Display Controller
User Guide - Windows XP

BARCO

Visibly yours

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Welcome!

Thank you for choosing this BARCO DISPLAY CONTROLLER!

Barco's state-of-the-art display controllers deliver the performance, quality and stability required for today's advanced medical imaging applications. The powerful boards ensure ultra-fast and smooth image loading, roaming and manipulation of images in every resolution.

Use the instructions in this guide to install your BARCO DISPLAY CONTROLLER and discover the power yourself!

Following symbols may be used throughout this guide:

⚠ WARNING	Warning: Risk of injury to human beings	⚠	Caution: Risk of damage to the product
❗	Important notice or remark	📄	Note
☞	Hint, tip	ⓘ	Additional information

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Table of contents

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What's in the box

Your BARCO DISPLAY CONTROLLER comes with:

- This BARCO DISPLAY CONTROLLER guide
- System CD
- 2 single-link dongles are included with the MXRT 5400 & MXRT 7400.
- 1 single-link dongle is included with the MXRT 2400.

> 📄 Keep your original packaging. It is designed for this BARCO DISPLAY CONTROLLER and is the ideal protection during transport.

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Display Controller Installation

Which display controller?

Your Barco medical display is compatible with a large range of Barco and non-Barco display controller boards. Depending on the order details, the display can be delivered with or without display controller.

The brochure "Barco medical display systems" on the website www.barco.com/medical (Downloads section) contains a comprehensive overview of the compatibility matrix of Barco displays and Barco display controllers.

If you are using Barco display controllers, please follow the installation instructions in this section. If you are using a non-Barco display controller, please consult its corresponding documentation.

Installing a Barco display controller

This chapter will guide you through the physical installation of a Barco display controller for your display system.

> ⚠️ **WARNING** Wear a grounded, protective ESD strap when handling or during installation of the display controller. Electrostatic charges can damage the display controller.

Overview

Prior to installing the Barco display controller(s) for your Barco Display System in your PC please take a few minutes to familiarize yourself with both the display controller(s) and the PCIe or PCI slots in your computer.

TYPES OF DISPLAY CONTROLLERS FOR BARCO DISPLAY SYSTEMS

The following models of Barco display controllers are available for your display system. Please check which of the following models is delivered with your system, and follow the corresponding installation instructions:

Board Model	VGA Jumper	Compatible PCIe/PCI Slot
Barco MXRT 1150	No	x1*, x8, x16 (PCIe only)
Barco MXRT 2150	No	x16 (PCIe only)
Barco MXRT 2400	No	x16 (PCIe only)
Barco MXRT 5200	No	x16 (PCIe only)
Barco MXRT 5400	No	x16 (PCIe only)
Barco MXRT 5450	No	x16 (PCIe only)
Barco MXRT 7200	No	x16 (PCIe only)
Barco MXRT 7300	No	x16 (PCIe only)
Barco MXRT 7400	No	x16 (PCIe only)
BARCOMED CORONIS PCIe	Yes	x8*, x16
BARCOMED CORONIS PCI	Yes	PCI 32 or PCI 64*
BARCOMED NIO PCIe	Yes	x8*, x16
BARCOMED NIO PCI	Yes	PCI 32 or PCI 64*
BARCOMED 5MP2FH PCIe	Yes	x8*, x16
BARCOMED 5MP2FH PCI	Yes	PCI 32 or PCI 64*

* Recommended PCI/PCIe slot

You can use x16 & x8 slots for x1, & x4 boards.

If you are using a display controller with a VGA jumper, you will need to decide if you are going to use its on-board VGA capabilities. If you are, check the setting of the Jumper at J-1 on the display controller. By default, VGA should be enabled, on the top two pins. To disable the on-board VGA capabilities move the jumper so that it is on the middle and bottom pins.
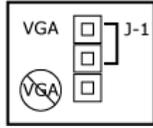
Display controller VGA Jumper, VGA enabled

☞ To use multiple BarcoMed display controllers in a single computer, you need to enable VGA on only ONE of the BarcoMed display controllers and disable VGA on ALL the other BarcoMed display controllers. To use a BarcoMed display controller with a third party VGA controller or with one or more Barco MXRT display controllers, do NOT enable VGA on the BarcoMed display controller.

WHICH PCI/PCIE SLOT TO USE

The table on the preceding page lists the different display controller model(s) available for your BARCO Display System and the recommended PCI/PCIe slot to use for optimum performance. Figure shows the different types of PCIe slots that can be used.

- x16 slot

- x8 slot

- x1 slot
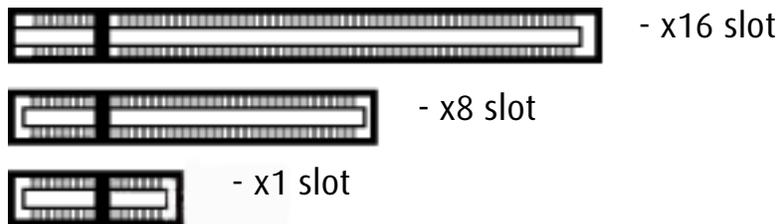
Examples of PCIe slots

The next image shows the two different types of PCI slots that can be used.

32 bit PCI slot

64 bit PCI Slot
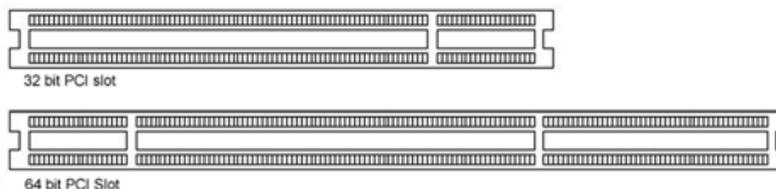
Examples of PCI slots

Installation Procedure

The following instructions will take you step by step through the installation of the Barco display controller(s) for your Barco Display System.

> ⚠ **WARNING** Wear a grounded, protective ESD strap when handling or during installation of the display controller. Electrostatic charges can damage the display controller.

1 If you are not going to use your old graphics card, uninstall the drivers and software for it if you have not already done so.

2 Turn off the computer, display(s), and other peripheral devices.

3 Unplug the computer's power cord and disconnect all cables from the back of your computer.

> ⚠ **WARNING** Wait approximately 20 seconds after unplugging the power cord before disconnecting a peripheral or removing a component from the motherboard to avoid possible damage to the motherboard.

4 Remove the computer cover.

   If necessary, consult your computer's manual for help in removing the cover.

5 If necessary, unscrew or unfasten and remove any existing graphics card(s) from your computer.

> ☞ If you are using a motherboard containing an on-board graphics solution and do not intend to use it as part of a multiple-display setup, disable it either in the computer's System Set-up utility (BIOS) or the Windows device manager.

6 Locate the appropriate slot and, if necessary, remove the metal back-plate cover(s).

7 Align the Barco display controller(s) for your Barco Display System with the slot(s) and press it(them) in firmly until the card(s) is(are) fully seated.

> 👉 The next step applies only to the MXRT 7200, MXRT 7300, and MXRT 7400.

8 Connect the power cable(s) to the 6-pin power connection(s) on the graphics card. Make sure the cables are not interfering with anything inside the computer (for example, a cooling fan).

6-pin graphics controller power cable
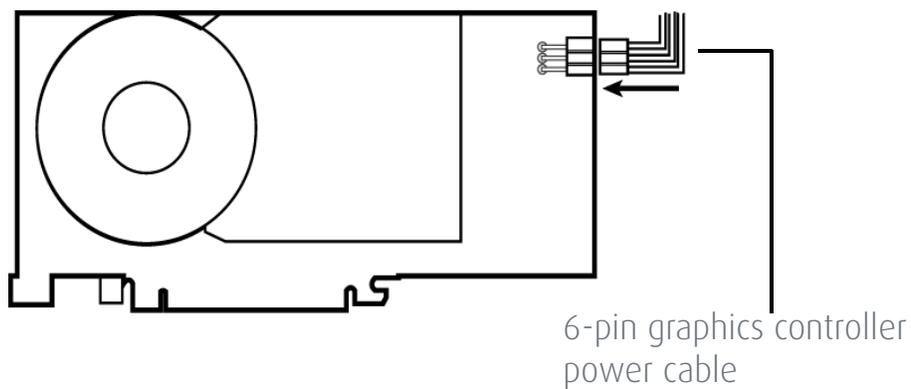
Power connection for the MXRT 7300 & MXRT 7400 controllers

6-pin graphic controller power cables - connect 2 cables as shown
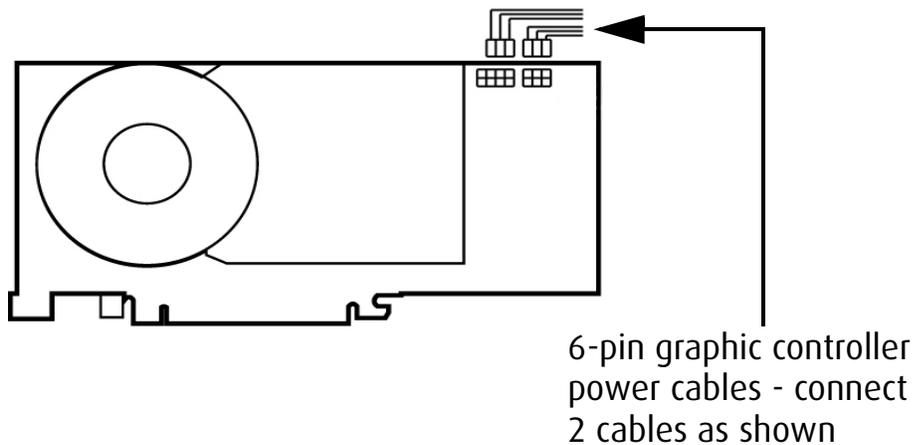
Power connection for the MXRT 7200 controller

