

Product Information

No. 16 - 2011

Hamburg, October 20, 2011

Dear colleagues,

We would like to call attention to the following new PENTAX product:



Please pass on this information to your colleagues.

NOTE: According to Traceability Agreement you are obliged to give your approval for manual translations if existing. The availability of this product for sales and demo depends on your translation approval. Please communicate this to your management and all other people involved.

For further questions, please do not hesitate to contact us.

Best regards,

PENTAX Europe GmbH
LIFE CARE



Steffen Helms
Product Manager

PENTAX

PENTAX High Definition Video Processor EPK-i5000

1. Description



Fig. 1: EPK-i5000

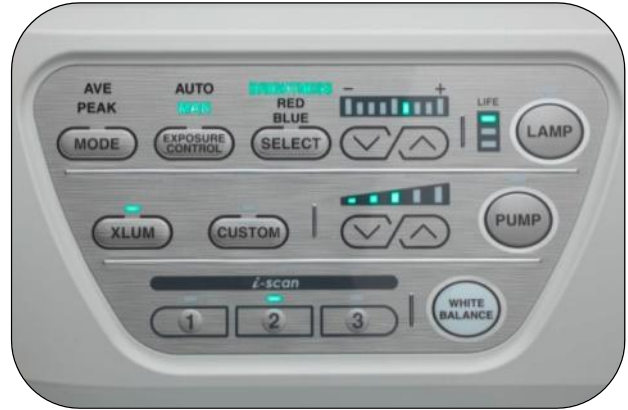


Fig. 2: Operation Panel

For users that require standard functions offered by state-of-the-art imaging technology in their day-to-day clinical work, the PENTAX EPK-i5000 video processor is the ideal device.

This processor combines excellent illumination (Xenon 300Watt) and unique HD+ quality. It also features the innovative i-scan image processing technology which provides outstanding precision when assessing surface structures.

i-scan Preset

For the customer the three i-scan profiles i-scan 1, 2, 3 will be preset on the EPK-i5000 and can be selected at the touch of a button either from the endoscope, the keyboard or direct from the operation panel.



Fig. 3: i-scan Preset

This puts an affordable technology which fulfills the customer needs for an advanced examination at its disposal.

Implementation of i-scan Preset

As a specific feature of this video processor the presetting of three i-scan profiles is offered to the customer.

These i-scan profiles correspond to the recommended settings as described in our Key Feature Card (Fig. 4) and must be set-up before or during the first installation of the video processor over the keyboard by a PENTAX authorised person.

Make it easy!

Recommended i-scan Settings

www.pentaxeuropa.com **PENTAX**

Recommended i-scan Settings

Profile i-scan 1: i-scan SE		Profile i-scan 2: i-scan TE		Profile i-scan 3: i-scan TE with CE	
Brightness	0	Brightness	+1	Brightness	+1
Ave/Peak	Ave	Ave/Peak	Ave	Ave/Peak	Ave
Blue	0	Blue	0	Blue	0
Red	0	Red	0	Red	0
Enhancement	low/+2	Enhancement	low/+2	Enhancement	low/+2
SE	+5	SE	+4	SE	+5
CE	off	CE	off	CE	+2
TE	off	TE	c	TE	c

Supports detection. Supports characterization. Supports characterization.

Fig. 4: Recommended i-scan Settings Card

Note: Enhancement setting low for EPK-I correspond to setting +2 for EPK-i5000

Operation Panel

All essential functions are easily accessible via the operation panel.

