

MGP D5 Dicom Theater Lite



Installation & User Manual

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Preface

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Notice

Although every attempt has been made to achieve technical accuracy in this document, we assume no responsibility for errors that may be found. Our goal is to provide you with the most accurate and usable documentation possible; if you discover errors, please let us know.

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FCC notice

This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian notice

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

Safety Instructions

General Recommendations

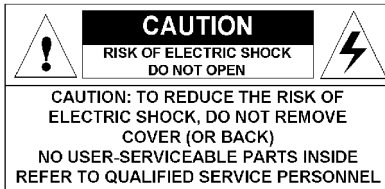
Read the safety and operating instructions before operating the display.

Retain safety and operating instructions for future reference.

Adhere to all warnings on the display and in the operating instructions manual.

Follow all instructions for operation and use.

Electrical shock



Type of protection (electrical):

Class I equipment

Degree of safety (flammable anesthetic mixture):

Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Power connection

- Power requirements: The display must be powered using the 12 VDC power supply that is supplied with the display.
- The 12 VDC power supply must be powered by the AC mains voltage.

- Power cords:

Power cord with CEE 7 plug: The colors of the mains lead are colored in accordance with the following code: Green-and-yellow: Earth (safety earth), Blue: Neutral, Brown: Line



Power cord with ANSI 73.11 plug: The wires of the power cord are colored in accordance with the following code: Green/yellow: ground, White: neutral, Black: line (live)



- Do not overload wall outlets and extension cords as this may result in fire or electric shock.
- Mains lead protection (U.S.: Power cord): Power cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or against them, paying particular attention to cords at plugs and receptacles.

Water and moisture

Never expose the display to rain or moisture.

Never use the display near water - e.g. near a bathtub, washbasin, swimming pool, kitchen sink, laundry tub or in a wet basement.

Ventilation

Do not cover or block the ventilation openings in the cover of the set. When installing the display in a cupboard or another closed location, heed the necessary space between the set and the sides of the cupboard.

Installation

Place the display on a flat, solid and stable surface that can bear the weight of at least 3 displays. If you use an unstable cart or stand, the display may fall, causing serious injury to a child or adult, and serious damage to the equipment.

More warnings in the Installation chapter.

This apparatus conforms to:

CE, IEC 60950, UL 60950, CAN/CSA C22.2 No. 60950 (c-UL), CCC.

National Scandinavian Deviations for Cl. 1.7.2 :

Finland: "Laitte on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"

Norway: "Apparatet må tilkoples jordet stikkontakt"

Sweden: "Apparaten skall anslutas till jordat uttag"

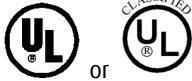
Explanation of symbols

Symbols on the display and power supply

On the display or power supply, you may find the following symbols:



Indicates the display is approved according to the CE regulations



Indicates the display is approved according to the UL regulations



Indicates the display is approved according to the c-UL regulations



Indicates the display is approved according to the DEMKO regulations



Indicates the display is approved according to the CCC regulations



Indicates the USB connectors on the display

Symbols used throughout the manual:



Warning or caution



Important notice or remark



Hint, tip

Overview

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Introduction

About the system

MGP D5 Dicom Theater provides consistent image quality for consulting, reviewing and training applications. The system offers a turnkey solution, bundling high-bright medical grade projector, flat panel display, dedicated display controller and MediCal® Pro QA management software. MGP D5 Dicom Theater is available in single- head and dual - head configurations.

MGP D5 Dicom Theater facilitates consulting and reviewing: this ceiling-mount medical projection system combines ClearBase and Projector Native White modes, has a user-friendly remote control and features versatile connectivity to add a multitude of both color and grayscale application sources, including PACS, X-ray, ultrasound, endoscopy, etcetera.

The MGP D5 Dicom Theater system includes TheaterWatch software, which enables you to calibrate the projector(s) based on a visual algorithm.

About the separate components

The BarcoMed 2MP2CP display controller generates the images for the display and the projector. It is a dual-head board with two video outputs, which allows it to send video signals to two different display devices. Both video outputs can be defined to deliver the same video signal or two separate video signals.

Both heads have separate Lookup Tables (LUTs), so that the display curve or Preset can be defined and stabilized separately for both display devices.

The MGP D5 projector has multiple inputs, allowing it to be used for projecting the medical images on a large screen or displaying other images, like text, spreadsheets, presentations, etcetera.

The LCD display is used as review display in the MGP D5 Dicom Theater system. Calibration and stabilization of the display is

done by means of the I-Guard® optical sensor, incorporated in the bezel of the display.

The MediCal Pro software is used for defining the Preset the display devices must be conform to and calibrate them to make them conform to the Preset.

The TheaterWatch software is a systray tool normally operating in background, which enables you to calibrate the projector(s) based on a visual algorithm.

Other relevant documentation

- MediCal Pro® Installation and User Manual: Describes in detail how to install and use the MediCal Pro software.
- TheaterWatch online help and user manual on CD-ROM: Describes how to use TheaterWatch.
- User Guide for Medical Grade Projector MGP D5: Describes in detail how to connect, use and control the MGP D5 projector.
- Installation Manual Ceiling Mount for MGP D5: Describes in detail how to install the ceiling mount kit for the MGP D5 projector.
- Display User Manual

Important installation considerations

1. Make sure all equipment is switched off before installing.
2. In case you use a PCI extension box, please install the box following the guidelines in its Installation or User's guide.

Quick installation overview

MGP D5 Dicom Theater installation overview

To install the MGP D5 Dicom Theater system completely, you have to follow these steps:

1. Install the BarcoMed display controller(s) in the PC. For more information, please refer to the section about the “Display controller installation”.
2. Install and connect the medical grade projector(s) and display(s). For more information, please refer to the MGP D5 User Guide and the display User Manual.
3. Install the BarcoMed driver software. For more information, please refer to the section about the “BarcoMed software driver installation”.
4. Install the MediCal Pro and TheaterWatch software. For more information, please refer to the sections about MediCal Pro and TheaterWatch.
5. Start and use MediCal Pro and TheaterWatch. For more information, please refer to the sections about MediCal Pro and TheaterWatch.

Installation examples

This chapter illustrates the most common set-ups supported by MGP D5 Dicom Theater.

a) Single-head with 1 display and 1 projector

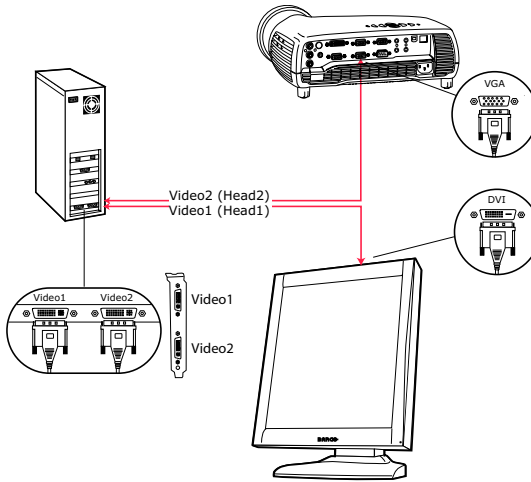


Figure 1

Proceed as follows:

1. Connect PC output video2 to the projector VGA input by means of the DVI-to-VGA cable (15 m / 50 ft).
2. Connect PC output video1 to the display DVI video input by means of the DVI-to-DVI cable.

b) Single-head with two projectors

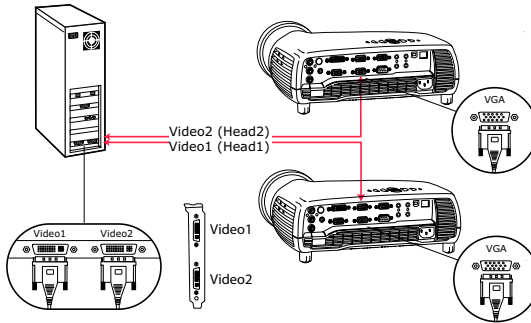


Figure 2

Proceed as follows:

1. Connect one PC video output to the first projector's VGA input by means of a DVI-to-VGA cable (15 m / 50 ft).
2. Connect the other video output to the second projector's VGA input by means of a DVI-to-VGA cable (15 m / 50 ft).

c) Dual-head with two displays and two projectors

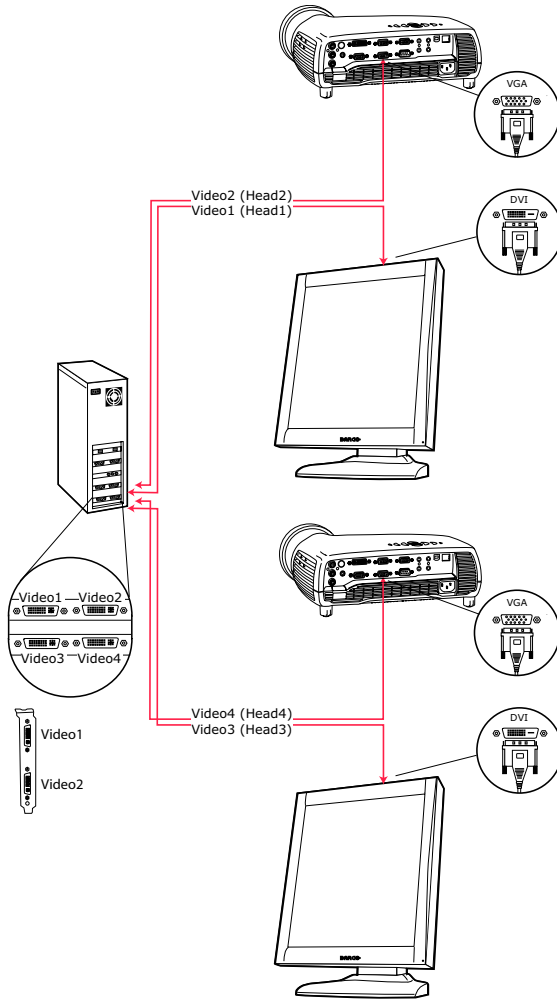


Figure 3

Proceed as follows:

1. Connect PC output video2 to the first projector's VGA input by means of a DVI-to-VGA cable (15 m / 50 ft).

2. Connect PC output video1 to the first display's DVI video input by means of a DVI-to-DVI cable.
3. Connect PC output video4 to the second projector's VGA input by means of a DVI-to-VGA cable (15 m / 50 ft).
4. Connect PC output video3 to the second display's DVI video input by means of a DVI-to-DVI cable.



