DICOM Theater®

Medical grade projection solution

BARCO

Visibly yours

Projections

you can rely on

DICOM Theater® is Barco's answer to the growing demand for large-screen imaging in professional medical environments. The flexible projection system offers hospitals a medical grade solution for displaying a variety of images, video or business documents.

Barco's sophisticated DICOM Theater® has been specifically designed for use in medical environments. The only projection system to display medical images with DICOM accuracy, it ensures diagnostic medical grade projections you can rely on.

Applications include:

· clinical review of complex cases
· medical rounds
· radiology resident lectures
· training and student teaching sessions
· video conferences with other academic centers
· department meetings involving medical and non-medical content

DICOM Theater® Lite

First-class performance in a compact design

DICOM THEATER® Lite is Barco's compact professional projector solution for use in medical imaging applications. The sophisticated DICOM THEATER® Lite unites high brightness and a native SXGA+ resolution (1400x1050) in a user-friendly, portable design. This unique merger of image performance and portability makes it the most versatile medical grade projection system available today.

Why choose DICOM Theater® Lite?

- High resolution (1400x1050)
- Highest brightness and contrast in its category
- Broad input connectivity
- Built-in DICOM-presets
- User-friendly THEATERWATCH® visual calibration tool included
- Ultra-silent during operation
- Very compact and lightweight design

First class image quality

The heart of the DICOM THEATER® Lite imaging solution is Barco's high-resolution MGP D5 projector, incorporating the latest generation single chip high-resolution (1400x1050 native) DLP™ technology. Combined with the DarkChip2™ contrast enhancing technology, the MGP D5 delivers first-class projections with extremely high contrast (2000:1), comfortable light output (2,000 Lumen) and perfect crispness. In addition, viewers will be impressed with the projector's ultra-silent operation (only 28 dB).

DICOM-compliant out of the box

DICOM THEATER® Lite is fully optimized for PACS viewing. Thanks to its preprogrammed DICOM settings, DICOM accurate viewing is at your fingertips. Accuracy to the DICOM curve is guaranteed, since this optimization is done inside the image processing part of the projector instead of externally.

Users can choose between four preprogrammed DICOM settings: DICOM Full White, DICOM Full White Boost, DICOM ClearBase and DICOM ClearBase Boost. This enables users to work with their preferred light output or DICOM settings and to match their projector settings to the color temperature of their flat panel display.

Portable solution

Next to its usage in a fixed installation set-up, the compact and lightweight design of the MGP D5 allows you to share the projector among multiple rooms or locations within the hospital. The projector can easily be transported on a trolley or can simply be hand carried.

