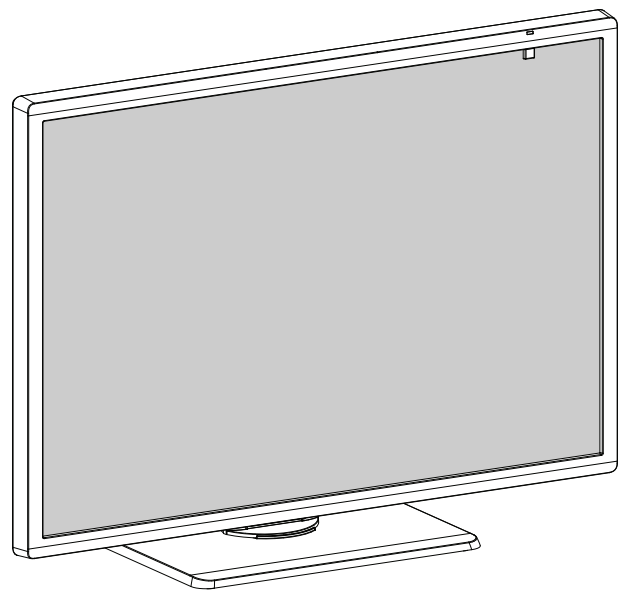


# Nio Fusion 12MP



## User guide

MDNC-12130  
MDNC-12130 H

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# Table of contents

<b>1</b>	<b>Welcome!</b>	<b>5</b>
1.1	What's in the box	6
1.2	At a glance	6
1.3	Compatible Barco system components	9
<b>2</b>	<b>Installation and setup</b>	<b>11</b>
2.1	Single workstation setup	12
2.2	Dual workstation setup with KVM switch	13
2.3	QAWeb registration	16
2.4	VESA-mount installation	16
2.5	VESA-mount installation in portrait mode	18
<b>3</b>	<b>Daily operation</b>	<b>21</b>
3.1	Recommendations for daily operation	22
3.2	Shortcut bar	22
3.3	On/Off switching	23
3.4	SoftGlow light mode switching	23
3.5	KVM input switching	24
3.6	OSD menu access and use	24
<b>4</b>	<b>Advanced operation</b>	<b>25</b>
4.1	OSD menu language	27
4.2	OSD menu orientation	27
4.3	OSD menu automatic close function	27
4.4	Power lock function	27
4.5	SoftGlow Task light	28
4.6	SoftGlow Wall light	28
4.7	DPMS mode	29
4.8	Hibernate	29
4.9	Luminance target	30
4.10	Color presets	30
	4.10.1 Color temperature	31
	4.10.2 Color coordinates	31
4.11	Color space	31
4.12	Viewing modes	32
4.13	Display functions	32
4.14	sRGB	33

4.15	Ambient Light Compensation (ALC).....	33
4.16	Reading rooms.....	33
4.17	Continuous Ambient Light Compensation (ALC).....	34
4.18	Embedded QA.....	34
4.18.1	About Embedded QA.....	34
4.18.2	DICOM status report.....	35
4.18.3	DICOM compliance check.....	35
4.18.4	DICOM calibration.....	36
4.18.5	Reset DICOM calibration.....	36
4.18.6	DICOM error threshold.....	36
4.19	Image scaling.....	36
4.20	Image source selection.....	37
4.21	KVM switch.....	37
4.22	Grayscale conversion modes.....	38
4.23	DisplayPort standard version.....	38
4.24	EDID format.....	39
4.25	EDID timings.....	39
4.26	Display info.....	40
4.27	Display status.....	40
4.28	SteadyColor™.....	40
4.29	Maximum luminance demo.....	40
<b>5</b>	<b>Cleaning the display.....</b>	<b>43</b>
5.1	Cleaning instructions.....	44
<b>6</b>	<b>Repackaging instructions.....</b>	<b>45</b>
6.1	Repackaging instructions.....	46
<b>7</b>	<b>Important information.....</b>	<b>51</b>
7.1	Safety information.....	52
7.2	Cybersecurity.....	53
7.3	Environmental information.....	54
7.4	Regulatory compliance information.....	56
7.5	EMC notice.....	57
7.6	Explanation of symbols.....	60
7.7	Legal disclaimer.....	63
7.8	Open source license information.....	64
7.9	Technical specifications.....	65