Important:

Do not connect the two display inputs nor the two projector inputs to the same display controller. In other words, to each display controller, a display input and a projector input must be connected.

e) Dual-head with two displays and one projector

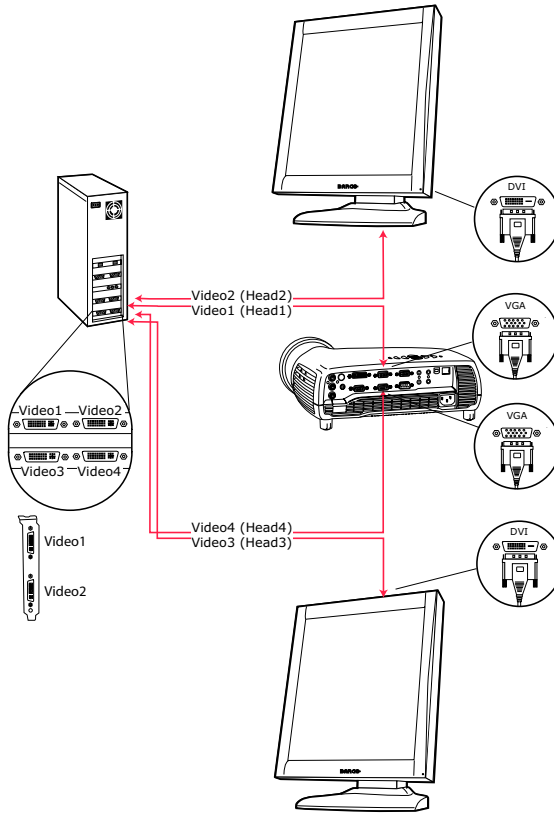


Figure 4

Proceed as follows:

1. Connect PC output video2 to the first display's DVI video input by means of a DVI-to-DVI cable.
2. Connect PC output video1 to the projector VGA input by means of a DVI-to-VGA cable (15 m / 50 ft).
3. Connect PC output video4 to the projector VGA input by means of a DVI-to-VGA cable (15 m / 50 ft).

4. Connect PC output video3 to the second display's DVI video input by means of a DVI-to-DVI cable.



Important:

Do not connect the two display inputs nor the two projector inputs to the same display controller. In other words, to each display controller, a display input and a projector input must be connected.

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Display Controller Installation

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BarcoMed 2MP2CP Overview

The *BarcoMed 2MP2CP* Display Controller delivers a quality image with 24-bit True Color for medical viewing applications.

Minimum system requirements

- Pentium 4 or compatible processor
- 256MB of system memory (minimum)
for optimum performance consult your application provider
for their recommended minimum system memory
requirements
- 32-bit PCI slot with no obstructions
- Windows® 2000 Service Pack 4 or
Windows® XP Service Pack 1

Features of the BarcoMed 2MP2CP display controller

- 32-bit/33MHz Single Slot PCI card
- 64MB Video Memory
- Dual Head Configuration, each head is supported
independently
- Landscape or Portrait Mode
- High quality image with 24-bit true color
- 8-bit grayscale rendering for viewing grayscale images on
Coronis Color Displays
- Hardware cursor
- Display properties control panel interface to dynamically
change display settings
- Control panel supports the English (U.S.), Dutch, German,
Korean, Japanese, Simplified Chinese and Traditional Chinese
languages

- Displays VGA boot messages on MGP D5 Dicom Theater displays.

Supported resolutions

The following resolution is available on both heads prior to installing the driver or when the operating system is booted in VGA mode.

- 640x480 @ Default Refresh Rate, 16 colors

The following resolutions are available on each head of the BarcoMed 2MP2CP display controller.

Native projector resolutions

- 1400x1050 @ 60Hz, 24-bit true color
- 1048x1400 @ 60Hz, 24-bit true color

Flat panel resolutions

- 1600 x 1200 @ 60 Hz, 24-bit true color
- 1200 x 1600 @ 59 HZ, 24-bit true color
- 1280 x 1024 @ 60 Hz, 24-bit true color
- 1024 x 1280 @ 59 Hz, 24-bit true color

Vesa modes available:

- 800x600, 24-bit true color
- 1024x768, 24-bit true color
- 1152x864, 24-bit true color
- 1280x960, 24-bit true color
- 1920x1080, 24-bit true color

Display controller installation



Caution: Wear a **grounded**, protective ESD strap during installation or handling of the display controller. Electrostatic charges can damage the display controller.

Prior to installing your BarcoMed 2MP2CP display controller(s) in your PC please take a few minutes to familiarize yourself with both the display controller(s) and the PCI slots in your computer.



Figure 5: The BarcoMed 2MP2CP display controller

Using the VGA capabilities of the BarcoMed 2MP2CP display controller

Prior to installing the BarcoMed 2MP2CP controller, decide if you are going to use its on-board VGA capabilities. If you are, check the setting of the switches at SW1 on the display controller (see

figure 6 below). By default, VGA should be enabled, switch 1 on and switch 2 off. If you decide to use a separate VGA monitor as your boot monitor, you must disable the BarcoMed 2MP2CP's on-board VGA capabilities by changing the switch settings to switch 1 off and switch 2 on.

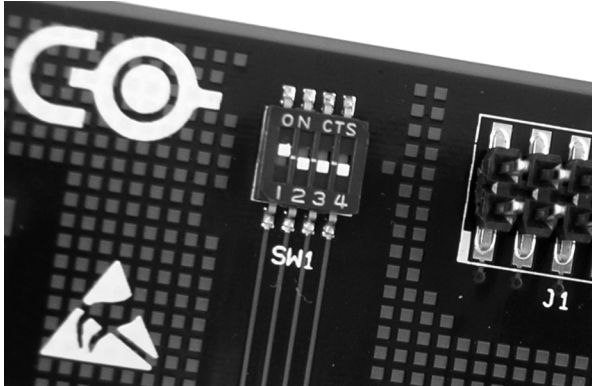


Figure 6

In figure 6 above, the VGA capabilities of the BarcoMed 2MP2CP are enabled.



Caution: To use multiple BarcoMed 2MP2CP controllers in a single host with VGA enabled, you should enable VGA on only *ONE* of the BarcoMed 2MP2CP display controllers and disable VGA on *ALL* the other BarcoMed 2MP2CP display controllers.

Examples of PCI slots

The BarcoMed 2MP2CP display controller may be installed in either a 32-bit or 64-bit slot with no loss of functionality. Figure 7 on page 33 illustrates the types of slots so that you can correctly identify which one to use for the BarcoMed 2MP2CP display controller and which ones not to use.

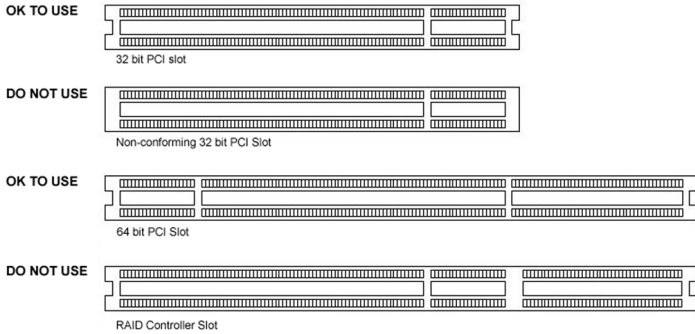



Figure 7: PCI and RAID Controller Slots

Installing the BarcoMed 2MP2CP display controller

Install the BarcoMed 2MP2CP controller in your computer following these steps:

1. Turn off the power to your computer and disconnect the power cord, however make sure that the computer chassis is still grounded.
2. Remove the chassis cover according to the manufacturer's instructions. Be sure to observe safety warnings.
3.  If you have decided to use the on-board VGA capabilities of the BarcoMed 2MP2CP controller (see **“Using the VGA capabilities of the BarcoMed 2MP2CP display controller”** on page 31), you must now remove any VGA controllers that are currently installed in the computer or disable any VGA controllers that are integrated into your PC's motherboard.
4. Install the BarcoMed 2MP2CP display controller into a free PCI slot, either 32-bit or 64-bit (see figure 7 above, for examples of slots). Be sure that the display controller is seated firmly in the slot.
5. Secure the card to the chassis with the PC's I/O panel mounting screw, and replace the chassis cover.

6. Connect the primary display to the connector marked “VID 1” on the BarcoMed 2MP2CP display controller using the provided DVI cable (see figure 8). For a dual-headed BarcoMed 2MP2CP setup, connect the secondary display to the other connector on the display controller.
7. Reconnect the power cord, turn on the power, and boot the system as usual.

Running multiple BarcoMed 2MP2CP Display Controllers in a single host

The physical order of the displays may vary when you are running multiple BarcoMed 2MP2CP display controllers. This is due to the PC’s PCI bus control in the system BIOS, and not the BarcoMed display controller. It may become necessary, depending on how your PC’s BIOS configures the PCI bus, to switch your DVI display connections to achieve a linear desktop configuration.



Figure 8

Display Controller Software Installation

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Windows 2000 BarcoMed 2MP2CP software installation



Note: These instructions apply to both **Windows® 2000** and **Windows® XP**.

Preparation

Prior to installing your MGP D5 Dicom Theater software the following should be done.

1. Install the BarcoMed 2MP2CP display controller(s) in your system.
2. Connect the MGP D5 Dicom Theater projector and display panel(s) (if any) to the BarcoMed 2MP2CP display controller(s) and power supply(s).
3. Decide if you want to install the Barco DPMS Screen Saver Software in addition to the driver. (See **“Barco DPMS Screen Saver”** on page 65 for a description of this add-on feature.)
4. Decide if you are going to install the BarcoMed 2MP2CP driver with “Cloned Heads active” mode enabled or disabled (DualView). When “Cloned Heads” is selected, the second head is identical to the first head. When DualView is selected, each head is completely independent.

Using the BarcoMed product installation wizard

To install your BarcoMed 2MP2CP Windows display controller driver and the Barco DPMS Screen Saver Software for the first time follow the steps below.

If you are reinstalling the drivers or installing a new driver release over an existing driver release you may skip steps 2 and 3 below:



1. Boot your system, and log in using an account with administrator privileges.
2. For each BarcoMed 2MP2CP display controller installed in your system Windows will launch the “Found New Hardware Wizard”. Click **“Cancel”**. Continue to click **“Cancel”** until

Windows stops launching the “Found New Hardware Wizard”. Please be patient as this may take several minutes while Windows scans its library of Plug-and-Play device drivers to see if it has a driver for your BarcoMed 2MP2CP controller.

3. If Windows advises you that it has finished installing all the new devices in your system and that you must reboot your system in order for the changes to take effect, click **“No”**.
4. Insert your MGP D5 Dicom Theater Software CD into your computer’s CD drive. If the **“BarcoMed Product Installation Wizard”** doesn’t start within one minute, browse the contents of your MGP D5 Dicom Theater Software CD and double click on the file: **“Setup.exe”** to start the wizard.

The BarcoMed Product Installation Wizard will begin by inspecting your system to make certain that all of the Windows components it needs are up to date. If they are, the BarcoMed Product Installation Wizard will display the BarcoMed Product Installation Wizard’s welcome screen (see figure 9). If the screen shown in figure 9 appears, please skip to step “5.” on page 40, otherwise continue to the next page.

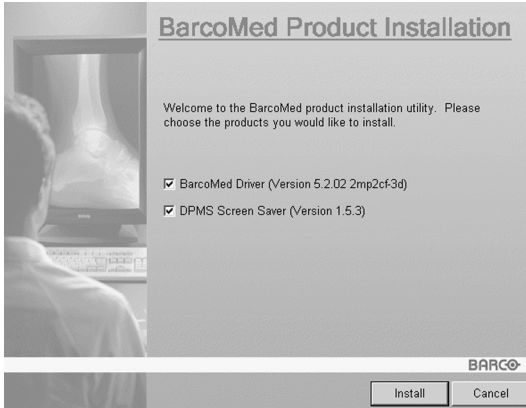


Figure 9

If it determines that the Microsoft Installer is either out of date or missing, it will display the screen shown in figure 10 below. Click **“OK”** to continue, the wizard will then install a newer version of the Microsoft Installer.