Light Measuring Method (MSEL)
Press this button to select the light measuring method.
I: "Light Measuring Method" (p.22)

Brightness Control Mode Selection (BMODE)
Use this button to change the method of adjusting the image brightness.
AUTO: Adjust the image brightness automatically.
MAN: Adjust the image brightness manually.
I: "Brightness Control Mode Selection" (p.22)

Brightness and Color Balance Adjustment (B/CADJ)
Use (MSEL) to select the item you wish to adjust and use (UP/DN) to adjust the level.
I: "Brightness Mode Selection" (p.22)
I: "Color Balance Adjustment" (p.23)

Lamp Life Indicator [LIFE]
The lamp usage time is indicated by this indicator.
Less than 400 hours: green bar
400 hours to 499 hours: yellow bar
500 hours or more: red bar
If the time is 500 hours or more, the Indicator Illuminates red, and the [Please replace the lamp] message is displayed on the monitor.
I: "Lamp Replacement" (p.39)

LAMP (LAMP)
Use this switch to turn the lamp on or off.
I: "LAMP" (p.20)

PUMP (PUMP)
Use this switch to operate or stop the air/water pump.
I: "PUMP" (p.21)

WHITE BALANCE (WB)
Use this switch to adjust the white balance.
I: "WHITE BALANCE" (p.21)

Air Flow Adjustment (AIR)
Use (UP/DN) to adjust the volume of the pump.
I: "Air Flow Adjustment" (p.23)

XLUM (XLUM)
Use this button to maximize the light intensity of the scope.
I: "XLUM" (p.22)

Custom Button (CUSTOM)
Use this button to program the desired function. You can assign a specific function you use very frequently to this button.
I: "Custom Button" (p.23).

i-scan Button 1/2/3
Use these buttons to execute the function that is programmed in each button. You can assign frequently used imaging functions to each of i-scan button 1, 2, and 3.
I: "i-scan setting" (p.33)

Fig. 5: Operation Panel EPK-i5000 (pages refer to according owner's manual)

Two features to be pointed out are the Custom Button and the i-scan Buttons 1, 2, 3.

Custom Button

Pressing this button activates the function that was assigned by the user. The function to be assigned can be selected from the followings: No operation, SE, CE, TE, Enhancement, Counter reset, Stopwatch, Character display, Shutter mode, Freeze, USB capture, PC capture, USB printer, Out 1, Out 2, Out 3, Scope button 1, Scope button 2, Scope button 3, Scope button 4 and Procedure history.

i-scan Buttons

The i-scan Buttons 1, 2, 3 are placed on both the operation panel (Fig. 5) and the keyboard (Fig. 6) and will activate the according preset mode.

Keyboard

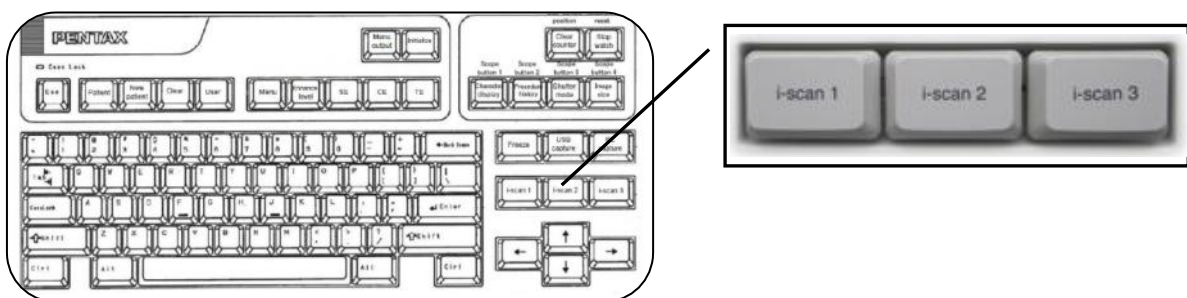


Fig. 6: OS-A79 Keyboard

A special keyboard (OS-A79) is dedicated to the EPK-i5000 video processor and enables for an easy set-up of the menu.

In particular i-scan keys 1, 2, 3 are integrated for quick and comfortable access of the three preset i-scan profiles.

OSD-On Screen Display

An appealing and intuitive OSD (On Screen Display) will lead through the menu setup. Selections can easily be chosen by the keyboard keys.