9 Screw in or fasten the display controller securely. Replace and secure the computer cover.

CONNECTING YOUR BARCO DISPLAYS

For a detailed description of the display installation and signal connection, please refer to the Display User Guide.
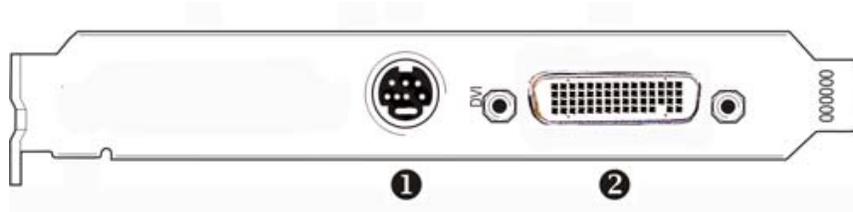
MXRT 1150 & MXRT 2150

IO-Panel for the Barco MXRT 1150 and Barco MXRT 2150

❶	S-Video Connection This option is not supported by Barco.
❷	DMS-59 connector provides DVI-I / Head 1 & Head 2 output connections through included Y adaptor cable.
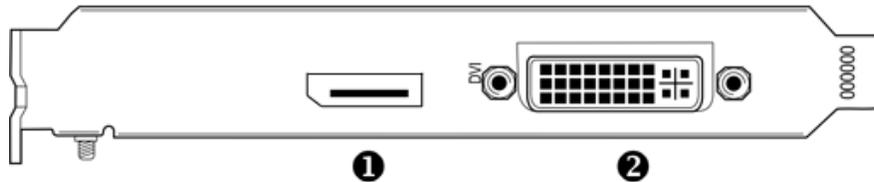
MXRT 2400

IO-Panel for the Barco MXRT 2400

❶	DisplayPort Connection
❷	DVI-I Connection
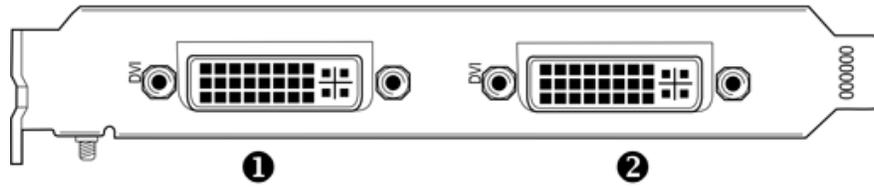
MXRT 5200 & MXRT 5450

IO-Panel for the Barco MXRT 5200 & MXRT 5450

❶	Head 1– DVI-I Connection
❷	Head 2– DVI-I Connection
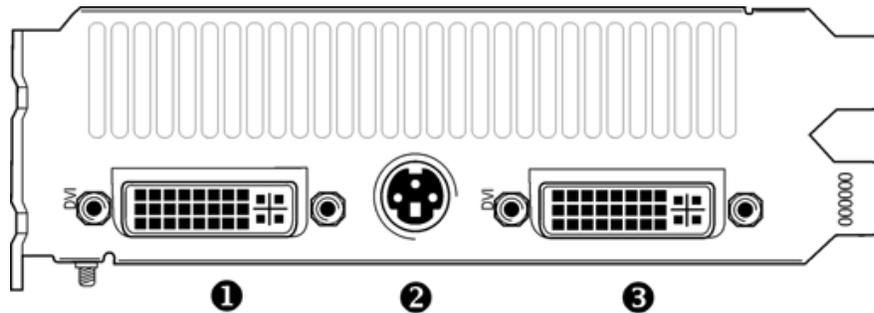
MXRT 7200

IO-Panel for the Barco MXRT 7200

❶	Head 1 – DVI-I Connection
❷	Stereo Connection This option is not supported by Barco.
❸	Head 2 – DVI-I Connection
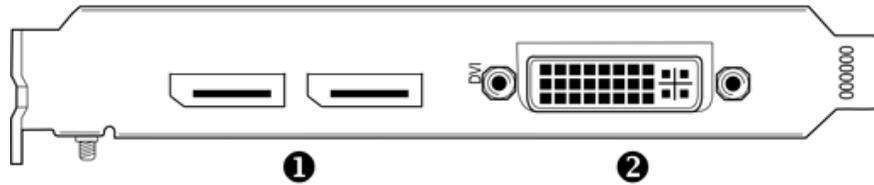
MXRT 5400, MXRT 7300, & MXRT 7400

IO-Panel for the Barco MXRT 5400, MXRT 7300, & MXRT 7400

❶	DisplayPort Connections
❷	DVI-I Connection

Disconnecting the DisplayPort cable may lock the display. Rebooting system may be required if lock occurs.

Driving three displays is not supported with MXRT 5400, MXRT 7300 and MXRT 7400 on Windows XP. Any two of the three connectors can be used at a time.
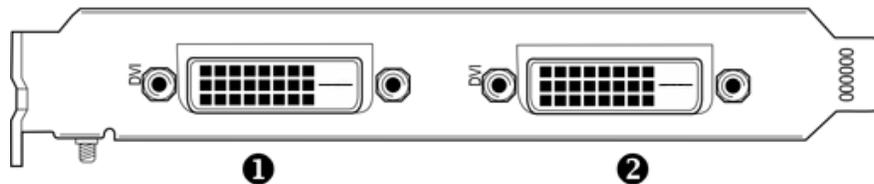
BarcoMed controllers

IO-Panel for the BarcoMed Coronis, BarcoMed Nio, and BarcoMed 5MP2FH family of display controllers

❶	Head 1 – DVI-D Connection
❷	Head 2 – DVI-D Connection

Dongles

Barco dongles are specially designed to allow Barco Display Controllers with a DisplayPort output to be connected with a display with DVI input.

Single-Link dongle

The Single-Link dongle allows to connect a display's DVI input with the DisplayPort output of your Barco Display Controller. However, the Single-Link dongle is limited to convert resolutions to 2MP for color displays and 5MP for grayscale displays. If your display features higher resolutions, the Dual-Link dongle should be used instead

> 📄 All BARCO DISPLAY CONTROLLERS compatible with the DisplayPort interface come with a Single-Link dongle by default.

To display
(DVI Single-Link)

To DisplayPort connector on
Barco display controller
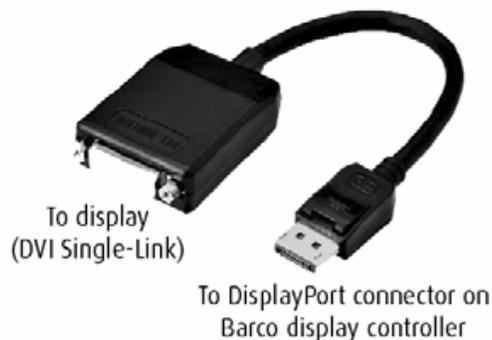
SingleLink Dongle (supplied with system)

Dual-Link dongle

The Dual-Link dongle also converts DisplayPort input signals to DVI output signals. However, unlike the Single-Link dongle, the Dual-Link dongle offers higher resolutions for both color and grayscale displays.

> ⚠ A Dual-Link DVI cable must be used to connect your display's DVI connector with the DVI connector on the Dual-Link dongle.

> 📄 The Dual-Link dongle should be ordered separately.

DisplayPort to Dual-Link DVI Dongle - enables full refresh rate support on color display resolutions over 1920x1200, and grayscale display resolutions over 2048x2560. Must be ordered separately.

The Dual-Link Dongle is only needed with graphics cards that have an active DisplayPort output, such as the MXRT-7300. Use the following steps to install the dongle:

1 Connect the DisplayPort end of the connector to the graphics card.

2 Plug in a Dual-Link DVI cable from the display into the DVI adapter of the dongle.

3 Connect the built-in USB power cable on the dongle to a workstation USB port.

4 If you are using QAWebAgent version 1.10.2 or older, then a separate software component is required for supporting DDC communication through the dual link dongle. Run setup.exe from Barco_DLDP2DVI_Install package after driver installation to install the SW.

Up to 6mp

Dual-link DP->DVI adaptor

9' Barco DVI cable

USB power connector
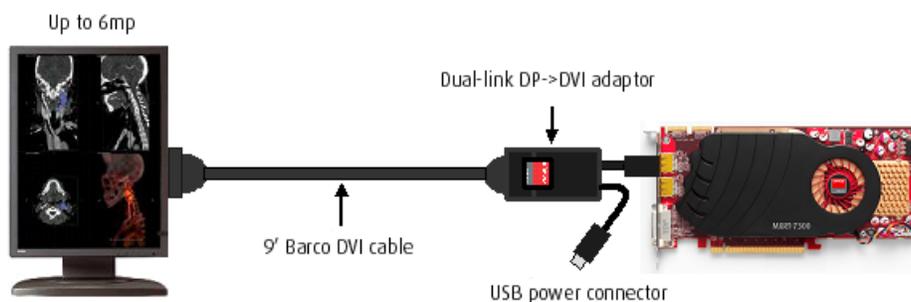
DPDVI DL Dongle Installation

Use cases

Use Single Link Dongle with these displays:

- Gray scale displays with resolution up to 2048x2560
- Color displays with resolution up to 1920x1200

Use Dual Link Dongle with these displays:

- Color 3MP displays, and 6MP Fusion displays
- Gray scale 5.8MP displays

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Driver and Software Installation

This chapter will guide you through the installation of the drivers, software and documentation associated with your Barco Display System or Barco Display(s).