Figure 10

The BarcoMed Product Installation Wizard will advise you when it has successfully installed the new version of the Microsoft Installer. Click **“OK”**.

The Wizard may prompt you to restart your system. If it does, click **“Yes”** to restart your system now.

When your system restarts log in using an account with administrator privileges. Windows will again launch the “Found New Hardware Wizard” for each BarcoMed 2MP2CP it finds in your system. Click **“Cancel”**. Continue to click **“Cancel”** until Windows stops launching the “Found New

Hardware Wizard - Video Controller". Again, please be patient as Windows will again scan its library of Plug-and-Play device drivers to see if it has a driver for your BarcoMed 2MP2CP controller.

The BarcoMed Software Install Wizard will automatically restart and the BarcoMed Product Installation Wizard's welcome screen will again be displayed (figure 11 below).

5. By default all the software on the BarcoMed Software CD will be selected. For the initial installation we recommend that you install all of the software. If you do not want to install a particular BarcoMed Software product at this time, deselect it by clearing the checkbox next to it. Click **"Install"** to continue or **"Cancel"** to exit the wizard.

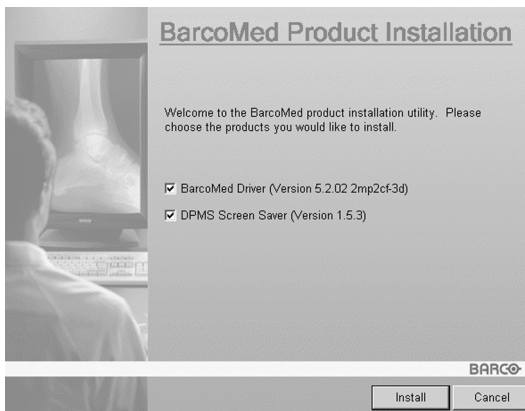


Figure 11

Driver installation

6. Click **"Next"** on the Display Driver Wizard's Welcome Screen to continue or **"Cancel"** to exit the Display Driver Wizard and return to the Software Install Wizard.

The Device Selection Screen's dialog box (figure 12 on page 41) should show only those devices physically installed and supported by the BarcoMed display controller driver on

your BarcoMed Software CD. Select the **device** you want to install and then click **“Next”**.



Note: If there are no BarcoMed devices installed, or if Windows does not recognize the installed devices, or if the driver on your BarcoMed Software CD does not support the installed devices, the dialog box will be empty¹, and the BarcoMed driver wizard will exit when you click **“Finish”** or **“Cancel”**.

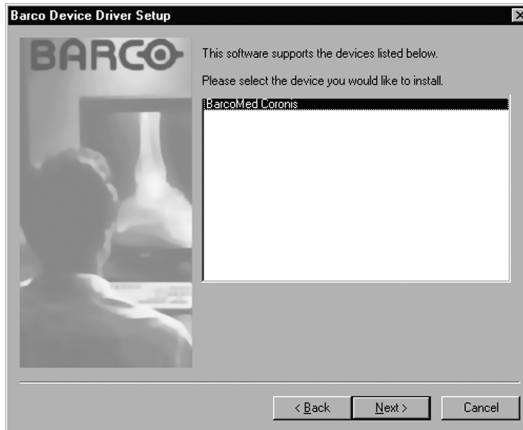


Figure 12: Sample device selection screen, the device shown in your system may be different.



Caution: You can install the driver for only one type of BarcoMed device at a time. If you have multiple types of BarcoMed devices installed in your computer, you will need to rerun the installer to install the drivers for the other devices.

If you select a device with an installed driver, the wizard will warn you if the installed driver is newer than the one you are installing (see figure 13).

-
1. If Windows does not recognize the installed BarcoMed device, special settings may need to be made in the BIOS to support non-AGP video controllers or to support multiple video controllers. Check with your PC manufacturer.



Figure 13

Click **“OK”** to install the new driver. If you don't want to replace the exiting driver, click **“OK”** and then click **“Cancel”**.

7. The “Device Confirmation” screen displays the device driver that will be installed. If you want to change your selection, click **“Back”** to return to the Device Selection Screen. Click **“Next”** to begin installing the driver. Click **“Cancel”** to abort the driver installation.



Caution: Once you click **“Next”**, you cannot cancel the driver installation.

Prior to beginning the installation the BarcoMed Driver Install Wizard will warn you that while the driver is being installed your display may flicker. Click **“OK”** to continue.

8. When the screen shown in figure 14 below and figure 15 on page 43 appears, click **“Yes”** or **“Continue Anyway”** to continue. This screen may appear multiple times.

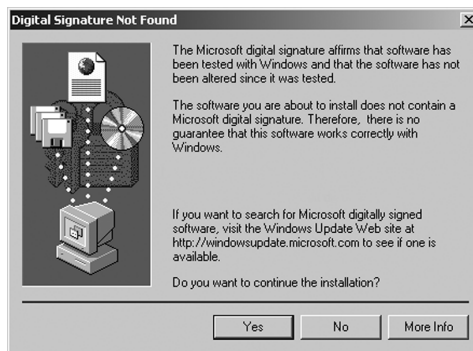


Figure 14: Windows 2000 Digital Signature Not Found Warning



Figure 15: Windows XP Windows Logo Testing Warning

9. When the screen shown in figure 16 below appears decide if you want the driver to install with Cloned Heads mode enabled or disabled, then click **“Next”**.



Figure 16

When the Driver Install Wizard tells you that it has successfully installed the selected driver, click **“Finish”**.

The wizard will now begin installing the next selected piece of BarcoMed Software. If the installation of the products you selected at the beginning is complete, click **“Finish”** to exit

the BarcoMed Product Install Wizard or click **“Back”** to return to the Welcome Screen of the BarcoMed Product Install Wizard to select additional software to install. When you click **“Finish”** Windows may prompt you to restart your system, if it does click **“Yes”**. When your system restarts, boot normally and log in using an account with administrator privileges and turn to the section **“Barco monitor plug and play software”** below.



Note: Clicking **“Cancel”** will also return you to the BarcoMed Product Install Wizard, but will not delete the Barco display driver. The wizard will also begin to install the next selected piece of BarcoMed Software.

If the Wizard *failed* to successfully install the selected driver, it will warn you that the installation failed. Click **“Finish”** to return to the BarcoMed Product Install Wizard. The wizard will now begin installing the next selected piece of BarcoMed Software. Click **“Cancel”**, then click **“Yes”** then click **“Finish”**. Now **“Back”** and try reinstalling the driver following the steps above or using the steps outlined in the section **“Reinstalling or updating your BarcoMed 2MP2CP driver”** on page 105.

If the installation of the products you selected at the beginning is complete, click **“Finish”** to exit the BarcoMed Product Install Wizard or click **“Back”** to return to the Welcome Screen of the BarcoMed Product Install Wizard to select additional software to install. When you click **“Finish”** Windows may prompt you to restart your system, if it does click **“Yes”**.

When your system restarts, boot normally and log in using an account with administrator privileges and turn to the section **“Barco monitor plug and play software”** on page 44.

Barco monitor plug and play software

After your system restarts and you have logged in, Windows will install the Barco Monitor Plug-n-Play software. If Windows

displays the screens shown in figure 17 and figure 18, click “Yes” or “Continue Anyway” to continue.



Figure 17: Windows 2000 Digital Signature Not Found Warning



Figure 18: Windows XP Windows Logo Testing Warning

The Barco Monitor Plug and Play software should automatically set the resolution for the Barco LCD displays of your MGP D5 Dicom Theater System. However, you may need to set the resolution for your MGP D5 and any non-Barco flat panel displays or CRT type monitors that are connected to your BarcoMed 2MP2CP controller. It may also be necessary to make your MGP

D5 or your displays active. To make your MGP D5 or your displays active you must extend your desktop to these displays using the **“Windows Display Control Panel”**. If for some reason Windows failed to correctly set the resolution of your MGP D5 or displays please turn to the section **“Setting the resolution of your MGP D5 Dicom Theater display”** on page 103 of the Troubleshooting Section of this manual for instructions on setting the resolution.

Display Controller Tools

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Barco Display Tab

Introduction

The Barco Display Tab is used for gathering information about the BarcoMed Flat Panel Display(s).

To access the Barco Display Tab do the following:

1. Open the “Display Properties Control Panel” by right clicking on the **desktop**, then select “**Properties**”.
2. Under Windows 2000 and Windows XP, click on the “**Settings**” tab. Double click on the rectangle that represents the BarcoMed Display you are working with to bring up its properties page. Click on the “**Barco Display**” tab (figure 19 below).

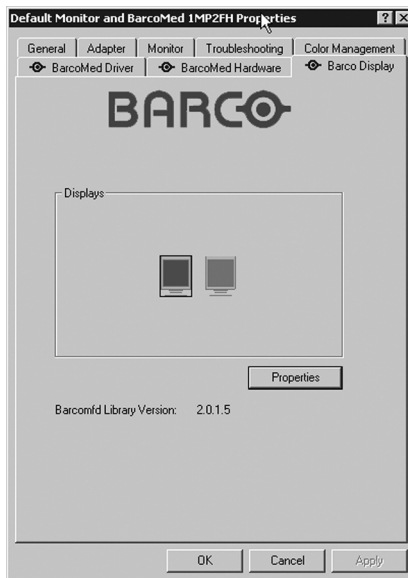


Figure 19: Barco Display Tab under Windows 2000 and Windows XP

Using the Barco Display Tab

Displays

All of the available display controllers that are of the same type as the current barco display controller are shown here graphically, with one display icon representing each output of a display controller. The icon orientation reflects the display resolution. Only those outputs with a display attached to them are active. If an icon is grayed out, that indicates a output with no output attached to it. When running DualView under Windows 2000 and Windows XP the desktop *must* be extended to include each display, otherwise those outputs will not be visible to the Barco Display Tab.

Hovering the cursor over a display icon will pop up a window with information that identifies the display.

Properties

You may access the Properties page of the currently selected display, which is represented by the monitor icon above with the black frame around it, by either clicking on the **“Properties”** button or double clicking on the **icon**.

BarcoMFD library

This is the version of the barcomfd library currently used. This library provides APIs for interacting with the displays.

Barco Display Properties

This screen (figure 20 on page 51) shows properties of the currently active display.

Name: Displays the model name of the display.

Serial Number: Displays the serial number of the display.

Backlight RunTime: This is time in hours that the backlight has been on.

Firmware Revisions: This is the runtime firmware that is loaded in the display. This information may be helpful when there is a problem.

Internal Temperature: This is the temperature inside the display. It starts out at about the ambient temperature when the display backlight is first turned on, then rises slowly to a steady-state temperature as the display warms up. Changes in light level due to temperature variations are completely controlled by the I-Guard sensor on the front of the display.

