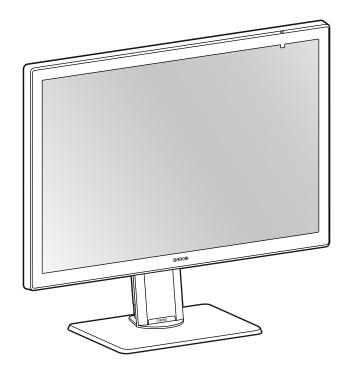
# **Coronis Fusion 4MP / 6MP**



# User guide

MDCC-4430 (NC) MDCC-6530 (NC)



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# **Table of contents**

1	Weld	come!	5
	1.1	What's in the box	6
	1.2	At a glance	6
2	Installation		
	2.1	Display controller installation	10
	2.2	Display position adjustment	10
	2.3	Cable connections	11
	2.4	MXRT driver and Intuitive Workflow Tools installation	12
	2.5	QAWeb registration	13
	2.6	VESA-mount installation	13
3	Daily	/ operation	17
	3.1	Recommendations for daily operation	18
	3.2	Shortcut bar	18
	3.3	Standby switching	
	3.4	SoftGlow light mode switching	19
	3.5	OSD menu access and use	20
4	Adva	anced operation	21
	4.1	OSD menu language	22
	4.2	OSD menu orientation	
	4.3	OSD menu automatic close function	
	4.4	Power lock function	
	4.5	SoftGlow Task light	
	4.6	SoftGlow Wall light	
	4.7	DPMS mode	
	4.8	Hibernate	
	4.9	Luminance target	
	4.10	Color presets	
		4.10.1 Color temperature	
		4.10.2 Color coordinates	
	4.11	Color space	
	4.12	Viewing modes	
	4.13	Display functions	
	4.14	sRGB	27

	4.15	Ambient Light Compensation (ALC)	28
	4.16	Reading rooms	28
	4.17	Continuous Ambient Light Compensation (ALC)	29
	4.18	Embedded QA	29
		4.18.1 About Embedded QA	29
		4.18.2 DICOM status report	29
		4.18.3 DICOM compliance check	30
		4.18.4 DICOM calibration	30
		4.18.5 Reset DICOM calibration	31
		4.18.6 DICOM error threshold	31
	4.19	Image scaling	31
	4.20	Image source selection	31
	4.21	Grayscale conversion modes	32
	4.22	DisplayPort standard version	32
	4.23	EDID timings	33
	4.24	Display info	33
	4.25	Display status	33
	4.26	SteadyColor™	34
	4.27	Maximum luminance demo	34
5	Clea	ning your display	35
	5.1	Cleaning instructions	36
6	Repa	ackaging instructions	37
	6.1	Repackaging instructions	
7	7 Important information		
	7.1	Safety information	44
	7.2	Cybersecurity	45
	7.3	Environmental information	45
	7.4	Regulatory compliance information	47
	7.5	EMC notice	49
	7.6	Explanation of symbols	51
	7.7	Legal disclaimer	55
	7.8	Open source license information	55
	7.9	Technical specifications	56

# Welcome!

1

# 1.1 What's in the box

## **Overview**

- Coronis Fusion 4MP / 6MP display
- Printed user guide
- Documentation disc, containing different languages of this user guide and the Barco "Display Controller and Intuitive Workflow Tools" user guide
- System sheet
- · Cables for Mains, Video and USB

If you ordered a Barco MXRT display controller, it is also in the box together with its accessories. A dedicated user guide is available on the documentation disc.



Keep your original packaging. It is designed for this display and is the ideal protection during transport and storage.



The user guides are also available on www.barco.com/support

# 1.2 At a glance

### **Product overview**

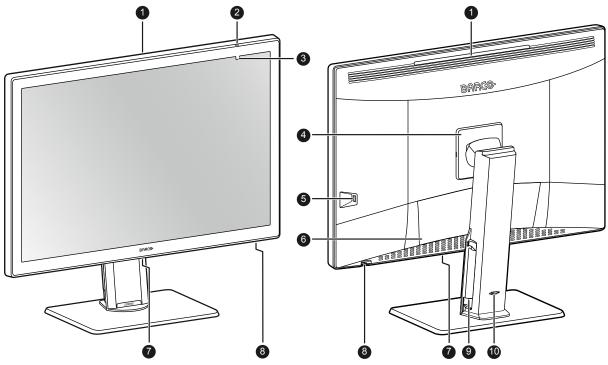


Image 1-1

- 1. SoftGlow Wall light
- 2. Ambient light sensor and Power status LED
  - Off: Display not powered (mains cable unplugged or power switch in OFF position), or display is in normal operation
  - Fast blinking amber: Display is entering DPMS mode
  - Slow blinking amber: Display is in DPMS mode
  - Steady amber: Display manually switched off via the jog dial, or display in hibernate mode (requires DPMS and Hibernate to be enabled in the OSD menu)
- 3. Front sensor

- 4. VESA mount cover
- 5. USB-A 2.0 downstream connector with high-power charging functionality
- 6. Connector compartment cover
- 7. SoftGlow Task light
- 8. Jog dial
- 9. Cable routing channels
- 10. Stand locking mechanism

### **Connectors**

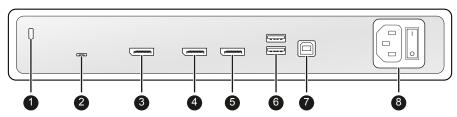


Image 1-2

- 1. Kensington security slot
- 2. Service port (for Barco service purposes only)
- 3. DisplayPort IN 2
- 4. DisplayPort OUT (covered with a plastic cap by default, remove the cap to use this connector)
- 5. DisplayPort IN 1
- 6. USB-A 2.0 downstream connectors (2x)
- 7. USB-B 2.0 upstream connector
- 8. 100–240 VAC mains power input and power switch

Welcome!

# Installation

# 2

# 2.1 Display controller installation

# **About**

Before you install your display and connect it with the workstation, make sure to have a suitable¹ display controller installed in the workstation.



The Coronis Fusion 4MP / 6MP display operates at its full specifications when driven by a Barco **MXRT display controller** and **MXRT driver** (which also includes the Barco **Intuitive Workflow Tools**). If you ordered a MXRT display controller, it is included in the box of your display. For more information and installation instructions, please check the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="www.barco.com/support">www.barco.com/support</a>.

# 2.2 Display position adjustment

# To adjust the display position

After unpacking, you can safely tilt and swivel the display to your preferred position.

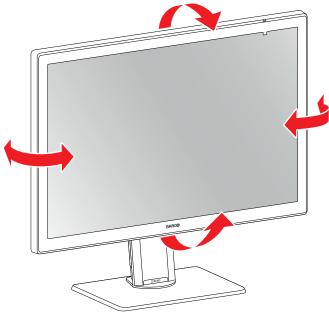
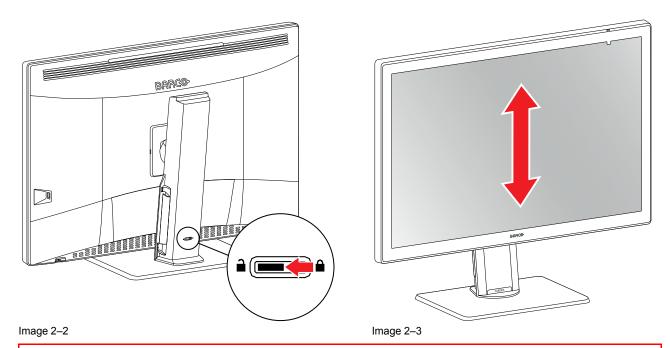


Image 2-1

To adjust the height of the display, first move the slider at the back of the stand to the **unlock** position. Then you can raise or lower the display as desired.

For a list of compatible display controllers, please refer to the compatibility matrix available on my.barco.com (MyBarco > My Support > Healthcare > Compatibility Matrices > Barco Systems Compatibility Matrices)





**WARNING:** The height can be locked only when the display is in the lowest position, even though the slider at the back of the stand can be moved to the lock position at any height of the display.

# 2.3 Cable connections

### To connect the cables

1. Open the connector compartment. Do this by gently lifting the bottom of the connector compartment cover, after which it can be removed from the display.

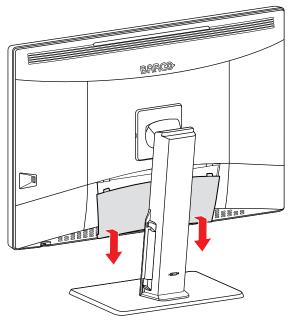


Image 2-4

2. Connect the video source(s) from your workstation(s) to the DisplayPort IN connector(s) of the display. **Important:** Do not connect any video source(s) to the DisplayPort OUT connector. Do not confuse this connector with the DisplayPort IN 1 and 2 connectors.

**Note:** The MDCC-4430, MDCC-6530 can have multiple video inputs connected at once, and switching between these inputs can be easily done in the OSD menu. See "Image source selection", page 31 for more info on how to configure the different video inputs on your display.

3. The DisplayPort OUT allows you to daisy chain your display and an external display using DisplayPort Multi-Stream Transport (MST).