The process for the Barco MXRT family of controllers and BARCOMED family of controllers is handled separately.

If you install Barco displays without Barco display controllers, no drivers will be installed. Only the documentation will be installed on your system.

Driver and software installation prerequisites

☞ To install or remove the drivers, software, or documentation you must be logged on as a user with administrator privileges.

Your operating system must be installed and running before you can install the driver, software and documentation for the display controller(s) for your Barco Display System.

Before you begin make sure that all of your Barco Display(s) are connected to the appropriate display controller(s) in your system.

☞ This installation procedure is based on operating Windows in "Classic" view style. If "Home" or "Default" view style is selected in Windows, sections of this procedure may be different than what is listed

Installing the Barco MXRT drivers and software

> ☞ The installation dialog will display in English if your operating system's language is not supported.

This process applies to the following versions of Windows:

- Windows XP Professional
- Windows XP Professional x64 Edition
- Windows Server 2003
- Windows Server 2003 x64 Edition

You will need to install the Barco Display System drivers and software in the following cases:

- After you have installed the display controller(s) for your Barco Display System in your system for the first time.
- After you have reinstalled or upgraded your operating system.
- After you have moved the display controller(s) to a different PCI/ PCIe slot.
- When you upgrade to a newer version of the MXRT driver.
- When you put additional MXRT display controllers in your system.

The following will guide you through the installation procedure:

1 You do not need to manually uninstall an existing driver before updating to the current version. The Barco Product Installation Wizard will detect any prior installations and start the uninstallation process automatically.

   Start your system. When the Found New Hardware Wizard comes up, click Cancel. When the System Settings Change window asks you to restart your computer, click No or Restart Later.

2 Run the Barco Product Installation Wizard.

   The Barco Product Installation Wizard should start automatically when you insert the Barco Display System Installation CD-ROM into your computer's CD/DVD drive *after* the operating system has

started. If your CD/DVD drive's auto-run is not enabled or the Barco Product Installation Wizard does not start automatically, you can run the Barco Product Installation Wizard manually by following these steps:

a Click the Start button in the task bar.

b Click Run.

c Click Browse and browse to the root directory of the Barco Display System Installation CD-ROM and click on the file, Setup.exe, and click Open.

d Click OK.

or

a Browse to the root directory of the Barco Display System Installation CD-ROM and double click on the file, Setup.exe.

3 Click Next twice.

4 Click Yes to accept the terms of the MediCal QAWeb Agent license agreement. The Barco setup wizard will continue with the installation only if you accept the terms of the license agreement. If you click No, the wizard will exit. Click Next.

5 Follow the wizard's on-screen instructions to complete the MediCal QAWeb installation.

6 The Barco Product Installation Wizard will now guide you through the installation of the driver.

7 Click Yes to accept the terms of the Barco and ATI license agreements. The Barco setup wizard will continue with the installation only if you accept the terms of both license agreements. If you click No, the wizard will exit. Click Next.

8 Follow the wizard's on-screen instructions to complete the driver installation.

The driver installation may take up to 2 minutes, and the monitor may blink a few times during the installation process.

For "non-English" operating systems, you may encounter multiple pop-up screens. If this occurs, click the appropriate buttons to complete the installation.

9 When the "Installation Complete" message appears, select Reboot System Now and click Finish.

10 After the system reboots, the "Found New Hardware" wizard may appear. If this occurs, click Cancel.

Automated display configuration

Once the drivers, software and documentation have been installed and your system has been rebooted, the computer should automatically detect your Barco displays and attach them to the desktop with the correct resolution. If the computer fails to detect your Barco displays or fails to attach them to the desktop correctly, please refer to the **"Setting the resolution of your Barco Display Controller"** on page 34 in the **Configuring Windows** section of this manual.

Reinstalling drivers

You can install new drivers or reinstall existing drivers at any time by using the Barco Set-up wizard on your Barco Display System Installation CD-ROM.

Uninstalling the drivers and software

To uninstall the Barco drivers, software or documentation for your Barco Display Systems, please use the Windows Add/Remove Programs or Uninstall utility. This can be found in the Windows Control Panel.

> ☞ When uninstalling the Barco MXRT drivers, the dialog box shown below will appear, and select the driver listed is not already selected. (driver version may be different than what is pictured)
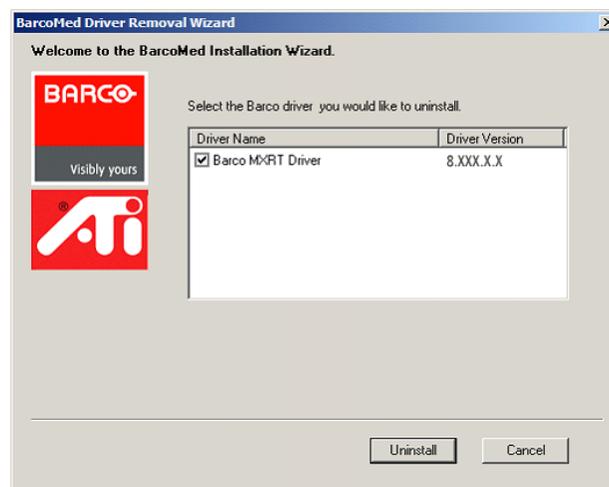
Barco MXRT Driver Removal Wizard

Silent Installation of Drivers and Software

Specifying the silent install option causes most of the GUI associated with the installer to disappear. A background progress window will still be visible, but no user input will be required.

The silent install behavior is dictated by the *SETUP.INI* file. Each application is allowed to have separate command-line parameters for normal and silent installs.

To install the drivers and software silently, please follow the steps below:

1 Insert the Bᴀʀᴄᴏ Display System Installation CD-ROM into your CD/ DVD drive. When the Barco Product Installation Wizard starts click Cancel.

2 Click the Start button in the task bar.

3 Click Run.

4 Click Browse and

    a Browse to the root directory of the Bᴀʀᴄᴏ Display System Installation CD-ROM.

    b Click on the file, Setup.exe, and click Open.

    or

    a Browse to the root directory of the location where you saved the contents of your Bᴀʀᴄᴏ Display System Installation CD-ROM.

    b Click on the file, Setup.exe, and click Open.

5 In the Open address window, place your cursor at the end of the line of text that appears and add the following text after Setup.exe, a space and -silent. Click OK.

Example (where D is the name of your CD/DVD drive):

    D:\Setup.exe -silent

See below for an example of how the command line window should look when using the silent install from the Bᴀʀᴄᴏ Display System Installation CD-ROM.

Command line installation

When performing an MXRT driver upgrade, it is essential to uninstall the previous installation before installing the new driver. We also recommend that you perfrom the following steps to completely remove the previously installed files:

1 Boot the system in safe mode.

2 Run MXRT driver cleaner.bat by double clicking on it (this will either be installed as an icon on your desktop, or can be found on the Barco Display System installation CD at: drivers\2KXP\ATI). This will remove all the previous installed MXRT driver files.

3 Reboot the system in regular mode and install the new driver.

Installing the BARCOMED CORONIS or Nio drivers and software

The installation dialog will display in English if your operating system's language is not supported.

This process applies to the following versions of Windows:

- Windows XP Professional
- Windows XP Professional x64 Edition
- Windows Server 2003
- Windows Server 2003 x64 Edition

You will need to install the Barco Display System drivers and software in the following cases:

- After you have installed the display controller(s) for your Barco Display System in your system for the first time.
- After you have reinstalled or upgraded your operating system.
- After you have moved the display controller(s) to a different PCI/PCIe slot.

The following will guide you through the installation procedure:

1. Start your system. When the Found New Hardware Wizard comes up, click Cancel. When the System Settings Change window asks you to restart your computer, click No or Restart Later.

2. Run the Barco Product Installation Wizard.

   The Barco Product Installation Wizard should start automatically if you insert the Barco Display System Installation CD-ROM into your CD/DVD drive after the operating system has started. If your CD/DVD drive's auto-run is not enabled or the Barco Product Installation Wizard does not start automatically, you can run the Barco Product Installation Wizard manually by following these steps:

a Click the Start button in the task bar.

b Click Run.

c Click Browse and browse to the root directory of the BARCO Display System Installation CD-ROM and click on the file, Setup.exe, and click Open.

d Click OK.

or

a Browse to the root directory of the Barco Display System Installation CD-ROM and double click on the file, Setup.exe.

3 Click Next twice.

4 Follow the wizard's on-screen instructions to complete the installation.

When the page shown below appears you may either click Next to accept the default settings or if you know the settings required for your viewing application, you may select them now and then click Next. You may change these settings later by accessing the Barco Driver tab within the Windows Display Control Panel.

Please refer to your application manuals for information on the correct Palette and Drawing modes to select.

5 When the driver setup is complete, click the Finish button.

6 The Barco Product Installation Wizard will now guide you through the installation of MediCal QAWeb, BarcoMed SelfExam, and the Barco on-line documentation.

