

# OPTIVISTA

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

**PENTAX**  
MEDICAL



Courtesy of Dr. Federico Buffoli,  
Cremona Hospital, Italy



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

## OPTIVISTA - Enlighten your perspectives

### The new premium solution for advanced endoscopy

The success of a procedure can hinge on your ability to clearly visualize the epithelial surface pit-pattern and vascular pattern. In addition to the already established i-scan modes, the OPTIVISTA now features i-scan OE (Optical Enhancement), creating a very unique platform where both digital and optical enhancements are available. This unique combination provides extra information for a more accurate *in vivo* diagnosis through improved vessel and mucosal pattern characterization.

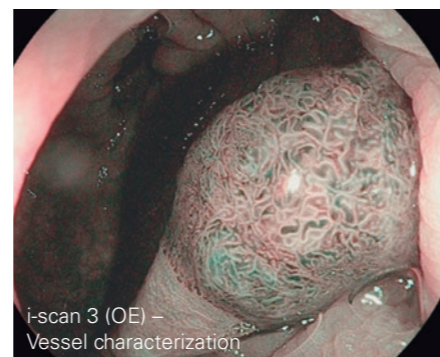
The new PENTAX Medical OPTIVISTA EPK-i7010 video processor, together with the latest i10 HD+ endoscopes series, or with the MagniView, optical zoom endoscopes, provides our best image ever. Whether you are performing a routine procedure or a complex intervention, the EPK-i7010 can help you to achieve the best clinical outcomes.



i-scan 1 (SE) - Detection



i-scan 2 (TE) - Pattern characterization and demarcation



i-scan 3 (OE) - Vessel characterization

Courtesy of Dr. Silvia Sanduleanu, Maastricht UMC+, The Netherlands

Supporting the complete clinical pathway

1

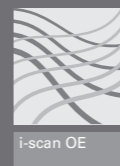
### Enhanced detection



Sharp High-Definition image, combined with **i-scan imaging** and **excellent illumination** for a more detailed view of the mucosa and enhanced detection.

2

### Improved *in vivo* diagnosis



A unique combination of **digital enhancement** (i-scan) and **optical enhancement** (i-scan OE) provides extra information for a more accurate *in vivo* diagnosis through improved vessel and mucosal pattern characterization.

3

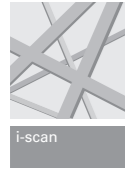
### Powerful educational platform



The **TwinMode** is perfectly designed to demonstrate the appropriate interpretation of image enhancement endoscopy by providing simultaneous comparison of side by side endoscopic images.



The **integrated audio and HD+ video recorder** enables to collect and share the latest scientific findings from the endoscopy room with fellows and peers.

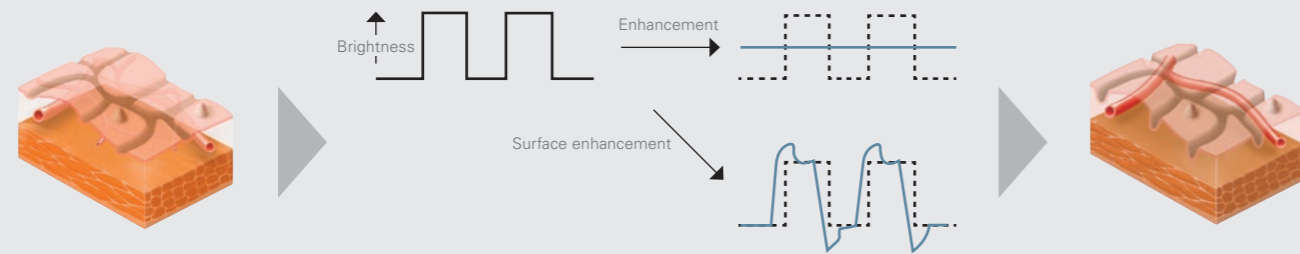


# i-scan for enhanced detection and characterization

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

## i-scan 1 (SE) for detection

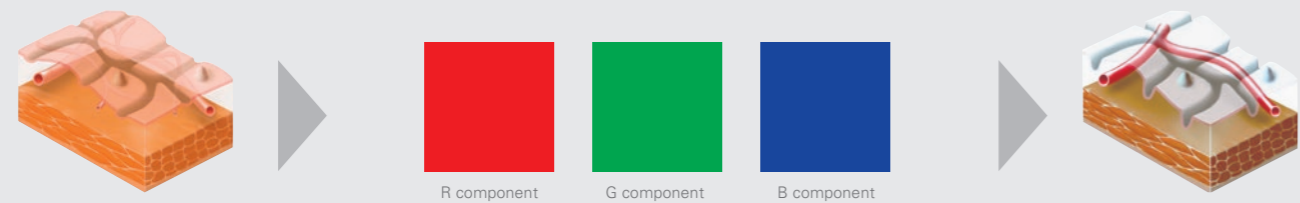
By enhancing the mucosal structure in a natural color tone, SE (Surface Enhancement) supports detection, especially of flat lesions by highlighting abnormalities.



