



BIS-CD/CDT

Product Data **Digital Imaging System**

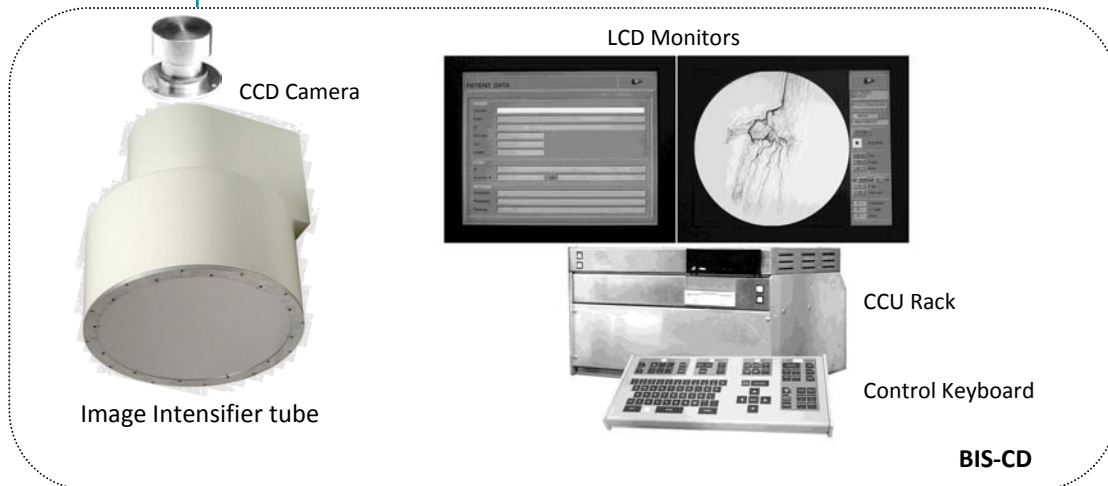
DESCRIPTION

High Resolution Digital Imaging System for all routine and specialistic examinations in Remote Controlled R/F rooms, with new improved software for easy operation and user friendly interface. Digital Image acquisition, processing, display, storing, for all radiographic images easily converted to DICOM 3.0 and sent to a PACS network, to a DICOM printer or a recorder on CD or DVD.

COMPOSITION

The BIS-CD Digital Imaging System consists of:

- Image Intensifier tube
- CCD Camera
- CCU Rack (Acquisition and Processing unit) with control keyboard
- LCD monitor



MAIN FEATURES

Image Intensifier tubes	Latest technology 9" (22,5 cm) or 12" (31 cm) I.I. tubes for general R&F investigations.
CCD Camera	Progressive scan sensor 1K × 1K , with 12 bits image acquisition resolution.
CCU Rack	HD processor to manage 1024 × 1024 12 bits images at a max of 12 frame /second. All images recorded on Hard Disk at high speed, without the use of a buffer RAM memory. DRF (Dynamic Recursive Filter) wich allows pixel by pixel shifting of the recursive filter factor. Better photonic noise reduction, erasing image persistence during patient movement.
LCD Monitor	Specifically designed for medical applications. Two screen formats: 17" and 19", with 1280 × 1024 pixels resolution.



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TECHNICAL DATA

IMAGE INTENSIFIER TUBES

Brand and Model	Toshiba E5830SD-P1A	Toshiba E5796SD-P2A
Nominal entrance field size	9" / 6" / 4.5" (230 mm / 160 mm / 120 mm)	12" / 9" / 6" (310 mm / 230 mm / 160 mm)
Output image field size	25 mm	25 mm
Output glass thickness	14 mm	14 mm
Central resolution (Lp/cm)	52 (9") 58 (6") 68 (4.5")	46 (12") 50 (9") 56 (6")
Contrast ratio:		
• 10% area contrast	30:1 (9")	30:1 (12")
• 10 mm diameter contrast	19:1 (9")	18:1 (12")
Conversion factor	220 cd*m ² /mR*s ⁻¹ (9") 26 cd*m ² /μGy*s ⁻¹ (9")	300 cd*m ² /mR*s ⁻¹ (12") 34 cd*m ² /μGy*s ⁻¹ (12")
DQE (IEC Standard)	65% (9")	65% (12")



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TECHNICAL DATA

CCD CAMERA

Available CCD scanning system

- Progressive scanning
- 1024 × 1024 pixels
- Acquisition A/D 12 bits resolution
- Signal to noise ration: > 67 dB
- Integrated optical system and neutral density filter for spot radiography

USER INTERFACE

keyboard

- Alphanumeric keyboard with special functions
- LED lights for functions selected
- Flat and waterproof surface

Video Output

- Nr. 3 video outputs for fluoroscopy, radiography and room monitors at high resolution 1280 × 1024 pixels with aspect ratio 4:3
- Nr. 1 video output at low resolution for VCR or Video Printer
- Nr. 1 video output for standard laser print.