7 When the Setup complete message appears, select Reboot System Now and click Finish.

8 After the system reboots, Windows may display either the *Digital Signature Not Found* message or *The software you are installing for this hardware has not passed Windows logo testing.*

Automated display configuration

Once the drivers, software and documentation have been installed and your system has been rebooted, the computer should automatically detect your Barco displays and attach them to the desktop with the correct resolution. If the computer fails to detect your Barco displays or fails to attach them to the desktop correctly, please refer to the **"Setting the resolution of your BARCO DISPLAY CONTROLLER"** on page 34 in the **Configuring Windows** section of this manual.

Reinstalling drivers

You can install new drivers or reinstall existing drivers at any time by using the Barco Set-up wizard on your BARCO Display System Installation CD-ROM.

Uninstalling the drivers and software

To uninstall the Barco drivers, software or documentation for your Barco Display Systems, please use the *Windows Add/Remove Programs* or Uninstall utility. This can be found in the Windows Control Panel.

☞ If you installed your BarcoMed Coronis or Nio drivers with DualView enabled, the wizard will warn you that DualView must be disabled before the drivers can be uninstalled. This is normal, please follow the prompts from the wizard.
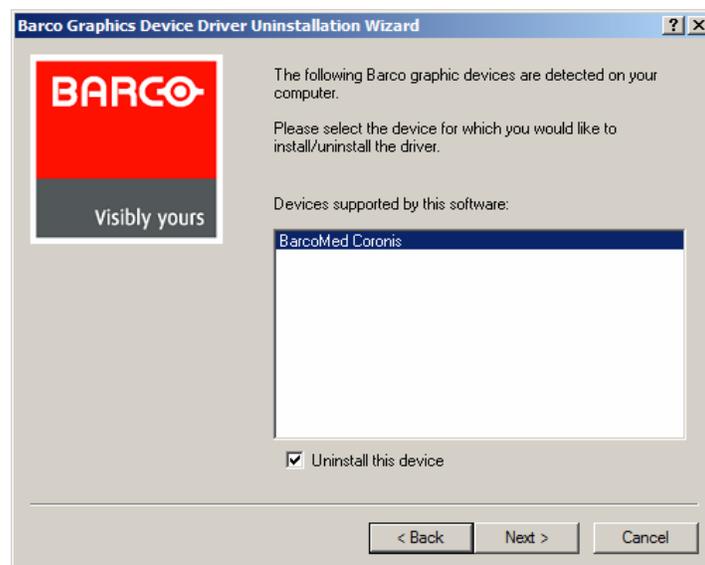
Barco Driver Removal Wizard

Command line (Silent) Install of Drivers and Software

(The following is only supported on XP (32bit and 64bit). Please contact support for instructions on other OSs at Image.CareBEA@barco.com.)

Specifying the silent install option causes most of the GUI associated with the installer to disappear. A background progress window will still be visible, but no user input will be required.

The silent install behavior is dictated by the *SETUP.INI* file. Each application is allowed to have separate command-line parameters for normal and silent installs.

To install the drivers and software silently, please follow the steps below:

1 Insert the BARCO Display System Installation CD-ROM into your CD/DVD drive. When the Barco Product Installation Wizard starts click Cancel.

2 Click the Start button in the task bar.

3 Click Run.

4 Click Browse and

    a Browse to the root directory of the BARCO Display System Installation CD-ROM.

    b Click on the file, Setup.exe, and click Open.

       or

    a Browse to the root directory of the location where you saved the contents of your BARCO Display System Installation CD-ROM.

    b Click on the file, Setup.exe, and click Open.

5 In the Open address window, place your cursor at the end of the line of text that appears and add the following text after Setup.exe, a space and -silent. Click OK.

Example (where D is the name of your CD/DVD drive):

D:\Setup.exe -silent

See below for an example of how the command line window should look when using the silent install from the BARCO Display System Installation CD-ROM.
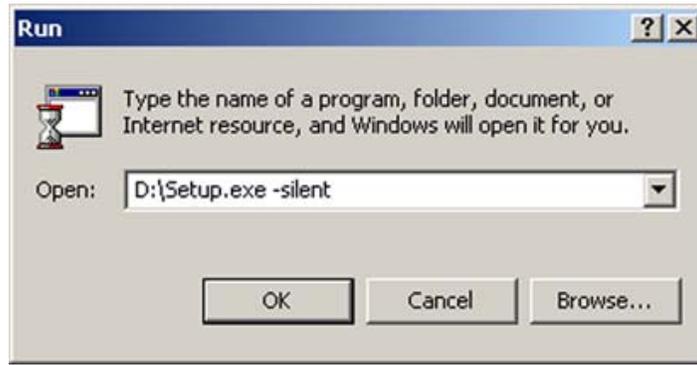
Command line installation

Configuring Windows

Setting the resolution of your BARCO DISPLAY CONTROLLER

☞ In order to set the resolution of your Barco Display you must be logged in using an account with administrator privileges.

Accessing the Windows Display control panel

1 Open the "Windows Display" control panel by one of the methods below:

   a Start > Settings > Control Panel > Display

      or

   a Open the *"Display Properties Control Panel"* by right clicking in an empty area on the desktop, then select Properties.

2 Click on the Settings tab.

3 Select the rectangle that represents the Barco display whose settings you wish to change.

☞ If you are using the VGA capabilities of your BarcoMed 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 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.

> ☞ If you installed your BarcoMed Display System drivers in SingleView mode, there will be one rectangle for the virtual display representing the two heads controlled by each BarcoMed display controller output.
>
> If you installed your BarcoMed Display System drivers in DualView mode (default for Windows XP) there will be a rectangle representing each head controlled by each output of the display controller. This will be true even if you have only one display connected to your BarcoMed controller. Both displays of a display controller cannot be enabled at the same time unless their display properties match. If necessary detach the second display of the BarcoMed display controller you are working with by right clicking on the rectangle that represents it, deselect Attached and click the Apply button.
>
> Since Windows will not let you detach the primary display connected to a particular controller, you may need to temporarily make another display the primary display

4 For the display which is still attached click on the Advanced button.

5 Select the Adapter tab and then click on the List All Modes button. Select the resolution and refresh rate that your BARCO DISPLAY CONTROLLER display supports from the dialog box and click OK.

> ☞ In the Adapter box, the Adapter string shows if this display is the First View or the Second View attached to the display controller. Please make a note of this, so that you can arrange the displays in the correct order later if necessary.

6 Click OK on the bottom of the Adapter Control Panel.

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. If necessary

Display Controller **35**

attach the second display you detached in step 2 above, by right clicking on the rectangle that represents it and selecting Attached.

Now repeat steps 4-7 above for this display.

If you are using a Quad-Head Configuration repeat all of the above steps for the two displays on the second display controller.

☞ If you have a single display configuration and you have enabled DualView, Windows will not allow you to attach the second head. This is normal and not a bug.

After enabling DualView and setting the resolutions in a Quad-Head Configuration you may need to drag the heads into the proper position in the window on the "Settings" tab, so that the arrangement in the window on the "Settings" tab matches the physical arrangement of your configuration.

Setting the Color and Palette Modes

(See **"Control Panel Settings"** on page 37)

Configuring the Windows desktop

☞ In order to configure the Windows Desktop of your BarcoMed Display System you must be logged in using an account with administrator privileges.

If you are using a color display in conjunction with your Barco grayscale display(s) you should configure your desktop before setting the resolution of the your Barco grayscale display(s).

Control Panel Settings

This chapter describes how to configure the displays in your Barco Display System using the tools available through the *Advanced* button on the *Settings* tab of the *Windows Display Control Panel*.

If you purchased Barco Medical Displays only and not a complete Barco Coronis Display System you will need to refer to the user manual for the display controller you are using.

Languages supported

The BarcoMed tabs support the following languages:

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

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

Barco Driver Properties

Accessing the Barco tab

You must have logged on to Windows using an account with administrator privileges in order to use the Barco portions of the *Windows Display Control Panel* to change any display settings.

1 Open the *Windows Display Control Panel* by one of the methods below:

    a Start > Control Panel > Display

      or

    a Open the *"Display Properties Control Panel"* by right clicking in an empty area on the desktop, then select Properties.

2 Click on the Settings tab.

3 Select the rectangle that represents the BARCO DISPLAY CONTROLLER whose settings you wish to change.

4 Click on the Advanced Settings button.

5 Select the Barco tab from the Properties screen.

Using the Barco tab

The Barco tab is divided into three sections. The first section provides information about the graphics controller and allows access to the graphics controller advanced configuration pages. The second section provides information about the display. The bottom section allows access

to two Barco tools, Barco System Report and MediCal QAWeb. Also, there is a active link to the Barco Medical Imaging Systems web site.
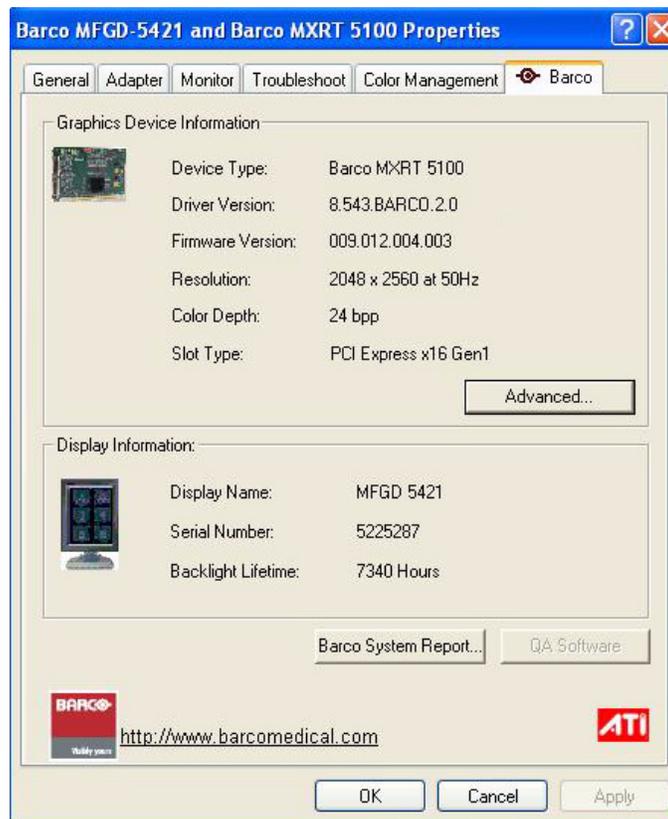
Example: Barco Tab

Display Information

Name: Displays the model name of the display.

