

Coronis Elite



[Online user guide](#)

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Using the online User Guide

Sources of information

Overview of product documentation







Document	Content
Quick install sheet (poster in box)	Gives a short overview of the installation of a complete system.
Getting started guide (booklet in box)	Gives a detailed description of the installation and connection of a complete system.
Online user guide (html file installed on PC)	Gives a detailed description of how to operate the display using its local controls and on-screen display (OSD). This document is to be consulted on screen.
User manual (PDF file on CD-ROM)	Contains the same information as the online user guide, but is laid-out for printing.


User interface

Items in the navigation frame

Item	Description
Contents	Shows the complete content of the help system.
Index	Shows the available help topic entries in alphabetic order.
Search	Allows to search for a particular entry in the help system.
Favorites	Allows to add and remove help topics to a list of favorites. (requires cookies)

Items in the toolbar frame

Item	Description
 Synchronize	Press this button to show the location of the help item in the Contents.
 Previous	Press this button to move to the previous help topic.
 Next	Press this button to move to the next help topic.
 Related topics	Press this button to display related topics (if available).
 E-mail	Press this button to e-mail the current help topic.
 Print	Press this button to print the current help topic.

Item	Description
 Bookmark	Press this button to bookmark the current help topic. This topic will then appear in the web browser's Favorites menu. (requires cookies)

Graphic board information

BARCO Controller Control Panel Settings

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



Note: 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



Note: 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



Note: 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 > Settings > Control Panel > Display
 - b) Open the “*Display Properties Control Panel*” by right clicking in an empty area on the desktop, then select **Properties**.
 - c) **Windows Vista:** Right click in an empty area on the desktop, select “*Personalization*”, then click on “*Display Settings*”.
2. Click on the **Settings** tab (The **Settings** tab is not present in Vista).
3. Select the **rectangle** that represents the BARCO CORONIS Display 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.



Figure 1: Ex: 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
- Direct3D
- Rotation (when supported)
- Details
- OpenGL 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.



Note: 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.



Note: **Clone Mode** is supported for two color displays or projectors in 32bpp. Clone mode is not supported on grayscale displays. Also, HDR 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 display's current resolution will be used.

When the resolution set for clone mode is larger than 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.



Note: 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



Note: 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

Antisotropic 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.



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

Please refer to the on-line help (click on the “?” in the control panel’s OpenGL tab) for more information on using advanced features such as *Anisotropic Filtering*.

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.

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

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 CORONIS Display(s).

OpenGL 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.

If you subsequently experience problems with your application, or if you want to try to optimize the performance of your system on specific applications, modify your configuration settings accordingly.

Adding a new application profile

Click the **Add** button in the Configuration Profiles section and enter the name of the new application for which you want to set the configuration parameters.

Modifying the configuration parameters

To change the configuration settings of a specific application, select the name of that application from the *Configuration Profiles* list box. Click the **Modify** button. Now select or clear the rest of the

configuration controls on this tabbed dialog to obtain the desired display parameters for the selected application.

To remove the selected configuration profile completely, select the name of the application from the *Configuration Profiles* list box and click **Delete**.



Note: You cannot delete the factory-set configuration profiles.

Click the **Apply** or **OK** button to enable your *Configuration* settings.

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 figure 2, 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.

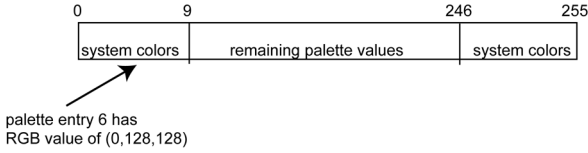


Figure 2: User Modifiable Palette



Note: 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 3, 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.

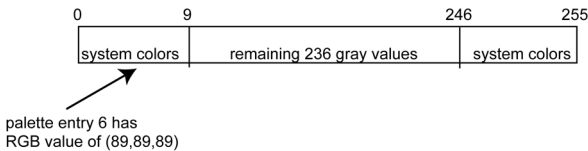


Figure 3: Static Gray Palette with system colors



Note: 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 figure 4, 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.

