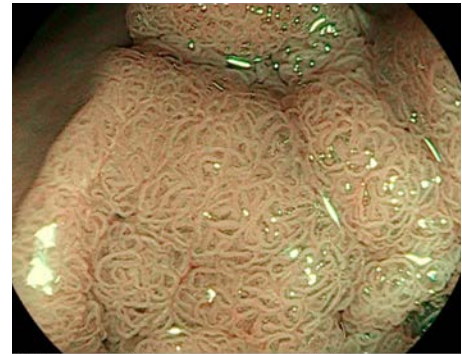
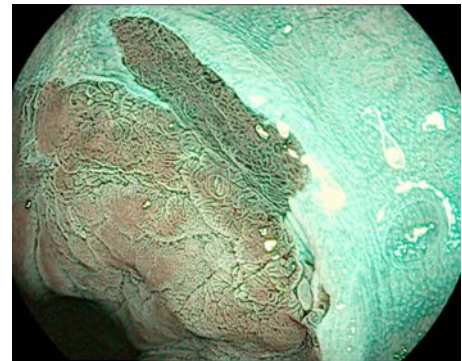


OPTIVISTA plus⁺

*A unique combination of optical and digital enhancements,
for improved in vivo diagnosis*





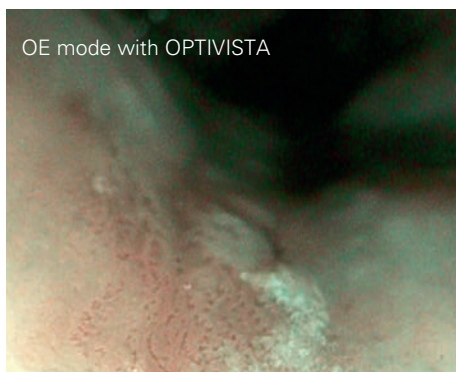
New OPTIVISTA plus⁺

Improved *in vivo* diagnosis for therapeutic guidance

PENTAX Medical is proud to introduce the new OPTIVISTA plus, the next generation processor that enhances the detection and diagnosis of GI disease with advanced image resolution and contrast.

- OPTIVISTA plus supports the best clinical outcome by providing improved image resolution and contrast in the i-scan and OE Optical Enhancement modes.
- OPTIVISTA plus supports diagnosis, guidance of treatment and case documentation through an optimised image capture process and sharper, clearer frozen images.
- OPTIVISTA plus is an effective cross-department investment, expanding its proven clinical benefits into high definition endoscopes for the pulmonology and ENT specialties.

OE mode with OPTIVISTA



OE mode with OPTIVISTA plus



Note: The OPTIVISTA plus clinical images found in this document, are courtesy of the following doctors / institutions:

- Dr. Fujishiro, The University of Tokyo Hospital, Japan
- Dr. Haidry, The University College Hospital, London
- Dr. John, The Gold Coast University Hospital, Gold Coast

A leap forward for *in vivo* histology with i-scan and OE
Optical Enhancement, a unique combination of digital
and optical enhancements

1

Enhanced detection



Advanced High-Definition imaging combined with **i-scan**, offers a more detailed view of the mucosa for enhanced detection of abnormalities and GI disease.

2

Improved *in vivo* diagnosis



The unique combination of **digital enhancement** (i-scan SE & TE) and **optical enhancement** (OE) provides higher resolution images for enhanced mucosal pattern and vessel characterization and resultant improved *in vivo* diagnosis.

3

Powerful educational platform



The **TwinMode** is designed for teaching the appropriate interpretation of image enhanced endoscopy, providing simultaneous comparison of side by side 'white light' and 'enhanced' endoscopic images.



The **integrated HD video** and **audio recorder** enables the collection and sharing of the latest endoscopic findings from the endoscopy room, with fellows and peers.