Easy-to-use TheaterWatch® calibration software

To further optimize the projector for DICOM-compliant viewing, users can use the intuitive THEATERWATCH® visual calibration software. With THEATERWATCH®, only a few steps are needed to fine-tune and increase the accuracy of the DICOM part 14 representation of the projected PACS images. It couldn't be any easier.
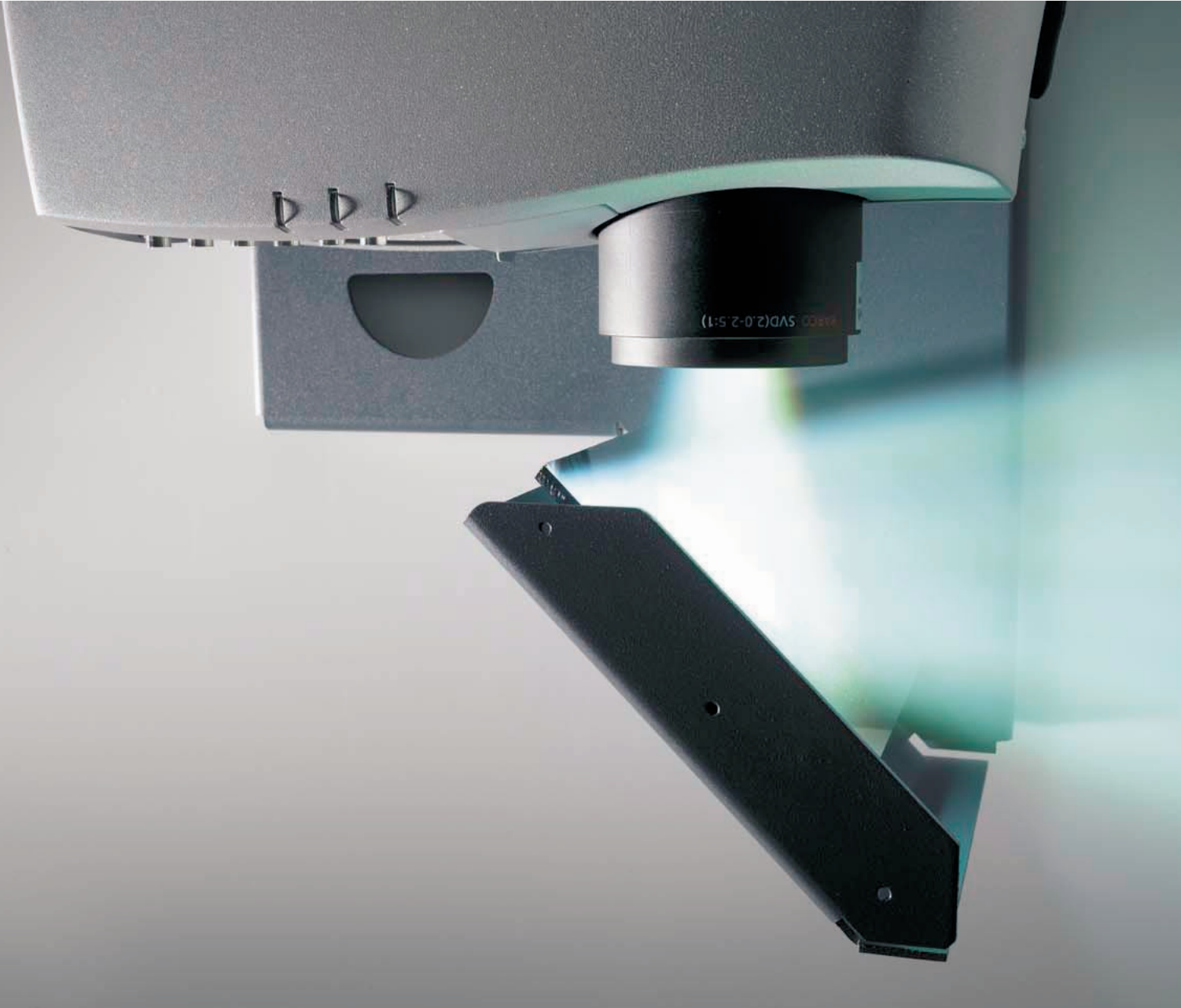
Simple connectivity

Connecting the DICOM THEATER® Lite to a PACS workstation is very simple. The dedicated graphics controller and high-quality cables that come with the system allow for a swift and clutter-free connection. The MGP D5 itself offers wide connectivity options to a broad range of sources, including DVI, multiple analog VGA sources and various video interfaces. Connection of a new video source will be instantly detected and displayed.

Optional diagnostic LCD displays

When combined with one or more optional flat panel displays, DICOM THEATER® Lite becomes a complete turnkey solution for the hospital's conference room.

MGP D5 projector

MGP 15 projector in portrait configuration

The DICOM THEATER® Pro is Barco's top-of-the-line medical projection system, combining professional image performance with extensive functionality. DICOM THEATER® Pro bundles a powerful MGP 15 projector, a dedicated BARCOMED® display controller, MEDICAL® Pro QA software and one or more flat panel displays into a flexible, high-grade projection solution. The system is available in single- and dual-head configurations.

Why choose DICOM Theater® Pro?