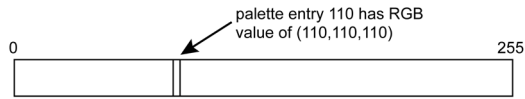


Figure 4: Static Gray Palette with NO system colors

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.



Note: 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.



Note: 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 l’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 Coronis Display(s).

Configuring the Windows desktop



Note: 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 your Barco grayscale display(s).

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.

The recommended configuration for best grayscale image quality when using a color display in conjunction with your high-resolution grayscale display(s) is to set the *color display* as the **primary** monitor of the Windows desktop. Then set the colors setting on the “*Settings*” tab of the *Windows Display Control Panel* to the highest possible color depth (e.g. 32 bits-per-pixel “true color”) supported by the color display’s controller.

The colors setting for your high-resolution grayscale displays should be set to 256 colors (8 bits per pixel). You should set the **palette mode** for the your high-resolution grayscale displays to *Static Gray palette with NO system colors*. This guarantees that all of the 256 gray levels available for GDI graphics will be present. This also eliminates the danger that colors will change when focus moves among different applications.

However, if you are using the *Color to Gray Compatibility* palette mode, the color setting for your high-resolution grayscale displays should default to True Color (32 bits per pixel). Even though this palette mode supports 32 bit True Color, Barco recommends that when using a using a color display in conjunction with your high-resolution grayscale display(s) that you still set the *color display* as the **primary** monitor of the Windows desktop.

Display information

Precautions

1. Optimize the lifetime of your display

Enabling the Display Power Management System (DPMS) of your display (in the display's Settings menu) will optimize its diagnostic lifetime by automatically switching off the backlight when the display is not used for a specified period of time. By default, DPMS is enabled on your display, but it also needs to be activated on your workstation. To do this, go to "Power Options Properties" in the "Control Panel".



Barco recommends setting DPMS activation after 20 minutes of non-usage.

2. Use a screen saver to avoid image retention

Prolonged operation of an LCD with the same content on the same screen area may result in a form of image retention.

You can avoid or significantly reduce the occurrence of this phenomenon by using a screen saver. You can activate a screen saver in the "Display properties" window of your workstation.



Barco recommends setting screen saver activation after 5 minutes of non-usage. A good screen saver displays moving content.

In case you are working with the same image or an application with static image elements for several hours continuously (so that the screen saver is not activated), change the image content regularly to avoid image retention of the static elements.

3. Understand pixel technology

LCD displays use technology based on pixels. As a normal tolerance in the manufacturing of the LCD, a limited number of these pixels may remain either dark or permanently lit, without affecting the

diagnostic performance of the product. To ensure optimal product quality, Barco applies strict selection criteria for its LCD panels.



To learn more about LCD technology and missing pixels, consult the dedicated white paper available at www.barcomedical.com.

4. Enhance user comfort

Every Barco multi-head display system is color matched with the highest specification in the market.



Barco recommends keeping color-matched displays together. Furthermore, it is important to use all displays of a multi-head configuration at the same rate to preserve color matching throughout the economic lifetime of the system.

5. Maximize Quality Assurance

The 'MediCal QAWeb' system offers online service for high-grade Quality Assurance, providing maximum diagnostic confidence and uptime.



Learn more and sign up for the free MediCal QAWeb Essential level at www.barcomedical.com/qa

Display controls

Overview of controls

The front controls are soft touch keys.

When you touch any of them while no on-screen display (OSD) is on the screen, the front illumination is switched on for a few seconds.

When you touch a key again *while the illumination is on*, the function of the key is executed.

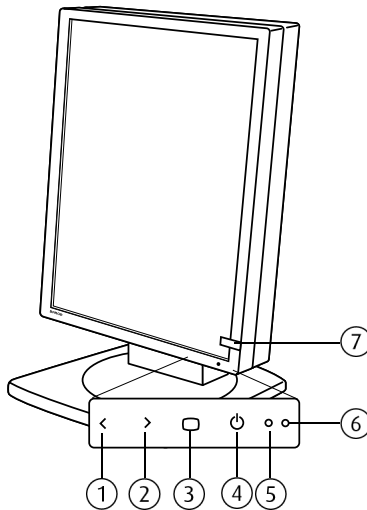


Figure 5: Front view

1. Left/Down

To move down or decrease values in the OSD.