**Note:** By default, the DisplayPort OUT is covered with a plastic cap which has to be removed before you can use this connector.

4. Connect the workstation's USB host to the USB upstream connector on the display if you want to make use of QAWeb or any of the display USB downstream connectors (e.g. to connect a keyboard, mouse, touchpad or another peripheral).

**Note:** When cables or other objects are left on a touchpad, these can be misinterpreted as fingers and may block DPMS activation. Barco recommends to always keep the touchpad clear of other objects.

5. Connect the supplied mains cable to the power input on the display.

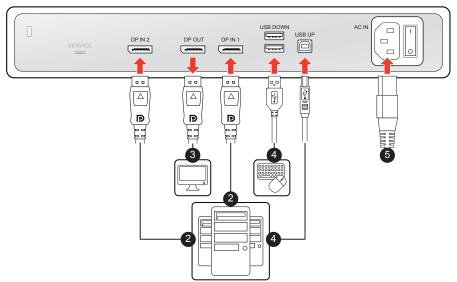


Image 2-5

- 6. Route all cables through the cable duct in the stand of your display. For better strain-relief and shielding of the cables, use the cable clips at the inside of the connector compartment.
- 7. Close the connector compartment. Slide the top of the connector compartment cover into position and then push the bottom of the cover.

**Note:** Make sure that the power switch (next to the power input) is the desired position before closing the connector compartment.

8. Connect the supplied mains cable to a **grounded** power outlet.

# 2.4 MXRT driver and Intuitive Workflow Tools installation

### About

When you are using a Barco MXRT display controller, you can start up your Coronis Fusion 4MP / 6MP display system and install the **MXRT driver** and **Intuitive Workflow Tools**. Barco's Intuitive Workflow Tools are designed to increase visibility of subtle details, improve focus during reading sessions, and accelerate workflow.

# To install the MXRT driver and Intuitive Workflow Tools

- 1. Switch on your Coronis Fusion 4MP / 6MP as described in "Standby switching", page 19.
- Turn on the workstation connected to your display.
   Your display will be running in a basic video mode at a default refresh rate when first time starting up.
- 3. Download the latest MXRT driver and Intuitive Workflow Tools from www.barco.com/mxrt.

- Install the MXRT driver and Barco's Intuitive Workflow Tools as described in the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="https://www.barco.com/support"><u>www.barco.com/support</u></a>.
- 5. When the drivers are completely installed, your display will automatically detect the connected video input signal(s) and apply the correct video mode and refresh rate.

# 2.5 QAWeb registration

### **About**

**QAWeb Enterprise** helps you manage quality and assure compliance of your expanding healthcare enterprise with less effort, lower cost, and complete confidence. This fully automated and secure system guarantees a consistent image quality and uptime for all registered imaging display systems within your facility and across your enterprise. Learn more at <a href="https://www.barco.com/qaweb">www.barco.com/qaweb</a>.

To register your display system to your QAWeb Enterprise organization, the QAWeb Enterprise Agent must be installed and running on your workstation and it must be able to communicate with the QAWeb Enterprise cloud service.

For more information and instructions, check the QAWeb Enterprise user guide on <a href="www.barco.com/support/gaweb-enterprise"><u>www.barco.com/support/gaweb-enterprise</u></a>.



When still using the older MediCal QAWeb, visit <u>www.barco.com/support/medical-qaweb</u> to obtain the installation package and user documentation.

# 2.6 VESA-mount installation



**CAUTION:** Use suitable mounting apparatus to avoid risk of injury.



**WARNING:** Never move a display attached to an arm by pulling or pushing the display itself. Instead, make sure that the arm is equipped with a VESA compliant handle and use this to move the display.

Please refer to the instruction manual of the arm for more information and instructions.



**WARNING:** Use a mount that is compliant with the VESA 100 mm standard.

Use a mount that can support the weight of the display. Refer to the technical specifications of this display for the applicable weight.

### Overview

The panel, standard attached to a stand, is compatible with the VESA 100 mm standard. Thus, it can be used with an arm that is approved by VESA. This chapter shows you how to release the panel from the stand and how to attach it to an arm. If you're not using an arm, you can skip this chapter.

1. Unlock the stand locking mechanism and put the display in the highest position.

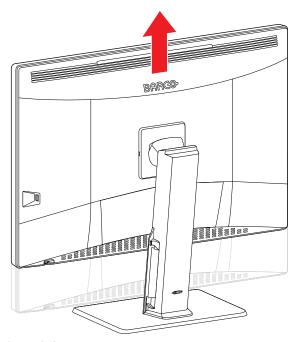


Image 2-6

- 2. Put the display face down on a clean and soft horizontal surface. Be careful not to damage the panel screen.
- 3. Push the VESA mount cover to the right and lift the cover on the right with your finger or a flathead screwdriver.

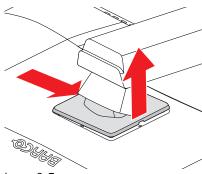


Image 2-7

4. Push the VESA mount cover to the left and release the cover on the left with a flathead screwdriver.

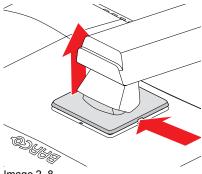


Image 2–8

5. Rotate the VESA mount cover to uncover the screws fixing the panel to the stand.

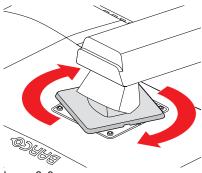
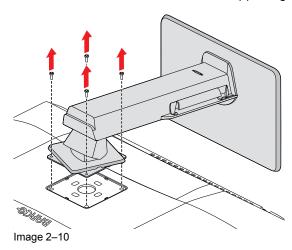
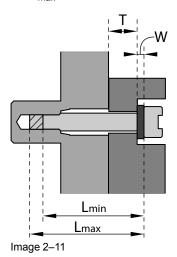


Image 2–9

6. Unscrew the 4 fixation screws while supporting the stand.



- 7. Attach the panel **firmly** to the arm using 4 M4 screws. Respect the following rule to select an appropriate screw length:
  - $L_{min} = T + W + 6.5 \text{ mm}$
  - $L_{max} = T + W + 10 \text{ mm}$



Installation

# **Daily operation**

# 3

# 3.1 Recommendations for daily operation

# Optimize the lifetime of your display

Enabling the Display Power Management System (DPMS) of your display 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 the "Power Options" of your workstation.



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

# 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.

# 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.

# **Enhance user comfort**

Every Barco multi-head display system is color matched to the tightest specifications 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.

### Maximize quality assurance

QAWeb Enterprise helps you manage quality and assure compliance of your expanding healthcare enterprise with less effort, lower cost, and complete confidence. This fully automated and secure system guarantees a consistent image quality and uptime for all registered PACS display systems within your facility and across your enterprise.



Barco highly recommends to use QAWeb Enterprise. Learn more at www.barco.com/qaweb.

# 3.2 Shortcut bar

### About the shortcut bar

The shortcut bar gives direct access to a number of OSD menu functions without having to browse the OSD menu:

- "Standby switching", page 19
- "SoftGlow light mode switching", page 19

"OSD menu access and use", page 20



Image 3-1

### To activate a shortcut bar function

- 1. During normal operation, press or turn the jog dial. The shortcut bar is activated.
- 2. Turn the jog dial left or right to select a function.
- 3. Press the jog dial to confirm your selection and to activate the function.

# 3.3 Standby switching

# To switch on your display

Press the jog dial to activate your display.



Make sure that the power switch next to the mains power input connector is in position "I" when switching on your display.

# To switch off your display

- 1. Press or turn the jog dial to activate the shortcut bar.
- 2. Turn the jog dial and select the standby icon (**U**).
- 3. Press the jog dial to confirm your selection.
- 4. Press the jog dial again to switch off the display.

# 3.4 SoftGlow light mode switching

# About the SoftGlow lights

The SoftGlow Task light sheds a light on the desktop, while the SoftGlow Wall light provides ambient lighting for the reading room to reduce eye fatigue. The brightness of each is adjustable.

# To switch the SoftGlow light mode

- 1. Press or turn the jog dial to activate the shortcut bar. The SoftGlow lights icon ( ) is selected by default when the KVM switch is disabled.
- If not selected by default, turn the jog dial and select the SoftGlow lights icon.
- Press the jog dial repeatedly to cycle through the different SoftGlow light modes: SoftGlow Task light ON → SoftGlow Wall light ON → SoftGlow Task + SoftGlow Wall light ON → SoftGlow lights OFF→ ...



To adjust the brightness of the SoftGlow lights, please refer to "SoftGlow Task light", page 23 and "SoftGlow Wall light", page 23.



The SoftGlow lights can also be enabled and configured in the Intuitive Workflow Tools. See the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="https://www.barco.com/support">www.barco.com/support</a>.

# 3.5 OSD menu access and use

# About the OSD menu

The OSD menu allows you to configure different settings to make your Coronis Fusion 4MP / 6MP fit your needs within your working environment. Also, you can retrieve general information about your display and its current configuration settings through the OSD menu.