Serial Number: Displays the serial number of the display.

Backlight LifeTime: This is the amount of time in hours that the backlight has been on. The backlight will typically last a very long time, but will only be able to hold the recommended calibrated luminance for a certain amount of time, after which time it will become slowly dimmer.

Barco system report

The Barco System Report, also known as BarcoMed SelfExam, is a wizard based tool which collects data about the components that are installed in your system. This information is used by the Barco MIS Support team when trying to resolve customer issues.

MediCal QAWeb

Clicking on the QA Web button will launch the MediCal QAWeb application. Please refer to the MediCal QAWeb manual for information about this application.

Advanced properties for MXRT controller

To access the advanced properties configuration pages for the display controller(s) for your Barco Coronis Display System, click on the Advanced button in the *Graphics Device Information* section.

There are several pages accessible from the advanced configuration button. They are:

- Barco Adapter Configuration
- OpenGL & Direct 3D
- Rotation (when supported)
- (Device) Details
- Application Profiles

Barco Adapter Configuration

The Barco Adapter Configuration page allows you to switch between the following monitor configurations and display options for the displays connected to a Barco MXRT controller:

DISPLAY LAYOUT:

- DualView
  Both displays are enabled independent of each other.

- SingleView
  A single large desktop spans across both displays.
- Clone
  The primary display is cloned to the secondary display.

COLOR FORMAT:

- 24-Bit TrueColor Mode
- 30-Bit TrueColor Mode (HDR)

DISPLAY RESOLUTION:

- Sets display resolution for 1 or 2 displays.

  To switch out of SingleView or Clone mode, the buttons in this Control Panel page must be used. The main Windows Control Panel cannot be used. Depending on your system, certain configurations can be disabled.

  Clone mode is supported for two color displays or projectors in 32bpp. Clone mode is not supported on grayscale displays. Also, 30-bit desktop is not supported while in Clone Mode.

  When choosing Clone Mode under the Barco Adapter Configuration page, if two displays are enabled, then the larger of the two current resolutions will be used. If only one of the two displays is enabled, the enabled displayís current resolution will be used.

  When the resolution set for clone mode is larger then the maximum supported on a display, the resolution set on the Master will automatically be scaled to maximum resolution of the Cloned display. If the Scale to Display Preferred Mode is checked, the maximum resolution will be the EDID preferred mode. If it is unchecked, then it will be the largest mode in the Cloned displays mode list. Clone mode can only be exited through the Barco Adapter Configuration page in the Barco Advanced Control Panel.

  Not all options are available at all times. Please select the help tips in the driver software for more information.

OpenGL and Direct3D

The OpenGL and Direct3D pages of the Advanced Properties page are divided into two sections: Main Settings and Custom Settings.

MAIN SETTINGS

In the Main Settings section there is a slider bar which allows the user to adjust the OpenGL or Direct3D settings for optimum performance, optimum quality or for a point in between. There is also a checkbox provided for enabling Custom Settings.

CUSTOM SETTINGS

Barco recommends that you use the default settings, unless your viewing application vendor provides detailed information on custom settings.

In the Custom Settings section the user can fine tune the following options:

- Anisotropic filtering
- SMOOTHVISION
- Wait for Vertical Sync

ANISOTROPIC FILTERING

Anisotropic filtering is a technique that preserves detail on surfaces that have three-dimensional perspective and fade away into the background. It works best when used in conjunction with Mipmapping.

Anisotropic filtering can be set to favor either an increase in system processing performance or improved image quality.

> If you are unsure how to configure anisotropic filtering, use the Application Preference option. Your display will automatically adjust to the application's requirements.

SMOOTHVISION

The Advanced Settings tab enables you to apply ATI's SMOOTHVISION technology for full-scene anti-aliasing. SMOOTHVISION improves image quality by removing jagged edges (anti-aliasing) from 3D images, resulting in smoother, more natural looking objects.

WAIT FOR VERTICAL SYNC:

- For OpenGL the default setting is *Default Off*.
- For Direct3D the default setting is *Application Preference*.

Please refer to the on-line help for more information on using advanced features such as *Wait for Vertical Sync*.

Rotation

The Rotation page is visible only when the display connected to the current (active) head of your Barco MXRT display controller does not support rotation internally. The Rotation feature allows the user to rotate the Windows desktop to match the physical orientation of the display.

(Device) Details

The Details page provides detailed information about the display controller connected to the active display. This information is useful in debugging issues that may occur when using your BARCO DISPLAY CONTROLLER(S).

Application Profiles

The Configuration page enables you to customize display profiles for individual applications. Typically, you would change these settings for one or more of the following reasons:

- Diagnostic purposes.
- Fine-tuning a specific application/system configuration.
- Specific settings recommended by your hardware or software documentation.

- Tuning your application/system environment for best performance and memory usage.

ACTIVATING A CONFIGURATION PROFILE

The *Configuration Profiles* list box displays a number of common applications whose optimal configuration profile are factory-set by default.

To activate a particular profile, select the application name from the list and click Apply. This will add the information to the necessary Windows registry settings. If prompted, restart Windows.

Advanced Properties for BarcoMed Coronis or BarcoMed Nio

Palette modes

From the Barco Drawing Modes tab you can select one of four palette modes.

- Color to Gray compatibility
- User Modifiable Color Palette
- Static Gray Palette including standard system colors
- Static Gray Palette with NO system colors

User Modifiable Color Palette: This option allows applications to modify the palette contents dynamically. As indicated in the figure below, this mode reserves the first 10 and last 10 entries in the palette for the Windows operating system, but applications can manipulate the middle 236 entries. This is the standard palette mode as configured by Windows.
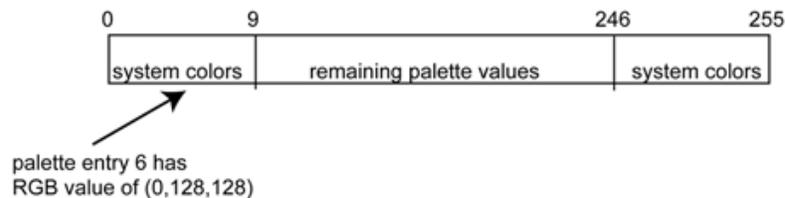
User Modifiable Palette

> ☞ If you are unsure whether or not your application requires this "User Modifiable Color" mode, contact your application provider.

Static Gray Palette including standard system colors: This option sets the palette to be a static set of 256 gray values. Applications are denied the ability to dynamically change or allocate palette entries. This prevents palette conflicts between applications, which can cause image color values to appear distorted in the background application.

As shown in figure below, the 20 standard system colors are converted from RGB to gray values. The rest of the 236 entries from index 10 to

245 contain the missing gray values so that the palette has the full 256 gray values within it.
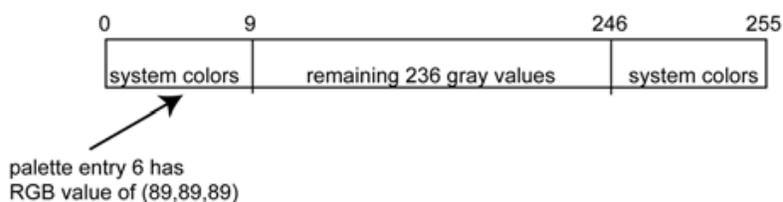
Static Gray Palette with system colors

If you are unsure whether or not your application requires this "Static Gray Palette with System colors" mode, contact your application provider.

Static Gray Palette with NO system colors: This option sets the palette to be a static linear ramp of 256 shades of gray. Therefore, applications are denied the ability to dynamically change or allocate palette entries. This prevents palette conflicts between applications, which can cause image color values to appear distorted in the background application.

As shown in the figure below, each of the 256 entries in the palette has an RGB value of (i, i, i) where i is the index from 0 to 255.
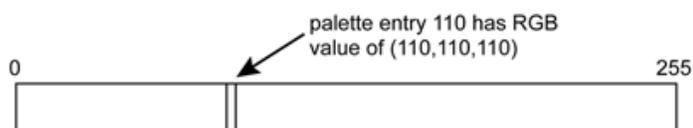
Static Gray Palette with NO system colors

If you wish to use a static gray palette we recommend using the "Static Gray Palette including Standard System Colors" option instead of this one. This is due to the fact that some applications assume that the first and last 10 entries of the palette are the standard system colors. In this

palette mode, these entries are made up from entries in the bottom or the top of the gray ramp.

> If you are unsure whether or not your application requires this "Static Gray Palette with NO System colors" mode, contact your application provider.

More information about *Palette Modes* is available through the on-line help.