2. Right/Up

To move up or increase values in the OSD.

3. Enter

To display the OSD (on-screen display). In the OSD, this button acts as Enter button to make selections.

4. **Standby**

To put the display in standby mode.

5. **Ambient light sensor**

Senses the ambient light around the display. The ambient light measurement can be taken into account in the DICOM display function calibration.

6. **Power LED**

Indicates the display's power status.

Green: Display is on (when enabled in the OSD).

Orange: Display is in Standby power-saving mode.

Off: Display is disconnected from the power or the LED's on state is disabled in the OSD.



Note: When the LED is disabled in the OSD, it will still be activated (green) when the display is on but does not receive any video signal.


7. **I-Guard sensor**



Constantly measures and stabilizes the display light output and (on a color display only) color temperature.

How to use the controls


1. When the OSD is not on the screen, touch any of the soft touch keys.

The front illumination is switched on for about 10 seconds.

2. While the illumination is on, touch the Enter  touch key to display the main menu. It contains several submenus.

3. To open a submenu, use the Up > or Down < touch keys to select the submenu. Next, press the Enter  touch key to open the submenu.
4. To exit from a submenu, use Up > or Down < to select **EXIT**. Next, press Enter .

If you exit from the Main Menu, you exit the OSD.


5. To change an adjustment value or setting, use Up > or Down < to select the adjustment or setting. Next, press Enter  to go into edit mode. This is indicated by the scroll bar becoming longer.

SETTINGS	
DPMS	On
Power LED	On
User Controls	On
EXIT	

Figure 6: Setting is selected

SETTINGS	
DPMS	On
Power LED	On
User Controls	On
EXIT	

Figure 7: Edit mode is active

Use Up > or Down < to change the value. Use Enter  to confirm the change.

Changes are saved automatically after confirming.

6. Some items in the menus cannot be changed. They are read-only values, displayed in light gray.



Tip:

While you are adjusting a value:

- Touching Up and Down at the same time resets to the last stored value.

- Touching Up and Enter at the same time selects the maximum value.
- Touching Down and Enter at the same time selects the minimum value.

While the OSD is not on the screen:

- Touching Up and Down at the same time switches the display in text editing mode. In this mode the luminance is reduced so that the display can be used for office applications other than diagnostic applications.

To switch text mode off again, touch Up and Down again.

Stand-by switching

To switch from on state to stand-by:

1. Touch the Stand-by ϕ touch key.
2. A warning message appears. Press the Stand-by touch key again to switch the display into stand-by or press any other key to keep the display in on state.

To switch from stand-by to on state:

1. Touch any of the soft touch keys.
The front illumination is switched on for about 10 seconds.
2. While the illumination is switched on, touch the Stand-by ϕ touch key to switch the display on.

On-screen display (OSD)

Luminance and color menu

Luminance and color menu

Name	Description
Measured luminance	Indicates the actual luminance measured by the I-Guard sensor. This is a read-only value.
Luminance target	Allows to manually adjust the luminance target. See note below.
Viewing mode	Allows to select the viewing mode: Diagnostic or Text. In text mode the luminance is approximately half of the luminance in diagnostic mode. This is intended for use with office applications such as word processing. You can also switch between both modes by touching the up > and down < keys at the same time while the OSD is not on the screen.
Color target*	Allows to select from a list of factory-defined and user-defined color targets.
Color definition*	Jumps to the color definition submenu, which allows to change the definition of the user-defined color targets.

* Available only on color displays



Note: When you change the luminance target, the display will adjust its backlight to reach the target. This can be seen in the Measured luminance line.

When the luminance target cannot be reached, e.g., due to aging of the backlight, the Measured luminance line changes to **Minimum value reached** or **Maximum value reached**.

Color definition submenu*

* Available only on color displays

A color target is defined by its luminance target and color temperature. The color definition submenu allows to edit these values.