### To access the OSD menu

- 1. Press or turn the jog dial to activate the shortcut bar.
- 2. Turn the jog dial and select the OSD menu icon ( ).
- 3. Press the jog dial to enter the OSD menu.
- 4. If the *OSD menu locked* message appears, turn and hold the jog dial **right for 5 seconds**, until the *OSD menu unlocked* message appears.

# To navigate through the OSD menus

- Turn the jog dial left or right to scroll through the (sub)menus, to change values or to make selections.
- Press the jog dial to go into a submenu or confirm adjustments and selections.
- Press and hold the jog dial for approximately 3 seconds to cancel adjustments.
- Turn the jog dial left on a first (sub)menu item to exit the (sub)menu.

# **Advanced operation**

4.1	OSD menu language	22
4.2	OSD menu orientation.	
4.3	OSD menu automatic close function.	22
4.4	Power lock function	
4.5	SoftGlow Task light	23
4.6	SoftGlow Wall light	23
4.7	DPMS mode	24
4.8	Hibernate	24
4.9	Luminance target	25
4.10	Color presets.	25
4.11	Color space	26
4.12	Viewing modes	26
4.13	Display functions	27
4.14	sRGB	
4.15	Ambient Light Compensation (ALC)	28
4.16	Reading rooms	
4.17	Continuous Ambient Light Compensation (ALC)	29
4.18	Embedded QA	29
4.19	Image scaling	31
4.20	Image source selection	31
4.21	Grayscale conversion modes.	
4.22	DisplayPort standard version	32
4.23	EDID timings	
4.24	Display info	
4.25	Display status	33
4.26	SteadyColor™	34
4.27	Maximum luminance demo	34

### **About**

This section describes all settings available in the OSD menu and how to change and configure them.



Certain OSD menu settings affecting calibration can be managed by QAWeb. Manually changing these settings in the OSD menu is still possible but the changes will be overwritten at each sync with QAWeb. The OSD menu can also be locked/unlocked by QAWeb.

# 4.1 OSD menu language

# About the OSD menu language

By default, the OSD menu comes up in English. However, there's a wide range of other languages available for the OSD menu of your Coronis Fusion 4MP / 6MP.

# To change the language of the OSD menu:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > User Interface > Menu menu.
- 3. Enter the Language submenu.
- Select one of the available languages and confirm.

# 4.2 OSD menu orientation

### About orientation

The orientation of the OSD menu can be set to landscape, portrait or inverse portrait. This is useful when physically mounting your display in another orientation.

# To adjust the orientation

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > User Interface > Menu menu.
- 3. Enter the Orientation submenu.
- 4. Select Landscape, Portrait or Inverse Portrait and confirm.

# 4.3 OSD menu automatic close function

### About the OSD menu automatic close function

By default, the OSD menu will disappear automatically after approximately 90 seconds of inactivity. However, this function can be disabled so that the OSD menu remains on the screen until manually closed.

### To enable/disable the OSD menu automatic close function:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > User Interface > Menu menu.
- 3. Enter the Automatic Close submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# 4.4 Power lock function

# About the power lock function

When the power lock function is enabled, it is no longer possible to switch off your display via the jog dial as described in "Standby switching", page 19. DPMS mode is not affected by this setting.

### To enable/disable the power lock function:

1. Bring up the OSD main menu.

- 2. Navigate to the Configuration > User Interface > Controls menu.
- 3. Enter the Power Lock submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# 4.5 SoftGlow Task light

# About the SoftGlow Task light

The SoftGlow Task light sheds a light on the desktop. The brightness of the light is configurable.

# To enable/disable the SoftGlow Task light

- 1. Bring up the OSD main menu.
- 2. Navigate to the *Configuration > Lights* menu.
- 3. Enter the SoftGlow Task Light submenu.
- Select Enabled/Disabled as desired and confirm.



The SoftGlow lights can also be enabled more quickly via the shortcut bar. See "SoftGlow light mode switching", page 19.



The SoftGlow lights can also be enabled and configured in the Intuitive Workflow Tools. See the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="https://www.barco.com/support">www.barco.com/support</a>.

# To adjust the SoftGlow Task light brightness

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Lights menu.
- Enter the SoftGlow Task Light brightness submenu.
- 4. Set a SoftGlow Task Light brightness value as desired and confirm.



The SoftGlow lights can also be enabled and configured in the Intuitive Workflow Tools. See the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="https://www.barco.com/support">www.barco.com/support</a>.

# 4.6 SoftGlow Wall light

### About the SoftGlow Wall light

The SoftGlow Wall light provides ambient lighting for the reading room to reduce eye fatigue. The brightness of the light is configurable.

## To enable/disable the SoftGlow Wall light

- 1. Bring up the OSD main menu.
- 2. Navigate to the *Configuration > Lights* menu.
- 3. Enter the SoftGlow Wall Light submenu.
- 4. Select Enabled/Disabled as desired and confirm.



The SoftGlow lights can also be enabled more quickly via the shortcut bar. See "SoftGlow light mode switching", page 19.



The SoftGlow lights can also be enabled and configured in the Intuitive Workflow Tools. See the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="https://www.barco.com/support">www.barco.com/support</a>.

# To adjust the SoftGlow Wall light brightness

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Lights menu.
- 3. Enter the SoftGlow Wall Light brightness submenu.
- Set a SoftGlow Wall Light brightness value as desired and confirm.



The SoftGlow lights can also be enabled and configured in the Intuitive Workflow Tools. See the Barco "Display Controller and Intuitive Workflow Tools" user guide on the included documentation CD, or at <a href="https://www.barco.com/support">www.barco.com/support</a>.

# 4.7 DPMS mode

# **About DPMS mode**

Enabling the Display Power Management System (DPMS) mode on your display 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 mode is enabled on your display, but it also needs to be activated on your workstation. To do this, go to the "Power options" of your workstation.



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



When DPMS mode is enabled, an additional power saving function becomes available: hibernate. See "Hibernate", page 24 for more information.

# To enable/disable DPMS mode on your display:

- Bring up the OSD main menu.
- 2. Navigate to the Configuration > Power Management menu.
- 3. Enter the DPMS Mode submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# 4.8 Hibernate

# About hibernate

When hibernate is enabled, not only the backlight, but also other functions will be disabled to reduce power consumption to a minimum. This happens after an adjustable period of time.



DPMS mode must be enabled before hibernate can be enabled. See "DPMS mode", page 24.



Connect your keyboard, mouse, touchpad, etc. directly with your workstation (and not with the display) to be able to awake your workstation and display from hibernate.

### To enable/disable hibernate

1. Bring up the OSD main menu.

- 2. Navigate to the Configuration > Power Management menu.
- 3. Enter the Hibernate submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# To adjust the hibernate time-out

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Power Management menu.
- 3. Enter the *Hibernate Timeout* submenu.
- 4. Set the time-out value as desired and confirm.

# 4.9 Luminance target

# About the luminance target

The luminance target of your Coronis Fusion 4MP / 6MP is adjustable over a predefined range. When you change the luminance target, the display will adjust its backlight to reach the target.

# To set the luminance target:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration menu.
- 3. Enter the Luminance Target submenu.
- 4. Set a luminance target value as desired and confirm.



The default, factory calibrated luminance value is available in the technical specifications table. The guaranteed backlight lifetime is valid for this setting.

# 4.10 Color presets

### About color presets

The available color preset settings for your display are:

- Clearbase: Simulation of the clearbase film color temperature
- Bluebase: Simulation of the bluebase film color temperature
- User: When selecting the User color preset, you will be able to manually define:
  - Color temperature (Kelvin)
  - Color coordinates (x, y)
- **6500K**: Corresponds to a color temperature of 6500 Kelvin (D65)
- Native White: The native, unmodified color temperature of the LCD panel

# To select a color preset:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Color Settings menu.
- 3. Enter the Color Presets submenu.
- 4. Select one of the available color presets and confirm.

# 4.10.1 Color temperature

# About color temperature:

It is possible to change the color temperature of your display.



Color temperature can only be changed when the Color preset is set to *User*.

# To change the color temperature:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Color Settings > Color Presets menu.
- 3. Select User and confirm.
- 4. Enter the Color Definition submenu, select Color Temperature and confirm.
- 5. Enter the Color Temperature submenu, set the value as desired and confirm.

# 4.10.2 Color coordinates

### About color coordinates:

It is possible to change the color coordinates of your display.



Color coordinates can only be changed when the Color preset is set to *User*.

# To change the color coordinates:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Color Settings > Color Presets menu.
- 3. Select User and confirm.
- 4. Enter the Color Definition submenu, select Color Coordinates and confirm.
- 5. Enter the x and y submenus, set the values as desired and confirm.

# 4.11 Color space

# **About color space**

The available color space settings for your display are:

- sRGB (standard Red Green Blue): To match typical home and office viewing conditions. Note: This setting does not fully set your display to the sRGB color space. Refer to "sRGB", page 27 to do this.
- Native: The native, unmodified color space of the LCD panel.
- **PrePriAS (Preserve Primaries And Secondaries):** To change the white (color) point (as explained in "Color presets", page 25) without reducing red, green and blue primary colors and cyan, magenta and yellow secondary colors of the display's native color gamut.

