Coronis Fusion 4MP / 6MP

User Guide

MDCC-4330, MDCC-6430

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BARCO

Visibly yours

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1. WELCOME!

1.1 About the product

Overview

Thank you for choosing this Coronis Fusion 4MP / 6MP!

Coronis Fusion 4MP / 6MP is an ingenious PACS display system designed to further enhance flexibility and productivity in diagnostic imaging. Featuring the industry's first 30-inch color LCD that can be used as two seamless heads or one wide-screen display, Coronis Fusion 4MP / 6MP offers you the freedom to organize your workspace just the way you want it. It allows you to read CT, MR, cath and echo cardiogram images, or any other combination, side by side on a single diagnostic screen. Coronis Fusion 4MP / 6MP features the latest, breakthrough In-Plane Switching (IPS) LCD technology. This technology brings the most advanced LCD viewing characteristics on the market, setting new standards for brightness and contrast, even from a wide viewing angle. Use the instructions in this guide to install your Coronis Fusion 4MP / 6MP display and discover all these interesting features yourself!

CAUTION: Read all the important safety information before installing and operating your Coronis Fusion 4MP / 6MP. Please refer to the dedicated chapter in this user guide.

1.2 What's in the box

Overview

Your Coronis Fusion 4MP / 6MP comes with:

- this Coronis Fusion 4MP / 6MP user guide
- a documentation CD
- a system DVD
- two DisplayPort cables *
- a USB cable
- a set of AC power cords
- an external power supply

* If you ordered your display together with a Barco display controller that has DVI outputs, the box contains two DVI cables.

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

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

2. PARTS, CONTROLS AND CONNECTORS

2.1 Display front view

Overview

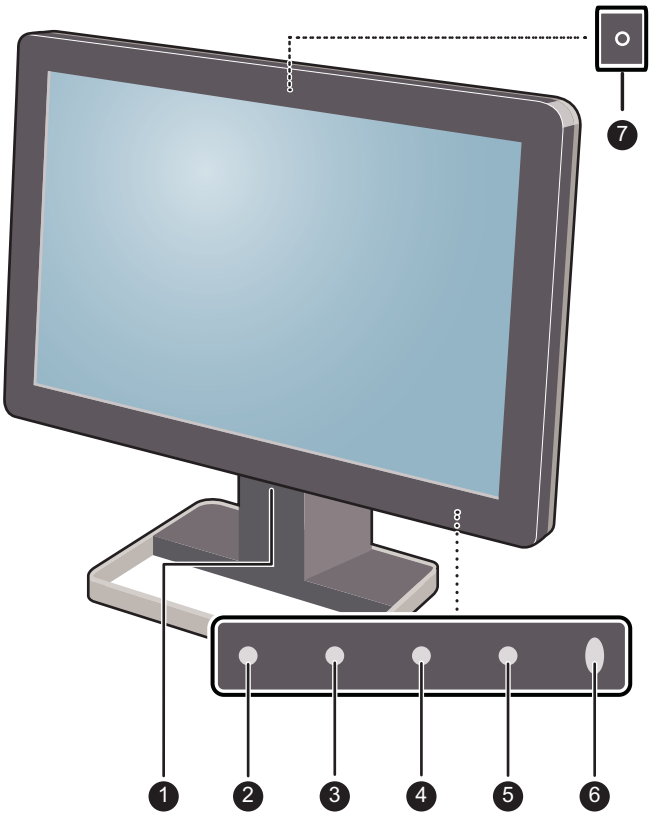


Image 2-1
Front view

1. USB downstream connector
2. Left key
3. Right key
4. Menu key
5. Standby key
6. Power LEDs
7. Ambient light sensor

The key icons are displayed above the keys, adapted to the function that it is used for (menu dependent). See "Navigating through the OSD menus", page 19.

2.2 Display rear view

Overview

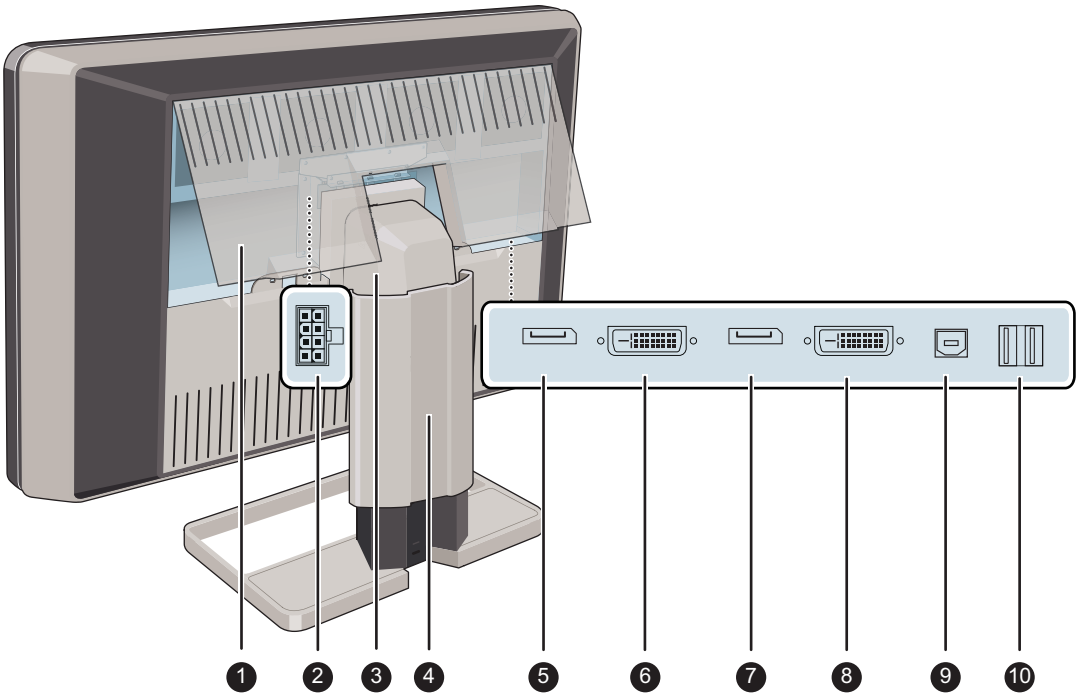


Image 2-2
Rear view

1. Connector compartment cover
2. +24 VDC power input
3. Neck cover
4. Display stand cover
5. DisplayPort 2 video input
6. DVI 2 video input
7. DisplayPort 1 video input
8. DVI 1 video input
9. USB upstream connector
10. USB downstream connectors

3. DISPLAY INSTALLATION

Prior to installing your Coronis Fusion 4MP / 6MP and connecting all necessary cables, make sure to have a suitable display controller physically installed in your computer. If you are using a Barco display controller, please consult the user guide delivered with it to do this.

