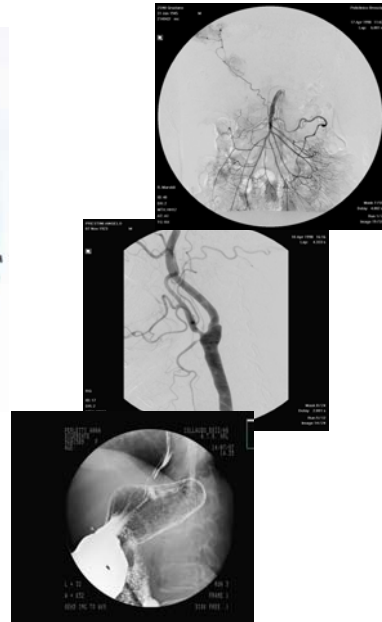


Electronic Spot Imaging CCD

New
New



GENERAL DESCRIPTION

- The **BIS CD** is an integral part of modern radiography diagnostics system.
- The **BIS CD** lets you acquire, process and view high quality, high resolution images in the following modes:

CONTINUOUS DIGITAL FLUOROSCOPY

PULSED DIGITAL FLUOROSCOPY

NON SUBTRACTED DIGITAL RADIOGRAPHY

REAL TIME D.S.A.

The BIS CD is the best possible investment a modern, multi-purpose computerised radio-diagnostic department can make.

- *1kx1kx10 bits resolution, CCD technology*
- *Higher performances at a lower price*
- *Digital adjustment only, minimum time requested for installation and service*
- *High reliability, more than 1000 BIS CD installed worldwide*
- *Networking connectability with Dicom 3 protocol*

APPLICATIONS

The **BIS CD** is the result of ten years in the field of digital video image processing, with numerous ESI systems already installed world-wide.

The **BIS CD** has been specifically designed for all routine examinations currently made using remote-controlled and conventional X-ray diagnostics :

- *GASTROENTEROLOGY*
- *GYNAECOLOGY*
- *SKELETAL*
- *UROGRAPHY*
- *CHOLANGIOGRAPHY*
- *ALL R&F PROCEDURES*

The **BIS CD** with its **D.S.A.** option extends the range of examinations possible to include angiography

The **BIS CD** with its pulsed digital high contrast fluoroscopy function (HCF) lets you perform advanced **interventional procedures** with maximum visual comfort.

The **BIS CD** is recommended for all cases where **a low X-ray dose**, high speed and immediate dynamic display of the acquired images are essential requirements (paediatric, interventional procedures, etc.).

FEATURES

DIGITAL FLUOROSCOPY

- Acquisition in continuous fluoroscopy (**1024x1024** or 1024x512) with high resolution display (1024 x 1024) , last image hold.
- Automatic registration of a run of images with a variable rate of:
1 i/sec, 3 i/sec, 6 i/sec, 12 i/sec, 24 i/sec and instant display of the complete run in “**cine-loop**” mode.
- Noise reduction using a recursive filter with automatic correction of movement.
- Image orientation: digital reverse (horizontal, vertical) and 90° rotation.
- Fast saving of a series or single image of interest to Hard Disk.

Digital Pulsed Fluoroscopy

- Acquisition in pulsed mode (**1024x1024** or 1024x512) with high contrast and rates of:
1 i/sec, 3 i/sec, 6 i/sec, 12 i/sec, 24 i/sec and instant display of the complete run in “cine-loop” mode.
- High resolution display (1024 x 1024), last image hold.
- Sharp images thanks to optimised KV-mA and brief duration of x-ray pulses (10 msec).
- Noise reduction using a recursive filter (12 and 24 i/sec) with automatic correction of movement.
- Image orientation: digital reverse (horizontal, vertical) and 90° rotation .
- Fast saving of a series or single image of interest to Hard Disk.

DIGITAL RADIOGRAPHY

- Automatic acquisition and processing with instant reproduction on the TV monitor.
- Automatic saving to RAM and HARD DISK.
- One-shot acquisition or acquisition of a run of images at a rate of 1/s, 2/s, 3/s, 4/s or 6/s.
- High resolution display (1024 x 1024) and last image hold.
- Automatic acquisition of “positive” and “negative” polarity (grey scale).
- Image orientation: digital reverse (horizontal, vertical) and 90° rotation.
- Automatic X-ray dose control by means of a solid state exposure meter (photodiode).
- Digital tomography.
- Angio step

SUBTRACTED DIGITAL RADIOGRAPHY (D.S.A.)

- Acquisition of a run of images at a rate of 1/s, 2/s, 3/s, 4/s or 6/s with subtraction and real time display of subtracted images.
- Possibility to use variable acquisition rates during the run, ranging from 6 images per second to 1 image every 10 seconds.
- Five different runs can be programmed at different rates.
- Possibility to select the subtraction mask manually or automatically.
- Possibility to program the start of the contrast injector.
- Automatic saving to RAM and HARD DISK.