# To select a color space

- 1. Bring up the OSD main menu.
- 2. Navigate to the *Configuration > Calibration* menu.
- 3. Enter the *Color Space* submenu.
- 4. Select one of the available color space settings and confirm.

# 4.12 Viewing modes

# About viewing modes

The Coronis Fusion 4MP / 6MP can be used in 2 viewing modes:

- **Diagnostic:** This mode provides the full calibrated luminance and is intended for using the display for diagnostic purposes.
- **Text:** In this mode, the luminance is reduced to approximately half of the luminance. This is intended for using the display with office applications such as word processing.
  - Please note that text mode is not persistent, once powered off, the unit will restart in diagnostic mode.



The diagnostic mode should always be selected when the Coronis Fusion 4MP / 6MP is intended to be used in a diagnostic environment.

# To select a viewing mode:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration menu.
- 3. Enter the Viewing Mode submenu.
- **4.** Select *Diagnostic/Text* as desired and confirm.

# 4.13 Display functions

# **About display functions**

Native, uncorrected panels will display all grayscale/color levels with luminance increments that are not optimal for crucial diagnostic information. Studies have shown however, that in medical images certain grayscale/color parts contain more diagnostic information then others. To respond to these conclusions, display functions have been defined. These functions emphasize on these parts containing crucial diagnostic information by correcting the native panel behavior.

The available display functions for your display are:

- Native: The native display panel behavior will not be corrected.
- **Dynamic Gamma 1.8** or **2.2**: 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.
- DICOM: DICOM (Digital Imaging and Communications in Medicine) is an international standard that was
  developed to improve the quality and communication of digital images in radiology. In short, the DICOM
  display function results in more visible grayscales in the images. Barco recommends selecting the DICOM
  display function for most medical viewing applications.
- sRGB: The sRGB color space combines a display function, color space and white point selection, and is
  designed to match typical home and office viewing conditions. It is widely used in most computer
  applications. Note: This setting does not fully set your display to the sRGB color space. Refer to "sRGB",
  page 27 to do this.
- User: This display function will be automatically selected when display functions are defined by QAWeb.
- **Gamma 1.8** or **2.2**: 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.
- Test: For Barco service purposes only.



The settings of the display must be adapted to suit the requirements of the visualization software. In case of doubt, please contact the vendor of the visualization software.

# To select a display function:

- Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration menu.
- 3. Enter the Display Function submenu.
- **4.** Select one of the available display functions and confirm.

# 4.14 sRGB

### About sRGB

When sRGB is enabled, the display is set to an sRGB color space with the following settings:

Color preset: 6500K. See "Color presets", page 25 for more info.

- Color space: sRGB. See "Color space", page 26 for more info.
- Display function: sRGB. See "Display functions", page 27 for more info.

### To enable sRGB:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration menu.
- 3. Select sRGB and confirm.

# 4.15 Ambient Light Compensation (ALC)

### **About ALC**



Ambient Light Compensation (ALC) can only be enabled on your display when the display function is set to DICOM. Please refer to "Display functions", page 27.

When ALC is enabled, the DICOM display function will be recalculated taking a preset ambient light correction value into account. This value is determined by the selected reading room. Therefore, it is also important to select a realistic reading room when enabling ALC. This can be done by following the instructions in "Reading rooms", page 28.

### To enable/disable ALC:

- Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Ambient Light menu.
- 3. Enter the Ambient Light Compensation submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# 4.16 Reading rooms

# About reading rooms



Reading rooms can only be selected on your display when the display function is set to DICOM. Please refer to "Display functions", page 27

The American Association of Physicists in Medicine (AAPM) composed a list of pre-defined reading rooms. Each of these reading rooms are defined by following parameters:

- the maximum light allowed in this type of room
- · the preset ambient light correction value for this reading room

These parameters are stored in your display and determine the preset ambient light correction value to take into account to recalculate the DICOM display function when Ambient Light Compensation (ALC) is enabled. Please refer to "Ambient Light Compensation (ALC)", page 28 to enable ALC.

The available reading rooms for your Coronis Fusion 4MP / 6MP are:

- 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.
- Staff Office: Corresponds to light conditions in office rooms.
- Clinical Viewing Room: Corresponds to light conditions in diagnostic reading rooms for clinical viewing.
- Emergency Room: Corresponds to light conditions in emergency rooms.
- Operating Room: Corresponds to light conditions in operating rooms. This setting has the highest maximum ambient light.

# To select a reading room:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Ambient Light menu.
- 3. Enter the *Reading Room* submenu.
- 4. Select one of the available reading rooms and confirm.

# 4.17 Continuous Ambient Light Compensation (ALC)

# **About Continuous ALC**

Enabling continuous ALC will continuously recalculate the DICOM display function taking the averaged ambient light, as measured by the integrated ambient light sensor, into account.



Continuous ALC can only be enabled on your display when the display function is set to DICOM. Please refer to "Display functions", page 27.

## To select continuous ALC:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Ambient Light menu.
- 3. Enter the Continuous ALC submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# 4.18 Embedded QA

## 4.18.1 About Embedded QA

### About

Embedded QA allows you to run a display calibration or compliance test directly from the display using the OSD menus described in the next sections. Embedded QA will use the front sensor / I-Guard to measure the necessary luminance levels for either a calibration or compliance test. Various settings for both actions can be selected from the display's OSD menu. The last results of both actions can be consulted from the OSD.

# **Embedded QA or QAWeb?**

Embedded QA is not a replacement for the Barco QAWeb solution.

Although Embedded QA is a reliable option to perform a simple calibration or compliance test, Barco still highly recommends QAWeb as the solution of choice for calibration and QA. QAWeb brings many benefits such as centralized asset management, the ability to schedule tasks, remote management, automated reporting, alerting and specific support of regional QA standards such as DIN 6868-57, JESRA and AAPM TG18. That's why QAWeb Agent acts as the master for all supported displays from the moment it is installed and running. QAWeb Agent will take over from Embedded QA and overwrite any settings which were applied by Embedded QA.

# 4.18.2 DICOM status report

# About DICOM status report

Following information is available:

**DICOM Compliance Status** (status since last compliance check)

Compliance status: Shows if the current DICOM curve is compliant or not.

- Maximum error: Shows the maximum error of the current DICOM curve. This is the deviation compared to a perfect DICOM.
- **Error threshold:** Shows the error threshold. This is the maximum error allowed before a DICOM calibration is required.
- Time elapsed since latest compliance check: Shows the backlight runtime since last compliance check.
- Display Function: Shows the current display function.
- Ambient light compensation: Shows the ambient light compensation status.
- Reading Room: Shows the selected reading room.
- Luminance: Shows the measured luminance.
- Black luminance: Shows the measured black luminance.

### **DICOM Calibration Status**

- No calibration executed yet: No other information is visible
- Calibration executed: When the calibration is executed, the following extra information is shown: Time elapsed since latest calibration, Display Function, Ambient Light Compensation and Reading Room.

# **Current DICOM Settings**

- **Display Function:** Shows the current display function.
- Ambient Light Compensation: Shows the ambient light compensation status.
- Reading room: Shows the selected reading room.

# To retrieve the DICOM status report:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Embedded QA menu.
- 3. Select DICOM Status Report to make the information visible on the screen.

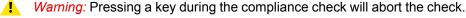
# 4.18.3 DICOM compliance check

# About DICOM compliance check

The DICOM compliance check will measure the DICOM curve of your display in different steps. After measurement, the DICOM status report is shown.

### To start DICOM compliance check:

- 1. Bring up the OSD main menu.
- Navigate to the Configuration > Calibration > Embedded QA menu.
- Select DICOM Compliance Check to start the compliance check.



# 4.18.4 DICOM calibration

### About DICOM calibration

The DICOM calibration will add a correction to the current DICOM curve to approach the perfect DICOM curve as well as possible.

### To start DICOM calibration:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Embedded QA menu.
- 3. Select *DICOM calibration* to start the calibration.



Warning: Pressing a key during calibration will abort the calibration, previous values will be restored.



*Note:* After calibration, the compliance check will start automatically.

# 4.18.5 Reset DICOM calibration

### **About reset DICOM calibration**

It is possible to restore the original (factory default) DICOM curve.

### To reset the DICOM calibration:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Embedded QA menu.
- 3. Enter the DICOM Preferences submenu.
- 4. Select Reset DICOM Calibration to restore the original (not corrected) DICOM curve.

# 4.18.6 DICOM error threshold

# About DICOM error threshold

The threshold to define the DICOM compliance can be modified in steps of 5% starting from 5 to 30%. When the maximum deviation is not bigger than the selected threshold, the compliance check will be OK.

# To set the DICOM error threshold:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Calibration > Embedded QA menu.
- 3. Enter the DICOM Preferences submenu.
- 4. Set Error Threshold as desired and confirm.

# 4.19 Image scaling

### About image scaling

Enabling image scaling will copy each individual pixel to one or more adjacent pixels so that the size of the displayed image will be a multiple of the original image source video input signal.



Image scaling is only possible when the resolution of your display's video input signal is less than or equal to half the maximum resolution of the display.

### To enable/disable image scaling:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Image Source menu.
- 3. Enter the Scaling submenu.
- 4. Select Enabled/Disabled as desired and confirm.