DICOM Output

- Ethernet output for connection with the Hospital network, in order to send the stored images to a DICOM printer, to a PACS or to a Workstation.
- USB/2 output for connection with a remote CD/DVD recorder to store the images in a DICOM format.

IMAGE ACQUISITION AND RECORDING

Mode

12 bits progressive scanning acquisition and visualization

Radiographic and Fluoroscopy images

1024 × 1024 pixels

Memory capacity

- 72 GBytes with BIS-CD
- 140 GBytes with BIS-CDT

Maximum images storage capacity

- 36.000 images, matrix 1024 × 1024 pixels with BIS-CD
- 72.000 images, matrix 1024 × 1024 pixels with BIS-CDT



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DISPLAY CHARACTERISTICS

MONITOR 17"

MONITOR 19"

• Viewing angle	180°	180°
• Contrast	1000:1	1000:1
• Resolution	1280 x 1024	1280 x 1024
• Pixel pitch	0.264 x 0.264 mm	0.294 x 0.294 mm
• Gray scale	768 levels	768 levels
• Max luminance	350 Cd/m ²	1000 Cd/m ²
• Calibration	Automatic	Automatic
• Aspect ratio	4:3	4:3
• Response time	Total response time less than 25 msec	Total response time less than 25 msec
• A/D sampling	10 bit	10 bit
• Screen surface	Anti veiling glare/reflection with no speckle noise	Anti veiling glare/reflection with no speckle noise
• Storage memory	Last Image hold input connection	Last Image hold input connection
• Video input	2 BNC connectors 75 Ohm	2 BNC connectors 75 Ohm
• Video signal	1 Vpp negative synchronization	1 Vpp negative synchronization
• Standard video	CCIR 625 / 50 Hz EIA 525 / 60 1049 / 60 625 / 100 Hz 1249 / 50 Hz	CCIR 625 / 50 Hz EIA 525 / 60 1049 / 60 625 / 100 Hz 1249 / 50 Hz



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CLINICAL APPLICATIONS

Standard exams and with contrast agent	Gastroenterological, bones exams, ERCP, urology, myelography, etc.
Tomography	In low dose modality, standard and sequential mode.
Vascular exams	Thoracic angiography, carotid, peripheral, phlebography.

WORKING MODALITY

FLUOROSCOPY MODE

Continuous and HCF (High Contrast Fluoro)

- Acquisition matrix 1024 × 1024 pixels at 25 frame/second
- HCF at 12 or 25 frame/second
- Automatic storage on Hard Disk
- Nr. 5 levels of integration for the noise reduction of the image
- Automatic regulation of the video level and of the radiologist parameters (kV/mA)
- Nr. 10 levels of kV/mA selected by the operator to correct the exposure parameters
- Nr. 6 different ROI (Region of Interest) selected before or during the exposure
- Nr. 7 levels of edge enhancer
- Positive and negative reverse
- DRF (Dynamic Recursive Filter) which allows pixel by pixel shifting of the recursive filter. Zero persistence.
- LIH (Last Image Hold)
- Road mapping

RADIOGRAPHY MODE

- Acquisition matrix 1024 × 1024 pixels at max. 6 frame/second (12 frame/second with BIS-CDT)
- Automatic storage on RAM Disk
- Nr. 5 Standard acquisition modalities, with different algorithms, in function of the exam type: Spot - Bone - Angio - Peripheral - Tomo
- Nr. 20 Anatomic programs for each acquisition modality
- Low dose acquisition (pediatric applications)

ANGIOGRAPHY *Available only on BIS-CD/DSA and BIS-CDT-DSA*

- Maximum opacification
- DSA (Digital subtraction Image)
- Landmarks

POST-PROCESSING

- Symmetrical and asymmetrical electronic diaphragm
- Nr. 7 levels manual edge enhancement
- Positive and negative image display
- Angles and length measurements
- Text writing on images
- Exam playback in acquisition speed or frame by frame
- Play-back in subtraction mode for standard exams with maximum opacization
- Remasking
- Mask pixel shift
- Full size or multi mode print
- Full size or multi format size images
- Automatic and manual windowing
- Zoom x4, with scrolling



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DIMENSIONS AND WEIGHT

Item	Specifications
CCD Camera	Diameter 140 mm Height 95 mm Weight 2 Kg
Control Unit (Rack)	Height 254 mm Depth 345 mm Width 440 mm Weight 15 Kg
Control Keyboard	Height 40 mm Depth 195 mm Width 435 mm Weight 2 Kg

MAIN POWER SUPPLY

230 Vac - 50 Hz / 60Hz - 780 mA - 180 Watt

Note: Technical specifications are subject to modifications without prior notice.



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