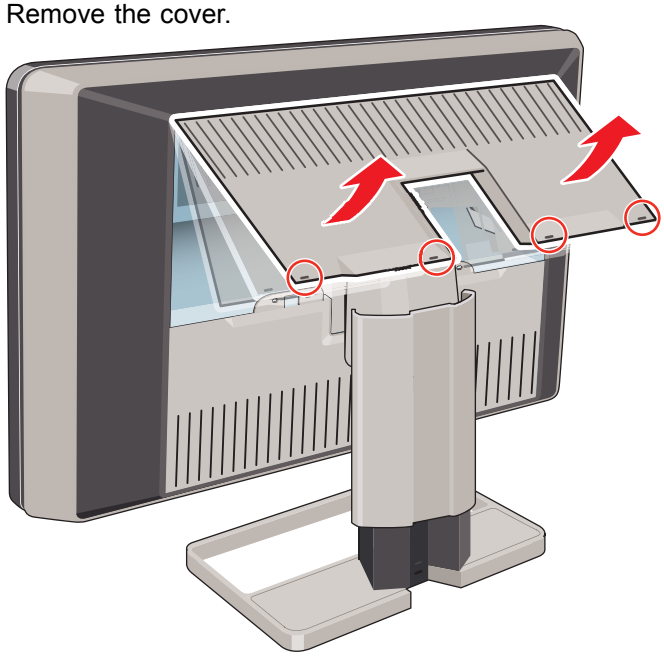
For a list of compatible display controllers, please refer to the latest version of the compatibility matrix available on my.barco.com (MyBarco > My Support > Healthcare > Compatibility Matrices > Barco Systems Compatibility Matrices).

3.1 Removing the covers

The connector compartment cover should be removed to get access to the connectors.

To remove the connector compartment cover

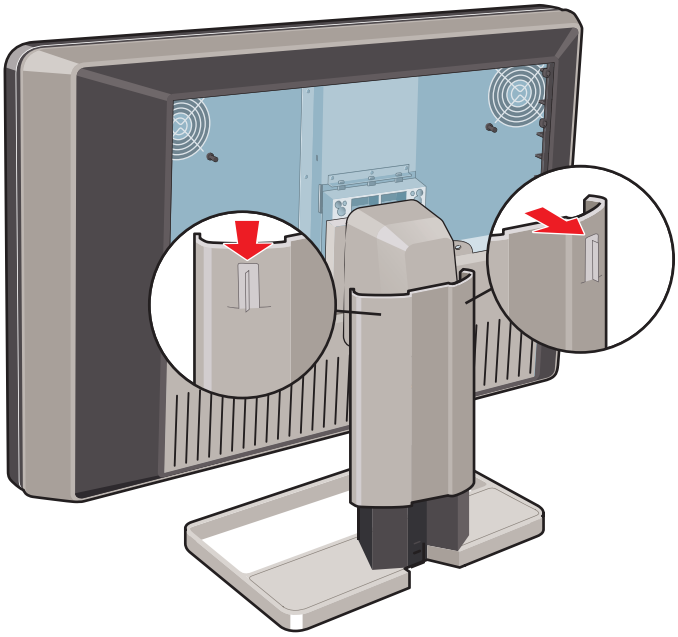
1. Gently lift the clips at one of the handles of the connector compartment cover to release that side of the cover.
2. Do the same at the other side of the cover.
3. Remove the cover.



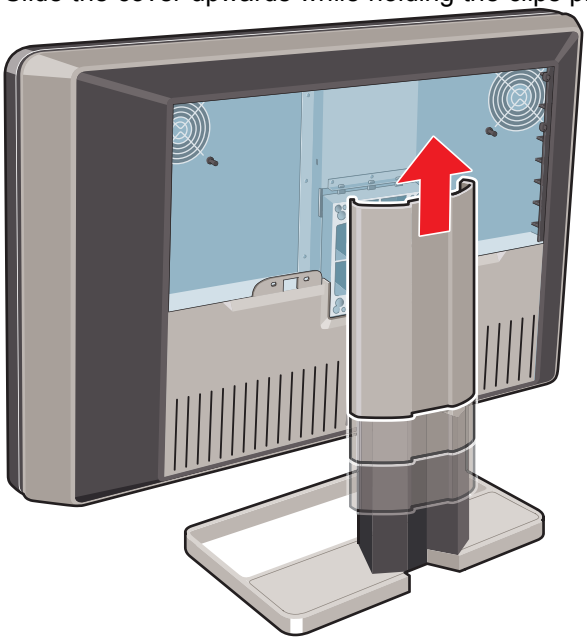
The display stand cover should be removed to get access to the cable routing channel.

To remove the display stand cover

1. Gently press and hold the clips at the inside top of the cover.



2. Slide the cover upwards while holding the clips pressed.

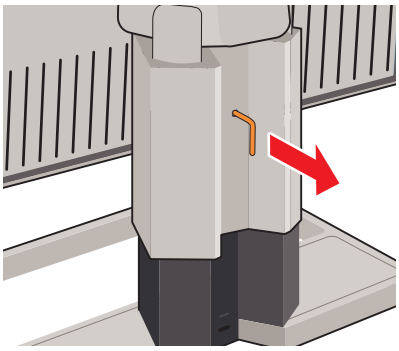


3.2 Unlocking the height mechanism

In the factory, the height-positioning system in the display stand is locked with a red hook to prevent damage during transportation. You'll have to remove this hook before adjusting your display height position.

To remove the hook:

1. Position the display with its rear side facing you.
2. While holding the display panel pushed down, pull out the red hook in the display stand.



3. Keep the clip in the dedicated hole in case the display needs to be shipped later.

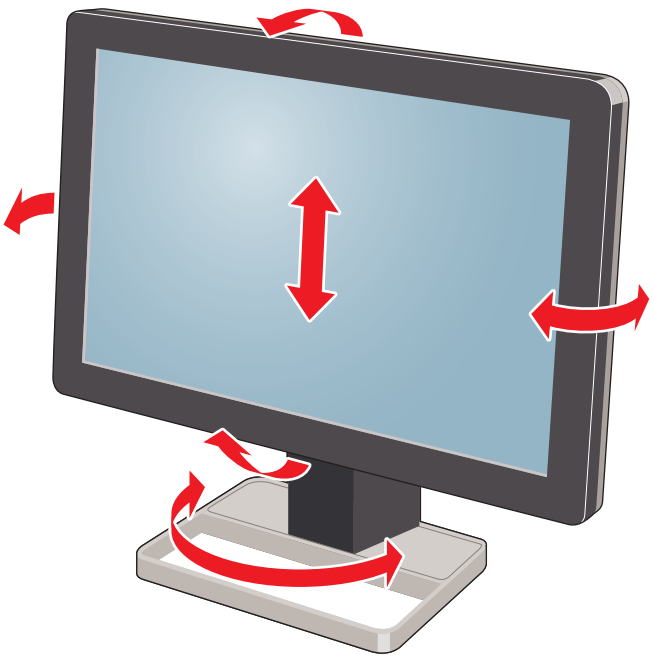
To retain the hook for possible future transportation, insert the short, red end of the hook back into the stand of your display.

3.3 Adjusting the display position

Now that the height-positioning system of your display is unlocked, you can adjust the display position.

To adjust the display position

1. Tilt, swivel, raise and lower the display as desired.



CAUTION: Do not try to pivot your display when attached to the stand. Trying to do so could cause serious damage to your display and its stand.