# 4.20 Image source selection

### About image source selection

By default, your Coronis Fusion 4MP / 6MP automatically detects the connected image sources and attaches them to the correct side of the screen. You can also manually select the image sources and control on which side of the screen they must be displayed.

# To automatically select image sources:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Image Sources menu.
- 3. Enter the *Image Source Selection* submenu.
- 4. Select the Automatic image source selection mode and confirm.

# To manually select image sources:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Image Sources menu.
- 3. Enter the Image Source Selection submenu.
- 4. Select one of the following image source selection modes and confirm:
  - One Image Source: Allows to select one image source to display.
  - Two Image Sources: Displays DisplayPort IN 1 on the left side and DisplayPort IN 2 on the right side
    of the screen.
  - **Expert mode:** Allows to select for the left and right side of the screen which image source to display: DisplayPort IN 1, DisplayPort IN 2 or None.

# 4.21 Grayscale conversion modes



Your Coronis Fusion 4MP / 6MP automatically detects the connected video input signals and applies the correct grayscale conversion settings. Manually selecting a grayscale conversion mode is possible, but then your display's image source selection mode should be set to allow this. Refer to "Image source selection", page 31 to do this.

# About grayscale conversion modes

Grayscale conversion modes specify how color generated on the display controller is converted to grayscale in your display.

The available grayscale conversion modes are:

- No conversion
- Use Red Channel: This mode is intended for grayscale displays where gray is sent over the red channel.
- Use Green Channel: This mode is intended for grayscale displays where gray is sent over the green channel.
- Use Blue Channel: This mode is intended for grayscale displays where gray is sent over the blue channel.

# To manually select a grayscale conversion mode:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Image Sources > Input Settings > DisplayPort 1/2 menu.
- 3. Enter the Grayscale Conversion submenu.
- 4. Select one of the available color conversion modes and confirm.

# 4.22 DisplayPort standard version

# About DisplayPort standard version

The Coronis Fusion 4MP / 6MP supports 2 DisplayPort standard versions: DP V1.1 and DP V1.2, the latter providing a higher video bandwidth.

# To select the DisplayPort standard version

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Image Sources > Input Settings > DisplayPort 1/2 menu.
- 3. Enter the Input Interface Standard Version submenu.
- 4. Select one of the available versions and confirm.



To obtain full resolution and full refresh rate, DP V1.2 should be selected and two DisplayPort video input cables must be connected to the display.

# 4.23 EDID timings

# **About EDID timings**

Following EDID timings are available for your Coronis Fusion 4MP / 6MP:

- **Resolution**: Allows to manually modify the resolution of the image source video input signal.
- Refresh Rate: Allows to manually select the refresh rate of the image source video input signal depending on the maximum refresh rate of the display controller connected to your display.
- Color Depth: Allows to change the color depth to 8 or to 10 bit.

# To manually set EDID timings:

- 1. Bring up the OSD main menu.
- 2. Navigate to the Configuration > Image Sources > Input Settings > DisplayPort 1/2 menu.
- 3. Enter the EDID submenu.
- 4. Select one of the available settings and confirm.

# 4.24 Display info

### About display info

Your display serial number, native resolution, firmware versions, etc. are available in a dedicated submenu of the OSD menu.

### To retrieve info about your display:

- 1. Bring up the OSD main menu.
- 2. Navigate to the About this Display menu to make the information visible on the screen.

# 4.25 Display status

# About display status

The Status submenu of the OSD menu provides info on the current status of your display (runtimes, temperatures, etc.), the status of the connected image sources (video encoding mode, timings, etc.) and the current calibration status of your display (display function, luminance, ALC, etc.).

# To retrieve the status of your display:

- Bring up the OSD main menu.
- Navigate to the Status menu.
- 3. Enter the Display, Image Sources or Calibration submenu as desired.

# 4.26 SteadyColor™

# About SteadyColor

Barco's SteadyColor technology was created to achieve consistency and perceptual linearity in the display of color images. With multiple internal sensors, the display parameters are constantly monitored and adjusted to ensure that the perceptual difference between colors is proportional with their Digital Driving Level (DDL) difference.

# To enable SteadyColor

SteadyColor is controlled via Barco's QAWeb Enterprise software (or the older MediCal QAWeb).

To register to QAWeb Enterprise (or to install the older MediCal QAWeb), see "QAWeb registration", page 13. The QAWeb Enterprise user guide describes how to enable and configure SteadyColor on your display.

# 4.27 Maximum luminance demo

### About maximum luminance demo

The maximum luminance demo sets the luminance of the LCD panel to its maximum value for 60 seconds, or until the demo is manually cancelled. The actually measured luminance is shown on-screen.



While activated, the maximum luminance demo disables the display's uniformity correction and sets the *Color Preset* to *Native White*. When the maximum luminance demo is cancelled, the original settings are restored.

# To activate the maximum luminance demo

- 1. Bring up the OSD main menu.
- Navigate to Enable Service mode.
- **3.** Enter the keycode: 9-0-0-1.
- 4. Enter the Service menu.
- Navigate to the Maximum Luminance demo submenu and confirm. The maximum luminance demo is activated.
- **6.** Press the jog dial to manually cancel the maximum luminance demo, or wait for 60 seconds after which the demo is automatically cancelled.

# Cleaning your display

# 5.1 Cleaning instructions

# To clean the display

Apply a cleaning/disinfecting product to a soft lint-free cloth, such as a microfiber or gauze and rub the display surface thoroughly. In order to be effective, all surfaces must be cleaned for a certain amount of time (ranging from 30 seconds to 2 minutes).

Use a cleaning/disinfecting product that is alcohol-, alkali-, water- or chlorine-based. Common examples are:

- Isopropanol 100%
- Ethanol 70%
- 0.5% Chlorehexidine in 70% ethanol/isopropanol
- Ortho-Phthalaldehyde (OPA) 0.55%
- Haemo-sol, 1% in water
- · 250 ppm Chlorine solution
- 1.0% lodine in 70% ethanol
- 1.6% aqueous ammonia
- "Green soap" (USP)
- 0.5% Chlorehexidine in 70% isopropyl alcohol
- Products similar to optical cleaning liquid
- · Bacillol AF
- Flux
- Sodium hypochlorite 10%

When selecting an alternative cleaning/disinfecting product, it is recommended to always identify the active ingredients. In case of doubt about a certain cleaning product, use plain water.

Do not use any of the following products:

- Alcohol in concentrations > 70%
- Strong alkalis lye, strong solvents
- Acetone
- Toluene
- Acids
- · Detergents containing fluoride
- · Detergents containing ammonia
- Detergents containing abrasives
- · Steel wool
- Sponge with abrasives
- · Steel blades
- · Cloths with steel thread
- Paper-based cloths (e.g. paper towels, facial tissues, toilet paper)



**CAUTION:** Read and follow all instructions on the label of the cleaning product.



**CAUTION:** Take care not to damage or scratch the front glass or LCD. Be careful with rings or other jewelry and do not apply excessive pressure on the front glass or LCD.



**CAUTION:** When a small object or dust is tucked between the front bezel and the LCD surface (for displays without front glass), carefully remove with a soft object such as a plastic card or finger nail. Do not use sharp objects such as paperclips or tweezers to avoid damage to the LCD.



**CAUTION:** Do not apply or spray liquid directly to the display as excess liquid may cause damage to internal electronics. Instead, apply the liquid to a cleaning cloth.

# Repackaging instructions

# 6.1 Repackaging instructions

### To repack your display

1. Put the display in the lowest position and lock the stand locking mechanism.

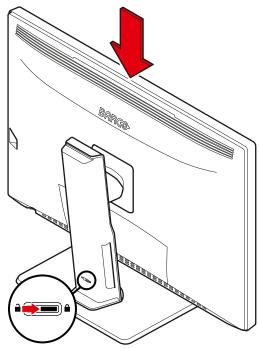


Image 6-1

2. Place the display in the bottom buffer on a stable surface. **Caution:** It takes 2 persons to safely execute this action.