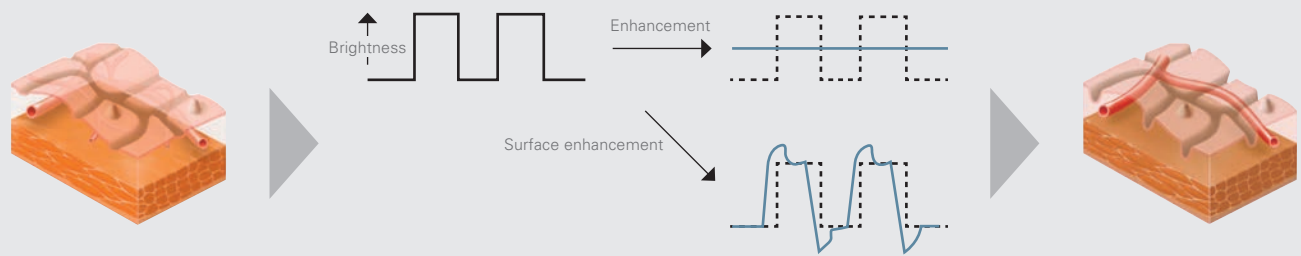


i-scan for enhanced detection and characterization

i-scan is a digital, image enhanced endoscopy (IEE) technology by PENTAX Medical. As a virtual chromo-endoscopy tool, i-scan provides an enhanced view of mucosal structures and vascular patterns, supporting early lesion detection, demarcation and characterization.

i-scan SE for detection

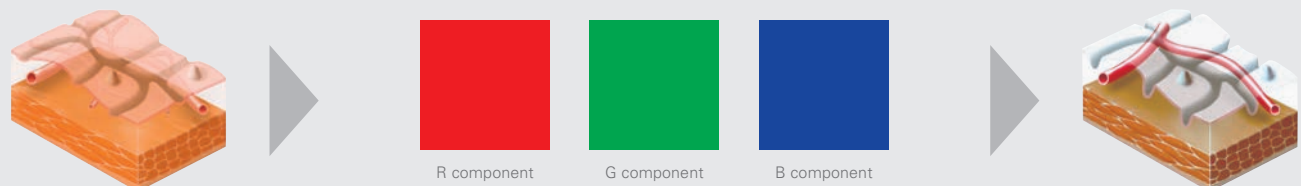
By enhancing the mucosal structure in a natural color tone, SE (Surface Enhancement) supports detection, especially of flat lesions by highlighting abnormalities.



With SE, the difference in luminance intensity between the pixels concerned and the surrounding pixels is analyzed and the edge components are enhanced. SE adjustment of the noise erasure function allows more evident enhancement of the edges, which corresponds to minor changes in structure.¹

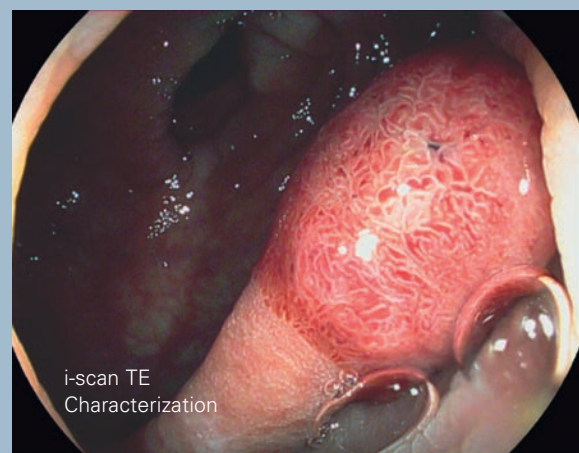
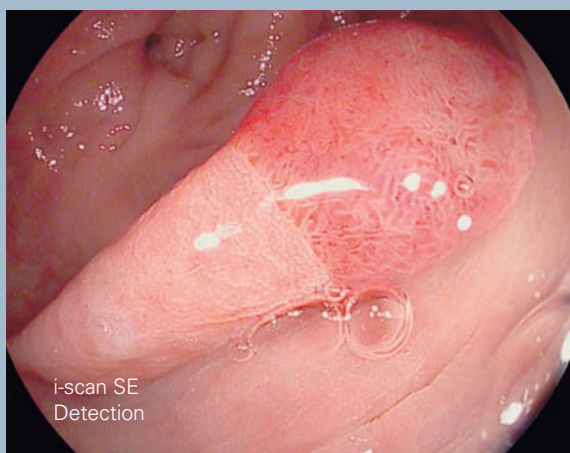
i-scan TE for pattern characterization

TE (Tone Enhancement) enhances the changes of vascular and mucosal structure with a color tone change, supporting pattern characterization.



