

Clear. Easy. Different.

HD+ and i-scan.

Outstanding precision in endoscopy.



PENTAX

EPK-i and EPK-i5000. The right processor for each user's needs.

HD+ resolution in combination with i-scan image processing.



*Trust your
eyes – and enjoy
exceptional
visual quality.*

The trend towards high-definition video endoscopes (HD) is increasing and is strongly supported by clinical decision makers. With the introduction of the EPK-i, PENTAX has its stake in this development. The increasing number of users creates a broad range of individual needs and technical requirements from our customers. Requirements and needs that we acknowledge and attend to.

In addition to the EPK-i, we therefore have introduced a second processor which combines exceptionally high illumination, HD+ resolution as well as the advanced i-scan image processing technology: the EPK-i5000. Specific technical features target the individual needs of our customers. This way, we can provide the right processor for each user's needs.



EPK-i: The processor for demanding examinations

As a premium video processor, the EPK-i sets standards in terms of advanced endoscopic imaging. Experience images in unique HD+ quality and make use of the full spectrum of the i-scan functionality. Each i-scan function can be fully controlled and each setting can be precisely tailored to your requirements with the aid of the intuitive touch screen.



EPK-i5000: From routine applications to challenging examinations

The EPK-i5000 is a state-of-the-art HD+ video processor which provides excellent endoscopic imaging, the latest image processing technology and an outstanding price-performance ratio. Three predefined i-scan profiles support a large range of endoscopic applications.



i-scan technology: Your diagnostic support

Whether using the full or a predefined range of functions, both processors offer you our integrated i-scan technology. i-scan was developed with the aim of enhancing the visibility of vessel and surface structures. i-scan is therefore a useful tool to support the detection, delineation and characterization of abnormalities.



PENTAX HD+ endoscopes: The new standard

Thanks to a high performance CCD chip, the PENTAX 90i endoscopes enable you to fully exploit HD+ performance. With advanced user-friendliness and a wide range of exciting features, the 90i series is your natural choice for endoscopic procedures.

Eyes are familiar with natural, sharp vision. Why give them anything less?

Enrich your endoscopic options with HD+ and i-scan.



Images of extraordinarily high-definition (HD+) and excellent illumination

- Supports fast orientation and detection
- Significant improvement in the visibility and evaluation of minute lesions
- Integrated zoom function for more detailed inspection of suspicious surface structures



Detection and delineation support with i-scan Surface Enhancement (SE)

- i-scan SE retains the natural color tones
- Accentuation of tissue structures at the touch of a button
- Mucosal enhancement potentially supports the detection of flat lesions



Support in characterization with i-scan Tone Enhancement (TE)

- Specific imaging technology for further assistance in endoscopic procedures
- Allows more accentuated display of mucosal structures which may support lesion characterization
- Virtual chromoendoscopy may help to improve endoscopic diagnosis

Application example for HD+ and i-scan in the upper gastrointestinal tract.



The differential diagnosis of gastric lesions is challenging. In this case, a polypoid lesion was clearly visualised with HD+ imaging. i-scan Surface Enhancement (SE) made it possible to visualise the regular surface architecture. i-scan Tone Enhancement (TE) then confirmed that the patterns on the surface are identical to those on the surrounding tissue. This supported the endoscopist in the prediction of the diagnosis of hyperplastic gastric polyps and even prevented unnecessary endoscopic intervention. In this case, the predicted endoscopic diagnosis was confirmed by histology.

Application example for HD+ and i-scan in the lower gastrointestinal tract.



The detection of flat adenomas is a key element in high-class colonoscopy because they pose an increased risk of malignant transformation and can easily be overlooked. In this case, very subtle irregularities could be seen in the ascending colon with HD+ imaging, i-scan Surface Enhancement (SE) clarified the adenomatous tissue component of the lesion, which could be confirmed through histology. i-scan Tone Enhancement (TE) supported the endoscopist in unmasking the border of this flat adenoma. Subsequently complete endoscopic resection could be achieved.*

Seeing. Detecting. Knowing.

Improved support along the diagnostic pathway.

For better detection

	HD+	HD+ and i-scan	p-value	The use of i-scan increases overall polyp detection rates, adenoma detection rates, and increases the number of advanced lesions detected during screening colonoscopy.
n	931	1033		
Number of patients with an adenoma	27%	33%	P< .01	
Number of adenomas per examined patient	.45	.59	P< .01	
Number of non-adenomatous polyps/ examined patients	.51	.61	P=0.02	
Number of advanced polyps/ examined patients	.061	.095	P< .01	

"High-Definition Colonoscopy Combined With i-scan Imaging Technology is Superior in the Detection of Adenomas and Advanced Lesions Compared to High-Definition Colonoscopy Alone." Gagovic V. et al, Abstract DDW, 2011

For better detection

Results	HD+	Standard*	p-value	With PENTAX HD+ endoscopes, the adenoma detection rate is significantly superior to standard resolution endoscopes.*
Patients	100	100		
Patients with at least one adenoma	38	18	< .0001	
Total number of lesions	145	37	< .0001	
Total number of neoplasias	80	16	< .0001	
Number of flat adenomas	22	3	< .0001	
p<0.0001 Mann-Whitney Test				

"High-definition colonoscopy combined with i-scan is superior in the detection of colorectal neoplasias compared to standard video colonoscopy." Hoffman A. et al, Endoscopy 2010

For easier characterization

Pit pattern	Hyperplasia	Neoplasia	total	Histology could be predicted with a high sensitivity (98%) and a high specificity (100%) using i-scan TE.
Hyperplasia pit pattern I/II	63	2	65	
Neoplastic lesions pit pattern III/IV/V	0	80	80	

"High-definition colonoscopy combined with i-scan is superior in the detection of colorectal neoplasias compared to standard video colonoscopy." Hoffman A. et al, Endoscopy 2010

For more accurate diagnosis in GERD

	HD+	i-scan	Lugol's solution	i-scan as well as Lugol's solution (chromoendoscopy) significantly improve the identification of patients with oesophagitis.
Number of patients with macroscopically defined oesophagitis	9	12 ²	25 ¹	
Number of small lesions	21	58 ¹	85	
¹ Significant p<0.01				
² Not significant p<0.01				

"High-definition endoscopy with i-scan and Lugol's solution for more precise detection of mucosal breaks in patients with reflux symptoms." Hoffman A. et al, Endoscopy 2009

For reliable surveillance in Barrett's oesophagus

i-scan	Histolog. Barrett	Histolog. Ø Barrett	total	Under the guidance of i-scan targeted biopsies are reliable for predicting Barrett's epithelium.
Type III-IV	26	2	28	
Type I - II	2	13	15	
Sensitivity: 92,8%, Specificity: 86,7%, Accuracy: 90,1%				

"Acetic acid guided biopsies compared with high-definition endoscopy and i-scan guided biopsies in the detection of Barrett's oesophagus." Hoffman A. et al, Poster Presentation, DDW 2010

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EPK-i case studies.

The DVD illustrates the benefits of using i-scan in a variety of clinical applications in a clear and accessible manner using interesting cases and demonstrations.

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The clinical images are just examples and may not
be used for diagnosis.

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