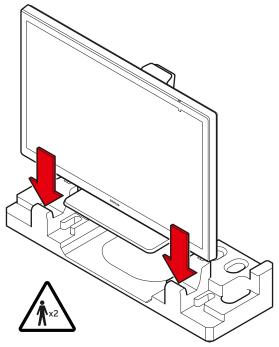


Image 6-2

3. Insert the rear buffer in the bottom buffer.

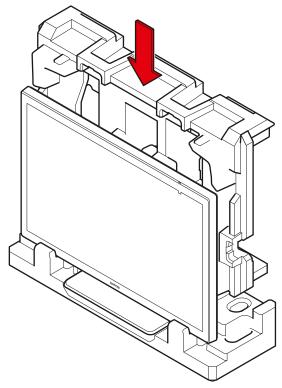


Image 6-3

4. Position the front buffer.

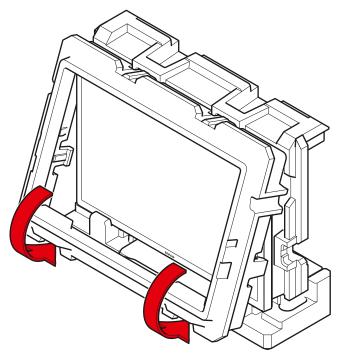


Image 6-4

5. Slide the accessory box(es) and all cables in the dedicated cavities.

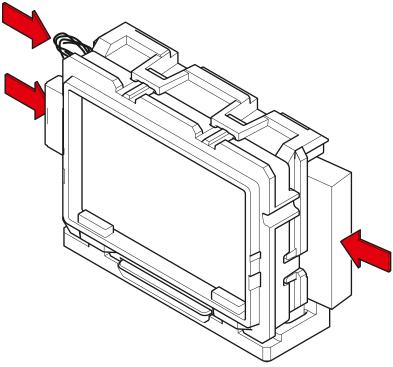


Image 6-5

6. Slide the display and the accessories in the box.

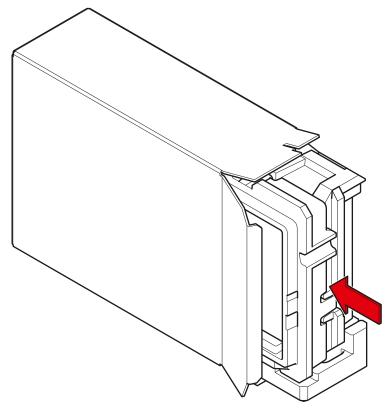


Image 6–6

7. Close and seal the box.

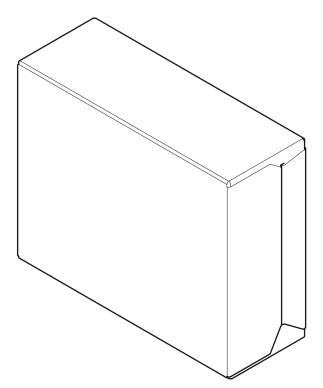


Image 6-7

Repackaging instructions

# Important information

7

# 7.1 Safety information

#### **General recommendations**

Read the safety and operating instructions before operating the device.

Retain safety and operating instructions for future reference.

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

Follow all instructions for operation and use.

#### **Electrical Shock or Fire Hazard**

To prevent electric shock or fire hazard, do not remove cover.

No serviceable parts inside. Refer servicing to qualified personnel.

Do not expose this apparatus to rain or moisture.

#### Modifications to the unit

Do not modify this equipment without authorization of the manufacturer.

#### Type of protection (Electrical)

Equipment with internal power supply: Class I equipment

#### Degree of safety (flammable anesthetic mixture)

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

#### Non-patient care equipment

- Equipment primarily for use in a health care facility that is intended for use where contact with a patient is unlikely (no applied part).
- The equipment shall not be used with life support equipment.
- The user should not touch the equipment, nor its signal input ports (SIP)/signal output ports (SOP) and the
  patient at the same time.

#### Power connection – Equipment with internal power supply

- This equipment must be earthed.
- Power requirements: The equipment must be powered by the AC mains voltage.
- · The equipment should be installed near an easily accessible outlet.
- The equipment is intended for continuous operation.

#### Transient over-voltage

If the device is not used for a long time, disconnect it from the AC inlet to avoid damage by transient over-voltage.

To fully disengage the power to the device, please disconnect the power cord from the AC inlet.

#### **High magnetic environment**

- The device shall not be used in the high magnetic environment of an MRI scanner.
- The installer shall assess the magnetic environment before installation or use of the device.

#### **Power cords**

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

- Use a power cord that matches the voltage of the power outlet, which has been approved and complies
  with the safety standard of your particular country.
- Korea: Use KC certified products; Plug: 250 V~, 16 A; Power cord: 60227 IEC 53, 3G0.75 mm² / 60227 IEC 53, 3G1.0 mm²; Connector: 250 V~, 10 A

#### Water and moisture

Never expose the device to rain or moisture.

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

#### Ventilation

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

#### Installation

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

#### **Malfunctions**

Disconnect the equipment's power cord from the AC inlet and refer servicing to qualified service technicians under the following conditions:

- If the power cord or plug is damaged or frayed.
- If liquid has been spilled into the equipment.
- If the equipment has been exposed to rain or water.
- If the equipment does not operate normally when the operating instructions are followed. Adjust only those
  controls that are covered by the operating instructions since improper adjustment of other controls may
  result in damage and will often require extensive work by a qualified technician to restore the product to
  normal operation.
- If the equipment has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance, indicating a need for service.

#### National Scandinavian Deviations for CL. 1.7.2

Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"

Norway: "Apparatet må tilkoples jordet stikkontakt"

Sweden: "Apparaten skall anslutas till jordat uttag"

## 7.2 Cybersecurity

#### **Hospital IT security**

To prevent unauthorized access to the device, the organization incorporating the Coronis Fusion 4MP / 6MP in their IT network, shall have the necessary state-of-the-art policies, processes, standards and other security measures in place to incorporate, support and protect a medical device into the IT network. This shall include the application of risk management (e.g. by following IEC 80001-1:2010 or equivalent standards).

## 7.3 Environmental information

#### **Disposal Information**

Waste Electrical and Electronic Equipment



This symbol on the product indicates that, under the European Directive 2012/19/EU 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 or your municipal waste disposal service.

For details, please visit the Barco website at: <a href="http://www.barco.com/AboutBarco/weee">http://www.barco.com/AboutBarco/weee</a>

#### **Turkey RoHS compliance**



Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur.

[Republic of Turkey: In conformity with the WEEE Regulation]

#### 中国大陆 RoHS

Chinese Mainland RoHS

根据中国大陆《电器电子产品有害物质限制使用管理办法》(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。

According to the "Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products" (Also called RoHS of Chinese Mainland), the table below lists the names and contents of toxic and/or hazardous substances that Barco's product may contain. The RoHS of Chinese Mainland is included in the MCV standard of the Ministry of Information Industry of China, in the section "Limit Requirements of toxic substances in Electronic Information Products".

零件项目(名称) 有毒有害物质或元素							
Component name	Hazard	Hazardous substances and elements					
	铅 Pb	汞 Hg	镉 Cd	六 <b>价铬</b> Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE	
印制电路配件	Х	0	0	0	0	0	
Printed Circuit Assemblies							
液晶面板	X	0	0	0	0	0	
LCD panel							
外接电(线)缆	Х	0	0	0	0	0	
External Cables							
内部线路	О	О	О	О	О	0	
Internal wiring							
金属外壳	0	0	0	0	0	0	
Metal enclosure							
塑胶外壳	О	О	О	О	О	0	
Plastic enclosure							
散热片(器)	0	0	0	0	О	0	
Heatsinks							
风扇	0	0	0	0	О	0	
Fan							
电源供应器	X	0	0	0	О	0	
Power Supply Unit							
文件说明书	0	0	0	0	0	0	

零件项目(名称)	有毒有害物	有毒有害物质或元素				
Component name	Hazardous	Hazardous substances and elements				
	铅	汞	镉	六 <b>价铬</b>	多溴联苯	多溴二苯醚
	Pb	Hg	Cd	Cr6+	PBB	PBDE
Paper Manuals						
光盘说明书	0	0	0	0	0	0
CD manual						

#### 本表格依据SJ/T 11364的规定编制

This table is prepared in accordance with the provisions of SJ/T 11364.

- 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 GB/T 26572 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 GB/T 26572.
- 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 GB/T 26572 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 GB/T 26572.

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《电子电气产品有害物质限制使用标识要求》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指定产品)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 "Marking for the restriction of the use of hazardous substances in electrical and electronic product" 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 "General guidelines of environment-friendly use period of electronic information products" of Chinese Mainland.



#### 中国RoHS自我声明符合性标志 / China RoHS - SDoC mark

本产品符合《电器电子产品有害物质限制使用管理办法》和《电器电子产品有害物质限制使用达标管理目录》的要求。

This product meets the requirements of the "Management Rule on the Use Restriction of Hazardous Substances in Electrical and Electronic Products" and the "Management Catalogue for the Use Restriction of Hazardous Substances in Electrical and Electronic Products".



绿色自我声明符合性标志可参见电子档文件

The green SDoC mark is visible in the digital version of this document.

# 7.4 Regulatory compliance information

#### Indications for use

The display is intended to be used for displaying and viewing digital images (excluding digital mammography) for review and analysis by trained medical practitioners.

#### Intended usage environment

- The display is not in contact with patients.
- The display is not in the same environment as the patient.
- The display is intended to be used in a dedicated diagnostic reading room.

Caution (USA): Federal law restricts this device to sale by or on the order of a physician. (Details & exemptions are in the Code of Federal Regulations Title 21, 801 Part D).

#### Contra-indications

The device is not intended for digital mammography.

#### Intended users

Barco diagnostic displays are intended to be used for primary diagnosis by trained medical practitioners. The device is initially set up by trained integrators or medical IT staff.

#### **Expected clinical benefits**

The device aids in diagnosing patients.

#### Notice to the user and/or patient

Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.

#### Factory addresses

- Barco NV, President Kennedypark 35, 8500 Kortrijk, Belgium
- · Fimi S.r.I., Via Saul Banfi 1, 21047 Saronno, VA, Italy

#### Manufacturing country

The manufacturing country of the product is indicated on the product label ("Made in ...").