The RGB components of an ordinary endoscope image are divided into each component (R, G and B), and each component thus isolated is converted independently along the tone curve, followed by a reconstruction of the three components in one single image.¹

¹ Kodashima et al: Novel image-enhanced endoscopy with i-scan technology. World J Gastroenterol 2010

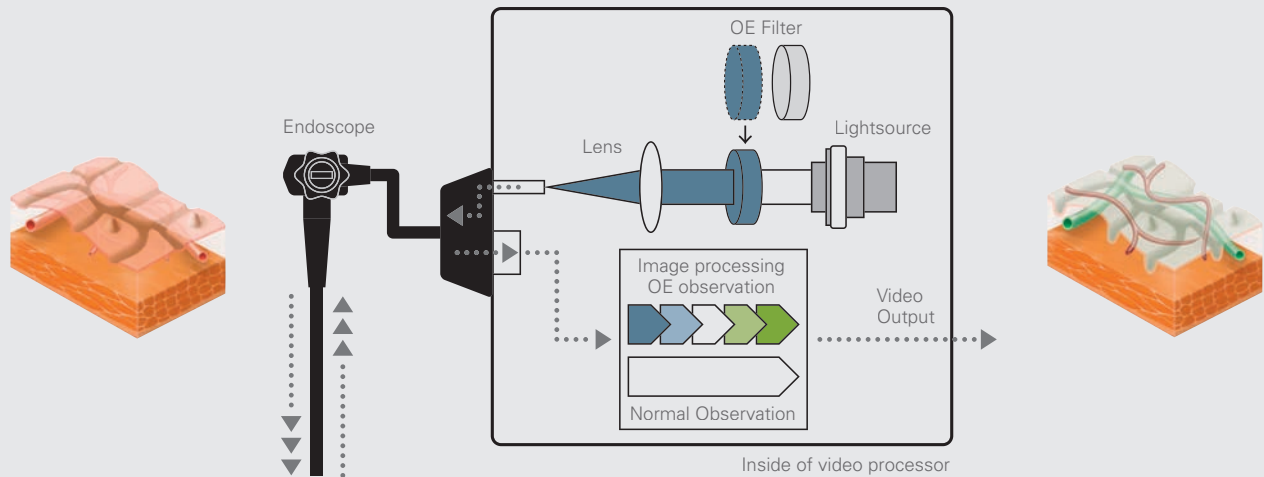




OE for vessel and surface pattern characterization

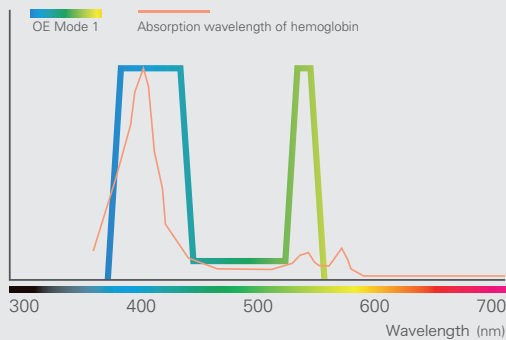
PENTAX Medical has recently developed OE, an optical filter that produces bandwidth-limited light. When combined with digital image enhancement technology, OE clearly displays mucosal surface structures, vascular networks and glandular ducts in higher contrast than white light.