Name	Description
Color name	Indicates the color target you are editing. You can select another color target to edit by using the Up > and Down < touch keys.
Luminance target	Allows to select the luminance target that corresponds to the color target.
Defined in	Indicates how the color temperature is defined: in (x,y) co-ordinates or Kelvin (K). You can switch between both by using the Up > and Down < touch keys. This function is available only when the User color target is selected.
x	Allows to define the x co-ordinate of the color temperature that corresponds to the color target. This function is available only when the color target is defined in (x,y) co-ordinates. This function is not available when the Native White color target is selected.

Name	Description
y	<p>Allows to define the y co-ordinate of the color temperature that corresponds to the color target.</p> <p>This function is available only when the color target is defined in (x,y) co-ordinates.</p> <p>This function is not available when the Native White color target is selected.</p>
Color temperature	<p>Allows to define the color temperature that corresponds to the color target in Kelvin units.</p> <p>This function is available only when the color target is defined in Kelvin units.</p> <p>This function is available only when the User color target is selected.</p>
Restore factory x,y values	<p>Allows to reset the (x,y) co-ordinates of the color temperature to the factory values.</p> <p>This function is not available when the Native White color target is selected.</p>

Display Function menu

Display function menu

Name	Description
Display function	<p>Allows to select from a list of pre-defined display functions.</p> <p>If the DICOM DF is selected, a number of additional settings is available.</p>
ALC & DICOM options	<p>Jumps to the ALC & DICOM Options sub-menu, which allows to edit the settings for the DICOM display function.</p> <p>This function is available only when the DICOM DF is selected.</p>


ALC & DICOM Options submenu

Name	Description
Measured ambient light	Indicates the ambient light actually measured by the ambient light sensor on the front of the display. This is a read-only value.
Averaged ambient light	Shows the average of the measured ambient light since the display was switched on. When you execute the function “Measure ALC Value”, this value will be stored as the Measured ALC correction value for the selected reading room, unless this value is higher than the maximum ambient light determined for the selected reading room.
Correction value	Shows the ambient light correction value that is taken into account in the calculation of the display function.
DICOM offset	When Continuous DICOM ALC is switched off, the DICOM DF is recalculated at the moment the DICOM Offset is changed, taking the new DICOM Offset into account. <ul style="list-style-type: none"> • When set to “Dark Room”, the ambient light is not taken into account. • When set to “Preset”, a preset ambient light value determined by the selected reading room is taken into account. • When set to “Measured ALC”, the averaged ambient light, determined by the selected reading room, is taken into account.

Name	Description
Reading room	Allows to select from a pre-defined list of reading room types. You must select a reading room that corresponds to the type of room the display is installed in.
Reading room def.	Jumps to the reading room definition submenu, which allows to edit the reading room condition settings.
Calibration info	Jumps to the calculation information submenu, which displays information about the values taken into account to recalculate the DICOM DF.

Reading room definition submenu

Name	Description
Measured ambient light	Indicates the ambient light actually measured by the ambient light sensor on the front of the display. This is a read-only value.
Averaged ambient light	Shows the average of the measured ambient light since the display was switched on. This is a read-only value.
Reading room	Indicates the reading room type you are editing. You can select another room to edit by using the Up > or Down < touch keys.

Name	Description
Max. ambient light	<p>This indicates the maximum ambient light that corresponds to the selected reading room.</p> <p>If the measured ambient light is higher than the value entered here, you should take measures to darken the room or select another reading room type.</p>
Preset corr. value	<p>This value is taken into account in the calculation of the DICOM DF if Continuous DICOM ALC is switched off and DICOM Offset is set to "Preset".</p> <p>To each reading room type corresponds another preset value.</p>
Measure ALC value	<p>The value shown here is taken into account in the calculation of the DICOM DF if Continuous DICOM ALC is switched off and DICOM Offset is set to "Measured ALC".</p> <p>When you select this line and press Enter , the actual averaged ambient light value is stored here, overwriting the former value.</p> <p>However, if the averaged ambient light value is higher than the maximum ambient light value that corresponds to the selected reading room, a warning is displayed prompting you to dim the light in the room, and the value will be limited to the maximum ambient light value.</p> <p>If you dim the light in the room you can execute the Measure ALC Value function again to enter the new, lower value.</p>

Calibration Information submenu

Name	Description
Preset ambient value / Measured ALC ambient value / Average ambient value	Shows the ambient light correction value taken into account to calculate the DICOM DF, expressed in lux.
Bright luminance	Shows the bright luminance value taken into account to calculate the DICOM DF.
Dark luminance	Shows the dark luminance value taken into account to calculate the DICOM DF.
Ambient correction	Shows the ambient light correction value taken into account to calculate the DICOM DF, expressed in cd/m ² .