#### Importers contact information

To find your local importer, contact one of Barco's regional offices via the contact information provided on our website (<u>www.barco.com</u>).

#### FCC class B

This device 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 device 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 device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and receiver.
- Connect the device 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**FCC responsible**: Barco Inc., 3059 Premiere Parkway Suite 400, 30097 Duluth GA, United States, Tel: +1 678 475 8000

#### Canadian notice

CAN ICES-001(B) / NMB-001(B)

#### **Brazilian local representative**

BARCO LTDA, Av. Ibirapuera, 2332 - Torre II - 8° andar, Sao Paulo, Brazil

## 7.5 EMC notice

#### **General information**

This device is for use in professional healthcare facility environments only.

With the installation of the device, use only the delivered external cables and power supply or a spare part provided by the legal manufacturer. Using another can result in a decrease of the immunity level of the device.



**WARNING:** Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.



**WARNING:** Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.



**WARNING:** Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Coronis Fusion 4MP / 6MP, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

#### **Electromagnetic emissions**

The Coronis Fusion 4MP / 6MP is intended for use in the electromagnetic environment specified below. The customer or the user of the Coronis Fusion 4MP / 6MP should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – Guidance
RF emissions CISPR 11	Group 1	The Coronis Fusion 4MP / 6MP uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions	Class B	The Coronis Fusion 4MP / 6MP is
CISPR 11		suitable for use in all
Harmonic emissions	Class D	establishments, including domestic
IEC 61000-3-2		establishments and those directly connected to the public low-voltage
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	power supply network that supplies buildings used for domestic purposes.

This Coronis Fusion 4MP / 6MP complies with appropriate medical EMC standards on emissions to, and interference from surrounding equipment. 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.

Interference can be determined by turning the equipment off and on.

If this equipment does cause harmful interference to, or suffer from harmful interference of, surrounding equipment, the user is encouraged to try to correct the interference by one or more of the following measures:

- · Reorient or relocate the receiving antenna or equipment.
- 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 technician for help.

#### Electromagnetic immunity

The Coronis Fusion 4MP / 6MP is intended for use in the electromagnetic environment specified below. The customer or the user of the Coronis Fusion 4MP / 6MP should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 test levels	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/ burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/ output lines	± 2 kV for power supply lines ± 1 kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment
	100 kHz repetition frequency	100 kHz repetition frequency	
Surge IEC61000-4-5	Line to line: ± 0.5 kV, ± 1 kV Line to ground: ± 0.5 kV, ± 1 kV, ± 2 kV	Line to line: ± 0.5 kV, ± 1 kV	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input lines	period at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°	0% residual voltage for 0.5 period at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315°	should be that of a typical commercial or hospital environment. If the user of
IEC 61000-4-11	0% residual voltage for 1 period at 0° 70% residual voltage for 25 periods at 0°	0% residual voltage for 1 period at 0° 70% residual voltage for 25 periods at 0°	the Coronis Fusion 4MP / 6MP requires continued operation during power mains interruptions, it is recommended that the
	Voltage interruptions: 0% residual voltage for 250 periods at 0°	Voltage interruptions: 0% residual voltage for 250 periods at 0°	Coronis Fusion 4MP / 6MP be powered from an uninterruptible power supply or a battery
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	Not applicable <sup>2</sup>	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment
Conducted RF IEC 61000-4-6	3 Vrms (6 Vrms in ISM bands) 150 kHz to 80 MHz	3 Vrms (6 Vrms in ISM bands)	-
Radiated RF	3 V/m	3 V/m	
IEC 61000-4-3	80 MHz to 2.7 GHz		

## Immunity to RF wireless communications equipment

Test frequency (MHz)	Band (MHz)	Service	Modulation	Maximum power (W)	Distance (m)	Immunity test level (V/ m)
385	380 – 390	TETRA 400	Pulse modulation 18 Hz	1.8	0.3	27
450	430 – 470	GMRS 460, FRS 460	FM ± 5 kHz deviation 1 kHz sine	2	0.3	28

 $<sup>2. \</sup>quad \hbox{Coronis Fusion 4MP / 6MP doesn't contain components that are susceptible to magnetic fields.}$ 

Test frequency (MHz)	Band (MHz)	Service	Modulation	Maximum power (W)	Distance (m)	Immunity test level (V/ m)	
710	704 – 787	LTE Band	Pulse	0.2	0.3	9	
745		13, 17	modulation 217 Hz				
780							
810	800 – 960	GSM 800/	Pulse	2	0.3	28	
870		900, TETRA modulation 800, iDEN 18 Hz 820, CDMA 850, LTE Band 5					
930			850, LTE				
1720	1700 – 1990	GSM 1800,	Pulse	2	0.3	28	
1845		CDMA 1900, GSM 1900,		modulation 217 Hz			
1970		DECT, LTE Band 1/3/4/ 25, UMTS					
2450	2400 – 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217 Hz	2	0.3	28	
5240	5100 – 5800		Pulse	0.2	0.3	9	
5500		802.11 a/n	modulation 217 Hz				
5785							

# 7.6 Explanation of symbols

## Symbols on the device

On the device or power supply, you may find the following symbols (nonrestrictive list):

<b>C €</b> 1639	Indicates the device meets the requirements of the applicable EC directives/ regulations.
F©	Indicates compliance with Part 15 of the FCC rules (Class A or Class B).
CYPS28/LY	Indicates the device is approved according to the UL regulations
C UL US	Indicates the device is approved according to the UL regulations for Canada and US

CERTIFIED SAFETY US-CA E352529	Indicates the device is approved according to the UL regulations for Canada and US
D	Indicates the device is approved according to the UL Demko regulations.
<b>(W)</b>	Indicates the device is approved according to the CCC regulations.
VEI	Indicates the device is approved according to the VCCI regulations.
	Indicates the device is approved according to the KC regulations.
9	Indicates the device is approved according to the BSMI regulations.
(PS) E	Indicates the device is approved according to the PSE regulations.
	Indicates the device is approved according to the RCM regulations.
ERE	Indicates the device is approved according to the EAC regulations.
Ronly	Caution: Federal law (United Stated of America) restricts this device to sale by or on the order of a licensed healthcare practitioner.
IS 13252 (Part 1) IEC 60950-1  R-XXXXXXXXX www.bis.gov.in	Indicates the device is approved according to the BIS regulations.
INMETRO	Indicates the device is approved according to the INMETRO regulations.
• • •	Indicates the USB connectors on the device.
P	Indicates the DisplayPort connectors on the device.
<del></del>	

	Indicates the legal manufacturer.
	Indicates the manufacturing date.
	Indicates the entity importing the medical device into the locale.
хх	Indicates the temperature limitations <sup>3</sup> for the device to safely operate within specs.
MD	Indicates that the device is a Medical Device.
SN	Indicates the device Serial Number.
REF	Indicates the device part number or catalogue number.
UDI	Indicates the Unique Device Identifier.
EC REP	Indicates the Authorised Representative for the European Union.
CH REP	Indicates the Authorised Representative for Switzerland.
<u></u>	Warning: dangerous voltage
<u></u>	Caution
i	Consult the Instructions For Use.
elFU indicator	Consult the Instruction For Use on the website address that is provided as eIFU indicator.
	Indicates this device must not be thrown in the trash but must be recycled, according to the European WEEE (Waste Electrical and Electronic Equipment) directive.
	Indicates Direct Current (DC).

<sup>3.</sup> Values for xx and yy can be found in the technical specifications paragraph.

$\sim$	Indicates Alternating Current (AC).
Ch	Stand-by
$\bigvee$	Equipotentiality
or	Protective earth (ground)

### Symbols on the box

On the box of the device, you may find the following symbols (nonrestrictive list):

Ţ	Indicates a device that can be broken or damaged if not handled carefully when being stored.
<b>*</b>	Indicates a device that needs to be protected from moisture when being stored.
<u> </u>	Indicates the storage direction of the box. The box must be transported, handled and stored in such a way that the arrows always point upwards.
n or L	Indicates the maximum number of identical boxes which may be stacked on each other, where "n" is the limiting number.
or (x-yy Kg)	Indicates the weight of the box and that it should be carried with two persons.
<b>*</b>	Indicates that the box should not be cut with a knife, a cutter or any other sharp object.
- xx-c	Indicates the temperature limits <sup>4</sup> to which the device can be safely exposed when being stored.
	Indicates the range <sup>4</sup> of humidity to which the device can be safely exposed when being stored.
ууу кРа	Indicates the range <sup>4</sup> of atmospheric pressure to which the device can be safely exposed when being stored.

<sup>4.</sup> Values for xx and yy can be found in the technical specifications paragraph.

# 7.7 Legal disclaimer

#### Disclaimer notice

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

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#### Patent protection

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#### **Product Security Incident Response**

As a global technology leader, Barco is committed to deliver secure solutions and services to our customers, while protecting Barco's intellectual property.

When product security concerns are received, the product security incident response process will be triggered immediately. To address specific security concerns or to report security issues with Barco products, please inform us via contact details mentioned on <a href="https://www.barco.com/psirt">https://www.barco.com/psirt</a>.