# Welcome!

# 1

1.1	What's in the box .....	6
1.2	At a glance.....	6
1.3	Compatible Barco system components.....	9

## 1.1 What's in the box

### Overview

- Nio Fusion 12MP 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](http://www.barco.com/support)



If your product arrived with shipping damage or missing parts, please refer to the instructions in our knowledge base article '3727' at [www.barco.com/support/knowledge-base/3727](http://www.barco.com/support/knowledge-base/3727) for further assistance.

## 1.2 At a glance

### Product overview

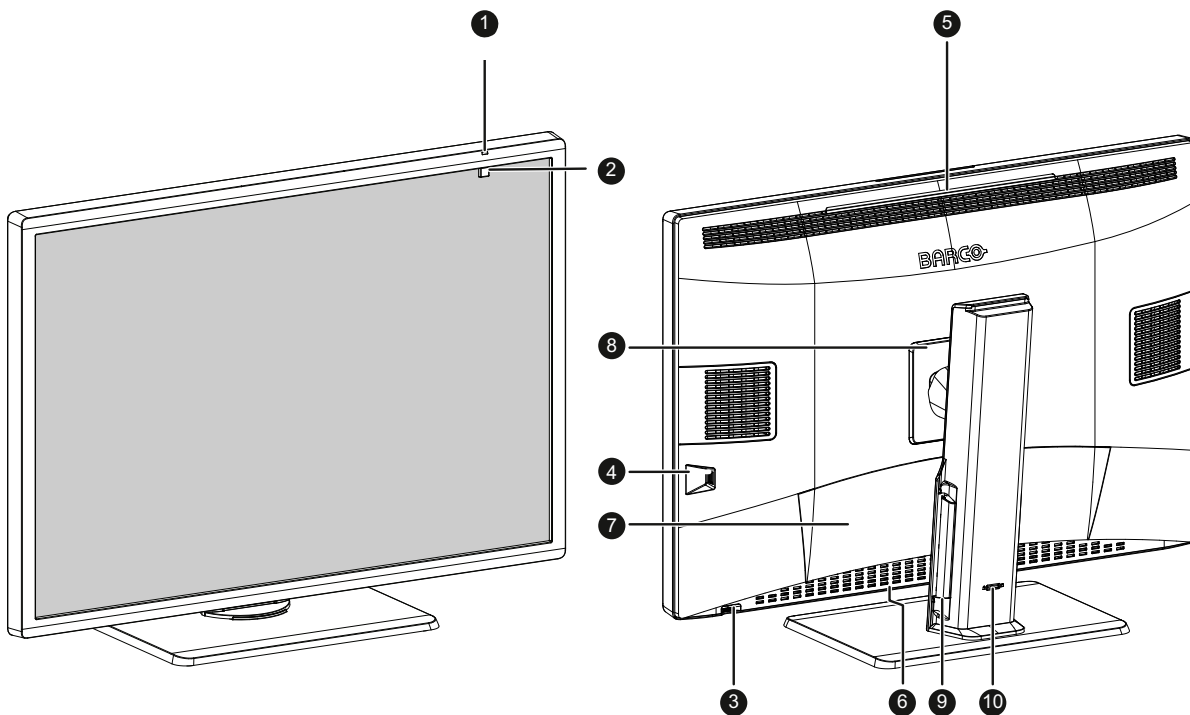


Image 1-1

1. 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 is in hibernate mode
2. Front sensor
 

**CAUTION:** To avoid permanent damage to the product, never use the front sensor to hold a paper, radiological film or any other object.
3. Jog dial
  - **Press:** Activate the shortcut bar, go into (sub)menus, confirm adjustments and selections
  - **Turn left/right:** Scroll through (sub)menus, change values, make selections
  - **Press and hold** for approximately 3 seconds: Cancel adjustments, exit (sub)menus
  - **Double-press:**
    - Cycle through the SoftGlow light modes (when the KVM switch is disabled)
    - Switch KVM inputs (when the KVM switch is enabled)
4. Side USB-A 2.0 downstream connector
5. SoftGlow Wall light
6. SoftGlow Task light
7. Connector cover
8. VESA mount cover
9. Cable routing channels
10. Stand locking mechanism

## Connectors

One USB connector is available on the side of the display. To access the bottom connectors, gently pull the bottom of the connector cover away from the display.