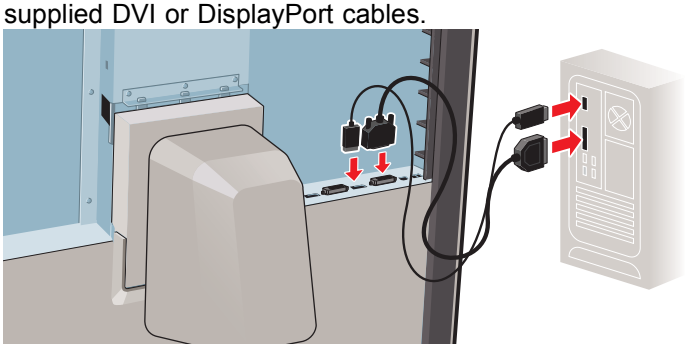
3.4 Connecting the signal cables

To get access to the connectors, remove the connector compartment cover. See "Removing the covers", page 7 .

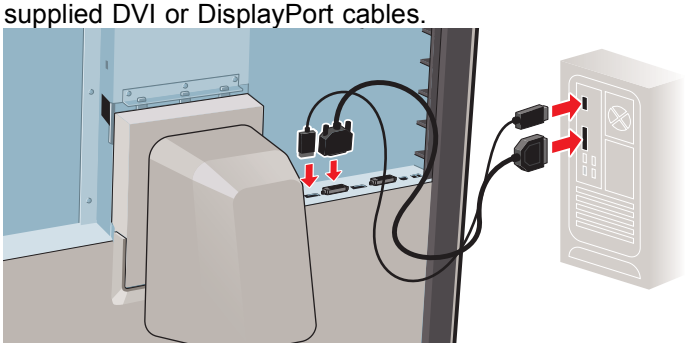
Each side of your display can have a different video input connected (one side can have DVI connected while the other side has DisplayPort connected). Both display sides can have the same video input connected as well but only one video input is allowed on each side of your display.

To connect the signal cables to the display:

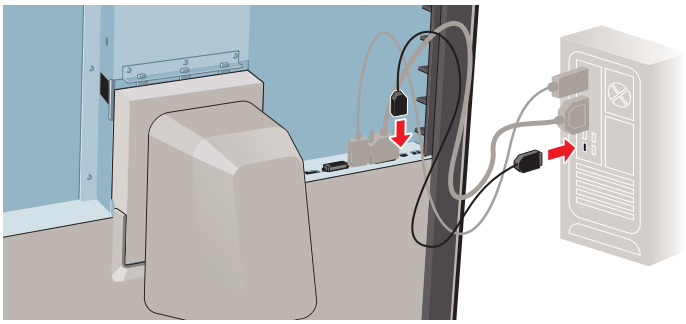
1. Connect one head of the display controller to the DVI 1 or DisplayPort 1 connector with one of the supplied DVI or DisplayPort cables.



2. Connect another head of the display controller to the DVI 2 or DisplayPort 2 connector with one of the supplied DVI or DisplayPort cables.



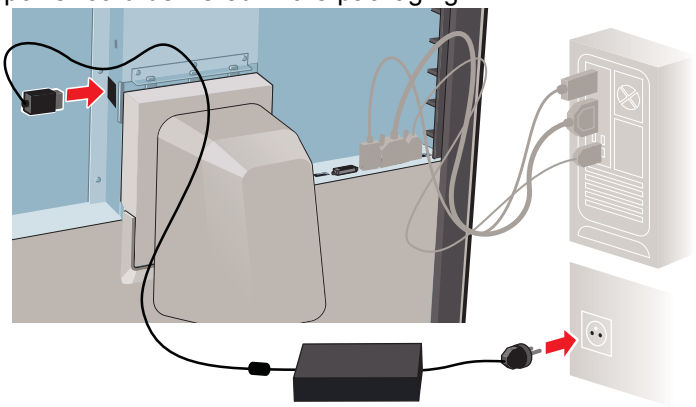
3. If you want to make use of your display's USB downstream connectors, connect a PC USB downstream connector to the display's USB upstream connector by means of the supplied USB 2.0 cable.



3.5 Connecting the power cable

To connect the power cable to the display:

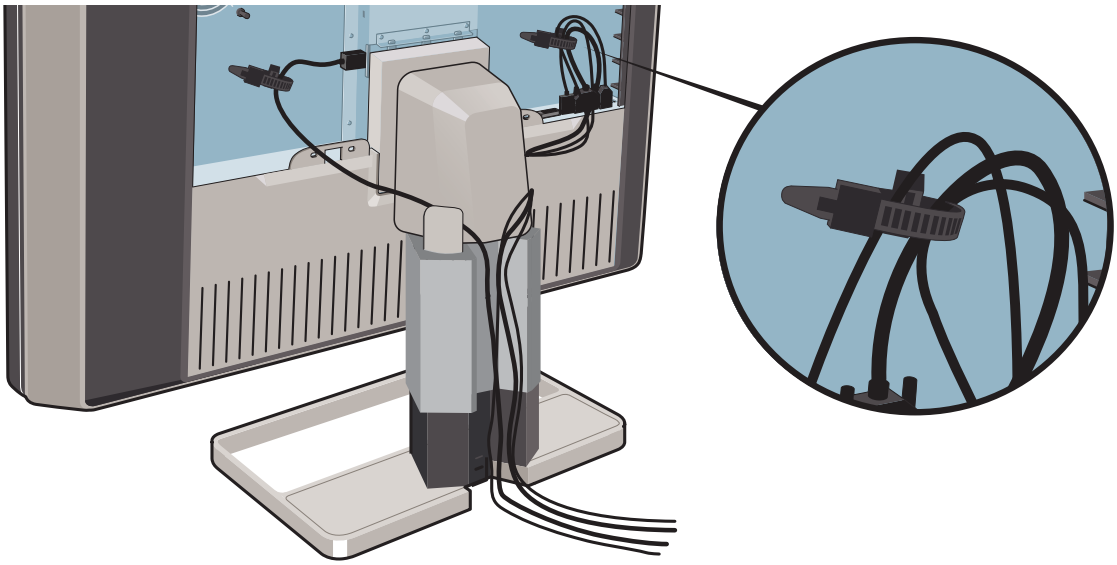
1. Connect the supplied external DC power supply to the +24 VDC power input of your Coronis Fusion 4MP / 6MP display.
2. Plug the other end of the external DC power supply into a grounded power outlet by means of the proper power cord delivered in the packaging.



3.6 Routing the cables

To route the cables

1. Route all connected cables through the cable routing channel in the stand of your display.



Tip: *The cable straps at the inside of the connector compartment allow you to fix the cables for better shielding of the cables.*

3.7 Re-attaching the covers

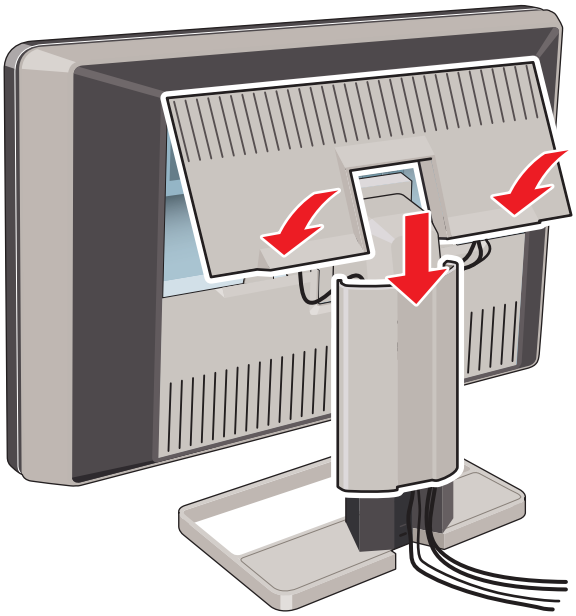
To re-attach the display stand cover

1. Slide the display stand cover downward. You'll hear a "click" sound of the cover's clips when the display stand cover is in position.