Settings menu






Name	Description
DPMS	Allows to switch the display power management system on/off. See note below.
Power LED	Allows to switch the power LED's on state on/off. The LED's orange DPMS state is not influenced by this setting. So, when the display goes into power- saving mode, the LED will turn orange, even if it was switched off by this set- ting.
User controls	Allows to disable the touch keys on the front. When switched off, the user cannot dis- play the OSD until the user controls key- code is entered.

Name	Description
Sound	Allows to switch the sound on/off. When switched on, a short beep sounds each time you touch a soft touch key.
Language	Allows you to change the menu language.
Auto menu exit	Allows to switch the automatic menu exit on/off. When switched on, the OSD is closed automatically when left idle for a certain time.
Preferred input	Select the video resolution you wish the connected graphic board(s) to reproduce. After changing this setting you must reboot the PC. This function takes effect with plug-and-play graphic boards only.

**Note:**

- The **DPMS** system will power down the display when the connected computer is left idle for a certain time.

Barco recommends to switch DPMS on to prevent image burn-in (image retention) on the LCD panel.

- To enter the **user controls** keycode, the OSD must not be visible. Touch any of the soft touch keys to switch on the front illumination. While the illumination is on, touch the following keys in successive order: Enter , Down , Up , Down , Enter .

Information menu

Information

Name	Description
Product	The display type.
Serial No	Indicates the display serial number.
SW Version	Displays the current internal software version.
Display runtime	Indicates the total time the display has been operating, including the time in stand-by.
Backlight runtime	Indicates the total time the display has been operating, excluding the time in stand-by.

Changing the viewing mode

About viewing modes

The display contains two viewing modes. Diagnostic viewing mode provides the full calibrated luminance. This mode is intended for using the display in diagnostic applications.

In Text mode, the luminance is approximately half of the luminance in Diagnostic mode. This is intended for using the display with office applications such as word processing.

Switching viewing modes by means of the keys

While the OSD is not on the screen, touch the Up > and Down < touch keys at the same time. As a result the display switches to another viewing mode. The viewing mode is indicated by a message that appears for a few seconds after switching the viewing mode.

Switching viewing modes by means of the OSD menus

You can also switch viewing modes in the Luminance and color menu.

Enabling/disabling User Controls






To disable the user controls:

1. Open the OSD main menu.
2. Open the **Settings** menu.
3. Select **User Controls**.
4. Select **Off**.
5. Return to the Settings menu.
6. Exit the OSD

Now the user cannot display the OSD again until the user controls keycode is entered (see below).

To enable the user controls again:











1. To enter the **user controls** keycode, the OSD must not be visible.
2. Touch any of the soft touch keys to switch on the front illumination.
3. While the illumination is on, touch the following keys in successive order:

Enter , Down , Up , Down , Enter .

As a result, the **User Controls** setting in the Settings menu is switched on again.

Switching Power LED on/off

To switch the power LED on/off:

1. Touch any of the soft touch keys.
The front illumination is switched on.
2. While the illumination is on, touch the Enter  touch key to display the main menu.
3. Use the Up  or Down  touch keys to select the **Settings** menu. Use Enter  to open the menu.
4. Use Up  or Down  to select **Power LED**. Use Enter  to go into edit mode.
5. Use Up  or Down  to select On or Off.
6. Use Enter  to save the changes.



Note:

- When the display is switched in stand-by, the power LED will turn orange, even if the power LED setting is switched off.
- When the power LED setting is switched off, the LED will still turn on (green) when the display is on but receives no video signal.