Current Luminance Value: This is the current luminance value of the display. It may vary a bit from time to time, for the display continuously calibrates itself to meet the target luminance value.

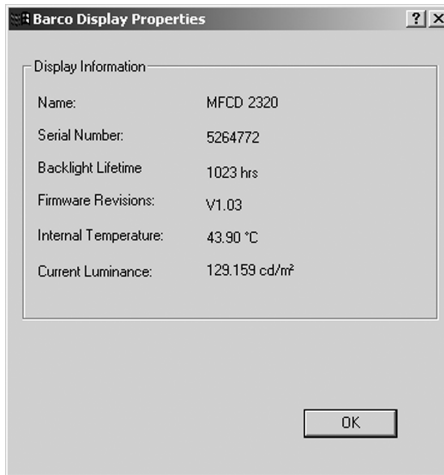


Figure 20

BarcoMed Driver Tab

Introduction

After the BarcoMed Windows display controller driver is installed, a new Display Properties tab is available for configuring special features of the BarcoMed display controller.

Languages supported

The BarcoMed Driver Tab supports the following languages:

- English (U.S) (default)
- Dutch
- German
- Korean
- Japanese
- Simplified Chinese
- Traditional Chinese

To change between the languages select the correct region via the Regional Settings Control Panel in your machine's Start > Settings > Control Panel.

Using the BarcoMed Driver Tab



Please note that you must have logged on to Windows using an account with administrator privileges in order to use the BarcoMed Tabs of the Windows Display Control Panel to change any display settings.

1. Open the "Display Properties Control Panel" by right clicking on the desktop, then select "**Properties**".
2. Under Windows 2000 or Windows XP, click on "**Settings**" tab. Double click on the **rectangle** that represents the Barco display whose settings you wish to change to bring up its property page. Click on the "BarcoMed Driver" tab (see figure 21 on page 53).



Figure 21: BarcoMed Driver Tab under Windows 2000 and Windows XP

Status

The Status section displays information about the current BarcoMed display controller, driver, and the currently selected display resolution.

Graphics Board

This displays the current BarcoMed display controller.

Driver Version

This displays the current BarcoMed driver version.

Resolution

This displays the currently selected display resolution.

Monitor Configuration

If the options in this section are grayed out, then they are not available for the model controller with which you are working.

For the BarcoMed 2MP2CP, the Monitor Configuration pull-down menu allows you to select DualView operation or Cloned Heads operation. When DualView is selected, each head is completely independent. When Cloned Heads is selected, the second head is identical to the first head and only one rectangle will appear in the monitors icon dialog box on the Settings tab of the Windows display control panel.

BarcoMed Hardware Tab

Introduction

The BarcoMed Hardware Tab is used for gathering information about BarcoMed display controller(s). For all BarcoMed display controller(s) it will display PCI information. For BarcoMed display controller(s) based on the AURA video chipset it will also display information about the Firmware installed on the board.

Table 1:

AURA Controllers	Non-AURA Controllers	BarcoMed Hardware Tab Support
BarcoMed Nio		PCI and Firmware Information
BarcoMed Coronis		PCI and Firmware Information
BarcoMed 1MP2FH		PCI and Firmware Information
	BarcoMed 2MP1	PCI Information Only
	BarcoMed 2MP1NT	PCI Information Only
	BarcoMed 2MP2	PCI Information Only
BarcoMed 2MP2H		PCI and Firmware Information
	BarcoMed 2MP2CF-3D	PC and Firmware Information
	BarcoMed 2MP2CP	PCI and Firmware Information
BarcoMed 2MP2FH		PCI and Firmware Information

Table 1:

AURA Controllers	Non-AURA Controllers	BarcoMed Hardware Tab Support
BarcoMed 3MP2FH		PCI and Firmware Information
	BarcoMed 5MP1H	PCI Information Only
BarcoMed 5MP1HM		PCI and Firmware Information
	BarcoMed 5MP2	PCI Information Only
BarcoMed 5MP2 AURA		PCI and Firmware Information
BarcoMed Coronis 5MP		PCI and Firmware Information
BarcoMed 5MP2F		PCI and Firmware Information
BarcoMed 5MP2FH		PCI and Firmware Information

Using The BarcoMed Hardware Tab

To access the BarcoMed Hardware Tab do the following:

1. Open the “Display Properties Control Panel” by right clicking on the **desktop**, then select “**Properties**”.
2. Click on the “**Settings**” tab. Double click on the **rectangle** that represents one of the heads of the BarcoMed Display Controller you are working with to bring up its properties page. Click on the “**BarcoMed Hardware Tab**” (see figure 22 on page 57).



Figure 22 BarcoMed Hardware Tab under Windows 2000 or Windows XP

Device

Displays the current BarcoMed display controller, driver, and the currently selected display resolution.

Information

Device ID: Displays the device’s PCI Device ID number.

Vendor ID: Displays the device manufacturer’s PCI Vendor ID number.

Subsystem ID: Displays the device's PCI Subsystem ID number.

SubsystemVendorID: Displays the device's PCI Subsystem Vendor ID number.

VGA Status: Displays whether the VGA capabilities of the BarcoMed controller are enabled or disabled.

Firmware Information

Product Name: Displays the name of the BarcoMed display controller installed in the selected PCI slot.

Serial Number: Displays the serial number of the BarcoMed display controller installed in the selected PCI slot.

VGA Bios Version: Displays the VGA Bios version for the BarcoMed display controller installed in the selected PCI slot.

Firmware Version: Displays the firmware version for the BarcoMed display controller installed in the selected PCI slot.

Hardware Version: Displays the Hardware Version for the BarcoMed display controller installed in the selected PCI slot.

"Advanced ..." Button: By clicking on this button, the user can display more information about the BarcoMed display controller installed in the selected PCI slot.

Utilities

"Generate Report" Button:

Clicking this button will launch the BarcoMed Self Exam utility. BarcoMed Self Exam is an automated Barco Diagnostic Tool that is used to gather the information that support engineers and technicians need to help determine the root cause of a customer problem. It probes the system for various types of system information, and saves it to a web-page report that can then be analyzed by the Barco ImageCare team.

BarcoMed Self Exam is implemented in a Wizard Format. The BarcoMed Self Exam Wizard will first ask the user to provide

detailed customer contact information. After completion of the customer contact information screen, the Wizard will then ask the user to provide a description of the problem, and prompt the user to enter the Medical Viewing Applications that they are using. The Wizard will then automatically collect the diagnostic information from the user's system. When completed, the Wizard will alert the user of completion and open the report. The report is saved in an HTML format file on the user's desktop.

Welcome Screen

The Welcome screen reminds the user to close all applications before starting the wizard. The screens that follow guide the user through gathering pertinent diagnostic data that will help in determining the root of the problem.

Customer Information Screen

All fields on this screen **must** be filled in. This screen asks the user for contact information that will help the Barco support team contact the customer. The user will not be allowed to move forward to the next screen unless all of the fields are filled in.

Customer Diagnostic Questions Screen

This screen allows the user to tell the Barco ImageCare team as much as possible about the problem. For the Medical Viewing Applications Running field, enter the medical applications that are currently running on the system with the problem. For the "Any Applications using DIMPL" question, select the "**radio button**" that applies to the correct response. For the "Detailed Description" field, **enter a detailed description of the problem**. And, for the Additional Notes field, enter any information that could help the Barco ImageCare team diagnose the problem.

Gathering Diagnostic Data Screen



Important: When performing the Graphics Operations, you must drag the "**Gathering Diagnostic Data Screen**" onto the display for which you want the Graphics Operations data.

This screen gathers the diagnostic data from the user's system as described above in this document. Click the **"Start Diagnostic"** button to begin the diagnostic gathering process.

To perform the graphics operations test, check the graphics operations checkbox. During the graphics operations test, several things will happen to the screen. Each graphics operation is performed for 10 seconds. To quit the graphics operations test at any time, press the Escape button.

To create a summary report for QA purposes, check the summary report checkbox. If this box is checked, an additional report will be saved on the desktop called BarcoExamSummary.txt.

Please let the wizard gather all of the data, the **"NEXT"** button will be enabled only after all of the information is gathered. Once the information is gathered, the user may **not** go back in the wizard screens.

Completion Screen

The BarcoMed Self Exam has collected all of the information. A report called BarcoSelfExam.html exists on the desktop with all of the diagnostic data that was collected. If a summary report was created, it exists on the desktop called BarcoExamSummary.txt.



Note: The absolute path to the location of the BarcoMed Self Exam reports is:
under Windows 2000 and Windows XP

C:\Documents and Settings\\Desktop


Submitting the Data to Barco Support


Once BarcoMed Self Exam has collected the data, the user can submit it to ImageCare, Barco Medical Imaging Systems' customer support organization by email. To do this you need a system with access to the World Wide Web.

1. Enter the following address in your Web browser's address bar: <http://www.barco.com/medical/>
2. In the left hand column click on **"Contact us"**

3. Then click on **“Support”** in the drop down menu.
4. Find the appropriate ImageCare Center for your country and click on the **email link**.
5. Enter a **subject and a brief message** describing the problem about which you are requesting help.
6. Attach the **BarcoMed Self Exam report(s)** to the email message and send it.

You will receive an acknowledgment of receipt of your email by the end of the next business day.

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Display Tools

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Barco DPMS Screen Saver

Introduction

The Barco DPMS (Display Power Management Signaling) Screen Saver allows the user to set power and display saving features for medical displays controlled by BarcoMed display controllers. At the end of the work day, the display will enter certain DPMS states as requested by the display controller.



Note: The Barco DPMS Screen Saver will **not** control any displays connected to a non-Barco display controller.

The default state for the Barco DPMS Screen Saver is the Off state. In addition to simply entering the Off state after the work day, the user can specify that the display first go through two other DPMS Screen Saver states before going into Off state. These two other states for the Screen Saver are Stand-By and Suspend. The user can specify how much time should be spent in each state in the “Amount of Time in each DPMS Power State” section.

The Barco DPMS Screen Saver can also be used when no one is logged on.

Barco DPMS Screen Saver Options

From the “Barco DPMS Screen Saver Control Panel” you can change many DPMS screen saver elements simultaneously. The DPMS screen saver elements in each scheme are work schedule, work day screen saver, DPMS settings after work day, and many additional options.

Current Scheme

Lists the three “DEFAULT” schemes which you can use as they are. Or you can modify them to meet your office’s schedule.

Save As

Saves your current Barco DPMS Screen Saver settings. The name you specify will appear in the Scheme list so you can easily restore these settings later.

Delete

Deletes the scheme that is selected in the Scheme box.

Work Schedule

In this part of the control panel the user may specify the "Begin Work Day" and "End Work Day" times for each work day. If the system is not expected to be used, leave both the "Begin Work Day" and the "End Work Day" times as the same time.

Begin Work Day

The "Begin Work Day" time is the time after which the system is expected to start being used. During the work day, the screen saver selected by the user in the "Screen Saver During Work Day" section is used during user inactivity.

End Work Day

The "End Work Day" time is the time after which the system is not expected to be used any more for that day. After the work day, the display is set to one of the DPMS states (Stand-By, Suspend, or Off) by the display controller during user inactivity.