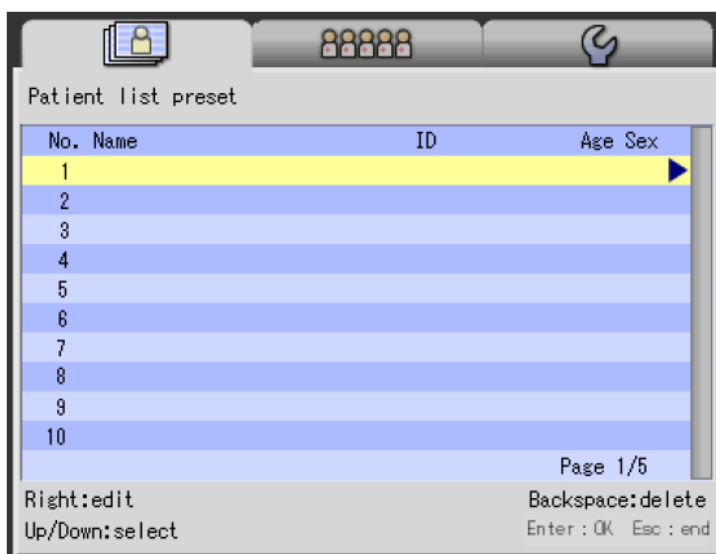


Fig. 7: OSD On Screen Display

Rear Panel

The video processor offers a wide range of connections:

