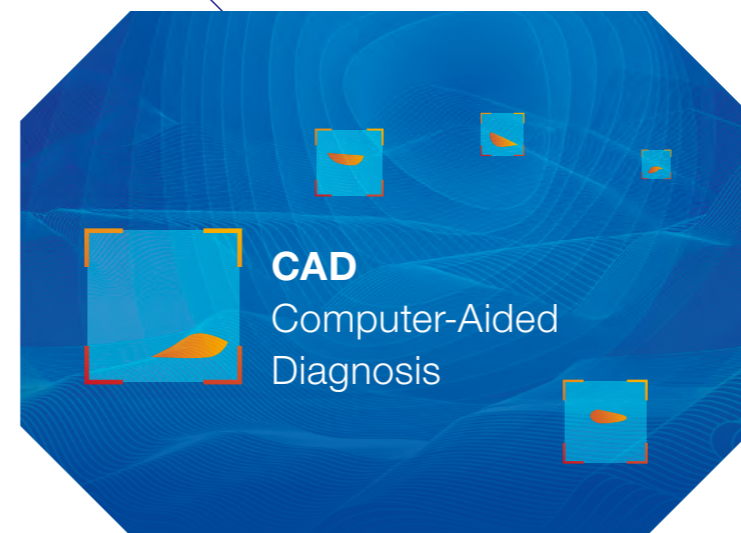


# Let's Be Clear: Designed Today for Tomorrow's Endoscopy Challenges



## Ready for the Future: Artificial Intelligence (AI)

The commitment of Olympus to innovation is about creating new advances that will change the way we think about endoscopy – and allow you to achieve more than ever before.



The next upcoming feature of the EVIS X1 system will be computer-aided diagnosis (CAD) using artificial intelligence to integrate breakthroughs in deep learning into the world of image detection, characterization and staging.



# Additional Features



## For Smooth Endoscopic Procedures

**EVIS X1 provides a combination of diagnostic and therapeutic innovation, alongside proven technologies to streamline and improve endoscopic procedures and scope handling.**



### 5 LED Spectrum Technology

The EVIS X1 video system center contains five LEDs that are combined to produce different observation modes. It includes an amber LED tailored by Olympus, enabling the visualization capabilities of the RDI mode.



### ErgoGrip – Improved Control Section

The lightweight and more ergonomic ErgoGrip is designed to increase user comfort, operability and user experience especially during lengthy therapeutic interventions.



### BAI-MAC – Improved Image Quality

BAI-MAC (Brightness Adjustment Imaging with MAintenance of Contrast) is a new image processing technique to improve the brightness levels in dark areas of the endoscopic image, whilst maintaining the brightness of lighter areas to increase the distance view.



### Touch Panel

The EVIS X1 video system center can be operated from a touch panel on the front of the unit, allowing users to initiate all procedures and settings and to control the image data from one device.

- **Dual Focus – Two-Stage Optical Lens Technology**
- **Pre-Freeze Function – Updated Algorithm**
- **RIT (Responsive Insertion Technology)**
- **One-Touch Connector**
- **Scope Guide**
- **Water Jet**

# Let's Be Clear: Elevating the Standard of Endoscopy

## References

- <sup>1</sup> More than 70% global market share in gastrointestinal endoscopic equipment as of March 2019.
- <sup>2</sup> American Cancer Society. Colorectal Cancer Facts & Figures 2017-2019; p 15; available at <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/colorectal-cancer-facts-and-figures/colorectal-cancer-facts-and-figures-2017-2019.pdf>.
- <sup>3</sup> Sharma et al. Gastroenterology. 2016 Mar; 150(3): 591-8.
- <sup>4</sup> Thosani et al. Gastrointest Endosc 2016 Apr; 83(4): 684-698.e7.
- <sup>5</sup> Kaise et al. Endoscopy 2009 Apr; 41(4): 310-5.
- <sup>6</sup> Yao et al. New Challenges in Gastrointestinal Endoscopy 2008, pp 169-176.
- <sup>7</sup> Pimentel-Nunes et al. Endoscopy 2019; 51: 365-388.
- <sup>8</sup> Dayyeh et al. Gastrointest Endosc. 2015 Mar; 81(3): 502.e1-502.e16.
- <sup>9</sup> Kaminski et al. Endoscopy. 2014 May; 46(5): 435-49.
- <sup>10</sup> National Institute for Health and Care Excellence (NICE). 2017; Diagnostics guidance [DG28]; available at <https://www.nice.org.uk/guidance/dg28>.
- <sup>11</sup> Gono et al. J Biomed Opt. 2004 May-Jun; 9(3): 568-77.
- <sup>12</sup> Inoue et al. Annals of Gastroenterology 2015; 28, 41-48 (Esophagus - SCC).
- <sup>13</sup> Sharma et al. Gastroenterology. 2016 Mar; 150(3): 591-8.
- <sup>14</sup> Yao. Ann Gastroenterol. 2013; 26(1): 11-22.
- <sup>15</sup> Hewett et al. Gastroenterology 2012; 143, 599-607.
- <sup>16</sup> Lanas et al. Am J Gastroenterol 2009; 104: 1,633-1,641.
- <sup>17</sup> Parker et al. J Med Econ 2011; 14: 279v-287.

 [www.olympus.eu/evisx1](http://www.olympus.eu/evisx1)

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