Pay attention that all cables stay in the cable channel while re-attaching the cover.

To re-attach the connector compartment cover

1. Slide the cover's top in position and then push the cover's bottom. You'll hear a "click" sound of the cover's clips when the connector compartment cover is in position.



3.8 VESA-mount installation

WARNING: Use an arm that is approved by VESA (according to the VESA 100 mm standard).

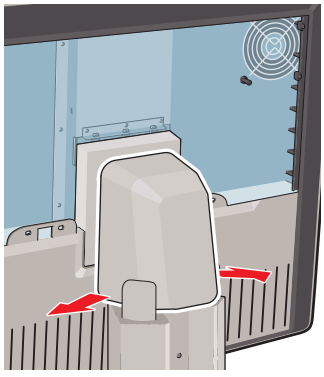
Use an arm that can support the weight of the display. Refer to the technical specifications of this display for the applicable weight.

CAUTION: You should mount the panel in landscape position. Portrait position is possible but not supported.

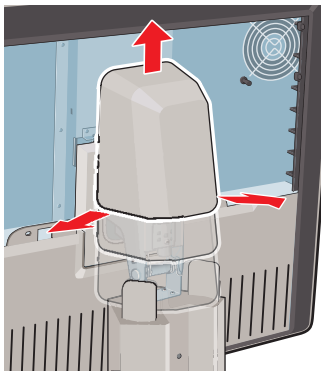
Overview

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.

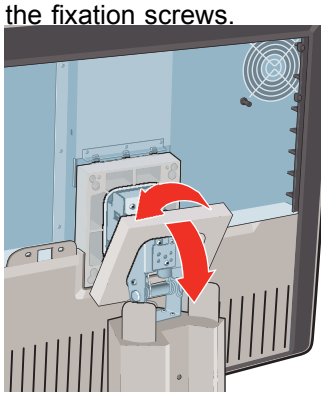
1. Gently pull open both lower sides of the cover.



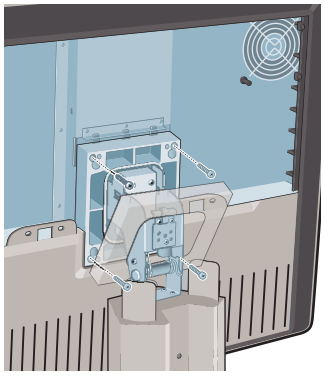
2. Slide the cover upwards while holding the lower sides pulled open.



3. Lift the plastic frame that covers the fixation of the panel to the stand. Turn it for 45 degrees to uncover the fixation screws.



4. Unscrew the four fixation screws fixing the panel to the stand.



5. Attach the panel firmly to the arm using 4 screws M4 x 10 mm.

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 approved handle and use this to move the display.

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

3.9 First time starting up

Overview

You are now ready to start up your Coronis Fusion 4MP / 6MP for the first time.

1. Switch on your Coronis Fusion 4MP / 6MP as described in "Standby switching", page 18.
2. Turn on the computer connected to your display.

If you have properly installed your display and display controller, the Windows start-up messages will appear once the boot procedure is finished.

Your Coronis Fusion 4MP / 6MP display will be running in a basic video mode at a default refresh rate when first time starting up. If you are using a Barco display controller, please consult the dedicated user guide available on the system CD to install the drivers, software and documentation. When this is done, your display will automatically detect the connected video input signal(s) and apply the correct video mode and refresh rate.

4. DAILY OPERATION

4.1 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 “Power Options Properties” in the “Control Panel”.

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.

To learn more about LCD technology and missing pixels, consult the dedicated white papers available at www.barco.com/healthcare.

Enhance user comfort

Every Barco multi-head display system is color matched with the highest 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

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

Barco recommends to install MediCal QAWeb Agent and apply the default QAWeb policy at least. This policy includes calibration on regular intervals. Connecting to MediCal QAWeb Server offers even more possibilities.

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

4.2 Key indicator lights

About the key indicator lights

By default, the indicator lights of the keys will be dimmed which makes the keys unavailable at that moment. To make the keys illuminate and available for further actions touch one of the keys. As a result, all keys will be illuminated and are now available for further actions. However, if no further actions are taken within the following 5 seconds, the keys will dim again.

The key auto-dim function can be disabled in the OSD menus. Please refer to "Key indicator lights", page 18 for detailed instructions on how to do this.

4.3 Standby switching

About standby switching

The connected power supply also provides a switch that can be used to turn the power completely off. To use the display, please make sure to switch on this power supply. This can be done by pushing the on/off switch on the power supply into the " | " position.

Switching on the display while it is in standby mode or vice versa can be done by:

1. Illuminate the keys as previously described.
2. While the keys are illuminated, touch the standby key (right button) for approximately 2 seconds.

As a result, the display will switch on or will switch to standby mode. When the display is **switched on**, the power LED is **white**. When the display is in **standby mode**, the power LED is **orange**.

The power LED can be disabled in the OSD menus. Please refer to "Power status indicator light", page 21 for detailed instructions on how to do this.

In case of a power outage recovery, your display will always start-up in the power mode it was in before the power interruption (i.e. standby or on). This protects your display against inadvertent image retention problems.

4.4 Bringing up the OSD menus

How to bring up the OSD menus

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.

Bringing up the OSD menus can be done by:

1. If not already done so, switch on the display as previously described.
2. Illuminate the keys as previously described.
3. While the keys are illuminated, touch the menu key.

As a result, the OSD main menu comes up in the bottom right corner of the screen. However, if no further actions are taken within the following 90 seconds, the OSD will disappear again.

The OSD menu auto-exit function can be disabled in the OSD menu. Please refer to "OSD menu automatic close function", page 21 for detailed instructions on how to do this.

4.5 Navigating through the OSD menus

How to navigate through the OSD menus

Navigating through the OSD menus can be done by:

- Use the left/right keys to move through the (sub)menus, change values or make selections.
- To go into a submenu or confirm adjustments and selections, use the menu key.
- Use the standby key to cancel adjustments or exit a (sub)menu.
- Exit all OSD menus at once by touching the standby key for approximately 2 seconds.

The key icons are displayed above the keys, adapted to the function that it is used for (menu dependent).

Overview key icons

Left, Right

Menu

Enter

Cancel

Standby (IEC 60417–5009)

5. ADVANCED OPERATION

5.1 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.
4. Select one of the available languages and confirm.

5.2 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.

5.3 Power status indicator light

About the power status indicator light

By default, when the display is switched on, the power status indicator light is dimmed. This behavior can be changed so that the power status indicator light will be **white** when the display is switched on.

When the display is in stand-by mode, the power status indicator light will always turn orange, even when the power status indicator light is disabled.

To enable/disable the power status indicator light:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Indicator Lights* menu.
3. Enter the *Power Status* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.4 Key indicator lights

About the key indicator lights

By default, after lighting up, the key indicator lights will dim again if no further actions are taken within the following 5 seconds. However, this behavior can be changed so that the key indicator lights are always on or always off.

To configure the key indicator lights

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Indicator Lights* menu.
3. Enter the *Keys* submenu.
4. Select *Automatic/Always On/Always Off* as desired and confirm.