To protect our customers, Barco does not publicly disclose or confirm security vulnerabilities until Barco has conducted an analysis of the product and issued fixes and/or mitigations.

## 7.8 Open source license information

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  license. You are responsible for your own additions, changes or modifications without any recourse or
  claim towards Barco whatsoever. You further acknowledge that any such additions, changes or
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  warranties, software updates, fixes, maintenance, access or such similar abilities, without any recourse or
  claim towards Barco whatsoever.
- Barco offers to provide the corresponding source code, and shall make the corresponding source code
  available to you via email or download link, except where the applicable license entitles you to require
  Barco to provide you the corresponding source code on a tangible medium, in which case Barco will
  charge you for the actual costs of performing such distribution, such as the cost of media, shipping and
  handling. You may exercise this option upon written request to Barco N.V, attn. legal department,
  Beneluxpark 21, 8500 Kortrijk (Belgium). This offer is valid for a period of three (3) years from the date of
  the distribution of this product by Barco.

# 7.9 Technical specifications

#### MDCC-4430

	IDO.
Screen technology	IPS
Active screen size (diagonal)	772 mm (30.4")
Active screen size (H x V)	655 x 410 mm (25.8 x 16.1")
Aspect ratio (H:V)	16:10
Resolution	Native 4MP (2560 x 1600 pixels) Configurable to 2 x 2MP+ (1280 x 1600 pixels) Configurable to 2 x 2MP (1200 x 1600 pixels)
Pixel pitch	0.256 mm
Color imaging	Yes
Gray imaging	Yes
Bit depth	30 bit
Viewing angle (H, V)	178°
Uniformity correction	Color PPU
SteadyColor Calibration	Yes, when used as system with MXRT-x600 display controller or later, using Barco MXRT driver 10.171.1.0 or later and with QAWeb Enterprise 2.2 or later.
Ambient light presets	Yes, reading room selection
Ambient light sensor	Yes
Front sensor	Yes, I-Guard
Maximum luminance (panel typical)	1050 cd/m <sup>2</sup>
DICOM calibrated luminance	600 cd/m²
Contrast ratio (panel typical)	2000:1
Response time ((Tr + Tf)/2) (typical)	18 ms

Housing color	Black / White				
Video input signals	2x DisplayPort 1.2				
Video output signals	1x DisplayPort (MST)				
USB ports	1x USB 2.0 upstream (endpoint) 2x USB 2.0 downstream 1x USB 2.0 downstream with high-power charging functionality				
Power rating	100-240 Vac, 50/60 Hz, 3.6-1.6 A				
Power consumption	75 W (nominal) @ calibrated luminance of 600 cd/m² < 0.5 W (hibernate) < 0.5 W (standby)				
Dimensions with stand (W x H x D)	714 x 524~624 x 240 mm				
Dimensions w/o stand (W x H x D)	714 x 478 x 74 mm				
Dimensions packaged (W x H x D)	800 x 650 x 295 mm				
Net weight with stand	MDCC-4430: 17.7 kg MDCC-4430 NC: 16.3 kg				
Net weight w/o stand	MDCC-4430: 13.1 kg MDCC-4430 NC: 11.7 kg				
Net weight packaged	MDCC-4430: 22.3 kg (without optional accessories) MDCC-4430 NC: 20.9 kg (without optional accessories)				
Tilt	-5° to +25°				
Swivel	-30° to +30°				
Pivot	N/A				
Height adjustment range	100 mm				
Mounting standard	VESA (100 mm)				
Screen protection	MDCC-4430: Protective, anti-reflective glass cover MDCC-4430 NC: No cover				
Recommended modalities	All digital images, except digital mammography				
Certifications	FDA 510(k) K191845 for General Radiology CE1639 (Medical Device) CCC (China) KC (Korea) BIS (India) EAC (Russia, Kazakhstan, Belarus, Armenia and Kyrgyzstan) INMETRO (Brazil) Safety specific: IEC 60950-1:2005 + A1:2009 EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013 IEC 60601-1:2005 + A1:2012 EN 60601-1:2006 + A1:2013 + A12:2014 ANSI/AAMI ES 60601-1:2005 + R1:2012				

Complied access and a	CAN/CSA C22.2 No. 60601-1:2014  EMI specific: IEC 60601-1-2:2014 (ed.4) EN 60601-1-2:2015 (ed.4) FCC part 15 Class B ICES-001 Level B VCCI (Japan) Environmental: China Energy Label EU RoHS China RoHS REACH Canada Health WEEE Packaging Directive			
Supplied accessories	User guide Documentation disc System sheet Video cables Mains cables USB cable			
Optional accessories	Graphics board Touch pad			
QA software	QAWeb			
Warranty	5 years, including 40000 hrs backlight warranty			
Operating temperature	0 °C to 35 °C (10 °C to 30 °C within specs)			
Storage temperature	-20 °C to 60 °C			
Operating humidity	20% to 85% (non-condensing)			
Storage humidity	20% to 85% (non-condensing)			
Operating pressure	70 kPa minimum			
Storage pressure	50 to 106 kPa			

#### **MDCC-6530**

Screen technology	IPS			
Active screen size (diagonal)	772 mm (30.4")			
Active screen size (H x V)	654 x 409 mm (25.8 x 16.1")			
Aspect ratio (H:V)	16:10			
Resolution	Native 6MP (3280 x 2048 pixels) Configurable to 2 x 3MP+ (1640 x 2048 pixels) Configurable to 2 x 3MP (1536 x 2048 pixels)			
Pixel pitch	0.1995 mm			
Color imaging	Yes			

Gray imaging	Yes				
Bit depth	30 bit				
Viewing angle (H, V)	178°				
Uniformity Technology	Color PPU				
SteadyColor Calibration	Yes, when used as system with MXRT-x600 display controller or later, using Barco MXRT driver 10.171.1.0 or later and with QAWeb Enterprise 2.2 or later.				
Ambient light presets	Yes, reading room selection				
Ambient light sensor	Yes				
Front sensor	Yes, I-Guard				
Maximum luminance (panel typical)	1050 cd/m <sup>2</sup>				
DICOM calibrated luminance	600 cd/m²				
Contrast ratio (panel typical)	2000:1				
Response time ((Tr + Tf)/2) (typical)	18 ms				
Housing color	Black / White				
Video input signals	2x DisplayPort 1.2				
Video output signals	1x DisplayPort (MST)				
USB ports	1x USB 2.0 upstream (endpoint) 2x USB 2.0 downstream 1x USB 2.0 downstream with high-power charging functionality				
Power rating	100-240 Vac, 50/60 Hz, 3.6-1.6 A				
Power consumption	80 W (nominal) @ calibrated luminance of 600 cd/m² < 0.5 W (hibernate) < 0.5 W (standby)				
Dimensions with stand (W x H x D)	714 x 524~624 x 240 mm				
Dimensions w/o stand (W x H x D)	714 x 478 x 74 mm				
Dimensions packaged (W x H x D)	800 x 650 x 295 mm				
Net weight with stand	MDCC-6530:17.7 kg MDCC-6530 NC: 16.3 kg				
Net weight w/o stand	MDCC-6530: 13.1 kg MDCC-6530 NC: 11.7 kg				
Net weight packaged	MDCC-6530: 22.3 kg (without optional accessories) MDCC-6530 NC: 20.9 kg (without optional accessories)				
Tilt	-5° to +25°				
Swivel	-30° to +30°				
Pivot	N/A				

Height adjustment range	100 mm				
Mounting standard	VESA (100 mm)				
Screen protection	MDCC-6530: Protective, anti-reflective glass cover MDCC-6530 NC: No cover				
Recommended modalities	All digital images, except digital mammography				
Certifications	FDA 510(k) K191845 for General Radiology CE1639 (Medical Device) CCC (China) KC (Korea) BIS (India) EAC (Russia, Kazakhstan, Belarus, Armenia and Kyrgyzstan) INMETRO (Brazil) Safety specific: IEC 60950-1:2005 + A1:2009 EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013 IEC 60601-1:2005 + A1:2012 EN 60601-1:2005 + A1:2012 EN 60601-1:2006 + A1:2013 + A12:2014 ANSI/AAMI ES 60601-1:2005 + R1:2012 CAN/CSA C22.2 No. 60601-1:2014 EMI specific: IEC 60601-1-2:2014 (ed.4) EN 60601-1-2:2015 (ed.4) FCC part 15 Class B ICES-001 Level B VCCI (Japan) Environmental: China Energy Label EU ROHS China RoHS REACH Canada Health WEEE Packaging Directive				
Supplied accessories	User guide Documentation disc System sheet Video cables Mains cables USB cable				
Optional accessories	Graphics board Touch pad				
QA software	QAWeb				
Warranty	5 years, including 40000 hrs backlight warranty				
Operating temperature	0 °C to 35 °C (10 °C to 30 °C within specs)				
Storage temperature	-20 °C to 60 °C				
Operating humidity	20% to 85% (non-condensing)				
<u> </u>	L				

Storage humidity	20% to 85% (non-condensing)		
Operating pressure 70 kPa minimum			
Storage pressure	50 to 106 kPa		

Important information