Screen Saver During Work Day

Available Savers

Lists the Available Screen Savers.

Settings

Changes settings for the selected screen saver.

DPMS Settings After Work Day

If you have an display controller that supports DPMS calls, then you will be able to set the DPMS Settings for after the work day. Otherwise, a text box will be displayed telling you why DPMS functions are not available.

Amount of Time in each DPMS State

After the work day, the display will be placed into one of the following DPMS Power States: Stand-By, Suspend, or Off. The default setting is for the display to directly go into the Off State and spend no time in the Stand-By or Suspend states. If the user wishes to go into the Stand-By or Suspend states before going into the Off state, select the required amount of time for each state.

If requested, the display will first go into Stand-By state, then into Suspend state, and then into Off state. The properties of DPMS states are listed in the following table:

Table 2:

DPMS State	Power Savings	Monitor Recovery Time
On	None	N/A
Stand-by	Minimal	Short
Suspend	Substantial	Longer
Off	Maximum	Longest

Monitor Settings

If you have a Barco Medical Display, select “Barco Quick Start.” If a non-Barco display is being used, select the amount of time it takes your display to warm up via the “Monitor Setting” section. Contact your display vendor for this warm-up time.

On Barco CORONIS displays, the I-GUARD will stabilize the image within a few seconds after the display returns to the active state so there is no need for a warm-up time period.

Use As Logon Screen Saver

Check the box to use the Barco DPMS Screen Saver when no one is logged into the system.

Uncheck the box to use the default screen saver when no one is logged into the system.

Getting started with the Barco DPMS Screen Saver

The easiest way to get started is to select an existing settings scheme and then modify it with your preferences. Settings schemes are separated into two kinds, DEFAULT (global) and PRIVATE (personal).

Upon installation, three default settings schemes are installed and no private settings schemes are installed.

Default settings schemes are visible to all users of the system. However, they can be modified only by users with administrator privileges. If a user who does not have administrator privileges tries to save a scheme using an existing default scheme name, an error message is displayed saying "you must have administrator rights to modify a default scheme." If an administrator saves a scheme using an existing default scheme name, a message is displayed to tell the user that the modification is saved to a default scheme and will be visible to all users. If the administrator saves a scheme using a new name, then the user is asked if the scheme should be saved as a default scheme or a private scheme. Since there is no distinction between how a default scheme and a private scheme is displayed, it is highly recommended that the user uses a different naming convention to distinguish the two (i.e. use "DEFAULT: ..." for default schemes).

Private schemes are personal. They are not shared and are visible only to the users who created them. All users of a system,

including those who do not have administrator privileges, can create, modify or delete private schemes. When the delete button is pressed, the user is asked to confirm the delete request.

Using the Barco DPMS Screen Saver

Using the Barco DPMS Screen Saver is similar to using any other Windows Screen Saver, each user of the system must select the Barco DPMS Screen Saver so that Windows will store the selection in the user's profile. If a user does not select the Barco DPMS Screen Saver as his screen saver, the next time he logs on to the system the screen saver selection may be blank.

After selecting the Barco DPMS Screen Saver the user must then select a settings scheme for the Screen Saver to follow. To set up the Barco DPMS Screen Saver using one of the three default schemes, please do the following:

1. Open the "Display Properties Control Panel" by right clicking on an empty space of the desktop and selecting "**Properties**" from the drop down menu; then select the "**Screen Saver**" tab (see figure 23 and figure 24 on page 70).
1. Select the "**Barco DPMS Screen Saver**" in the "Screen Saver" drop down menu if it is not already selected.



Figure 23: Windows 2000 Screen Saver Tab



Figure 24: Windows XP Screen Saver Tab

2. Click on the **“Settings”** button. The **“Barco DPMS Screen Saver Control Panel”** will open (see figure 25 on page 71).

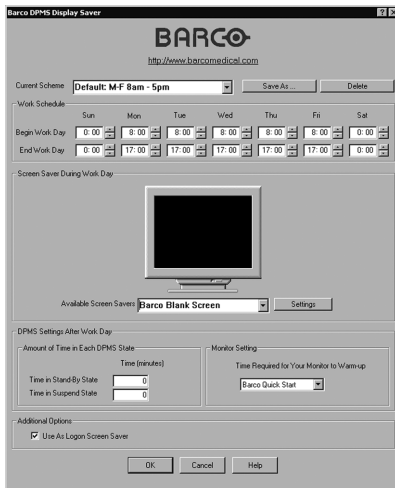


Figure 25: Barco DPMS Settings Control Panel

- Use the default schemes by selecting one of the three default schemes. Click **“OK”**. Then Click **“OK”** again.

Note: If you make any changes to any of the settings of one of the three default schemes, the Current Scheme field will blank and you MUST SAVE your changes by clicking on the **“Save As ...”** button. When you click on the **“Save As ...”** button, the name of the last scheme you used will be automatically displayed, you can then choose to use that scheme name or enter a new name. If you enter a name other than one of the three default scheme names, the program will ask you if you wish to save the scheme as a DEFAULT scheme (figure 26 on page 72). Click **“Yes”** to save the settings scheme as a DEFAULT scheme, click **“No”** to save the scheme as a PRIVATE scheme. After you have saved the scheme, then click OK and the new scheme will be in effect.

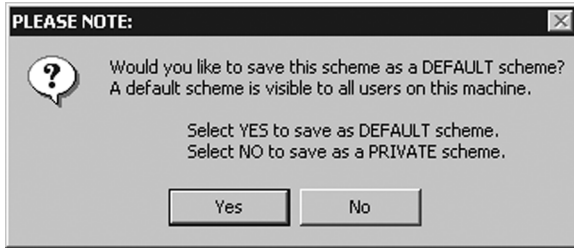


Figure 26

To create a new scheme by modifying one of the three default schemes please do the following.

1. Open the "Display Properties Control Panel" by right clicking on an empty space of the desktop and selecting "**Properties**" from the drop down menu; then select the "**Screen Saver**" tab.
2. Select the "**Barco DPMS Screen Saver**" in the "Screen Saver" drop down menu if it is not already selected.
3. Click on the "**Settings**" button. The "Barco DPMS Screen Saver Control Panel" will open.
4. Select one of the default schemes from the "Current Scheme" drop down menu.
5. Set the Work Schedule by setting the beginning and ending time of your work day for each day of the week.
6. Select the screen saver you wish to use during the work day in the "Screen Saver During Work Day" section.
7. Select the amount of time you wish to spend in the Stand-By and Suspend states after the work day has ended. Please note that after the time specified has elapsed when you are in Stand-By or Suspend, you will automatically go into the Off state.
8. Select the amount of time it takes for your display to warm up. If you have a Barco Medical Display, select "**Barco Quick Start**". If you are using a non-Barco display, select the

amount of time it takes your display to warm up via the “Monitor Setting” section. Contact your display vendor for this warm-up time. On Barco CORONIS displays, the I-GUARD will stabilize the image within a few seconds after the display returns to the active state, thus eliminating the need for a warm-up period at the beginning of the work day.

9. If you wish to use this DPMS screen saver as the screen saver at logon time, check the **“Use As Logon Screen Saver”** box in the “Additional Options” section.
10. Save your preferences by pressing the **“Save As”** button and entering a new profile name in the **“Save Profile Setting”** dialog box.
11. Apply your new scheme by clicking **“OK”**.
12. Click **“OK”** again to close the “Display Properties Control Panel”.

Installing or Reinstalling Barco DPMS

To install or reinstall the Barco DPMS Screen Saver insert the CORONIS Software CD in the appropriate device on your computer and run the BarcoMed Product Install Wizard (please see the section Software Installation for complete instructions).

Special Note: Reinstalling the Barco DPMS Screen Saver will overwrite the DPMS configuration settings and you will need to reconfigure the DPMS settings on your system.

Uninstalling Barco DPMS

To remove the Barco DPMS Screen Saver from your system insert the MGP D5 Dicom Theater Software CD in the appropriate device on your computer, run the BarcoMed Product Install Wizard and follow these steps.

1. Select *only* the DPMS Screen Saver on the BarcoMed Product Install Wizard’s welcome screen and click **“Install”**.

2. Click **“Next”** on the Welcome Screen of the Barco DPMS InstallShield® Wizard to begin the installation.
3. Select the radio button next to **“Remove”** on the Program Maintenance screen of the Wizard and click **“Next”**.
4. Click **“Remove”** on the Remove Program Screen of the Wizard (figure 27 below).

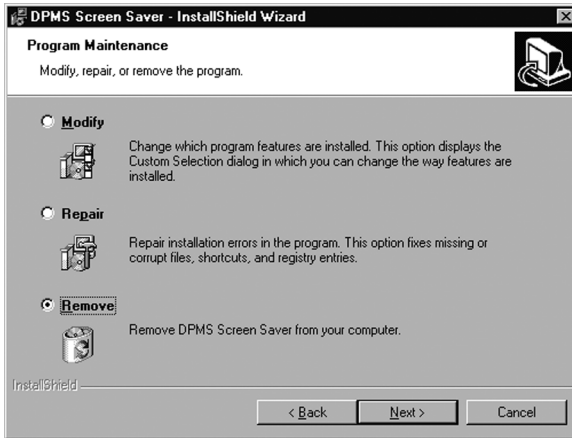


Figure 27

5. When the Wizard has finished removing the program, click **“Finish”** on the InstallShield Wizard Completed Screen of the Wizard.
6. Click **“Quit”** to exit the BarcoMed Product Installation Wizard.

MediCal Pro Software

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MediCal Pro installation

MediCal Pro is used to calibrate and perform QA tasks on the **displays** in the system. It is not compatible with the MGP D5 projector.

To calibrate the projector, use the TheaterWatch software. See **To use TheaterWatch** on page 83

To install MediCal Pro on the PC, please follow the instructions in the MediCal Pro User Guide.

Important: Do not forget you have to have Administrator privileges to install or uninstall MediCal.

Using MediCal Pro

After installation of the hardware and software, you must start MediCal Pro to calibrate the display(s).

Proceed as follows:

1. Start MediCal Pro. If appropriate, you can connect to MediCal Administrator.
2. During startup, MediCal Pro will detect the connected review display(s). They will be added automatically to the system configuration in MediCal Pro.



Note: In case the review displays were not automatically added to the configuration, you can add them manually, by running the Configuration Setup Wizard.

3. For all the devices in the configuration, check if the DPMS setting is turned on. Therefore, right-click on the display icon and select Properties... from the drop-down menu. Then click on Details...

Check if the Powersave option is checked. If not, check it. This is necessary to use the DPMS possibilities of the imaging board.

4. For all the devices in the configuration, define (if necessary) and select a Preset.
5. After selecting the Preset, MediCal Pro starts consistency calibration automatically.

Please refer to the MediCal Pro User Guide for more information.