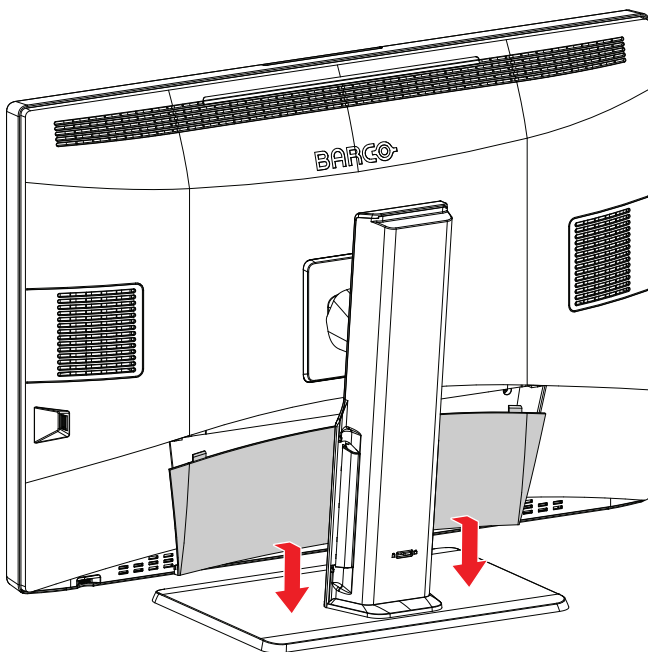


Image 1-2

Welcome!

Following connectors are available:

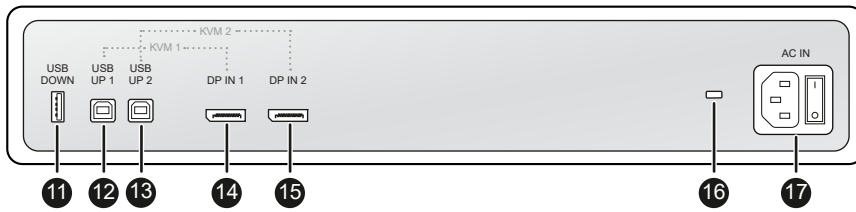


Image 1-3

11. Bottom USB-A 2.0 downstream
12. USB-B 2.0 upstream 1 (Main)
13. USB-B 2.0 upstream 2 (Secondary, used only with KVM switch enabled)
14. DisplayPort IN 1 (also Main for KVM switch)
15. DisplayPort IN 2 (also Secondary for KVM switch)
16. Kensington security slot
17. 100–240 VAC mains power input and power switch

## Display position adjustment

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

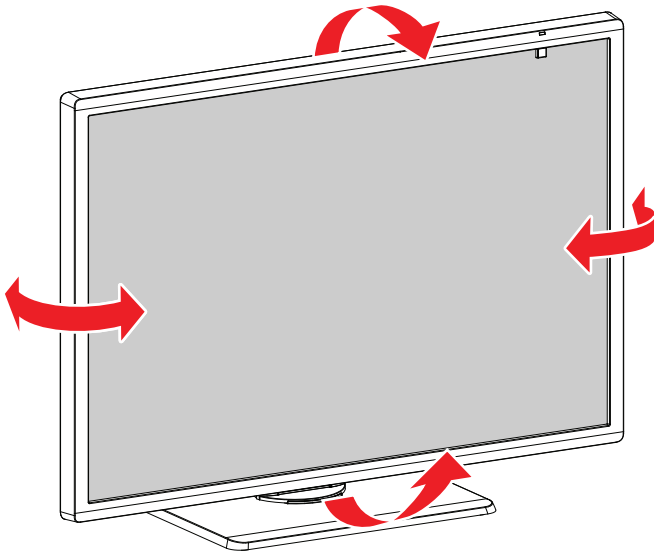


Image 1-4

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.