5.5 Power lock function

About the power lock function

By enabling the power lock function, the Coronis Fusion 4MP / 6MP is forced to remain switched on. This means that it can't be switched to stand-by mode manually until the power lock function is disabled again.

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.

5.6 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 properties" window of your workstation.

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

When DPMS mode is enabled on your display, an additional OSD power saving function becomes available: hibernate. Please refer to "Hibernate", page 23 for more information on hibernation and how to enable this function.

To enable/disable DPMS mode on your display:

1. 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.

5.7 Hibernate

About hibernate

Enabling hibernation will not only switch off the backlight but will also force the display to disable other functionalities so that power consumption is further reduced to a minimum. This happens after a specific period of time which can be manually adjusted.

Hibernate can only be enabled on your display when the DPMS mode is enabled first. Therefore, please refer to "DPMS mode", page 22 to do this.

To enable/disable hibernation on your display:

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 specify the hibernate timeout:

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

5.8 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 DICOM calibrated luminance value is available in the technical specifications table. The guaranteed backlight lifetime is valid for this setting.

5.9 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 temperature setting, you will be able to manually define the X and Y coordinates or the display color temperature in separate submenus.
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.

5.10 Color temperature

About color temperature:

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

Color temperature can only be changed on your display when color presets is set to user. Therefore, please refer to "Color presets", page 24 to do this.

To change the color temperature:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Color Settings* menu.
3. Enter the *Color Definition* submenu.
4. Select Color Temperature and confirm.
5. Enter the *Color Temperature* submenu.
6. Set the Temperature value as desired and confirm.

5.11 Color coordinates

About color coordinates:

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

Color coordinates can only be changed on your display when color presets is set to user. Therefore, please refer to "Color presets", page 24 to do this.

To change the color coordinates:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Color Settings* menu.
3. Enter the *Color Definition* submenu.
4. Select Color Coordinates and confirm.
5. Enter the *x and/or y* submenu.
6. Set the coordinate value for x and/or y as desired and confirm.

5.12 Viewing modes

About viewing modes

The Coronis Fusion 4MP / 6MP can be used in two 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.

To quickly switch the viewing mode without having to enter the OSD menu, touch the left and right key (the two leftmost buttons) at the same time during normal operation.

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

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.

5.13 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.

Native	If you select Native, the native panel behavior will not be corrected.
Dynamic Gamma 1.8 Dynamic Gamma 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.
User	This display function will be automatically selected when display functions are defined by MediCal QAWeb.
Gamma 1.8 Gamma 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.

To select a display function:

1. 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.

5.14 Ambient Light Compensation (ALC)

About ALC

Ambient Light Compensation (ALC) can only be enabled on your display when the DICOM display function is selected. Therefore, please refer to "Display functions", page 25 to correctly set the display function.

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 27.

To enable/disable ALC:

1. 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.

5.15 Reading rooms

About reading rooms

Reading rooms can only be selected when the DICOM display function is selected. Therefore, please refer to "Display functions", page 25 to correctly set the display function.

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 26 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.

5.16 Continuous ALC

About Continuous ALC

Continuous ALC can only be selected when the DICOM display function is selected. Therefore, please refer to "Display functions", page 25 to correctly set the display function.

Enabling continuous ALC will continuously recalculate the DICOM display function taking the averaged ambient light into account.

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.

5.17 Embedded QA

Overview

- About Embedded QA
- DICOM status report
- DICOM compliance check
- DICOM calibration
- Reset DICOM calibration
- DICOM error threshold

5.17.1 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 MediCal QAWeb?

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

Although Embedded QA is a reliable option to perform a simple calibration or compliance test, Barco still highly recommends MediCal QAWeb as the solution of choice for calibration and QA. Medical 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 MediCal QAWeb Agent acts as the master for all supported displays from the moment it is installed and running. MediCal QAWeb Agent will take over from Embedded QA and overwrite any settings which were applied by Embedded QA.

5.17.2 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 backlight 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: Backlight runtime elapsed since latest calibration, display function, ambient light compensation, 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.

5.17.3 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.
2. Navigate to the *Configuration* > *Calibration* > *Embedded QA* menu.
3. Select *DICOM compliance check* to start the compliance check.
   Warning:*Pressing a key during the compliance check will abort the check.*

5.17.4 DICOM calibration

About DICOM calibration

The DICOM calibration will add a correction to the current DICOM curve to approach the perfect DICOM curve as good 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.*

5.17.5 Reset DICOM calibration

About reset DICOM calibration

It is possible to restore the original (not corrected) 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.

5.17.6 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 *DICOM error threshold* as desired and confirm.

5.18 Image scaling

About image scaling

Enabling image scaling will multiply 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.

5.19 Image source selection modes

About image source selection modes

Your Coronis Fusion 4MP / 6MP automatically detects the number of video input signals connected, attaches them to the correct display side and applies the correct video settings to it (resolution, video encoding mode, refresh rate,...). However, it may be needed to manually select the video input signal(s) to be

displayed on a certain display side or to adjust certain video settings yourself. The start to this is selecting one of the following image source selection modes available for your display:

Automatic	In this mode, your display automatically detects the connected video input signals, attaches them to the correct display side and applies the correct video settings to it (resolution, video encoding mode, refresh rate,...). No video settings are available when this mode is selected.
One Image Source	This mode is intended for displaying and manually configuring only one connected video input signal. When selecting this mode, the video settings become available for the selected video input signal.
Two Image Sources	This mode is intended for displaying and manually configuring two connected video input signals (one on each display side). When selecting this mode, the video settings become available for the selected video input signal on each side of the display.
Expert mode	This mode is intended for displaying and manually configuring one or two connected video input signals. When selecting this mode, the video settings become available for both video input signals on both sides of the display.

To select an image source selection mode:

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 available image source selection modes and confirm.

5.20 Video input signals

Your Coronis Fusion 4MP / 6MP display automatically detects the connected video input signals. Manually video input configuration is possible, but then your display's image source selection mode should be set to allow this. Please refer to "Image source selection modes", page 30 to do this.

About input configuration

Depending on the image source selection mode, following inputs can be configured:

Menu	Image source selection mode	
Input Signal	1 Image Source	Connector configuration (DisplayPort 1/2, DVI 1/2) for the input signal.
Left Input Signal	2 Image Sources	Connector configuration (DisplayPort 1, DVI 1) for the left input signal.
Right Input Signal		Connector configuration (DisplayPort 2, DVI 2) for the right input signal.

Left	Expert mode	Input signal (input 1/2) configuration for the left side of the screen.
Right		Input signal (input 1/2) configuration used for the right side of the screen.
Input 1 signal		Connector configuration (DisplayPort, DVI) for input 1 signal.
Input 2 signal		Connector configuration (DisplayPort, DVI) for input 2 signal.
Auto input selection		Automatic input selection configuration.

In expert mode, Left and Right can only be configured when the Auto input selection feature is disabled.

To manually configure the video input signal(s):

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Sources* menu.
3. Enter one of the available submenus as desired.
4. Select one of the available connectors/inputs and confirm.

5.21 Grayscale conversion modes

Your Coronis Fusion 4MP / 6MP display 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. Please refer to "Image source selection modes", page 30 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, DVI 1/2* menu.
3. Enter the *Grayscale Conversion* submenu.
4. Select one of the available color conversion modes and confirm.