TheaterWatch Software

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TheaterWatch Installation

TheaterWatch installation

1. Insert your TheaterWatch CD into your computer's CD drive. If the TheaterWatch installation start screen doesn't appear within one minute, browse the contents of your TheaterWatch CD and double click on the file: **"Setup.exe"**.
2. Click **"Install Now"** on the start screen to begin the installation.
3. Click **"Next"** on the InstallShield Wizard welcome screen.
4. After reading the Software License Agreement on the next screen, click **"I accept..."** and **"Next"** to continue.
5. Enter your customer information and click **"Next"** to continue.
6. On the Setup Type screen, select **"Complete"** to install TheaterWatch in the default location, or **"Custom"** to select a different location. Click **"Next"** to continue.
7. In case you selected custom installation, you can now select a location to install TheaterWatch. Click **"Next"** to continue.
8. On the Ready to Install the Program screen, click **"Install"** to start the installation.

While the wizard is installing TheaterWatch, it will display a Setup Status screen.

9. On the Installation Finished screen, check the appropriate selections and click **"Finish"** to complete the installation.



Note: Silent mode installation

You can install TheaterWatch in silent mode on a system where no previous version of TheaterWatch is installed.

Silent mode means that no user intervention is required during installation.

To install TheaterWatch in silent mode:

1. Open the command prompt (DOS window) in Windows.
2. Using DOS commands, navigate to the folder containing the TheaterWatch setup.exe file on the CD-ROM.
3. Type: "setup.exe _/s_/v/qn" (where " _" represents a space)

Using TheaterWatch

Introduction

Compatible displays

TheaterWatch is compatible with the following Barco projectors and displays:

MGP D5, MFGD 1218, MFGD 1218, E-2320, E-3420, E-5420, E-2620, E-3620, E-5620.

To use TheaterWatch

The TheaterWatch application resides in the Windows systray. To use one of the TheaterWatch functions, right-click on the TheaterWatch systray icon and select the appropriate option:

- **Display settings:** Allows to view information about your projector(s), display(s) and display controller. Also allows to select a display function, control display luminance and calibrate projector(s) and display(s)
- **Test patterns:** Allows to select test patterns to show
- **Application settings:** Allows to change TheaterWatch application settings, such as the Equalization option for calibration or MediCal Administrator connection. Also allows to exclude display types from TheaterWatch control.
- **Help:** Allows to consult the online help
- **About:** Allows to view information about this version of TheaterWatch
- **Exit:** Allows to close TheaterWatch and remove it from the systray



Figure 28: TheaterWatch systray icon



Note: After installation, a shortcut “TheaterWatch Client” is installed in the TheaterWatch installation directory. You can copy this shortcut to another location (e.g., desktop) if desired. After double-clicking this shortcut, the TheaterWatch console (see below) appears, allowing you to execute the TheaterWatch functions.

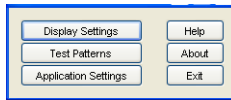


Figure 29

Display settings

General

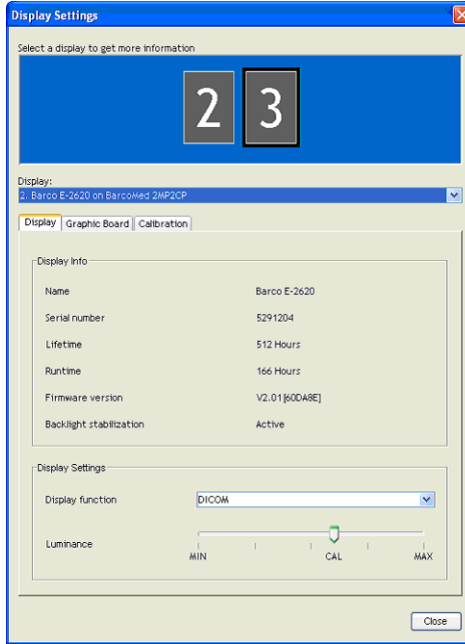


Figure 30: Display Settings dialog (display tab)

The **numbered icons** in the upper part of the dialog represent the display controller heads supported by TheaterWatch.

The display controller heads are also listed in the **Display** drop-down box.

If you wish to control a display or projector in a multi-head system, you must select the display controller head to which the display or projector is connected. You can do this by clicking on the corresponding numbered icon or by selecting the

corresponding display controller head from the **Display** drop-down box.



Tip: If you click on a numbered icon, the corresponding number appears for a few seconds on the display or projector screen connected to that display controller head. In that way you can easily see which display or projector is connected to which head.

The **Display tab** allows to view information about the display or projector.

The **Graphic Board tab** allows to view information about the display controller.

The **Calibration tab** allows to calibrate the display(s) or projector(s), or view the result of the last calibration.

Display tab

- In the **Display Info** section, you can view the name and serial number of the selected display.

For Nio (E-XX20) displays, you can also view:

- Lifetime: Operation time including time in stand-by
- Runtime: Operation time excluding time in stand-by
- Firmware version: Version of internal display software
- Backlight Stabilization: Status of the backlight stabilization in the display.

- To select another display function, select an item from the **Display Function** drop-down box. This function is not available for MGP D5 projectors.

If the selected display has been calibrated to the selected display function in the past, the display will be set according to this calibration. If no former calibration was found, default factory settings are selected.

When you restart TheaterWatch, the last selected display function is automatically selected.

- To adjust display luminance manually, adjust the **Luminance** slider. This function is not available for MFCD/MFGD 1218 displays and MGP D5 projectors.

The luminance setting is saved when the system is shut down.

If the slider is positioned above the CAL mark, the luminance is in calibrated position, as determined during the latest calibration. If the slider is not above the CAL mark, the luminance is not in calibrated position.



Important

If you want the system to be DICOM compliant, you must select the DICOM display function and calibrate the display. After calibration, the luminance must remain in calibrated position to maintain DICOM compliance.

MGP D5 projectors are always automatically calibrated to the DICOM display function.

Graphic Board tab

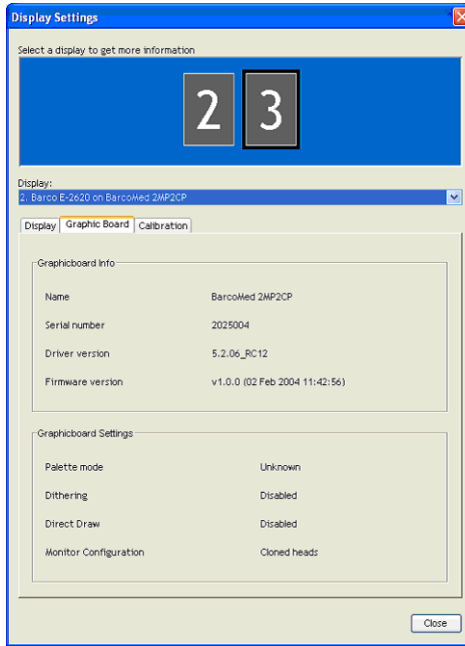


Figure 31: Graphic Board tab

Here you can see information about the installed display controller: Name, serial number, driver version and firmware version.

Calibration tab

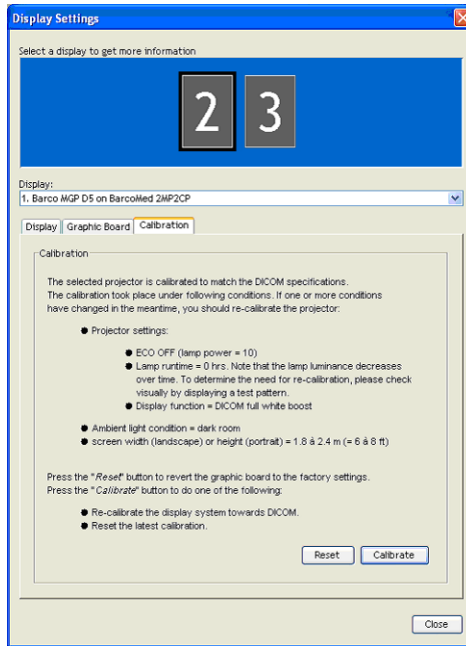


Figure 32: Calibration tab for projectors

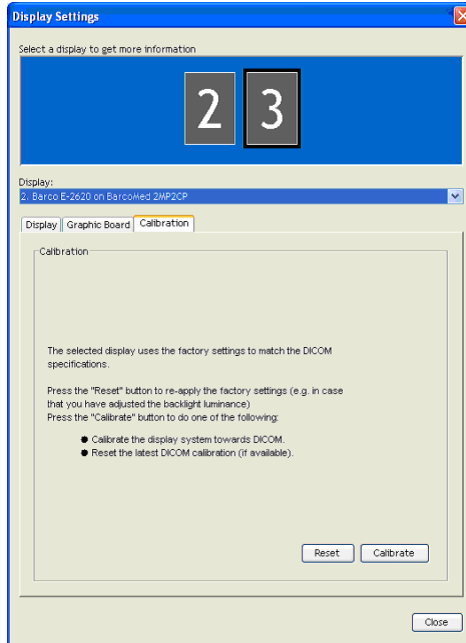


Figure 33: Calibration tab for displays

Here you can calibrate display(s) and projector(s), revert to the latest calibration, revert to default factory settings and view the result of the latest calibration. The possible options are explained below.

To calibrate a projector:

1. If you have a multi-head system, select the projector you wish to calibrate by clicking on the corresponding numbered icon in the Display Settings dialog.
2. Click the **Calibrate** button.

3. A wizard starts, guiding you through the calibration procedure. Follow the guidelines in the wizard.



The projector calibration procedure is a combination of actions in TheaterWatch and projector OSD (on-screen display) manipulations.

To calibrate a display using the Barco LCD sensor:

1. If you have multiple displays of the same type in the system, consider if you wish to **equalize** the display you calibrate to a reference display.



Equalization means the luminance of the display you are calibrating will be matched to the luminance of the reference display.

If you wish to equalize the display, you must close the Display Settings dialog and make sure the **Equalization** option in the **Application Settings** dialog is set. See “Calibration tab” in the description of the Application Settings dialog.

2. If you have multiple projectors or displays connected (multi-head system), select the display you wish to calibrate by clicking on the corresponding numbered icon in the Display Settings dialog.
3. Click the **Calibrate** button.
4. A message appears, showing the different calibration options.

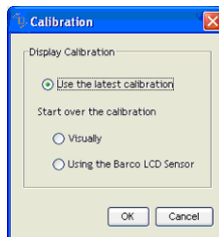


Figure 34: Calibration choices

5. Select “Using the BARCO LCD sensor” and click **OK**.
This option is grayed in case TheaterWatch does not find a connected Barco LCD sensor.
6. Follow the guidelines on the screen to complete the calibration successfully.



Note:

If the Equalization option is set in the Application Settings and TheaterWatch finds at least one other display of the same type that is calibrated, the “Match with reference” page appears during the calibration process.

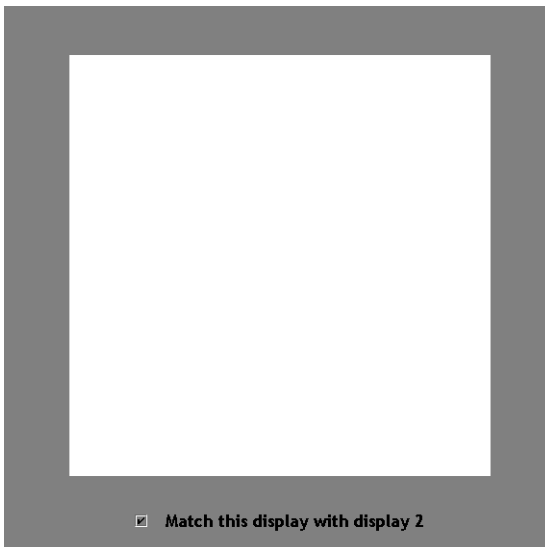


Figure 35: Match with reference

To equalize the display, check the option “Match this display with display...” and click **Next**. The display number that appears in this option, refers to the reference display.