IMAGES "POST-PROCESSING"

- Digital contrast (**window**) and brightness (**level**) controls using dedicated keys with indication on the TV monitor of the relevant numerical values.
- Digital **edge enhancement**.
- Reversed polarity **B/W**.
- **Horizontal and Vertical reversal**.
- **90°** rotation.
- **Overview** of 4 or 16 images on TV monitor.
- **Zoom x2** with horizontal and vertical shift in the area of interest.
- **Tagging** of images to protect from accidental deletion.
- Electronic **diaphragm** opening in the area of interest.
- Treatment **filter** dedicated to skeletal .
- Display of images in "**cine-loop**" mode.
- Management of **patient lists**, new patients and hospital data.
- **Overlay** of pre-programmed text or free text on images.
- **Deletion** of single images, groups of 16, an entire scan or a selected group of scans.
- **Pixel shift**, image mask shift in subtracted mode.*
- **Subtracted/non-subtracted** image display.*
- **Stenosis** measurement in %.*
- **Measurement** of distances/angles via calibration.
- Choice of new **mask**.*

* only with the DSA option.

IMAGE PRINTING

- Digital laser imager interface (1024 x 1024), optional.
- Analog video interface 1249/1049 lines (50/60 Hz).

ARCHIVING

- Possibility to save images to optical disk, optional.

NETWORKING

- Possibility to connect the **BIS CD** to Ethernet using TCP/IP protocol in order to send images in DICOM 3 mode (with BIS CD option)

TECHNICAL DATA

- **SYSTEM CONFIGURATION**

	Basic	DSA
Image intensifier	S	S
CD1000 camera complete with optical relays	S	S
Cabinet containing video processor, system controller and feeder	S	S
17" monitor	S	S
Reference monitor	O	O
Monitor stand	O	O

- **IMAGE INTENSIFIER**

9" HP and 9", 12", 14", 16", Thomson HX models and 9" HP models	S	S
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- **TV CAMERA**

2/3" CCD sensor, 1300 x 1030 pixels, progressive scanning	S	S
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- **ACQUISITION**

10 bit analog/digital converter	S	S
24 i/sec with 1024 x 512 matrix (continuous and pulsed HCF fluoroscopy)	S	S
12i/sec with 1024x1024 matrix (continuous and pulsed HCF fluoroscopy)	S	S
6 i/sec with 1024 x 1024 matrix (radiography)	S	S

- **OPTICAL UNIT**

Relays, with incorporated photodiode for dose control	S	S
Motorised iris and neutral filter	S	S

S = standard
O = optional

- **VIDEO PROCESSOR**

SIEMENS SMP-E20 microcontroller	S	S
SIEMENS RMOS operating system	S	S
40 Mbytes RAM	S	S
80 Mbytes RAM	O	O
160 Mbytes RAM	O	O
320 Mbytes RAM	O	O
4 Gbytes Hard Disk memory	S	S
3 video outputs, 1249/1049 interlaced lines (50/60 Hz)	S	S
Digital laser imager interface, 3M-959 protocol	O	O
PC keyboard with dedicated function keys	S	S
Infrared remote control	O	S
4 Gbytes optical disk, SCSI2 interface	O	O
D.S.A. features	O	S

- **MONITORS**

Model 17 H, 17" flat screen, anti-reflection, 1249/1024 interlaced lines (50/60 Hz)	S	S
Reference monitor, model 17 H	O	S

- **NETWORK INTERFACE**

DICOM 3 protocol, via BIS CD DIC module	O	O
Class Print & Store as an alternative	O	O

- **SYSTEM CONTROLLER**

Radiography and fluoroscopy dose control	S	S
Optical iris and neutral filter control	S	S
X-Ray generator and accessories interface	S	S

- **FUNCTIONS**

Entry of patient and hospital data	S	S
Automatic indication of patient and hospital data on image	S	S

- **REAL TIME ACQUISITION FUNCTIONS**

Recursive filter in continuous and pulsed fluoroscopy, with automatic correction of movement	S	S
Automatic saving of fluoroscopy images to RAM	S	S
Automatic saving of fluoroscopy images to HARD DISK	S	S
Window, level and edge enhancement	S	S
Reverse polarity (radiography)	S	S
Digital image reversal, horizontally and vertically	S	S
Digital 90° rotation	S	S
Last image hold	S	S
Road mapping	-	S
Mask image acquisition	-	S
Digital image subtraction	-	S
Contrast injector start control	-	S

S = standard
O = optional

• **POST PROCESSING FUNCTIONS**

Patient recall	S	S
Window, level and edge enhancement	S	S
Reverse polarity (radiography)	S	S
Digital zoom, max x2	S	S
Electronic shutter	S	S
Overlay of test on image	S	S
Measurements	S	S
Selection of images via guide image	S	S
Selection of reference images	O	S
Overview, 4 images/16 images	S	S
Cine loop	S	S
Remasking	-	S
Digital image subtraction	-	S
Pixel shifting	-	S

S = standard
O = optional

• Power Supply

- 230 Vac 50/60 Hz
- 450 VA (with two monitors)

• Reference standards

- EN 60 601-1
- EN 60 601-1-2
- EEC Directive 93/42 (class IIb)

• Classification (EN 60 601-1)

- Class I
- Type B
- Continuous operation



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