OE technology



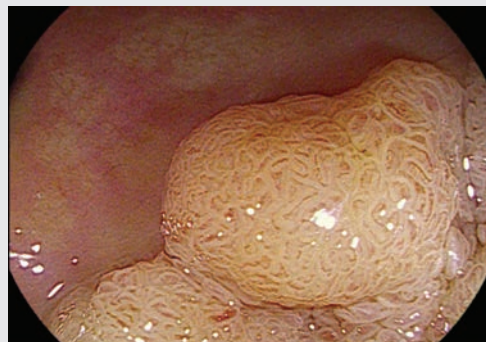
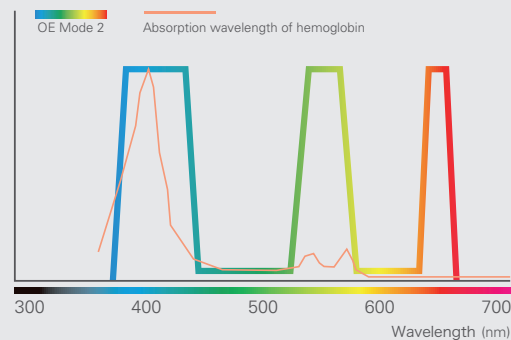
OE mode 1 for characterization

The OE Mode 1 filter produces band-limited light that matches the absorption characteristics of haemoglobin and provides images of high contrast between blood vessels and the surrounding mucosa.



OE mode 2 for detection and characterization

In comparison to OE Mode 1, the OE Mode 2 filter produces an additional wavelength band that provides white light images of high contrast between blood vessels and the surrounding mucosa.



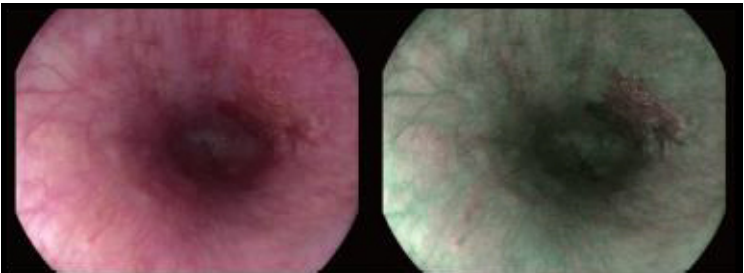
OPTIVISTA plus, a powerful educational platform

The OPTIVISTA plus video processor is a state-of-the-art educational tool, that can be completely customized to operate all functions easily via the touch screen or endoscope control buttons.



Teach and assess with the unique TwinMode

- TwinMode is useful in teaching the appropriate interpretation of image enhanced endoscopy, providing simultaneous comparison of side by side endoscopic images.
- Among experts, TwinMode is appreciated as an educational tool for non-experts
- in “building the bridge” between HD+ white light images and the different i-scan and OE modes.
- The simultaneous comparison of enhanced clinical images is useful in teaching the appropriate characterization of lesions.



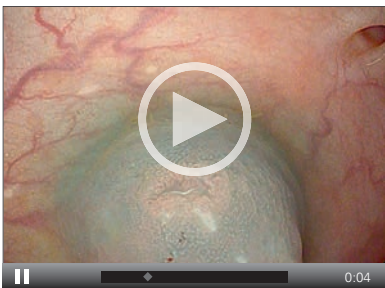
HD White light image

OE Mode 1



Collect and share with unique integrated video and audio recording

- The video recording function enables capture of HD+ video files through a USB storage device, for fast and easy sharing of findings with peers. An optional microphone offers the ability to add live case commentary to all procedure video files.
- Contributes to cost savings in the endoscopy room by avoiding unnecessary external HD recording devices.
- For best image collection, the OPTIVISTA also incorporates freeze scan technology which automatically selects the sharpest picture.



Product Specifications

HD video outputs	1080i via HD-SDI, DVI-D or SXGA via VGA
External device interface	USB (Front x 1, Rear x 2) and RJ45 (Ethernet)
User interface	Touch screen, keyboard
Image Enhancement Endoscopy function	i-scan SE, TE, CE and OE
Compatible Video Endoscopes	90K/90i/i10/J10 Series Gastrosopes and Colonoscopes
Lamp	300W Xenon Lamp
Dimensions [W x H x D / weight]	400 x 205 x 520 mm / 21.5 kg

OPTIVISTA plus - EPK-i7010

A multi-functional platform offering i-scan & OE (Optical Enhancement) capability with our complete range of High Definition endoscopes.

i10 Endoscope series



MagniView Zoom Endoscope series



VNL-J10 Naso-laryngoscope



EB-J10 Bronchoscope series



DEC & i10T Duodenoscope series



EUS-J10 Endoscope series



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