Switching DPMS on/off

1. Optimize the lifetime of your display

Enabling the Display Power Management System (DPMS) of your display (in the display's Settings menu) will optimize its diagnostic lifetime by automatically switching off the backlight when the display is not used for a specified period of time. By default, DPMS is enabled on your display, but it also needs to be activated on your workstation. To do this, go to "Power Options Properties" in the "Control Panel".



Barco recommends setting DPMS activation after 20 minutes of non-usage.

2. Use a screen saver to avoid image retention

Prolonged operation of an LCD with the same content on the same screen area may result in a form of image retention.

You can avoid or significantly reduce the occurrence of this phenomenon by using a screen saver. You can activate a screen saver in the "Display properties" window of your workstation.



Barco recommends setting screen saver activation after 5 minutes of non-usage. A good screen saver displays moving content.

In case you are working with the same image or an application with static image elements for several hours continuously (so that the screen saver is not activated), change the image content regularly to avoid image retention of the static elements.

3. Understand pixel technology

LCD displays use technology based on pixels. As a normal tolerance in the manufacturing of the LCD, a limited number of these pixels may remain either dark or permanently lit, without affecting the

diagnostic performance of the product. To ensure optimal product quality, Barco applies strict selection criteria for its LCD panels.



To learn more about LCD technology and missing pixels, consult the dedicated white paper available at www.barcomedical.com.

4. Enhance user comfort

Every Barco multi-head display system is color matched with the highest specification in the market.



Barco recommends keeping color-matched displays together. Furthermore, it is important to use all displays of a multi-head configuration at the same rate to preserve color matching throughout the economic lifetime of the system.











5. Maximize Quality Assurance

The 'MediCal QAWeb' system offers online service for high-grade Quality Assurance, providing maximum diagnostic confidence and uptime.



Learn more and sign up for the free MediCal QAWeb Essential level at www.barcomedical.com/qa

To switch DPMS on/off:

1. Touch any of the soft touch keys.
The front illumination is switched on.
2. While the illumination is on, touch the Enter  touch key to display the main menu.
3. Use the Up  or Down  touch keys to select the **Settings** menu. Use Enter  to open the menu.
4. Use Up  or Down  to select **DPMS**. Use Enter  to go into edit mode.
5. Use Up  or Down  to select On or Off.
6. Use Enter  to save the changes.

Changing Display Functions

Concepts

- The Display Function menu lets you select a display function (DF).
- When you select the DICOM DF you can define the DICOM DF to be recalculated taking the ambient light into account.
- The recalculation can be based on an illuminance of 0 lux (“Dark Room”) or a preset value (“Preset”).
- In the case of “Preset” you must select a reading room that corresponds to the type of room the display is installed in. E.g. if the display is installed in a room where CT scans are observed, the “CT/MR/NM” reading room is the preferred selection.
- The reading room is defined by:

Maximum Ambient Light defines the maximum light allowed in this type of room. This value can be adjusted within certain limits determined by the selected reading room.

Preset Correction Value is the predefined correction value for this reading room. This value can be adjusted within certain limits determined by the selected reading room.











- The reading room parameters are pre-defined in the display according to the AAPM (American Association of Physicists in Medicine). However they can be changed within certain limits.

Display function selection

To select a display function (DF):

1. Touch any of the soft touch keys.

The front illumination is switched on.

2. While the illumination is on, touch the Enter  touch key to display the main menu.
3. Use the Up  or Down  touch keys to select the **Display Function** menu. Use Enter  to open the menu.
4. Use Up  or Down  to select **Display Function**. Use Enter  to go into edit mode.
5. Use Up  or Down  to select the desired DF.
6. Use Enter  to save the changes.

You can select the following DFs:

Name	Description
DICOM	Select a DICOM display function for most medical viewing applications. The DICOM function results in more visible grayscales in the images.
Dyn Gamma 2.2 Dyn Gamma 1.8	These are gamma functions that are shifted to take into account the non-zero luminance of an LCD panel when driven with a "black" signal. They are especially useful in CT applications to improve the perception of low Hounsfield values.
Native	If you select Native, the native panel behavior will not be corrected.
Test	This is identical to the Native DF.
Gamma 2.2 Gamma 1.8	Select one of these display functions in case the display is to replace a CRT display with a gamma of 1.8 or 2.2 respectively.
User	This is a user-definable DF.