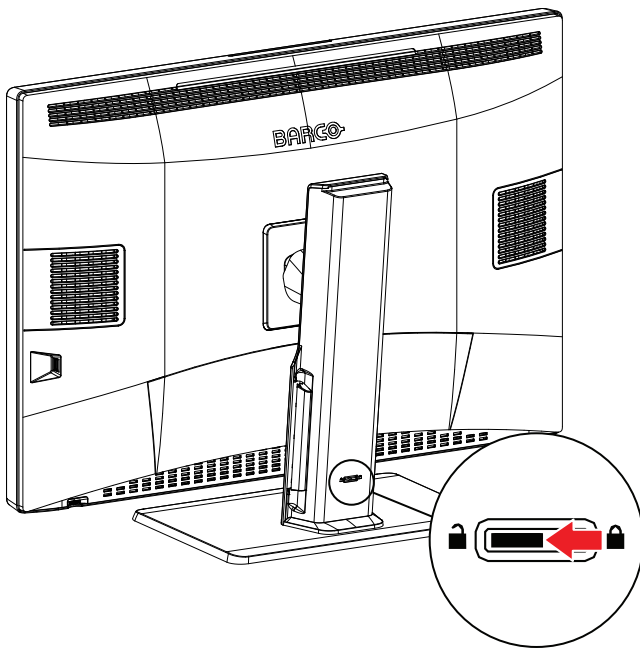


Image 1-5

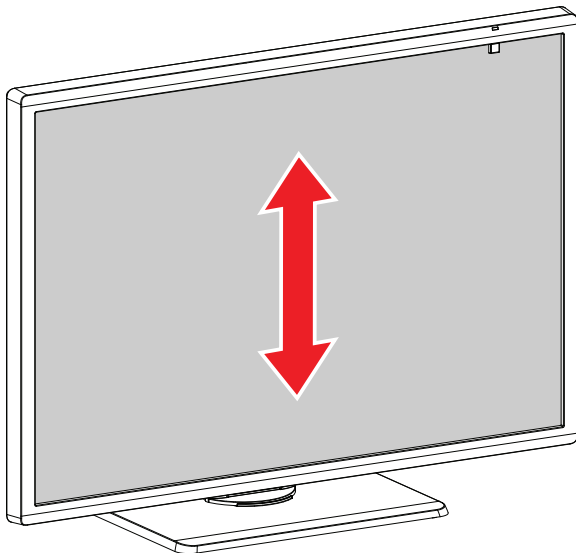


Image 1-6



The height can be locked only 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.

## 1.3 Compatible Barco system components

### Overview

Following Barco components are compatible with your Nio Fusion 12MP display:

- QAWeb Enterprise version 2.5 or later, or MediCal QAWeb version 1.13.20 or later
- MXRT-x700 range or later display controllers.  
The older MXRT-5600 and MXRT-7600 display controllers are also supported but only for a single workstation setup. Dual workstation setup with KVM switch is not supported with these display controllers.
- MXRT driver version 10.184.2.0 or later

Welcome!

# Installation and setup

# 2

2.1	Single workstation setup .....	12
2.2	Dual workstation setup with KVM switch .....	13
2.3	QAWeb registration .....	16
2.4	VESA-mount installation .....	16
2.5	VESA-mount installation in portrait mode.....	18

## 2.1 Single workstation setup

### About

In this setup, the display is connected to a single workstation with two DisplayPort cables, each driving one half of the screen. When connecting a USB cable from your display to the workstation, you can control the workstation with a keyboard and mouse connected to the display.

Using two DisplayPort cables to drive the image allows full 12MP resolution at full refresh rate making a single workstation setup most conventional and recommended for diagnostic purposes.