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.<sup>1</sup>

## i-scan 2 (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 disintegrated 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.<sup>1</sup>

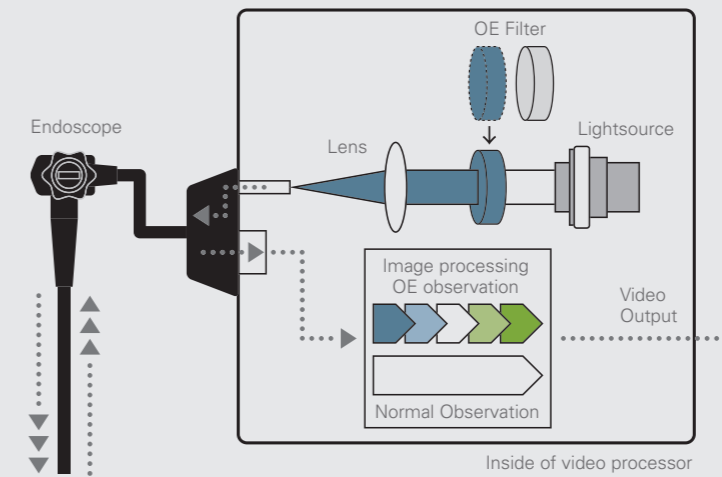
<sup>1</sup> Kodashima et al: Novel image-enhanced endoscopy with i-scan technology. World J Gastroenterol 2010



# i-scan OE for vessel characterization

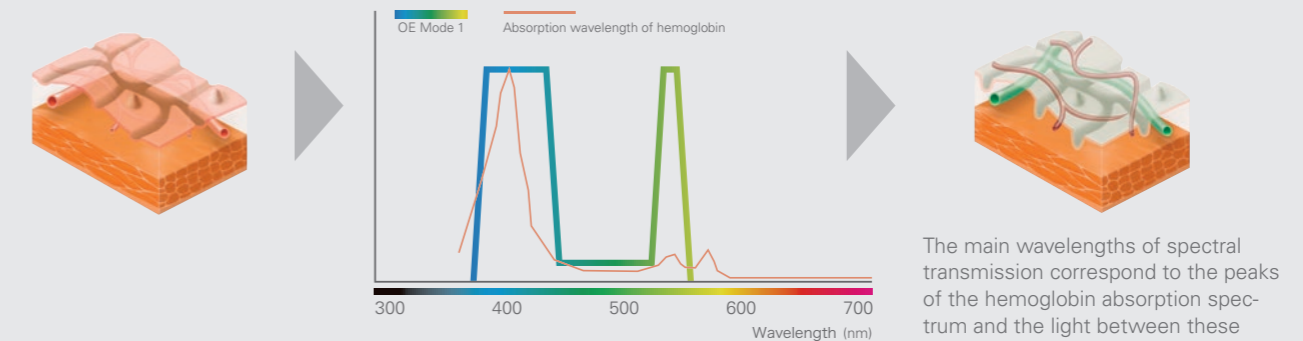
PENTAX Medical has recently developed the i-scan OE (Optical Enhancement), an optical filter that produces bandwidth-limiting light. When combined with image enhancement processing technology it clearly displays the surface structures of blood vessels, glandular ducts and mucosal membranes in higher contrasts than white light.

## i-scan OE technology



## i-scan 3 (OE) for vessel characterization

i-scan OE displays the surface structures of the blood vessels, glandular ducts and mucosal membranes in a color tone **and supporting vessel's characterization.**



The main wavelengths of spectral transmission correspond to the peaks of the hemoglobin absorption spectrum and the light between these peaks is continuously slightly emitted by raising baseline transmittance.<sup>2</sup>

<sup>2</sup> K Mönkemüller et al.: Present and future perspectives of virtual chromoendoscopy with i-scan and optical enhancement technology. Digestive Endoscopy 2013; 26.



**Improved *in vivo* diagnosis**  
A unique combination of digital and optical enhancements

# OPTIVISTA, a powerful educational platform

The OPTIVISTA EPK-i7010 video processor is a state-of-the-art educational tool with customizable functions operated easily by the touch screen, or via the endoscope buttons.

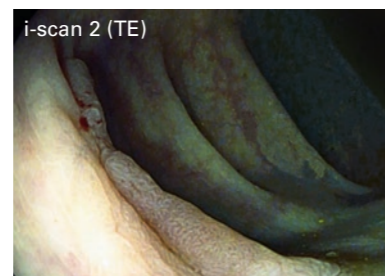


## Teach and assess with the unique TwinMode

- 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 respected and appreciated as an educational tool for non-experts in “building the bridge” between HD+ white light images and the different i-scan modes and findings.
- The simultaneous comparison of enhanced clinical images is useful in teaching the appropriate characterization of lesions.

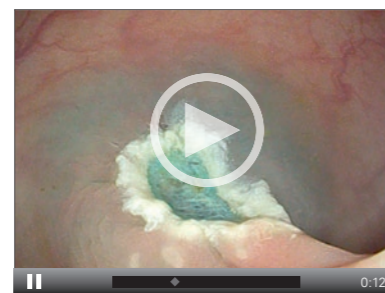


Colon adenoma



## Collect and share with the 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. Audio recording for video is captured through external microphone.
- 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.



Exchange and expand your knowledge of i-scan by visiting the i-scan website

[www.i-scanimaging.com](http://www.i-scanimaging.com)



# i-scan HD+ solutions: A range that meets all needs

## HD processors

Premium  
EPK-i7010 – OPTIVISTA



A complete diagnostic tool, bringing together the best of digital and optical enhancement for complimentary use in pattern and vessel visualization.

Classic  
EPK-i5000



A High-Definition video processor offering standard functionality supported by state-of-the-art imaging technology.

Performance  
EPK-3000 - DEFINA



The video processor to enter the High-Definition and i-scan world with an excellent price performance efficiency.

## Endoscopes



Slim caliber, bigger working channel and Close Focus, all combined in an i10 HD+ endoscope, the high performance endoscopes series, for the day-to-day advanced endoscopy practice.



With the 90i endoscope series, you can experience HD+ images combined with exceptional illumination, during routine examinations.



90K endoscope series are the optimal choice for an exceptional high resolution image combined with outstanding illumination.

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