ALC & DICOM Options

DICOM offset

Introduction

DICOM DF will be recalculated *only* when another DICOM Offset is selected. The DICOM DF will be recalculated based on the new offset setting.

To select a DICOM offset:

1. Select the DICOM display function. See **To select a display function (DF)**; on page 46.
2. In the ALC & DICOM Options menu, use Up > or Down < to select **DICOM Offset**. Use Enter  to go into edit mode.
3. Use Up > or Down < to select an offset.
4. Use Enter  to save the changes.

You can select the following offsets:



Value	Description
Dark Room	The DICOM DF will be recalculated taking an ambient light value of 0 lux into account. This means that the measured ambient light does not influence the DICOM DF.
Preset	The DICOM DF will be recalculated taking a preset ambient light value into account. This value is determined by the selected Reading Room and can be adjusted manually within certain limits.

Value	Description
Measured ALC	The DICOM DF will be recalculated taking the averaged measured ambient light value into account that is determined by the selected Reading Room. This value can be changed by executing the "Measure ALC Value" function in the Reading Room Definition submenu.

Reading room selection

This function is available only when the DICOM display function is selected and Continuous DICOM ALC is off.

To select a reading room setting:

1. Select the DICOM display function. See **To select a display function (DF):**, on page 46.
2. In the ALC & DICOM Options menu, use Up > or Down < to select **Reading Room**. Use Enter  to go into edit mode.
3. Use Up > or Down < to select the reading room that corresponds to the room type the display is installed in.
4. Use Enter  to confirm the selection.

You can select the following reading room types::






Name	Description
CR/DR/MAMMO	Corresponds to light conditions in diagnostic reading rooms for computed radiology, digital radiology or mammography. This setting has the lowest maximum ambient light.
CT/MR/NM	Corresponds to light conditions in diagnostic reading rooms for computed tomography, magnetic resonance or nuclear medicine scans.

Name	Description
Office	Corresponds to light conditions in office rooms.
Clinical	Corresponds to light conditions in diagnostic reading rooms for clinical viewing.
Emergency	Corresponds to light conditions in emergency rooms.
Operating	Corresponds to light conditions in operating rooms. This setting has the highest maximum ambient light.



Reading room definition

This function is available only when the DICOM display function is selected and Continuous DICOM ALC is off.


To modify a reading room definition:


1. Select the DICOM display function. See **To select a display function (DF):**, on page 46
2. In the ALC & DICOM Options menu, use Up > or Down < to select **Reading Room Def.** Use Enter  to open the submenu.
3. Select the reading room definition you wish to modify. Thereto, use Up > or Down < to select **Reading Room.** Use Enter  to go into edit mode. Use Up > or Down < to select the reading room. Use Enter  to confirm the selection.
4. To modify the maximum ambient light for this reading room, use Up > or Down < to select **Max. Ambient Light.** Use Enter  to go into edit mode. Use Up > or Down < to change the value. Use Enter  to save the changes.

You can change this value within certain limits determined by the selected reading room.





5. To modify the Preset correction value for this reading room, use Up > or Down < to select **Preset Corr. Value**. Use Enter  to go into edit mode. Use Up > or Down < to change the value. Use Enter  to save the changes.

You can change this value within certain limits determined by the selected reading room.

6. To modify the Measured ALC Value for this reading room, use Up > or Down < to select **Measure ALC Value**. Use Enter  to execute the function.

If the “Averaged Ambient Light” at that moment is lower than the defined “Maximum Ambient Light”, the averaged ambient light value is copied as Measured ALC value. Use Enter  to store the value.

If the “Averaged Ambient Light” at that moment is higher than the defined “Maximum Ambient Light”, the display will prompt a warning for the user to take measures to adapt the ambient light in the room to the selected reading room. Proceed as follows:

- Use Enter . As a result the Measured ALC value will be limited to the maximum ambient light value. Use Enter  again to store the value.
- However, if you wish to adapt the ambient light conditions to the definition of the selected reading room, dim the light in the room so that the measured ambient light becomes lower than the maximum ambient light.
- Then use Enter  again to execute the Measure ALC Value function once more. As a result the actually measured ambient light value will be copied as Measured ALC Value. Finally use Enter  again to store the value.