- High brightness
- Simultaneous viewing of medical information through picture-in-picture technology
- Guaranteed image quality for both grayscale and color PACS viewing
- I-GUARD® technology for continuous DICOM compliance
- Automated QA management through MEDICAL® Pro
- Available in portrait or landscape configuration

MGP 15 projector

Exceptional brightness

Barco's advanced MGP 15 projector integrates a smart dual lamp design and the latest generation high-resolution Poly-Si LCD technology (1400x1050 native), a unique combination that brings exceptional brightness (4500 ANSI Lumen) and detail to your projections. Because of all this, the powerful MGP 15 provides a perfect solution for large-screen applications in large conference rooms or auditoriums. Moreover, the projector's dual lamp design brings redundancy to your system and guarantees images at all times.

Projections you can rely on

In medical applications, highly accurate image representation is crucial. That's why DICOM THEATER® Pro is equipped with I-GUARD®, Barco's eye of filmless perfection. The on-screen I-GUARD® sensor constantly guards DICOM conformance of the projected image and accounts for the ambient light conditions in the room. Thanks to I-GUARD®, DICOM THEATER® Pro brings you high-grade projections you can rely on.

Accuracy on every screen

The high-performance BARCOMED® 2MP2CP is a flexible color and grayscale display controller specifically designed for DICOM THEATER®. With separate dynamic Look-Up-Tables, you can individually adjust the DICOM settings for the projector and the review display. By doing this, accurate image representation on every screen is guaranteed.

Portrait/landscape option

Upon installation, users can opt for a portrait or landscape configuration. This unique feature allows for an optimal use of the available projector resolution and a perfect match between the projector's and the displays' orientation.

Automated softcopy QA management

DICOM THEATER® Pro comes with Barco's MEDICAL® Pro QA software tool for automated softcopy QA management. The software constantly tracks, maintains and logs viewing performance of the MGP 15 projector and connected review displays to ensure the reliability of the displayed images at all times.

High-quality Coronis® review displays

DICOM THEATER® Pro can be combined with one or more grayscale or color review displays from Barco's successful CORONIS® line. This way, both the presenter and the audience are presented with the same accurate image quality.

Innovative technology

Thanks to the advanced picture-in-picture technology, PACS images of 2 Coronis® displays can be projected simultaneously by a single DICOM Theater® Pro projector

bringing exceptional image quality

Simultaneous viewing of medical information

Efficient medical viewing means looking at multiple images at the same time. DICOM THEATER® Pro provides two ways of doing this.

A dual-head configuration provides ample space to display large data sets. Thanks to a dedicated selection of all optical components and Barco's proprietary I-GUARD® technology, color matched side-by-side projection is guaranteed.

In addition, DICOM THEATER® Pro is equipped with an integrated picture-in-picture functionality, which allows users to display up to 3 sources on one screen.
These can be, for instance, multiple grayscale images, or a grayscale image combined with a color image and live teleconferencing video. This innovative picture-in-picture functionality allows hospitals to limit their investment to only one cost-efficient DICOM-compliant projector to replicate the data of a dual-head display set-up, without compromising functionality.

High-speed BARCOMED® display controller

Easy integration into the PACS network

Barco's high-speed BARCOMED® 2MP2CP display controller with high-quality DVI/analog video output allows connecting both the display and the projector without the need for 'external boxes' or extra peripherals. Thanks to its cloned head functionality, the display controller can generate the same image on both the display and the projector.
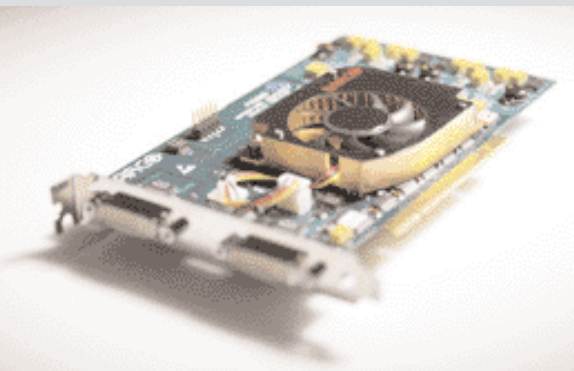
Integrated I-Guard® for continuous DICOM compliance

I-GUARD® is Barco's eye of filmless perfection. Although very small, the patent pending sensor sees what you see without disturbing your work. I-GUARD® takes readings from a small, representative patch in the corner and adjusts the colorimetry and luminance output of the actual diagnostic viewing area, thereby ensuring consistent image quality and continuous DICOM conformance at all times. At every start-up, the I-GUARD® measures the ambient light conditions and luminance evolution of the projector and adapts the projector settings to optimize the output.