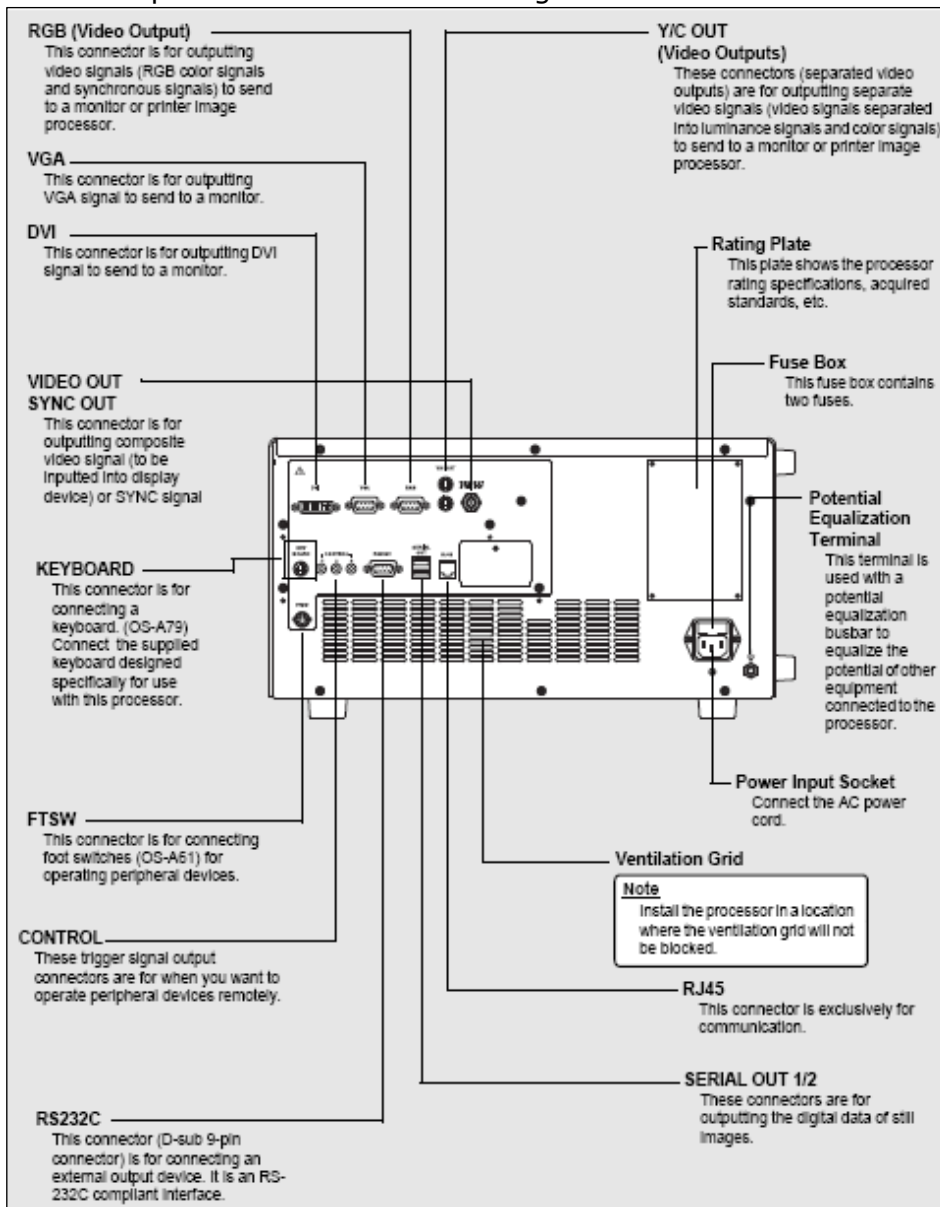


Fig. 8: Rear Panel EPK-i5000

Video Out

Via DVI-D and VGA connections the HD+ video signal quality SXGA is available in conjunction with 90i endoscopes.

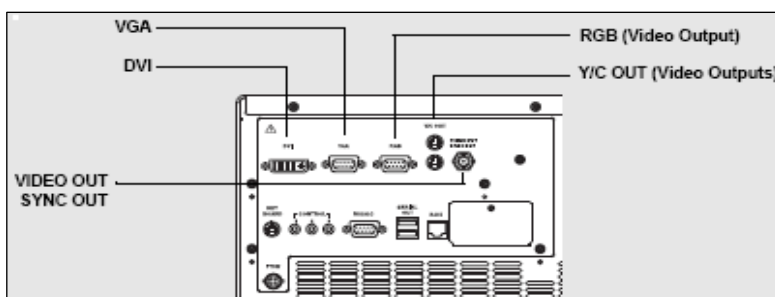


Fig. 9: Monitor Connection

File Storage

The video processor offers the option to transmit still images to a USB printer and a USB flash memory drive via the two serial out ports (Fig. 10).

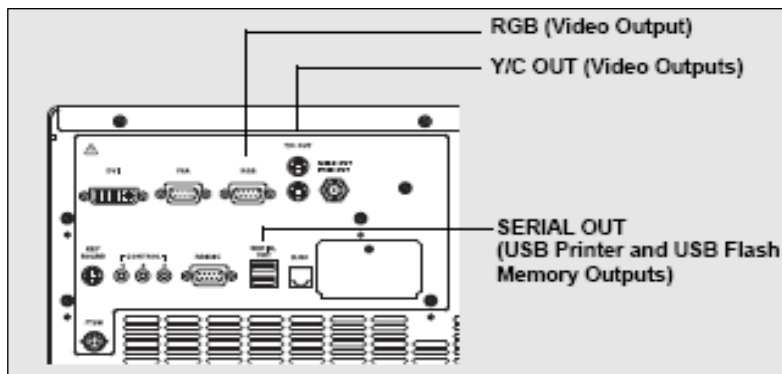


Fig. 10: File Storage

The file format and compression ratio for when endoscopic images are saved can be specified from bmp, jpg(Low) and jpg(High).

Note: Since JPEG images are irreversibly compressed, details in the endoscopic images may sometimes be lost. Selecting the format bmp or a low compression for JPEG format is recommended.

2. Clinical applications

Applications

- i-scan functionality (as known from EPK-i) was recognized as being very valuable
- The continuous light output was well accredited

Reference Customers

- University Mainz, Germany, Prof. Kiesslich
- University Maastricht, The Netherlands, Dr. Sanduleanu
- Spedali Civili di Brescia, Italy, Dott. Foccoli/ Dr.ssa Bezzi

Original Quotations

- "excellent product!"
- "this processor perfectly fits to my needs"
- "storage on USB is easy"
- "excellent design of processor"
- "this is all I need!"