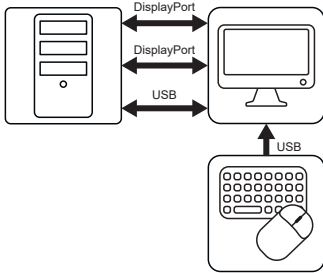


Image 2-1

### Install the display controller

Before you connect your display with the workstation, make sure to have a suitable<sup>1</sup> display controller installed in the workstation.



The Nio Fusion 12MP 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 at [www.barco.com/support](http://www.barco.com/support).

### Connect the cables

1. Remove the connector cover.
2. Connect the DisplayPort inputs (DP IN 1 and DP IN 2) with the DisplayPort outputs on the workstation.
3. Connect the main USB upstream connector (USB UP 1) with a USB host on the workstation to make use of QAWeb or a peripheral (keyboard, mouse, touchpad, etc.) connected to one of the display’s USB downstream connectors.
4. Connect a keyboard and mouse (or another peripheral used to control the workstations) with the USB downstream connectors of the display. One USB downstream connector is available in the connector compartment, a second one at the side of the display.
5. Connect the supplied mains cable with the power input of the display.
6. Route all cables through the cable clips in the connector compartment.
7. Re-install the connector cover: slide the top of the cover in the available recesses, then push the bottom of the cover back into position.
8. Route all cables through the routing channels in the stand of your display.
9. Connect the supplied mains cable to a **grounded** power outlet.

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

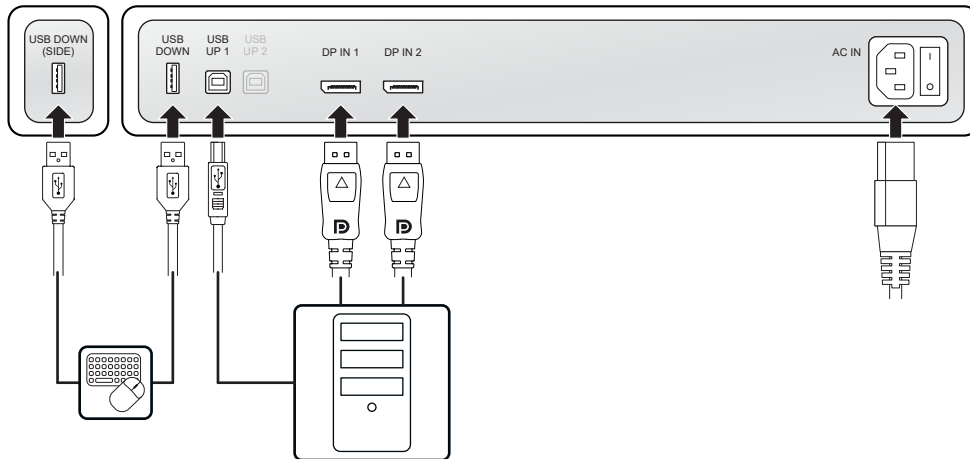


Image 2-2

### Power on the display system

1. Set the power switch next to the mains power input connector in position “I” .
2. Press the jog dial to activate your display.
3. Switch on the workstations connected to your display.

Your display will be running in a basic video mode at a default refresh rate when first time starting up.

### Install the MXRT driver and Intuitive Workflow Tools

When using a Barco MXRT display controller, install the **MXRT driver** and **Intuitive Workflow Tools** on the connected workstation. Barco’s Intuitive Workflow Tools are designed to increase visibility of subtle details, improve focus during reading sessions, and accelerate workflow.

1. Download the latest MXRT driver and Intuitive Workflow Tools from [www.barco.com/mxrt](http://www.barco.com/mxrt).
2. Install the MXRT driver and Intuitive Workflow Tools as described in the Barco “Display Controller and Intuitive Workflow Tools” user guide on the included documentation CD, or at [www.barco.com/support](http://www.barco.com/support).

## 2.2 Dual workstation setup with KVM switch

### About

In this setup, the display is connected to two different workstations, each with one DisplayPort cable. When connecting a USB cable from your display to each of the two workstations, you can control both workstations with a single keyboard and mouse connected to the display. Switching the video and controls signals between the two workstations is done with the KVM switch operated via the OSD menu.