Automated intervention-free QA

Combined with the I-GUARD® sensor, Barco's MEDICAL® Pro softcopy QA software provides fully automated image Quality Assurance without the need for human intervention. MEDICAL® Pro tracks, maintains and logs display viewing performance, automates QA tasks, initiates display system calibration and sets up the most precise DICOM Look-Up-Table (LUT) calibration.
With the MEDICAL® Pro software included, DICOM THEATER® Pro systems are ready for integration into the hospital's softcopy QA management system, using Barco's MEDICAL® Administrator software.

Technical specifications MGP D5 and MGP 15 projectors

	MGP D5 - DICOM Theater® Lite	MGP 15 - DICOM Theater® Pro
IMAGING DEVICE		
- Technology:	Single Chip DLP™ DMD™ with DarkChip2™	3x 1.4'' Poly-Silicum LCD with MLA
- Native panel resolution:	1400x1050 pixels	1400x1050 pixels
VISUAL CHARACTERISTICS		
- Light output: Typical (DICOM Mode):	2,000 Ansi Lumen	4,500 Ansi Lumen
- Contrast: Full white/full black:	2,000:1	800:1
LAMPS		
- Lamp type & power:	250W UHP	2x 250W UHP
- Lamp lifetime (typical):	2,000 hrs (full power) 4,000 hrs (dimmed, economy)	1,500 hrs (dual lamp mode) 3,000 hrs (single lamp mode)
LENS Throw Ratio:	1.7-2.2:1 (standard)	2.0-2.5:1 (mid zoom, standard) 1.3-1.8:1 (short throw, optional) 3.0-6.0:1 (long throw, optional) 0.85:1 (ultra short throw, optional)
Lens offset:	8% of image height (fix)	-30% to +110% (variable)
ORIENTATION	Landscape	Landscape/portrait
DICOM Factory presets: Calibration:	DICOM Full White/Full White Boost DICOM ClearBase/ClearBase Boost THEATERWATCH® Visual DICOM Calibration tool	DICOM Full White/ClearBase/BlueBase DIN Full White/ClearBase/BlueBase MEDICAL® Pro 2.04 Autom. QA & Calibration tool, incl. I-GUARD sensor
CONNECTIVITY		
- Digital video input: - Analog video input:	1x DVI-D (Single Link) 2x VGA (15-pin HDDSUB) 1x Component Video (3x RCA) 1x S-Video (4-pin Mini DIN) 1x Composite Video (RCA)	1x DVI-D (Single Link) 1x VGA (15-pin HDDSUB) 1x 5BNC, configurable for RGBHV, RGBS, RGsB and component video 1x S-Video (4-pin Mini DIN) 1x Composite Video (BNC)
- Computer output: - Communication:	1x VGA (15-pin HDDSUB) 2x R232 (In/Out on 9-pin DSUB) 1x LAN (TCP/IP Network on RJ45) 1x USB (mouse control)	1x R232 (In on 9-pin DSUB)
- Audio input: - Audio output:	2x stereo (data/video on 3.5mm mini jack) 1x stereo (3.5mm mini jack)	
SUPPORTED RESOLUTION & FORMATS		
- Horizontal scan frequencies: - Vertical scan frequencies: - Computer graphics formats: - Video formats:	15-150 kHz 48-190 Hz VGA, SVGA, XGA, SXGA, SXGA+, UXGA DVI sources up to SXGA+ PAL, SECAM, NTSC 3.58, NTSC 4.43 HDTV (1080i, 720p, 576 i/p, 480 i/p)	15-150 kHz 25-150 Hz VGA, SVGA, XGA, SXGA, SXGA+, UXGA DVI sources up to SXGA+ PAL, SECAM, NTSC 3.58, NTSC 4.43 HDTV (1080i, 720p, 480 i/p)
POWER		
- Power dissipation: - Power requirements: - Power consumption:	1480 BTU/hr 100-240 VAC, 50 to 60 Hz 350 Watt	< 2117 BTU/hr 90-254 VAC, 50 to 60 Hz 620 Watt
APPROVALS		
- Safety: - Electromagnetic interference: - Other:	UL1950, EN60950 FCC Class A, ICES-003 Class A, EN55022 Class A CCC, CE	UL1950, EN60950 FCC Class A, EN55022 Class A, ICES-003 Class A CCC, CE
PHYSICAL CHARACTERISTICS		
- Dimensions (LxWxH): - Weight:	244 x 278 x 88 mm 9.6 x 10.9 x 3.5 inch 3.4 kg / 7.5 lbs	565 x 415 x 195 mm 22.25 x 16.34 x 7.68 inch 12,9 kg / 28.5 lbs w/o lens max. 20 kg / 44 lbs w/ lens
- Operating noise:	28 dB(A)	< 38 dB(A)
ACCESSORIES	Cable basket IR Remote Control with laser pointer	Cable basket 2x IR Remote Control (extensive & simplified)