Drawing Modes

In the Drawing Mode section you can choose from the following Drawing Modes. If any of the options in this section are grayed out, then they are not available for the model controller with which you are working.

Enable DirectDraw: This option allows the user to enable or disable DirectDraw. DirectDraw is a software interface that provides direct access to display devices while maintaining compatibility with the Windows graphics device interface (GDI). DirectDraw is enabled by default.

More information about DirectDraw is available through the on-line help.

Enable Dithering: This option allows the user to enable or disable dithering. Dithering is a technique for increasing the perceived range of colors in an image at the cost of spatial resolution.

> This option is only available when the User Modifiable Palette mode is selected. If either the Static Gray Palette including Standard System Colors mode or the Static Gray Palette with NO System colors mode is selected, the "Enable Dithering" check box will be grayed-out, and dithering will be automatically disabled.

Disable 10-bit grayscale

Use this option for standard Windows®-based applications that require 8-bit color support (256 colors), such as Internet Explorer, Excel, etc.

Do not use this option for applications that require 10-bit pixel support (1024 simultaneous shades of gray) and use extended depth graphic libraries such as WinBarco.

Description of 10-bit grayscale: To show 1024 simultaneous shades of gray all BarcoMed "H" series display controllers, such as the BarcoMed 5MP2FH, BarcoMed Coronis or BarcoMed Coronis 5MP for example, run in extended depth (10-bit) mode by default.

Implications: When turned on the "Disable Extended Depth" option causes a BarcoMed Coronis display controller to run in 8-bit mode, which results in increased performance since the frame buffer is set to run with 8-bit pixels. While this option may be used with applications that normally require 10-bit support, there will be a loss of pixel depth, i.e. 256 shades of gray instead of 1024 simultaneous shades of gray.

Disable RGB To Static Gray Color Translation

Select *Disable RGB To Static Gray Color Translation* if you wish to have RGB values equally weighted, with 1/3 each. When not selected, then the International Commission on Illumination (CIE – Commission Internationale de I'Eclairage) model will be adapted, which weights the colors as 59% Green, 30% Red, 11% Blue.

Monitor Configuration

The Monitor configuration page allows you to switch between the following monitor configurations for the displays connected to a BarcoMed controller:

· SingleView

A single large desktop spans across both displays.

· DualView

Both displays are enabled independent of each other.

Graphics Board

Update Firmware... Button: Clicking this button will launch the BarcoMed Hardware Configuration utility. This program allows the user to flash update the firmware stored in the ROM of the currently selected BarcoMed display controller. The BarcoMed Hardware Configuration utility is implemented in a Wizard format, which guides the user through the flash update procedure. The user will be prompted to select a firmware update file to use for the update process. This file will be provided by Barco Medical Imaging Systems if and when a firmware update is required.

Device Details

From the Device Details tab you can access the Device Details page, which provides detailed information about the display controller connected to the active display. This information is useful in debugging issues that may occur when using your Barco Display(s).

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Important information

Environmental information

DISPOSAL INFORMATION (WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT)

This symbol on the product indicates that, under European Directive 2002/96/EC governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal waste. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

For more information about recycling of this product, please contact your local city office, your municipal waste disposal service or the shop where you purchased the product.

TURKEY RoHS COMPLIANCE

Republic of Turkey: In conformity with the EEE Regulation
Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

中国大陆 RoHS (CHINESE MAINLAND RoHS)

根据中国大陆《电子信息产品污染控制管理办法》（也称为中国大陆 RoHS），以下部分列出了 Barco 产品中可能包含的有毒和 / 或有害物质的名称和含量。中国大陆 RoHS 指令包含在中国信息产业部 MCV 标准：" 电子信息产品中有毒物质的限量要求 " 中。

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零件项目（名称） Component Name	有毒有害物质或元素 Hazardous Substances or Elements					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印制电路配件 Printed Circuit Assemblies	X	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下 .
O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求 .
X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363 2006.

在中国大陆销售的相应电子信息产品（EIP）都必须遵照中国大陆《电子信息产品污染控制标识要求》标准贴上环保使用期限（EFUP）标签。Barco 产品所采用的 EFUP 标签（请参阅实例，徽

标内部的编号使用于制定产品）基于中国大陆的 《电子信息产品
环保使用期限通则》标准。

All Electronic Information Products (EIP) that are sold within Chinese
Mainland must comply with the "Electronic Information Products
Pollution Control Labeling Standard" of Chinese Mainland, marked with
the Environmental Friendly Use Period (EFUP) logo. The number inside
the EFUP logo that Barco uses (please refer to the photo) is based on the
"Standard of Electronic Information Products Environmental Friendly Use
Period" of Chinese Mainland.

Regulatory compliance information

FCC CLASS B

This Barco Graphics Controller complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of shielded cables for connection of the monitor to the graphics card is required to ensure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by Barco could void the user's authority to operate this equipment.

Explanation of symbols

On the display controller, you may find the following symbols
(nonrestrictive list):

$C\epsilon$ **0120**	Indicates compliance to the essential requirements of the Directive 93/42/EEC
FC	Indicates compliance with Part 15 of the FCC rules (Class A or Class B)
(UL) or (UL) CLASSIFIED	Indicates the display is approved according to the UL regulations
c(UL)US or c(UL)US CLASSIFIED	Indicates the display is approved according to the c-UL regulations
(D)	Indicates the display is approved according to the DEMKO regulations
(CCC) S&E	Indicates the display is approved according to the CCC regulations
VCI	Indicates the display is approved according to the VCCI regulations
(recycle symbol)	Indicates this apparatus must not be thrown in the trash but must be recycled, according to the European WEEE (Waste Electrical and Electronic Equipment) directive

Legal disclaimer

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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Technical specifications

BARCOMED CORONIS PCIE

Bus	PCI Express X8, x16
Dimensions	106 x 176 x 16 mm (4.2 x 6.9 x 0.6")
Operating system	Windows 2000, XP 32/64
Platforms	Intel architectures
Graphics accelerator	Barco AURA
Memory	128 MB
Look up table	10 bit in / 10 bit out
Pixel depth	10 bit
Electrical standard	Single link DVI complying to v1.0
Video outputs	2 DVI-D connectors
Supported resolutions	Up to 2560 x 2048 VGA at boot up
Approvals	FCC-B, CE, EN55022 B, EN 61000-6, IEC 60601-102
Operating temperature	+10 to +60 °C (+50 to +140 °F)
Power consumption	< 15 W

BARCOMED CORONIS PCI

Bus	PCI 2.2, universal signaling
Dimensions	106 x 176 x 16 mm (4.2 x 6.9 x 0.6")
Operating system	Windows XP 32/64, Server 2003, 2008
Platforms	Intel architectures
Graphics accelerator	Barco AURA
Memory	128 MB
Look up table	10 bit in / 10 bit out
Pixel depth	10 bit
Electrical standard	Single link DVI complying to v1.0
Video outputs	2 DVI-D connectors
Supported resolutions	Up to 2560 x 2048 VGA at boot up
Approvals	FCC class B, CE, EN55022 A, EN 50082-1
Operating temperature	+10 to +60 °C (+50 to +140 °F)
Power consumption	< 15 W

BARCOMED NIO PCIE

Bus	PCI Express X4
Bus clock speed	2.5 GHz
Bus width	4 lanes
Power consumption	< 15 Watt
Operating system	Windows XP 32/64, Server 2003, 2008
Platforms	Intel architectures
Display configuration	Single or Dual Head, Portrait or Landscape
Graphics processor	Proprietary AURA technology
Display memory	128 MB
Pixel clock rate	340 MHz
Look up table	10 bits in / 10 bits out
Electrical standard	Single link DVI complying to v1.0 specification
Supported resolutions / refresh rates	1600 x 1200 @ 60 Hz, 2048 x 1536 @ 60 Hz, 2560 x 2048 @ 50 Hz
Operation temperature	+10 to +60 °C (+50 to +140 °F)
Approvals	FCC class B, EN 55022B, EN 610000-6-1, CE, IEC 1000-4 -2, -3, -4, -5, IEC 60601-1-2

BARCOMED NIO PCI

Bus	PCI 2.2 universal signaling
Bus clock speed	33 and 66 Mhz
Bus width	32 and 64 bit
Power consumption	< 15 Watt
Operating system	Windows XP 32/64, Server 2003, 2008
Platforms	Intel architectures
Display configuration	Single or Dual Head, Portrait or Landscape
Graphics processor	Proprietary AURA technology
Display memory	128 MB
Pixel clock rate	340 MHz
Look up table	10 bits in / 10 bits out
Electrical standard	Single link DVI complying to VESA
Supported resolutions / refresh rates	1600 x 1200 @ 60 Hz, 1536 x 2048 @ 60 Hz, 2048 x 1536 @ 50 Hz
Operation temperature	+10 to +60 °C (+50 to +140 °F)
Approvals	FCC class B, EN 55022B, EN 610000-6-1, CE, IEC 1000-4 -2, -3, -4, -5, IEC 60601-1-2

BARCOMED 5MP2FH PCIE 61

Bus	PCI Express x4
Power consumption	< 15 Watt
Form factor	167.6 x 106.7 x 15 mm (6.6 x 4.2 x 0.6")
Operating system	Win XP 32/64, Server 2003, 2008
Display configuration	Dual-head portrait or landscape
Graphics processor	AURA technology
Display memory	512 MB
Pixel clock rate	340 MHz
Electrical standard	Dual DVI complying to VESA A, DVI Rev. 1.0 spec
Supported resolutions / refresh rates	2048 x 2560 @ 50Hz, 2096 x 2800 @ 50Hz
Operational temperature	0° to +60°C (32° to 140°F)
Approvals	FCC class B, CISPR22 Class B, BSMI CNS, VCCI, EN55022, EN55024, EN60950, CE, UL60950-1, CSA C22.2