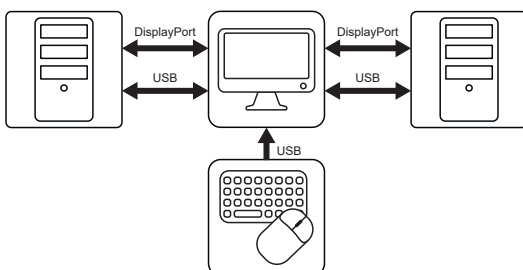


Image 2-3



With only one DisplayPort cable to drive the image, full 12MP resolution is possible but only at a limited refresh rate of 45 Hz (because of bandwidth limitations of the DisplayPort 1.2 standard). This may affect the smoothness of panned images and somewhat limits the speed that cine images can be displayed.



Barco suggests to have QAWeb installed on only one of both workstations. When both workstation would have QAWeb installed, switching KVM inputs would trigger a Configuration Change event, causing the display to disappear from the workstation in QAWeb.

## Install the display controllers

Before you connect your display with the workstations, make sure to have a suitable<sup>2</sup> display controller installed in **both** workstations.



The Nio Fusion 12MP 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 at [www.barco.com/support](http://www.barco.com/support).

## Connect the cables

1. Remove the connector cover.
2. Connect DisplayPort input 1 (DP IN 1) with the DisplayPort output on workstation 1.
3. Connect the main USB upstream connector (USB UP 1) with a USB host on workstation 1.
4. Connect DisplayPort input 2 (DP IN 2) with the DisplayPort output on workstation 2.
5. Connect the secondary USB upstream connector (USB UP 2) with a USB host on workstation 2.



*Note:* The USB UP 2 connector is covered by a plastic cap which has to be removed first.

6. Connect a keyboard and mouse (or another peripheral used to control the workstations) with the USB downstream connectors of the display. One USB downstream connector is available in the connector compartment, a second one at the side of the display.
7. Connect the supplied mains cable to the power input on the display.
8. Route all cables through the cable clips in the connector compartment.
9. Re-install the connector cover: slide the top of the cover in the available recesses, then push the bottom of the cover back into position.
10. Route some or all cables through the routing channels in the stand of your display.
11. Connect the supplied mains cable to a **grounded** power outlet.

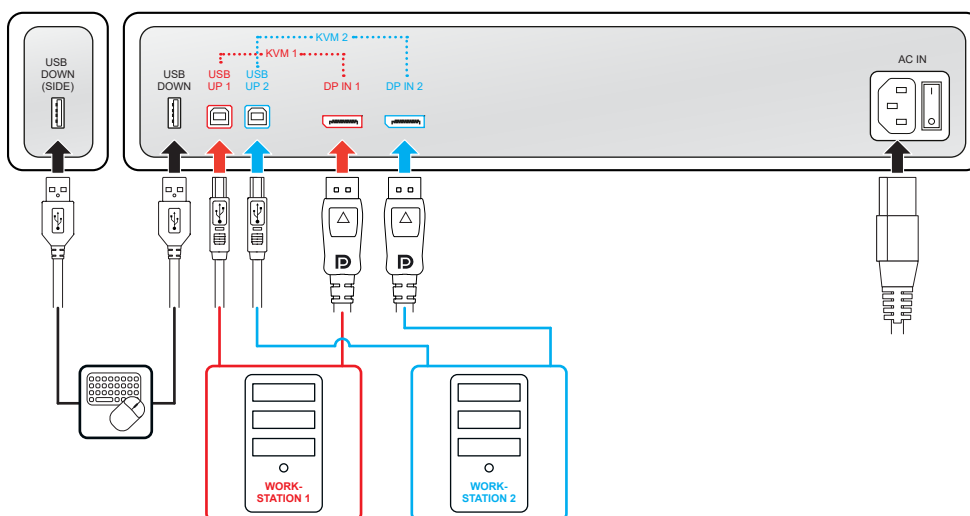


Image 2-4

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

## Power on the display system

1. Set the power switch next to the mains power input connector in position “I” .
2. Press the jog dial to activate your display.
3. Switch on the workstations connected to your display.