5.22 EDID format

About EDID format

The Coronis Fusion 4MP / 6MP supports two EDID formats: E-EDID V1.4 and DisplayID V1.3

To select the EDID format

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

5.23 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 (only when using DisplayPort input).

To manually set EDID timings:

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

5.24 Display info

About display info

Your display serial number, color type, 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.

5.25 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.), the current calibration status of your display (display function, luminance, ALC, etc.) and the status about activated connections.

To retrieve the status of your display:

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

6. CLEANING YOUR DISPLAY

6.1 Cleaning instructions

To clean the display

Clean the display using a sponge, cleaning cloth or soft tissue, lightly moistened with a recognized cleaning product for medical equipment. Read and follow all label instructions on the cleaning product. In case of doubt about a certain cleaning product, use plain water.

Do not use following products:

- Alcohol/solvents at higher concentration > 5%
- Strong alkalis lye, strong solvents
- Acid
- Detergents with fluoride
- Detergents with ammonia
- Detergents with abrasives
- Steel wool
- Sponge with abrasives
- Steel blades
- Cloth with steel thread

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: 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.

7. REPACKAGING INSTRUCTIONS

Overview of the packaging

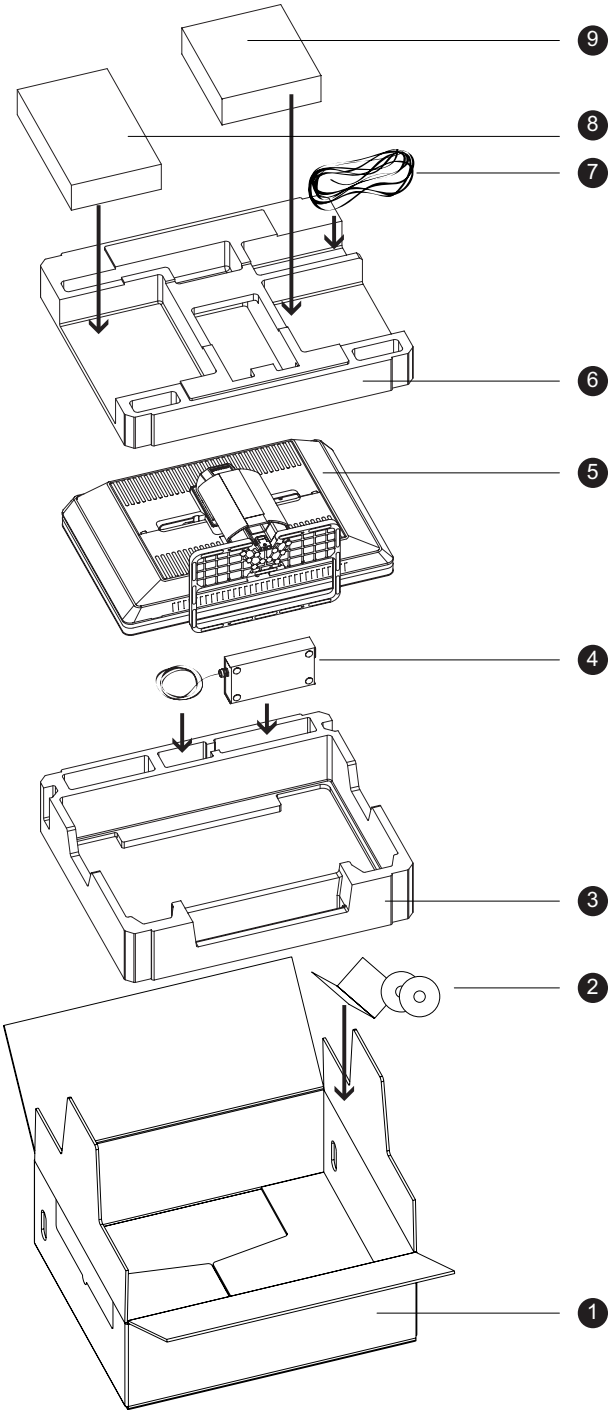


Image 7-1
Repack instructions

1 Box
2 System CD Documentation CD and User guide
3 Bottom buffer
4 Power supply
5 Coronis Fusion 4MP / 6MP display
6 Top buffer
7 Cables (video, USB, power)

8 Display controller box
9 Touch pad box

7.1 Repacking your display

How to repack your display

1. Place the empty box on a stable surface.
2. Slide the system CD, documentation CD and user guide in the dedicated bag attached at the inside of the box.
3. Place the bottom buffer in the box.
4. Put the power supply in the dedicated cavity of the bottom buffer.
5. Put the Coronis Fusion 4MP / 6MP display in its original bag and place it in the box with its panel facing downwards.
6. Put the top buffer on top of the display.
7. When applicable, slide the display controller box and / or touchpad in the dedicated cavity of the top buffer.
8. Put all cables (video, USB, power) in their original bag and slide them in the dedicated cavity of the top buffer.
9. Close and seal the box.

8. IMPORTANT INFORMATION

8.1 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):

Display with external 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 may 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 external 24 VDC power supply

- Power requirements: The equipment must be powered using the delivered medical approved 24 VDC (⎓) SELV power supply.
- The medical approved DC (⎓) power supply must be powered by the AC mains voltage.
- The power supply is specified as a part of the ME equipment or combination is specified as a ME system.
- To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- 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.

Power cords:

- Utilize a UL-listed detachable power cord, 3-wire, type SJ or equivalent, 18 AWG min., rated 250 V min., provided with a hospital-grade type plug 5-15P configuration for 120V application, or 6-15P for 240V application.
- 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.

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.

This apparatus conforms to:

MDCC-6430:

CE0120 (MDD 93/42/EEC; A1:2007/47/EC class IIb product), CE - 2004/108/EC, IEC 60950-1:2005 + A1:2009, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, IEC 60601-1:2005 + C1:2006 + C2:2007 + A1:2012, ANSI/AAMI ES 60601-1:2005 + A1:2012 + C1:2009 + A2:2010 + R1:2012, CAN/CSA C22.2 No. 60601-1:14, EN 60601-1:2006 + A11:2011 + A1:2013, EN 60601-1-2:2007, CCC - GB9254-2008 + GB4943.1-2011 + GB17625.1-2012, KCC, VCCI, FCC class B, ICES-001 Level B, FDA 510(k), RoHS.

MDCC-4330:

CE0120 (MDD 93/42/EEC; A1:2007/47/EC class IIb product), CE - 2004/108/EC, IEC 60950-1:2005 + A1:2009, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, IEC 60601-1:2005 + C1:2006 + C2:2007 + A1:2012, ANSI/AAMI ES 60601-1:2005 + A1:2012 + C1:2009 + A2:2010 + R1:2012, CAN/CSA C22.2 No. 60601-1:14, EN 60601-1:2006 + A11:2011 + A1:2013, EN 60601-1-2:2007, CCC - GB9254-2008 + GB4943.1-2011 + GB17625.1-2012, KCC, VCCI, FCC class B, ICES-001 Level B, FDA 510(k), RoHS.