MXRT-1150

Bus compatibility	Could be installed within PCI Express x1, x8, x16 mechanical slots Works in PCI Express x1, x4, x8, x16 electrical slots / operates at x1 speed
Power consumption	<25 Watt
Form factor	Low-profile, half-length (2.3"x 6.6")
Operating system	Windows® XP, X64, Vista
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FireMV™
Display memory	256 MB DDR2
Look up table	32 bits in / 32 bits out
Pixel depth	Up to 32 bit color
Electrical standard	DMS-59 to Dual DVI-I output
Connectors	DMS-59 to Dual DVI-I output
Supported resolutions	Analog: 2048x1536 Digital 1920x1200 per display VGA at boot-up
Approvals	FCC Class B, CE, ICES-003, VCCI, BSMI, MIC, UL
Operating temperature	0° to 55°C (32° to 131° F)

Bus compatibility	Could only be installed within PCI Express x16 mechanical slot Works in PCI Express x4, x8, x16 electrical slots / operates at x16 speed
Power consumption	<25 Watt
Form factor	Low-profile, half-length (2.3"x 6.6")
Operating system	Windows® XP, X64, Vista
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FireMV (RV516 GPU)
Display memory	256 MB DDR2
Look up table	32 bits in / 32 bits out
Pixel depth	32 bit color
Electrical standard	Single Link DVI complying to v1.0 specification
Connectors	DMS-59 with dual DVI-I Cable
Supported resolutions	Analog: 2048x1536 Digital 1920x1200 per display VGA at boot-up
Approvals	FCC Class B, CE, ICES-003, VCCI, BSMI, MIC, UL
Operating temperature	0° to 55°C (32° to 131° F)
Connectivity	DMS-59 to dual DVI-I cable for dual DVI-I output (included)

MXRT-2400

Bus compatibility	PCIe Gen2 x16
Power consumption	43 Watt
Form factor	169.67mm (L) x 64.46mm (H) single PCIe slot wide
Operating system	Windows 7 - 32/64-bit
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FirePro
Display memory	512 MB DDR3
Memory Interface	64-bit
Memory bandwidth	14.4 GB/s
Pixel depth	32-bit pixels (supports 8-bit and 10-bit per color channel)
Electrical standard	Dual Link DVI complying to v1.0 Display Port (DP) complying to v1.1a
Direct3D hardware support	Microsoft® DirectX v11.0, Vertex Shader 5.0, Pixel Shader 5.0
Supported resolutions	Up to 6MP color and 10MP grayscale
OpenGL hardware support	OpenGL 4.0
Approvals and compliance	FCC Part 15 Class B, CE EN 55022 Limit B, EN 55024, UL-60950-1, BMSI CNS, CISPR- 22/24, IEC609050-1, VCCI, CSA C22.2, EU RoHS directive (2002/95/EC), Certificate of Information & Communication Equipment (Republic of Korea)
Operating temperature	0° to 60°C (32° to 140° F)
Connectivity	Single-link Display Port (DP) to DVI-I adaptor cable (1-adaptor is included)

MXRT-5200

Bus compatibility	PCI Express Gen2 x16 native support
Power consumption	< 75 Watt
Form factor	98.4 x 228.6 x 15.9 mm (3.87″ x 9.0″ x 0.63″)
Operating system	Windows® XP 32/64, Server 2003, 2008, Vista XPDM, WDDM
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FireGL (RV630 GPU)
Display memory	512 MB GDDR4
Look up table	24-bits in / 24-bits out (8-bits per color channel)
Pixel depth	Standard: 8-bit gray, 24-bit color High Dynamic Range: 10-bit gray, 30-bit color
Electrical standard	Dual Link DVI complying with v1.0
Connectors	2 DL DVI-I connectors
Supported resolutions	Up to 3280 x 2048 VGA at boot up
Approvals	FCC Part 15 Class B, CE, UL-60950-1, BMSI CNS, CISPR-22/24, VCCI, CSA C22.2, EU RoHS, MIC
Operating temperature	0° to 55°C (32° to 131°F)

Display Controller **65**

MXRT-5400

Bus compatibility	PCIe Gen2 x16
Power consumption	72 Watt
Form factor	230.53mm (L) x 98.34mm (H) single PCIe slot wide
Operating system	Windows XP - 32/64-bit, Windows 7 - 32/64-bit
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FirePro
Display memory	1 GB GDDR5
Memory Interface	128-bit
Memory bandwidth	64 GB/s
Pixel depth	32-bit pixels (supports 8-bit and 10-bit per color channel)
Electrical standard	Dual Link DVI complying to v1.0 Display Port (DP) complying to v1.1a
Direct3D hardware support	Microsoft® DirectX v11.0, Vertex Shader 5.0, Pixel Shader 5.0
OpenGL hardware support	OpenGL 4.0
Connectors	1- DVI-I, 2- Display Port (DP)
Supported resolutions	Up to 6MP color and 10MP grayscale
Approvals and compliance	FCC Part 15 Class B, CE EN 55022 Limit B, EN 55024, UL-60950-1, BMSI CNS, CISPR- 22/24, IEC609050-1, VCCI, CSA C22.2, EU RoHS directive (2002/95/EC), Certificate of Information & Communication Equipment (Republic of Korea)
Operating temperature	0° to 60°C (32° to 140° F)
Connectivity	Single-link Display Port (DP) to DVI-I adaptor cable (2 adaptors are included) Dual-link Display Port (DP) to DVI-I adaptor available from Barco; Part Number K9305101

MXRT-5450 67

Bus compatibility	PCIe Gen2 x16
Power consumption	72 Watt
Form factor	230.53mm (L) x 98.34mm (H) single PCIe slot wide
Operating system	Windows XP - 32/64-bit Windows 7 - 32/64-bit
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FirePro
Display memory	1 GB GDDR5
Memory Interface	128-bit
Memory bandwidth	64 GB/s
Pixel depth	32-bit pixels (supports 8-bit and 10-bit per color channel)
Electrical standard	Dual Link DVI complying to v1.0 Display Port (DP) complying to v1.1a
Direct3D hardware support	Microsoft® DirectX v11.0, Vertex Shader 5.0, Pixel Shader 5.0
OpenGL hardware support	OpenGL 4.0
Connectors	2- DVI-I
Supported resolutions	Up to 6MP color and 10MP grayscale
Approvals and compliance	FCC Part 15 Class B, CE EN 55022 Limit B, EN 55024, UL-60950-1, BMSI CNS, CISPR- 22/24, IEC609050-1, VCCI, CSA C22.2, EU RoHS directive (2002/95/EC), Certificate of Information & Communication Equipment (Republic of Korea)
Operating temperature	0° to 60°C (32° to 140° F)

Display Controller **67**

MXRT 7300

Bus	PCI Express Gen2 x16 native support
Dimensions	249 mm (L) x 111 mm (H) (9.8" x 4.375") single PCIe slot wide
Operating system	Windows®, XP 32/64 bit Server 2003, 2008, Windows 7 32/64 bit XPDM, WDDM
Platforms	Intel® and AMD architectures
Graphics accelerator	ATI FirePro (RV730 GL XTX GPU)
Memory	1GB GDDR3
Look up table	24-bits in / 24-bits out (8-bits per color channel)
Pixel depth	24-bit / 30-bit (HDR mode)
Electrical standard	Dual-link DVI, DisplayPort complying to v1.0 specification
Video output	2- DisplayPort connectors, 1- DL DVI-I connector
Standard resolutions	Up to 3280 x 2048 (VGA at boot-up)
Approvals	FCC Part 15 Class B, CE EN 55022 Limit B, EN 55024, UL-60950-1, BMSI CNS, CISPR-22/24, VCCI, CSA C22.2, EU RoHS directive (2002/95/EC), Certificate of Information & Communication Equipment (Republic of Korea)
Operating temperature range	0° to 55°C (32° to 131° F)
Power consumption	76 Watts

MXRT-7400

Bus compatibility	PCIe Gen2 x16
Power consumption	138 Watt
Form factor	281.29mm (L) x 98.53mm (H) single PCIe slot wide
Operating system	Windows 7 - 32/64-bit
Platforms	Intel® and AMD architectures
Power connector	One 2x3 power connector
Graphics accelerator	ATI FirePro
Display memory	2 GB GDDR5
Memory interface	256-bit
Memory bandwidth	128 GB/s
Pixel depth	32-bit pixels (supports 8 and 10-bit per color channel)
Electrical standard	Dual Link DVI complying to v1.0 Display Port (DP) complying to v1.1a
Direct3D hardware support	Microsoft® DirectX v11.0, Vertex Shader 5.0, Pixel Shader 5.0
OpenGL hardware support	OpenGL 4.0
Connectors	1- DVI-I, 2- Display Port (DP)
Supported resolutions	Up to 6MP color and 10MP grayscale
Approvals and compliance	FCC Part 15 Class B, CE EN 55022 Limit B, EN 55024, UL-60950-1, BMSI CNS, CISPR- 22/24, IEC609050-1, VCCI, CSA C22.2, EU RoHS directive (2002/95/EC), Certificate of Information & Communication Equipment (Republic of Korea)
Operating temperature	0° to 60°C (32° to 140° F)
Connectivity	Single-link Display Port (DP) to DVI-I adaptor cable (2 adaptors are included) Dual-link Display Port (DP) to DVI-I adaptor available from Barco; Part Number K9305101

Warranty statement

BARCO MID GENERAL WARRANTY TERMS AND CONDITIONS

Applicable from Jan 1st 2008

ARTICLE 1: PRODUCT WARRANTY

Barco nv, Medical Imaging Division warrants that the equipment will be free of defects in workmanship or material for the warranty period or the specific period of a warranty extension program.