To calibrate a display manually:

1. Follow step 2 and 3 of the calibration with Barco LCD sensor (see page 91).
2. In the Calibration dialog, check the option **Visually** and click the **OK** button.

The DICOM Optimizer dialog appears.

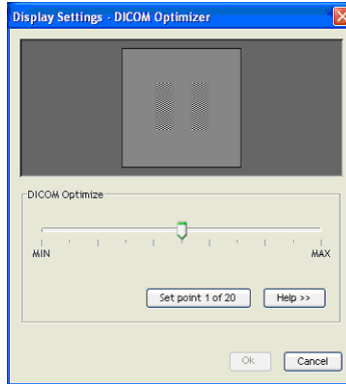


Figure 36: DICOM Optimizer dialog

3. Adjust the slider until there is almost no visible difference between the background of the image above the slider and the bitmap inside this image.
4. When done, click button **Set point 1 of 20**.
5. Repeat this procedure until the button is grayed. This indicates the last point is set.
6. Click **OK** to finish.

To reset to the latest calibration:

1. Follow step 2 and 3 of the calibration with Barco LCD sensor (see page 91).
2. In the Calibration dialog, check the option **Use the latest calibration**.

3. Click the **OK** button.

The calibration and the luminance will be reset to the latest calibrated position.



Note:

When you start up the system, the calibration is also reset to the latest calibrated position. The luminance, however, is kept at the latest value.

To view a graph showing the result of the latest calibration:

1. In the Calibration tab dialog, click on **Show calibration chart**.

This button is available only if the display has been calibrated with a sensor before.

2. A graph is shown displaying the latest calibration compared to the theoretical display function.

To revert to the default factory settings:

1. In the Calibration tab dialog, click on **Reset**.
2. As a result, the settings are restored to the default factory values.

Test patterns

Test Patterns

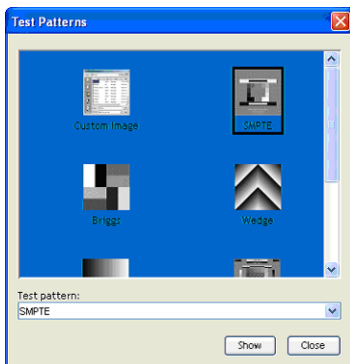


Figure 37: Test Patterns dialog

1. Select the desired test pattern by clicking on the corresponding thumbnail or selecting a pattern by name from the Test pattern drop-down box.
2. Click **Show** to display the pattern.

If you have selected **Custom Image**, you can select a bitmap image (e.g., saved on the hard disk) as test pattern.

3. To hide the test pattern again, click inside the pattern.

Application settings

Calibration tab

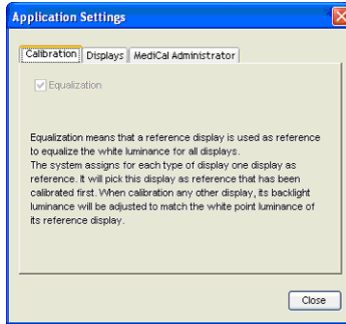


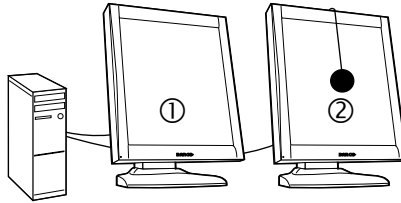
Figure 38: Calibration tab

Here you can check the Equalization option, allowing you to match the displays from a multi-head system to the luminance of the first calibrated display of the system.



Suppose you work with a Dicom Theater system that contains two displays of the same type, and you wish display (2) to have the same output luminance as display (1). Therefore first calibrate display (1). Next, calibrate display (2) while the Equalization option is checked.

The first calibrated display in the system is the reference display.



- (1) Reference display
- (2) Calibrated display: Luminance automatically matched to reference display

Figure 39: Dual-head equalization

The Equalization option will be available only if:

- the system contains at least one display of the same type as the one being calibrated
- at least one of the displays of the same type has already been calibrated before using a sensor.

To equalize the displays:

1. Be sure the reference display is calibrated to the desired luminance.
2. Set the Equalization option in the Application Settings dialog.
3. Close the Application Settings dialog.
4. Open the Display Settings dialog and calibrate display (2).

The display will be calibrated and additionally the display luminance will be matched to the luminance of the reference display (1).

Displays tab

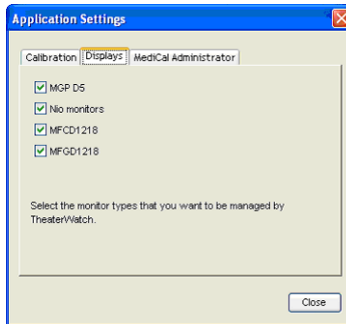


Figure 40: Displays tab

In this dialog you get a list of Barco display and projector types compatible with TheaterWatch.

If you wish certain displays from your system not to be controlled by TheaterWatch (e.g., because you wish to control them with MediCal Pro), you must deselect them in the list.



There may be systems where both TheaterWatch and MediCal Pro (Barco's image conformance and consistency software) are used. MediCal Pro may be used to control and calibrate the displays and TheaterWatch to control and calibrate the projector.

In that case, there may be a conflict between TheaterWatch and MediCal Pro: At start-up of the system, TheaterWatch automatically recognizes the connected displays and uploads the display function and luminance selected in TheaterWatch. In this way, TheaterWatch overwrites display function and luminance that was set and calibrated by MediCal Pro.

To avoid this, deselect the display types controlled by MediCal Pro, and they will be ignored by TheaterWatch.

MediCal Administrator tab

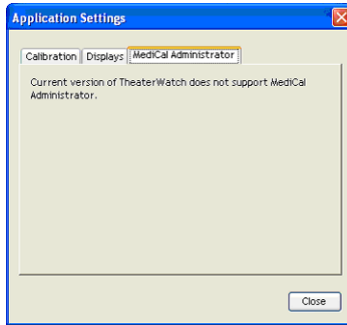


Figure 41: MediCal Administrator tab

Here you can connect to MediCal Administrator, if present.

To connect to MediCal Administrator, click the **MediCal Administrator** button. As a result, the MediCal Administrator connection wizard starts. Please follow the guidelines from the wizard.



The MediCal Administrator software is a hospital-based softcopy image quality management system that keeps the consistency data of every connected display system in a central database. Via the user-friendly web interface, accessible from any client, users have access to all the information of the installed display base.

For more information about MediCal Administrator, please contact BarcoView or consult our web site.

Update TheaterWatch

In the Windows Start menu, the Update TheaterWatch application is installed during installation of TheaterWatch.

To update TheaterWatch:

Select **Update TheaterWatch** from the Start > Programs > Barco TheaterWatch menu.

The application will search via the Internet if TheaterWatch updates are available. If so, you will get the option to install them.

Troubleshooting

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Windows 2000 display resolution



Tip: These instructions apply to both **Windows® 2000** and **Windows® XP**.

Setting the resolution of your MGP D5 Dicom Theater display



In order to set the resolution of your MGP D5 Dicom Theater display you must be logged in using an account with administrator privileges.

1. To set the resolution of your MGP D5 Dicom Theater display(s) right click on the **desktop** and select **“Properties”**.
2. Select the **“Settings”** tab.
3. Select the **rectangle** that represents the first MGP D5 Dicom Theater display attached to the BARCOMED 2MP2CP display controller you are working with.



NOTE: If you are using the VGA capabilities of your BARCOMED 2MP2CP display controller, the resolution for the first display may be set to a VGA resolution of “640 x 480” pixels with 16 colors and a default refresh rate. If your BarcoMed 2MP2CP controller is not running VGA, the display may not be enabled yet. To enable the display, check the “Extend my Windows desktop onto this monitor” **checkbox**, but do **NOT** click the **“Apply”** button at this time.

4. Select the **“Adapter”** tab and then click on the **“List All Modes”** button. Select the resolution and refresh rate that your MGP D5 Dicom Theater display supports from the dialog box and click **“OK”**.
5. Click **“OK”** on the bottom of the Adapter Control Panel. If the “OK” button on the bottom of the Adapter Control Panel is not visible, press the **“TAB”** key once and then press **“CTRL”+“Enter”** to select “OK”.
6. Click **“OK”** in the “Windows will now apply your new desktop settings” dialog box. Your MGP D5 Dicom Theater

display should now synchronize and display the Windows desktop.

7. Click **“Yes”** when asked, “Your desktop has been reconfigured. Do you want to keep these settings?”

To set the resolution of the second display attached to the BarcoMed display controller you are working with, go back to the “Settings” tab of the “Display Properties Control Panel”. Attach the display by right clicking on the rectangle that represents it and selecting **“Attached”**.

Now repeat steps above for this display.

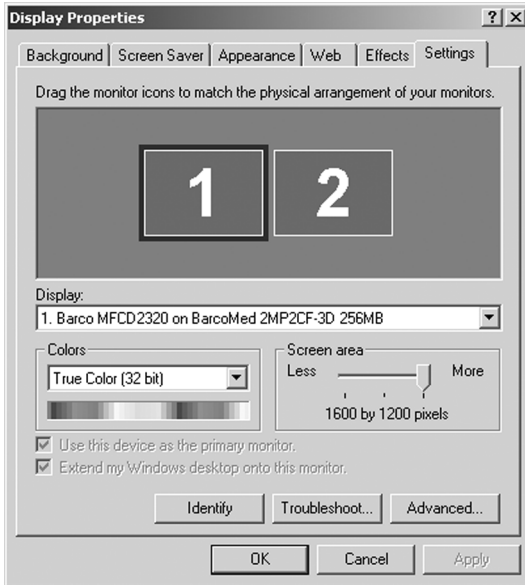


Figure 42: The Windows Display Properties Control Panel Settings Tab after the drivers have been installed and the resolution set .

Note: The system shown in figure 42 above is a dual-head, single BarcoMed 2MP2CP display controller. Your system may look different.

Driver re-installation, updates or removal

Reinstalling or updating your BarcoMed 2MP2CP driver



Note: These instructions apply to Windows 2000 and Windows XP.



Important for Windows 2000 or Windows XP users only: If you previously uninstalled the driver, do **NOT** allow the Windows Plug and Play software to reinstall the driver for you.

To reinstall or update only the BarcoMed 2MP2CP driver, follow the steps described in the section **“Using the BarcoMed Product Installation Wizard”** with the following changes.

1. Boot your system, and log in using an account with administrator privileges.
2. Insert your MGP D5 Dicom Theater Software CD into your computer’s CD drive. If the **“BarcoMed Product Installation Wizard”** doesn’t start within one minute, browse the contents of your MGP D5 Dicom Theater Software CD and double click on the file: **“Setup.exe”** to start the wizard.