Your display will be running in a basic video mode at a default refresh rate when first time starting up.

## Install the MXRT driver and Intuitive Workflow Tools

When using a Barco MXRT display controller, install the **MXRT driver** and **Intuitive Workflow Tools** on **both** connected workstations. Barco’s Intuitive Workflow Tools are designed to increase visibility of subtle details, improve focus during reading sessions, and accelerate workflow.

1. Download the latest MXRT driver and Intuitive Workflow Tools from [www.barco.com/mxrt](http://www.barco.com/mxrt).
2. Install the MXRT driver and Intuitive Workflow Tools as described in the Barco “Display Controller and Intuitive Workflow Tools” user guide on the included documentation CD, or at [www.barco.com/support](http://www.barco.com/support).

## Adjust EDID format and timings

The EDID format must be set to *DisplayID 1.3* and the EDID resolution timing must be set to *12MP* (i.e. 4200 x 2800) for both DisplayPort inputs in order to drive the full screen resolution from one DisplayPort video cable.

1. Bring up the OSD main menu.
2. Navigate to *Configuration > Image Sources > Input Settings > EDID format*.
3. Select *DisplayID 1.3* and confirm.
4. Navigate to *Configuration > Image Sources > Input Settings > DisplayPort 1 > EDID > Resolution*.
5. Select *12MP* and confirm.
6. Navigate to *Configuration > Image Sources > Input Settings > DisplayPort 2 > EDID > Resolution*.
7. Select *12MP* and confirm.


## Enable the KVM switch

1. Bring up the OSD main menu.
2. Navigate to the *Configuration > Image Sources* menu.
3. Enter the *KVM Input Selection* submenu.
4. Select *Enabled* and confirm.



When enabling the KVM switch, the *Image Source Selection* menu will be inaccessible. In addition, *Hibernate* will be disabled to guarantee correct USB port switching also when one or both workstations are in sleep mode.

## To switch KVM inputs

1. Press or turn the jog dial to activate the shortcut bar. The KVM switch icon (  ) is now selected by default because the KVM switch is enabled.
2. Press the jog dial again to switch KVM inputs.



During normal operation, double-press the jogdial to switch KVM inputs more quickly. A first click will make the shortcut bar pop up, a second click will switch inputs (since the KVM switch icon is selected by default when the KVM switch is enabled).



When switching KVM inputs, the video is switched instantly while switching the USB signal might take a little longer (up to 2 seconds).



The DisplayPort standard must be *DP V1.2* for both DisplayPort inputs. This is the factory default. See “[DisplayPort standard version](#)”, page 38 to change the DisplayPort standard.

## 2.3 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 supports a consistent image quality and uptime for all registered imaging display systems within your facility and across your enterprise. Learn more at [www.barco.com/qaweb](http://www.barco.com/qaweb).

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 [www.barco.com/support/qaweb-enterprise](http://www.barco.com/support/qaweb-enterprise).



When still using the older MediCal QAWeb, visit [www.barco.com/support/medical-qaweb](http://www.barco.com/support/medical-qaweb) to obtain the installation package and user documentation.

## 2.4 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 a mount that is compliant to the VESA 100 mm standard. This chapter shows you how to release the panel from the stand and how to attach it to a VESA mount. If you're not using a mount, you can skip this chapter.