Hardware: Barco warrants that upon delivery hereunder the Products shall (i) conform to its specifications in effect at the date of delivery and (ii) be free from defects in material and workmanship (the "Warranties").

Software: Barco warrants that software written by Barco shall perform substantially in accordance with the specifications in effect at the date of delivery. Software is inherently susceptible to bugs and errors. Barco makes no warranties with respect to the software which is provided to Customer on an "as-is" basis and does not warrant uninterrupted or error-free operation of the Products.

Unless otherwise indicated in Barco's Product manual or in the agreement between Barco and Customer, the Warranty Period shall be

(a) Hardware: 12 months commencing on the Barco date of invoice.

(b) Software: 3 months commencing on the Barco date of invoice.

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 according to the terms and conditions as set forth hereafter:

1.1   Any claim under the Warranties must be notified to Barco in writing within 8 days from the date the defect or failure has been discovered or noticed the first time. The Customer, upon the occurrence of any equipment failure, shall contact Barco nv, MID customer support centre (or an authorised service centre) 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 Barco nv, or a MID customer support centre (or an authorised service centre) for repair activities. In no event shall Customer return a defective Product or part thereof to Barco without Barco's prior written approval.

In the event the return to Barco of the defective Product is authorized by Barco, Barco shall issue to Customer an RMA (Return Material Authorization).

The Customer shall apply for an RMA number to the closest Barco nv, MID Customer support centre (or an authorised service centre) as listed at www.barcomedical.com, unless otherwise indicated.

The one-way cost of packing, transport and insurance related to shipping the alleged defective Product or part to Barco for repair or replacement shall be borne by Customer. The one-way cost of packing, transport and insurance related to shipping of the repaired or replacement Product or part to Customer shall be borne by Barco.

1.3   The Customer shall return, freight prepaid, the defective equipment or subassemblies in its original packaging with the assigned RMA number for repair to the Barco nv, MID Customer support centre (or an authorised service centre).

1.4   Replacement parts used shall be new or equivalent to new parts for the revision level of the equipment. A replacement LCD panel will be new or similar run time. 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 Barco nv, MID (or an authorised service centre) shall become the property of Barco nv, MID (or the authorised service centre).

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

1.6   Barco nv, MID will replace a product that fails within 90 days after shipment from Barco with a new one, ensuring color matching in the event of a diagnostic multi head display configuration.

Barco aims to ship the new replacement product within 2 business days after receipt of the Customers notification in writing.

ARTICLE 2: CONDITIONS PRECEDENT FOR WARRANTY AND ITEMS EXCLUDED FROM WARRANTY

A.   The Warranties shall apply only to the extent the Products or any parts thereof have

(i) been transported and stored at all times in the original packaging in the conditions as specified by Barco (such as covered and secure location, minimum and maximum temperature, maximum humidity, ...) or, in absence thereof, at least in conditions consistent with generally accepted practice for this type of products;

(ii) been handled at all times in accordance with Barco's instructions or, in absence thereof, at least with the care and caution consistent with generally accepted practice for this type of products;

(iii)been installed strictly in accordance with the instructions and directions given by Barco (if and to the extent the

Products have not been installed by Barco or its authorized subcontractors);

(iv) not been subject to any unauthorized access, alteration, modification or repair or attempts thereto;

(v) been at all times "normally used" for the intended purpose and operated in strict accordance with the operating instructions set forth in the operating manual of the Product in question and shall not have been otherwise misused, abused, damaged. For the purpose hereof, "normally used" shall mean a regular, ordinary and routine usage of the Product in question as intended and/or recommended by Barco;

(vi) been maintained at all times in accordance with Barco's instructions or, in absence thereof, at least with intervals and in a manner consistent with generally accepted practice for this type of products;

B.   The warranty described herein shall not include the following:

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

2.2   Any host configuration not explicitly supported by Barco nv, MID.

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

2.4   Normal wear and tear, use under circumstances exceeding specifications, such as use in dusty environment or under excessive temperature conditions, abuse, unauthorised repair or alternation, lack of proper configuration or maintenance, damaged or modified or removed serial number, cosmetic refurbishment.

2.5   Repair or replacement of consumables[1] or specific parts that by definition are subject to wear and tear, including but not limited to:

a. CRT's, LCD panels

b. Backlights in diagnostic LCD displays, when the backlight run time[2] is beyond the Guaranteed Backlight Lifetime[3] of that model, when used at the Factory Calibrated Luminance[4]

Eg1.

· A display is used at 8 hours/day; ie. +/-2.920hours/year

· The display system is covered with a warranty period of 5 year

· The Guaranteed Backlight Lifetime of that model is 17.000hours.

· The Factory Calibrated Luminance cannot be achieved anymore after 4 year, thus corresponding to +/-11.680hours

· Result: the backlight replacement is performed under warranty

Eg2.

· A display is used at 24 hours/day; ie. 8.760hours/year

· The display system is covered with a warranty program of 5 year

· The Guaranteed Backlight Lifetime of that model is 17.000hours.

· The Factory Calibrated Luminance cannot be achieved anymore after 2.5years, thus corresponding to +/-21.900hours

· Result: the backlight replacement does not make part of the warranty coverage.

(1): 'Consumable' is a part that can be replaced by the user

(2): 'Backlight run time' is the total time that an image (including use of a screen saver) has been applied to the screen; this value can be consulted via the OSD buttons (On Screen Display).

(3): 'Guaranteed Backlight Lifetime' is the number of backlight hours during which a predefined luminance value, ie. the Factory Calibrated Luminance, will be provided by a specific diagnostic display model. This figure is printed on the Warranty certificate of each display or can be requested at your local Barco office.

(4): 'Factory Calibrated Luminance': is the typical luminance value that a specific diagnostic display model is calibrated at during the production process. This figure is printed on the Warranty certificate of each display or can be requested at your local Barco office.

c. Lamps, optical components in projectors

d. Replacement because of:

i.   image retention as a result of:

-   not correctly using screen saver and/or Display Power Management System (DPMS) as explained in the user manual

-   prolonged operation of the display with a static image on the same screen area

ii.   a number of missing pixels that is lower than the total allowable number as mentioned in the product specifications.

     iii.   difference in color temperature that is lower than the total allowable difference as mentioned in the product specifications

     iv.   difference in color temperature as a result of not using all displays of a multi-head configuration at the same rate.

     v.   LCD luminance uniformity that is in within the product specifications or luminance uniformity performance that is inherent to LCD technology.

Barco nv, MID does not warrant a minimum life time nor a performance of any of the consumables.

2.6   Replacement of moveable parts such as power cords, remote controls, …

2.7   Any product disassembly and installation costs at the operation site, travel expenses and travel time to and from the operation site for the personnel in charge of the repair works and transport charges.

2.8   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.

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

2.10 The evaluation cost in case of a returned product deemed functional is not covered under warranty and will be charged to the Customer, at Barco's sole discretion, based on a case-by-case evaluation.

ARTICLE 3: OBLIGATIONS OF THE CUSTOMER

Customer hereby assumes the following obligations as partial consideration for Barco nv, MID performance of its requirements under the warranty condition; failure by Customer to meet its obligations under this paragraph shall excuse Barco nv, MID's performance hereunder:

3.1   Customer shall not expose Barco nv, MID 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 Barco nv, MID equipment in an environment for which it was intended. If there is an indication that the equipment was used – even temporary – outside its specifications, Barco nv, MID is entitled not to perform warranty repairs and terminate the warranty agreement. Any actions that have been taken by Barco nv, MID in this respect, may be invoiced to the Customer at normal pricing.

ARTICLE 4: REMEDIES UNDER WARRANTY

(a)   Hardware: If during the Warranty Period a Product or any part thereof, fails to meet any of the Warranties then, upon Customer's request, Barco shall, at its sole option and cost, promptly and within 20 working days, either: (i) repair or correct the Product or part in question; or (ii) replace the Product or supply part(s) or component(s) according to the terms and conditions contained in article 1. A replacement part shall be at least functionally equivalent to the original part. The replaced Product, parts and/or components shall become the property of Barco and shall, at Barco's request, be returned by Customer to Barco at Barco's cost.

(b)   Software: Barco's sole obligation shall be to rectify substantial malfunctions of the software (to the extent technically reasonably possible) by amending the software or supplying an alternative version of the software.

(c)   The repair or replacement under the Warranties covers the cost of material and labor.

ARTICLE 5: DISCLAIMER OF WARRANTIES

BARCO NV, MID DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

ARTICLE 6: LIMITATION OF LIABILITY

The remedies specified in these Terms and Conditions shall constitute Customer's sole and exclusive remedy and Barco's sole and exclusive liability for Barco's breach of the Warranties hereunder.

BARCO NV, MID 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 USER FOR SERVICE INTERRUPTIONS. THE LIABILITY OF BARCO NV, MID 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, mobilisation, 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 Barco nv, MID 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   Barco nv, MID 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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