3. Specifications

Technical Specifications

Illumination	Lamp		Xenon lamp (300 W) Model: OL-X27, OL-X28
	Color temperature		6,000 K
	Brightness control		Selection - Automatic/Manual
	Auxiliary lamp		IEC 60825-1 White LED (Class 1)
Air Feed System	Air pump system		DC Diaphragm
	Pressure setting at flow rate of 0		45 - 70 KPa (6.5 - 10.2 PSI)
	Standard air feed volume at inlet of water bottle		Level 1: 2.0 - 2.8 L/min
			Level 2: 2.9 - 3.4 L/min
			Level 3: 3.5 - 4.0 L/min
Level 4: 4.1 - 4.5 L/min			
Level 5: 4.6 - 7.2 L/min			
Water Feed System	Water bottle assembly pressurized by pump		Bottle capacity = 200ml
Brightness Control System	Automatic		Selection - Average/Peak
	Manual		±5 step adjustment
Color System	Color correction		Red/Blue ±5 step adjustment each
Freeze Function	Live video image provided while freeze mode activated.		
Cooling	Forced air cooling		
Video Signals	Digital output	DVI	1 set
	Analog output	RGB	1 sets
		Y/C	2 sets
		VIDEO OUT	1 set (combined SYNC OUT connector)
		VGA	1 set
i-scan virtual chromoendoscopy	Quick access via i-scan keys 1,2,3		
Synchronous Signal	SYNC OUT		1 set (combined VIDEO OUT connector)
Control Signals	RS-232C		1 set
	RJ45		1 set
	Remote		3 sets
	Keyboard		1 set
	Foot switches		1 set
Image Recording Media	USB flash memory (use Serial Output connector)		
Classification as Electro Medical Equipment	Type of protection against electric shock		Class I equipment, 3 prong plug
	Degree of protection against electric shock		BF Type (Body Floating), using insulated endoscope. Use on heart is prohibited.
	Degree of explosion proofing		Do not use in potentially flammable surroundings. The processor is not suitable for use in a mixture of air and flammable anesthetic gas or a mixture of nitrous oxide and flammable anesthetic gas.
Compliance	Designed in accordance with		IEC60601-1
Size (excluding protrusions)	400 mm (W) × 205 mm (H) × 485 mm (D)		
Weight	22.0 kg		
Electro Magnetic Compatibility	EN60601-1-2		

Compatibility

Endoscope Compatibility	PENTAX color video endoscopes
	(i series*, 70K**, 80K, and 90K series)
	PENTAX fiberscopes (with video adapter module)
Add On Camera Compatibility	PENTAX PVK-1070, PVK-1070Z

*The light control method of the EPK-i5000 is equal as to the EPK-1000 method (Actuator method). This method requires specific software of the 90i endoscopes which can easily be updated in field by a PENTAX authorised service technician.

Actually purchased 90i endoscopes are automatically be compatible with the EPK-i5000 video processor.

An update needed 90i series endoscope will display a cyan image on the monitor only when connected to the EPK-i5000 video processor.

Please refer to according service note [**SN622** 90i series scope software update (35C014)] and the notice of modification [**NOM C0-063-R1**] in case of the software update is needed for previous supplied 90i endoscopes. A list of according SN is to be found in the latter document. Both documents are available from PENTAX service.