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"

8.2 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: http://www.barco.com/en/AboutBarco/weee

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

According to the “China Administration on Control of Pollution Caused by Electronic Information 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) **Component name**	**有毒有害物质或元素** **Hazardous substances and elements**					
	铅 **Pb**	**汞** **Hg**	**镉** **Cd**	**六价铬** **Cr6+**	**多溴联苯** **PBB**	**多溴二苯醚** **PBDE**
印制电路配件 Printed Circuit Assemblies	x	o	o	o	o	o
液晶面板 LCD panel	x	o	o	o	o	o
外接电(线)缆 External Cables	x	o	o	o	o	o
内部线路 Internal wiring	o	o	o	o	o	o
金属外壳 Metal enclosure	o	o	o	o	o	o

零件项目(名称) Component name	有毒有害物质或元素 Hazardous substances and elements					
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
塑胶外壳 Plastic enclosure	o	o	o	o	o	o
散热片(器) Heatsinks	o	o	o	o	o	o
电源供应器 Power Supply Unit	x	o	o	o	o	o
风扇 Fan	o	o	o	o	o	o
文件说明书 Paper Manuals	o	o	o	o	o	o
光盘说明书 CD manual	o	o	o	o	o	o
O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下. O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006						

在中国大陆销售的相应电子信息产品(EIP)都必须遵照中国大陆《电子信息产品污染控制标识要求》标准贴上环保使用期限(EFUP)标签。Barco产品所采用的EFUP标签(请参阅实例，徽标内部的编号使用于制定产品)基于中国大陆的《电子信息产品环保使用期限通则》标准。

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

China Energy Label

If there is a China Energy Label on your packaging or product, the product meets the following energy requirements corresponding with the energy efficiency level on the label.

按照中国 <<能源效率标识管理办法>> In accordance with The Regulation of the Implementation on China Energy Label	本显示器符合以下要求 This monitor is compliant with the following requirements	本显示器符合以下要求 This monitor is compliant with the following requirements
能源效率等级 Energy Efficiency Level	1	2

能源效率 Energy Efficiency (cd/W)	> 1.05	> 0.85
关闭状态能耗 Energy Consumption in off mode (W)	< 0.5	< 1.0
执行的能源效率国家标准编号 Code of National Standard applied	GB 21520	GB 21520

8.3 Regulatory compliance information

Indications for use

The Coronis Fusion 4MP / 6MP (MDCC-4330, MDCC-6430) Medical Flat Panel Display System is intended to be used as a tool in displaying and viewing digital images (excluding digital mammography) for review and analysis by trained medical practitioners.

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.

Canadian notice

This ISM device complies with Canadian ICES-001.

Cet appareil ISM est conforme à la norme NMB-001 du Canada.

8.4 EMC notice

General information

No specific requirement on the use of external cables or other accessories except power supply.

With the installation of the device, use only the delivered 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.

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 CISPR 11	Class B	The Coronis Fusion 4MP / 6MP is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class D	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

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** **Test levels**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 6kV contact ± 8kV air	± 6kV contact ± 8kV 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	± 2kV for power supply lines ± 1kV for input/ output lines	± 2kV for power supply lines ± 1kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment

Immunity test	**IEC 60601** **Test levels**	**Compliance level**	**Electromagnetic environment – guidance**
Surge IEC61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	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 IEC 61000-4-11	< 5% U_T [1](> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5s	< 5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5s	Mains power quality should by that of a typical commercial or hospital environment. If the user of the Coronis Fusion 4MP / 6MP requires continued operation during power mains interruptions, it is recommended that the 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	3 A/m	Not applicable [2]	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 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the Coronis Fusion 4MP / 6MP, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance **d = 1.2√P** **d = 1.2√P** 80 MHz to 800 MHz **d = 2.3√P** 800 MHz to 2.5 Ghz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended

1. is the a.c. mains voltage prior to application of the test level.
2. Coronis Fusion 4MP / 6MP doesn't contain susceptible components to magnetic fields

Immunity test	IEC 60601 Test levels	Compliance level	Electromagnetic environment – guidance
			separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[3] should be less than the compliance level in each frequency range.[4] Interference may occur in the vicinity of equipment marked with symbol: 

At 80 MHz and 800 MHz, the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Recommended separation distance

The Coronis Fusion 4MP / 6MP is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer of the user of the Coronis Fusion 4MP / 6MP can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Coronis Fusion 4MP / 6MP as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter [5] W	Separation distance according to frequency of transmitter		
	150kHz to 80MHz $d=1.2\sqrt{P}$	80MHz to 800MHz $d=1.2\sqrt{P}$	800MHz to 2.5GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

3. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Coronis Fusion 4MP / 6MP is used exceeds the applicable RF compliance level above, the Coronis Fusion 4MP / 6MP should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Coronis Fusion 4MP / 6MP.
4. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.
5. For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter. Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

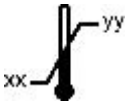
These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection form structures, object and people.

8.5 Explanation of symbols

Symbols on the device

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

CE	Indicates compliance with the Directive 93/42/EEC as Class I device
CE 0120	Indicates compliance with the Directive 93/42/EEC as Class II device
FC	Indicates compliance with Part 15 of the FCC rules (Class A or Class B)
CLASSIFIED UL	Indicates the device is approved according to the UL regulations
CLASSIFIED C UL US	Indicates the device is approved according to the UL regulations for Canada and US
UL 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
CCC	Indicates the device is approved according to the CCC regulations
VCCI	Indicates the device is approved according to the VCCI regulations
KC	Indicates the device is approved according to the KC regulations

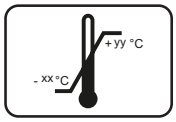
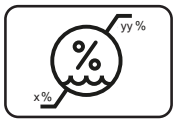
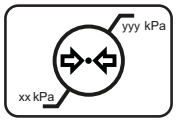
	Indicates the device is approved according to the BSMI regulations
	Indicates the device is approved according to the PSE regulations
	Indicates the USB connectors on the device
	Indicates the DisplayPort connectors on the device
	Indicates the legal manufacturer
	Indicates the manufacturing date
	Indicates the temperature limitations[6] for the device to safely operate within specs
	Indicates the device serial number
	Indicates the device part number or catalogue number
	**Warning**: dangerous voltage
	**Caution**
	Consult the operating instructions
	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)
	Indicates Alternating Current (AC)

6. Values for xx and yy can be found in the technical specifications paragraph.

	Stand-by
	Equipotentiality

Symbols on the box

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

	Indicates a medical device that can be broken or damaged if not handled carefully when being stored.
	Indicates a medical device that needs to be protected from moisture when being stored.
	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.
	Indicates the maximum number of boxes to be stacked on each other.
	Indicates that the box should be carried with two persons.
	Indicates that the box should not be cut with a knife, a cutter or any other sharp object.
	Indicates the temperature limits to which the medical device can be safely exposed when being stored.
	Indicates the range of humidity to which the medical device can be safely exposed when being stored.
	Indicates the range of atmospheric pressure to which the medical device can be safely exposed when being stored.

8.6 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 information

This product is covered under the following intellectual property rights:

US Patent RE43,707

US Patent 7,038,186

US Patent 7,166,829

US Patent 6,950,098

European Patent 1 274 066

European Patent 1 915 875.