Adjusting Luminance and Color


Concepts

- On a grayscale display you can adjust the luminance target. On a color display you can adjust the color target.
- The color target combines the luminance target and color temperature.
- The color temperature can be defined in Kelvin units or (x,y) co-ordinates.
- After changing the target, the display's backlight and color amplifiers (color displays only) will be adjusted until the target is reached.
- The I-Guard sensor constantly measures the luminance and color temperature (color displays only). These measurements are used to adjust and stabilize the luminance and color temperature (color displays only).

Luminance target (grayscale displays)

To change the luminance target:











1. Touch any of the soft touch keys.
The front illumination is switched on.
2. While the illumination is on, touch the Enter  touch key to display the main menu.
3. Use the Up  or Down  touch keys to select the **Luminance** menu. Use Enter  to open the menu.
4. Use Up  or Down  to select **Luminance Target**. Use Enter  to go into edit mode.
5. Use Up  or Down  to adjust the luminance target.

6. Use Enter  to save the changes.

Color target (color displays)

Selecting a color target

To select a color target:

1. Touch any of the soft touch keys.
The front illumination is switched on.
2. While the illumination is on, touch the Enter  touch key to display the main menu.
3. Use the Up  or Down  touch keys to select the **Luminance and Color** menu. Use Enter  to open the menu.
4. Use Up  or Down  to select **Color Target**. Use Enter  to go into edit mode.
5. Use Up  or Down  to select the desired color target.
6. Use Enter  to save the changes.

You can select the following color targets:





























Name	Description
Clearbase	Simulation of the clearbase film color temperature
Bluebase	Simulation of the bluebase film color temperature
Native white	The native, unmodified color temperature of the LCD panel.
User	A completely modifiable color target.


Color target definition





Note: For the Native White color target, only the luminance target can be modified. For Clearbase and Bluebase the luminance target and color temperature in (x,y) co-ordinates can be modified. The User color target can be modified completely.

To modify the color target definition:

1. Touch any of the soft touch keys.
The front illumination is switched on.
2. While the illumination is on, touch the Enter  touch key to display the main menu.
3. Use the Up  or Down  touch keys to select the **Luminance and Color** menu. Use Enter  to open the menu.
4. Use Up  or Down  to select **Color Definition**. Use Enter  to open the submenu.
5. Select the color target you wish to modify. Thereto, use Up  or Down  to select **Color Name**. Use Enter  to go into edit mode. Use Up  or Down  to select the color target. Use Enter  to confirm the selection.
6. To modify the luminance target, use Up  or Down  to select **Luminance Target**. Use Enter  to go into edit mode. Use Up  or Down  to change the value. Use Enter  to save the changes.
7. To modify the units in which the color temperature is defined (only for User color target), use Up  or Down  to select **Defined in**. Use Enter  to go into edit mode. Use Up  or Down  to change the units: Kelvin units or (x,y) co-ordinates. Use Enter  to save the changes.
8. To modify the color temperature in Kelvin units, first make sure the color target is defined in Kelvin units (see step 5). Use Up  or Down  to select **Color Temperature**. Use Enter  to go into

edit mode. Use Up > or Down < to change the value. Use Enter  to save the changes.

9. To modify the color temperature in (x,y) co-ordinates, first make sure the color target is defined in (x,y) co-ordinates (see step 5). Use Up > or Down < to select **x** or **y**. Use Enter  to go into edit mode. Use Up > or Down < to change the value. Use Enter  to save the changes.



Tips

- If you only need to change the luminance target, it is not necessary to open the Color Definition submenu. You can change the luminance target in the Luminance and Color menu. The new value will automatically be saved in the color definition as well.
- You can restore the (x,y) values to factory defaults by selecting **Restore Factory x,y values**.

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Barco web sites

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B4100533-02

September 2009

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Barco nv Medical Imaging
President Kennedypark 35
B-8500 Kortrijk, Belgium

www.barco.com