**PENTAX Confocal and Ultrasound endoscopes excluded

Standard Accessories

Art.-No.	Model	Quantity	Description
84513	OS-A79	1	KEYBOARD
86481	OS-A43H	1	WHITE BALANCE ADJUSTER
85006	OS-A17	1	BNC-BNC CABLE
86764	OS-A78	1	DVI CABLE
86365	OS-H4	1	WATER BOTTLE
83359	OS-I3	1	ENDOIMAGE2
86389	OL-Z3	1	CAPACITOR GROUNDING CABLE
		1	POWER CABLE
		2	FUSE
88258	Z964	1	OWNER'S MANUAL
88200	Z912	1	OWNER'S MANUAL FOR OS-I3
		1	STANDARD SET LIST

The following items can be purchased separately:

Art.-No.	Model	Quantity	Description
84513	OS-A79	1	KEYBOARD
84527	OL-X27	1	LAMP CARTRIDGE
84528	OL-X28	1	300W XENON LAMP

Warning:

- Replacement of the cartridge or lamp should only be undertaken by a PENTAX authorised person.
- When the lamp needs to be replaced, in order to ensure the most optimal brightness as well as the safety, PENTAX recommends the replacement of both lamp and cartridge as a set using PENTAX lamp cartridge OL-X27. However, in case only the lamp itself is replaced, the replacement lamp PENTAX OL-X28 is to be used.
- There is a possibility that the use of non-PENTAX brand lamp could cause excessive brightness and/or heat. And it is not known as to what type of adverse effect that could cause to the patients.

4. Sales Arguments

Comparison to PENTAX portfolio regarding the technical specifications

	PENTAX EPK-1000	PENTAX EPK-i5000	PENTAX EPK-i
HD+ Video*	N/A	SXGA (native resolution) parallel via DVI-D, VGA	SXGA (native resolution) via DVI-D
i-scan	N/A	Preset profiles 1,2,3	Full access via touch screen
User Interface	Operation panel, keyboard	Operation panel, keyboard	Intuitive touch screen, keyboard
Lamp	100W Xenon	300W Xenon	300W Xenon
Light Control	Actuator method-continuous light	Actuator method-continuous light	Rotary method-strobing light
Digital Zoom	N/A	N/A	1.0x - 2.0x
Picture in Picture (PiP)	N/A	N/A	possible
Fiberscope Connector	changeable	PENTAX only	PENTAX only
Freeze mode	Field / Frame	Field	Field / Frame
Size [mm]	380x155x420	400x205x485	430x205x485
Weight [kg]	15	22	26,5

*HD+ image quality in conjunction with 90i endoscopes

Comparison to competitor

	PENTAX EPK-i5000	OLYMPUS CV/CLV-180	FUJINON EPX-4400HD
Lamp	300W Xenon	300W Xenon	300W Xenon
HD Video Signal Output	DVI-D, VGA	HD-SDI, RGB or YpbPr	DVI-D, HD-SDI
SD Video Signal Output	RGB, Y/C, Composite	VBS composite, RGB, Y/C	RGB, Y/C, Composite
Advanced Imaging Processing	i-scan (3 settings)	NBI (one filter)	FICE (10 settings)
Image Recording Media	USB Drive	XD-Picture Card	CF Memory Card
Weight [kg]	22	25 (CV+CLV)	24 (VP+XL)

Keywords for sales argumentation

- The processor combines excellent illumination and unique HD+ quality
- Operate i-scan quickly and comfortably by the support of the preset i-scan profiles
- The latest image processing technology and an outstanding price-performance ratio

5. Marketing Activities

- Brochure Inlay and Recommended i-scan Settings Card



Profile i-scan 1: i-scan SE		Profile i-scan 2: i-scan TE		Profile i-scan 3: i-scan TE with CE	
Brightness	0	Brightness	+1	Brightness	+1
Ave/Peak	Ave	Ave/Peak	Ave	Ave/Peak	Ave
Blue	0	Blue	0	Blue	0
Red	0	Red	0	Red	0
Enhancement	low/+2	Enhancement	low/+2	Enhancement	low/+2
SE	+5	SE	+4	SE	+5
CE	off	CE	off	CE	+2
TE	off	TE	c	TE	c

Supports detection. Supports characterization. Supports characterization.