Technical specifications BarcoMed® 2MP2CP display controller

	BARCOMED® 2MP2CP
SYSTEM REQUIREMENTS	
- Bus:	PCI 2.2
- Bus clock speed:	33 Mhz
- Bus width:	32 bit
- Power consumption:	< 25 watts
- Operating systems:	Windows 2000, XP Professional
- Platforms:	Pentium IV class and up
CHARACTERISTICS	
- Display configuration:	single- or dual-head
	portrait or landscape
- Graphics processor:	high-performance graphics rendering engine
- Display memory:	64MB DDR SDRAM
- VGA:	integrated VGA controller. Also compatible
	with external VGA cards
- Pixel clock rate:	120 Mhz
- Look-up table:	24 bits in / 24 bits out
- Display depth:	24 bit color
- Electrical Standard:	Single link DVI complying to v1.0 specification
VIDEO OUTPUT	
- Connectors:	Two DVI connectors
- Dual-Output Video:	DVI or Analog RGB
- Supported resolutions:	1280x1024/1024x1280 @ 60 Hz
	1400x1050/1050x1400 @ 60 Hz
	1600x1200/1200x1600 @ 60 Hz
- Refresh rates:	VGA at boot-up
APPROVALS	
- Saferty:	UL1950
- Electromagnetic Interference:	FCC class A, EN 55022A, ICES-003 Class A
- Other:	CE

DICOM Theater® flat panel display compatibility

Projector: MGP 15 - Display Controller: BARCOMED® 2MP2CP

Barco Display type		1MP (1280x1024)	2MP (1600x1200)	3MP (2048x1536)	5MP (2560x1536)
Grayscale	CORONIS®-line	CORONIS® 1MP (MFGD 1318)	CORONIS® 2MP (MFGD 2320/2321)	X	X
Color	CORONIS®-line	-	COLOR CORONIS® 2MP (MFCD 2320/2321)	X	X
	General	MFCD 1218	-	-	-

Barco medical imaging systems

Barco has established a solid reputation in the medical imaging market by providing high-performance visualization technology for X-ray, digital radiography, digital mammography, ultrasound, magnetic resonance, computed tomography, PACS and 3D imaging applications. Its full line of color and grayscale displays, display controllers, radiology display systems, medical grade projectors, QA tools and Voxar medical imaging software facilitates confident diagnoses and overcomes the traditional constraints of conventional 2D and 3D workstations.

Barco's expertise is supported by a worldwide network of research, development and support services. Barco possess a solid partnership approach, coupled with a global sales organization and regional support people who understand your language and requirements.

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