The wizard will begin by displaying the screen shown in figure 43 below.

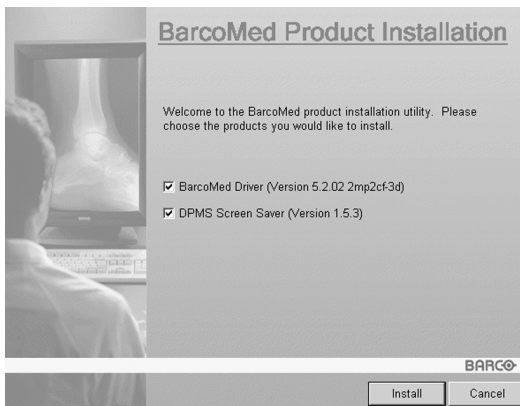


Figure 43

3. To update the driver, clear the checkbox next to **“DPMS Screen Saver”** (figure 44) and click **“Install”**.

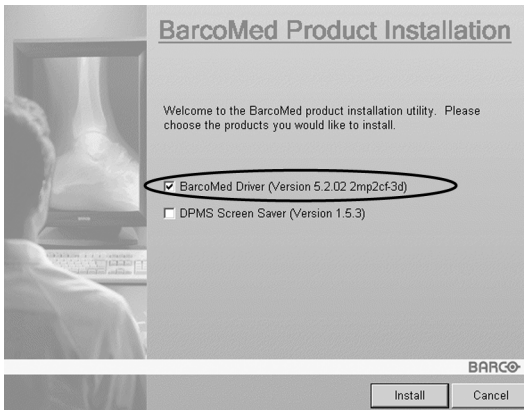


Figure 44

4. For **Windows 2000** or **Windows XP** please turn to Step 6 on page 40 in the section titled **“Windows 2000 BarcoMed 2MP2CP software installation”** and follow the instructions to finish reinstalling or updating your BarcoMed 2MP2CP driver.

When the driver has finished installing, click **“Finish”**. Then click **“Finish”** again.

Reboot the system when prompted and then reset the resolution of your displays if necessary.

Uninstalling the BarcoMed 2MP2CP driver



Special Note: The BarcoMed Uninstaller is supported only on Windows 2000 and Windows XP.



To remove the BarcoMed 2MP2CP display controller driver from your system you must be logged in using an account with administrator privileges.

Uninstalling the BarcoMed 2MP2CP driver

1. Insert your BarcoMed 2MP2CP Software CD into your computer's CD drive. If the **"BarcoMed Product Installation Wizard"** doesn't start within one minute, browse the contents of your MGP D5 Dicom Theater Software CD and double click on the file: **"Setup.exe"** to start the wizard.
2. The BarcoMed Product Installation Wizard will display its welcome screen.
3. Make certain that the checkbox next to the driver is checked and that all other checkboxes are unchecked (figure 45 below). Click **"Install"** to continue.

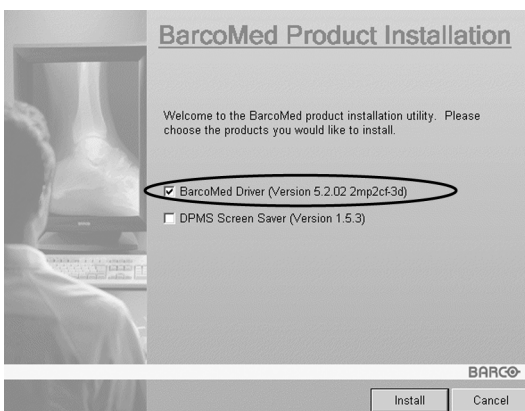


Figure 45

4. Click **"Next"**.
5. On the next screen (see figure 46 on page 108), **check** the checkbox next to "Uninstall this device" and click **"Next"** to continue.

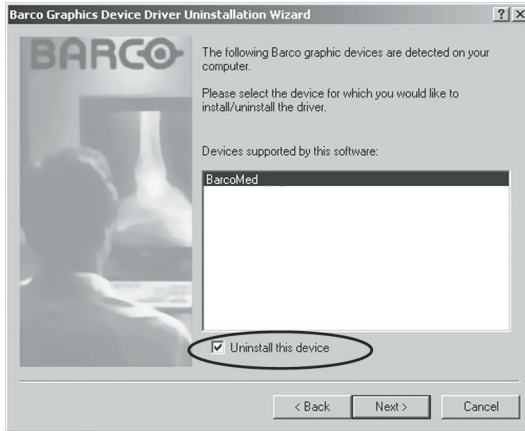


Figure 46

6. Click **“Next”**.
7. If you installed your driver with DualView **enabled**, skip to step 8.

If you installed your driver with **Cloned Heads active**, click **“Next”** to continue. Then click **“Finish”** to complete the uninstall process. Click **“Finish”** again to exit the wizard. Click **“Yes”** if Windows tells you that “you must restart your computer before the new setting will take effect”.

8. If you have installed your driver in DualView mode the wizard will warn you that you must first disable DualView by rebooting and then run the uninstall program again.



Figure 47

Click **“OK”** to continue.

9. Click **“Reboot”** to disable DualView, click **“Finish”** to exit the wizard and then click **“Yes”** to reboot your system.



10. When your system restarts, log in again using an account with administrator privileges. DualView should now be disabled.
11. The **“BarcoMed Product Installation Wizard”** should automatically restart. Finish uninstalling the driver by clicking **“Next”** three times. Then click **“Reboot”**, **“Finish”** and **“Yes”**.

If the **“BarcoMed Product Installation Wizard”** doesn't automatically restart, finish uninstalling the driver by restarting the **“BarcoMed Product Installation Wizard”** by browsing the contents of your MGP D5 Dicom Theater Software CD and double clicking on the file: **“Setup.exe”**. Then follow Step 3 on page 107 through Step 7 on page 108 to finish uninstalling the driver.

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Warranty Statement

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ARTICLE 1: SERVICES

BarcoView warrants that the equipment will be free of defects in workmanship or material for the warranty period.

Notwithstanding the provisions of clause 2, repair and replacement of defects in material and/or workmanship under this warranty shall be accomplished in our works in the following manner:

1.1 The Customer, upon the occurrence of any equipment failure, shall contact BarcoView Customer Support Center (or an authorized service center) by telephone, fax or e-mail and shall provide the applicable Customer Support person with a complete description of the problem being encountered, including the model and serial number of the equipment in which the problem has arisen.

1.2 The Customer Support person shall diagnose the problem experienced by the Customer and shall advise the Customer on how to proceed. Customer Support may ask to return the faulty equipment or faulty subassemblies to the BarcoView Customer Support Center (or an authorized service center) for repair activities. The Customer shall ask for a RMA or RAN number to a BarcoView Customer Support Center (or an authorized service center).

1.3 The Customer shall return, freight prepaid, the defective equipment or subassemblies for repair to the BarcoView Customer Support Center (or an authorized service center).

1.4 Replacement parts used shall be new or equivalent to new parts for the revision level of the equipment. The warranty period for the replacement parts will expire at the same moment as the original warranty period of the equipment. All parts replaced hereunder and returned to BarcoView (or an authorized service center) shall become the property of BarcoView (or the authorized service center).

1.5 The repaired equipment shall be returned to the Customer, by regular freight, at BarcoView's charge.

ARTICLE 2: ITEMS EXCLUDED FROM WARRANTY

The warranty described herein shall not include the following:

2.1 Any hardware or software item procured from a source other than BarcoView or their official agent or distributor and integrated by Customer or a third party into BarcoView supplied equipment.

2.2 Any host configuration not explicitly supported by BarcoView.

2.3 All software installed on the system, whether they are acquired from BarcoView or third party. An exception is made for software delivered by BarcoView that would prove to be a cause for the malfunctioning of the hardware covered under this Agreement.

2.4 Normal wear and tear, use under circumstances exceeding specifications, abuse, unauthorized repair or alternation, lack of proper maintenance.

2.5 Any failures resulting from an accident, negligence (such as but not limited to removing or deleting system files & licensed software product files), misuse, circuit failure or any change, damage due to fire, water, thunder or lightning, power failure or fluctuation, disruption of communication lines or due to force majeure, or any reason foreign to the equipment.

2.6 Any specific services or procedures, asked for by Customer, related to verification of repaired equipment.

ARTICLE 3: OBLIGATIONS OF THE CUSTOMER

Customer hereby assumes the following obligations as partial consideration for BarcoView performance of its requirements under the warranty condition; failure by Customer to meet its

obligations under this paragraph shall excuse BarcoView's performance hereunder:

3.1 Customer shall not expose BarcoView personnel to any unsafe working conditions.

3.2 Repairs to equipment under warranty resulting from improper maintenance or repair performed by the Customer, or its officers, agents, employees, or representatives, shall be borne by the Customer at its additional cost and expense.

3.3 The customer is responsible for installing the BarcoView equipment in an environment for which it was intended. If there is an indication that the equipment was used - even temporary - outside its specifications, BarcoView is entitled not to perform warranty repairs and terminate the warranty agreement. Any actions that have been taken by BarcoView in this respect, may be invoiced to the Customer at normal pricing.

ARTICLE 4: MODIFICATIONS OR CHANGES TO THE EQUIPMENT

Customer may make additions to the equipment only with explicit written consent of BarcoView.

Any attempt to do so, voids the warranty.

ARTICLE 5: DISCLAIMER OF WARRANTIES

Barcoview disclaims all warranties, expressed or implied, including all implied warranties of merchantability and fitness for a particular purpose.

ARTICLE 6: LIMITATION OF LIABILITY

Barcoview shall not under any circumstances be liable to customer or any third party for direct, indirect, incidental, special or consequential damages, such as but not limited to, damage to or loss of tangible or intangible property or equipment, loss of profits or revenues, cost of capital, cost of purchase of replacement goods, or claims of customers of user for service interruptions. The liability of BarcoView for manufacturing, sale, delivery, resale, installation, operation or suitability for use of any

products or services covered by or furnished under this warranty condition, whether arising out of contract, negligence, strict tort, warranty or otherwise, shall not exceed the price of the item or items of goods or services upon which such liability is based.

ARTICLE 7: FORCE MAJEURE

Either party shall be released from performance of its obligations under this agreement to the extent, and for so long as, the performance of this agreement is impeded by reason of force majeure. For the purposes of this clause the expression "force majeure" means, but shall not be limited to, industrial dispute, fire, mobilization, requisition, embargo, currency transfer prohibitions, insurrection, lack of means of transport, restrictions of the use of energy, and generally any circumstances which are beyond the control of the parties and hinder performance by one party of his obligations.

ARTICLE 8: GENERAL

8.1 Customer acknowledges its understanding that all software and electronic devices, including BarcoView products are subject to possible error, mechanical or electrical failure, and should not be relied upon in inappropriate applications or without proper backup and/or other safety precautions whenever personal injury or property damage may result from failure or error of the product.

8.2 BarcoView shall not be responsible for machine failure and/or its failure to render service or maintenance due to causes beyond its reasonable control.

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