8.7 Technical specifications

MDCC-6430

Product acronym	MDCC-6430
Screen technology	IPS-TFT color LCD
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) Configurable to 2 x 3MP+ (1640 x 2048) Configurable to 2 x 3MP (1536 x 2048)
Pixel pitch	0.1995 mm
Color imaging	Yes
Gray imaging	Yes
Color support	30 bit
Viewing angle (H, V)	178°
Uniform Luminance Technology (ULT)	Yes
Per Pixel Uniformity (PPU)	Yes (color PPU)
Ambient Light Compensation (ALC)	Yes
Backlight Output Stabilization (BLOS)	Yes (2x)
I-Guard	Yes
Maximum luminance	1050 cd/m²
DICOM calibrated luminance	600 cd/m²

Contrast ratio (typical)	1500:1 (panel typical)
Response time (Tr + Tf)	18 ms
Housing color	Black / Silver
Video input signals	DVI-D Dual Link (2x), DisplayPort (2x)
Video inout terminals	NA
USB ports	1 upstream (endpoint), 3 downstream
USB standard	2.0
Power requirements (nominal)	100-240V
Power consumption (nominal)	100W @ calibrated luminance of 600 cd/m² 64W @ calibrated luminance of 400 cd/m²
Power save mode	Yes (less than 0.5W)
Power management	DVI-DMPM, DP-DMPM
Dot clock	280 MHz
OSD languages	English, German, French, Dutch, Spanish, Italian, Portuguese, Polish, Russian, Swedish, Chinese (simplified), Japanese, Korean, Arabic
Dimensions with stand (W x H x D)	Portrait: NA Landscape: 731 x 528~628 x 259 mm
Dimensions w/o stand (W x H x D)	Portrait: NA Landscape: 731 x 485 x 140 mm
Dimensions packaged (W x H x D)	800 x 700 x 300 mm
Net weight with stand	20.5 kg
Net weight w/o stand	14 kg
Net weight packaged with stand	27.5 kg (without Display controller or Touch pad)
Net weight packaged w/o stand	N/A
Height adjustment range	96 mm
Tilt	-5° / +25°
Swivel	-30° / +30°
Pivot	NA
Mounting standard	VESA (100 mm)
Screen protection	Protective, non-reflective glass cover
Recommended modalities	CT, MR, US, DR, CR, NM, PET
Certifications	CE0120 (MDD 93/42/EEC; A1:2007/47/EC class IIb product), CE - 2004/108/EC, IEC 60950-1:2005 + A1:2009, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, IEC 60601-1:2005 + C1:2006 + C2:2007 + A1:2012, ANSI/AAMI ES 60601-1:2005 + A1:2012 + C1:2009 + A2:2010 + R1:2012, CAN/CSA C22.2 No. 60601-1:14, EN 60601-1:2006 + A11:2011 + A1:2013, EN 60601-1-2:2007, CCC - GB9254-2008 + GB4943.1-2011 + GB17625.1-2012, KCC, VCCI, FCC class B, ICES-001 Level B, FDA 510(k), RoHS.

Supplied accessories	User Guide
	Quick Install Sheet
	Documentation CD
	System CD
	Video cables (2x DVI Dual Link or 2x DisplayPort)
	Mains cables (UK, European (CEBEC/KEMA), USA (UL/ CSA; adaptor plug NEMA 5-15P), Chinese (CCC))
	USB 2.0 cable
	External power supply
Optional accessories	Graphics board, touch pad
QA software	MediCal QAWeb
Units per pallet	NA
Pallet dimensions (W x H)	NA
Warranty	5 years, including 40.000 hrs backlight warranty
Operating temperature	0°C to 35°C (15°C to 30°C within specs)
Storage temperature	-20°C to 60°C
Operating humidity	8% - 80% (non-condensing)
Storage humidity	5% - 93% (non-condensing)
Operation altitude	3000 m

8.8 Technical specifications

MDCC-4330

Product acronym	MDCC-4330
Screen technology	IPS-TFT color LCD
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 4MP (2560 x 1600) Configurable to 2 x 2MP+ (1280 X 1600) Configurable to 2 x 2MP (1200 X 1600)
Pixel pitch	0.256 mm
Color imaging	Yes
Gray imaging	Yes
Color support	30 bit
Viewing angle (H, V)	178°
Uniform Luminance Technology (ULT)	Yes
Per Pixel Uniformity (PPU)	Yes (color PPU)
Ambient Light Compensation (ALC)	Yes
Backlight Output Stabilization (BLOS)	Yes (2x)
I-Guard	Yes
Maximum luminance	1050 cd/m²

DICOM calibrated luminance	600 cd/m²
Contrast ratio (typical)	1500:1 (panel typical)
Response time (Tr + Tf)	18 ms
Housing color	Black / Silver
Video input signals	DVI-D Dual Link (2x), DisplayPort (2x)
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USB standard	2.0
Power requirements (nominal)	100-240V
Power consumption (nominal)	100W @ calibrated luminance of 600 cd/m² 64W @ calibrated luminance of 400 cd/m²
Power save mode	Yes (less than 0.5W)
Power management	DVI-DMPM, DP-DMPM
OSD languages	English, German, French, Dutch, Spanish, Italian, Portuguese, Polish, Russian, Swedish, Chinese (simplified), Japanese, Korean, Arabic
Dimensions with stand (W x H x D)	Portrait: NA Landscape: 731 x 528~628 x 259 mm
Dimensions w/o stand (W x H x D)	Portrait: NA Landscape: 731 x 485 x 140 mm
Dimensions packaged (W x H x D)	800 x 700 x 300 mm
Net weight with stand	20.5 kg
Net weight w/o stand	14 kg
Net weight packaged with stand	27.5 kg (without Display controller or Touch pad)
Net weight packaged w/o stand	NA
Height adjustment range	95 mm
Tilt	-5° / +25°
Swivel	-30° / +30°
Pivot	N/A
Mounting standard	VESA (100 mm)
Screen protection	Protective, non-reflective glass cover
Recommended modalities	CT, MR, US, DR, CR, NM, PET
Certifications	CE0120 (MDD 93/42/EEC; A1:2007/47/EC class IIb product), CE - 2004/108/EC, IEC 60950-1:2005 + A1:2009, EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013, IEC 60601-1:2005 + C1:2006 + C2:2007 + A1:2012, ANSI/AAMI ES 60601-1:2005 + A1:2012 + C1:2009 + A2:2010 + R1:2012, CAN/CSA C22.2 No. 60601-1:14, EN 60601-1:2006 + A11:2011 + A1:2013, EN 60601-1-2:2007, CCC - GB9254-2008 + GB4943.1-2011 + GB17625.1-2012, KCC, VCCI, FCC class B, ICES-001 Level B, FDA 510(k), RoHS.

Supplied accessories	User Guide
	Quick Install Sheet
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	System CD
	Video cables (2x DVI Dual Link or 2x DisplayPort)
	Mains cables (UK, European (CEBEC/KEMA), USA (UL/ CSA; adaptor plug NEMA 5-15P), Chinese (CCC))
	USB 2.0 cable
	External power supply
Optional accessories	Graphics board, touch pad
QA software	MediCal QAWeb
Units per pallet	NA
Pallet dimensions (W x H)	NA
Warranty	5 years, includng 40.000 hrs backlight warranty
Operating temperature	0°C to 35°C (15°C to 30°C within specs)
Storage temperature	-20°C to 60°C
Operating humidity	8% - 80% (non-condensing)
Storage humidity	5% - 93% (non-condensing)
Operation altitude	3000 m

8.9 Open source license information

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