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

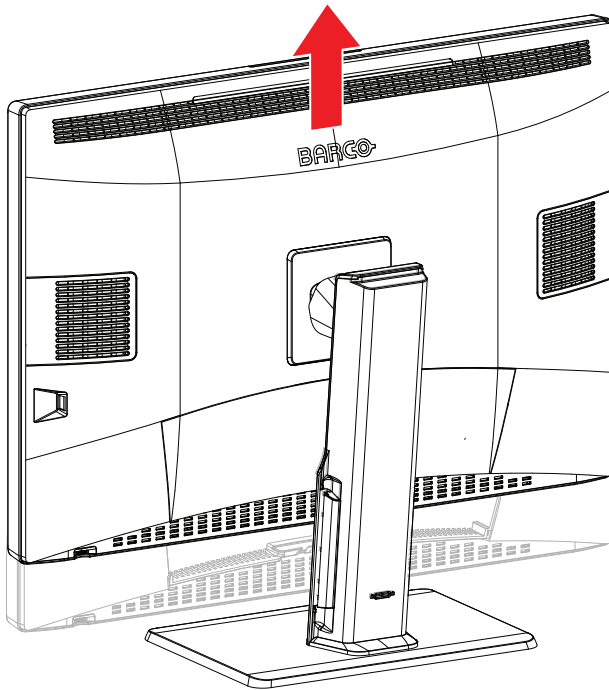


Image 2-5

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.

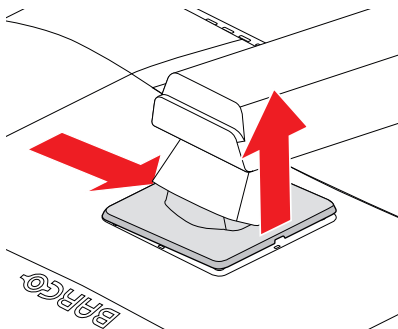


Image 2-6

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

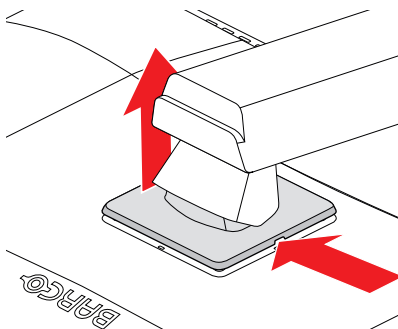


Image 2-7

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

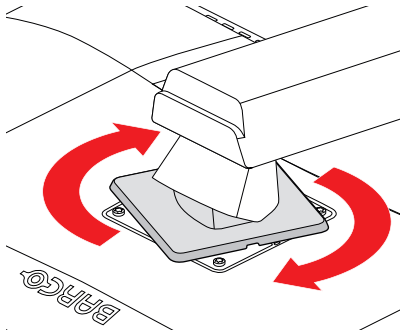


Image 2-8

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

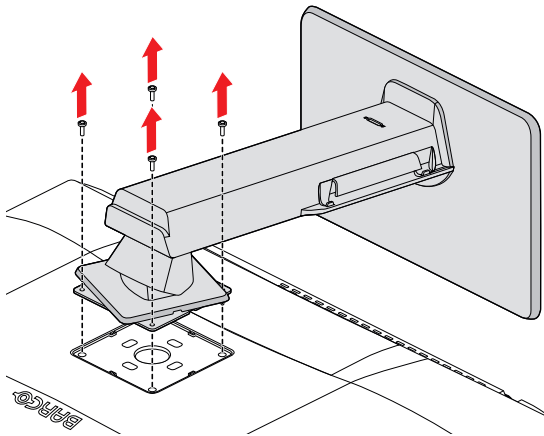


Image 2-9

7. Attach the panel **firmly** to the VESA mount using 4 M4 screws. Respect the following rule to select an appropriate screw length:

- $L_{\min} = T + W + 6.5 \text{ mm}$
- $L_{\max} = T + W + 10 \text{ mm}$

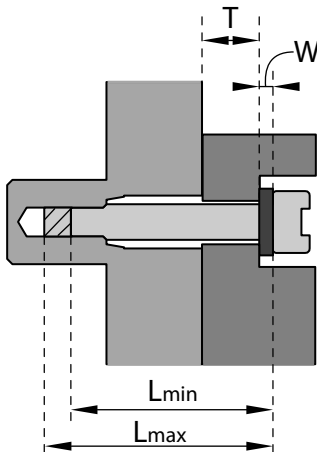


Image 2-10

## 2.5 VESA-mount installation in portrait mode

### Introduction

By default, your Nio Fusion 12MP display is mounted in landscape position but it can also be used in portrait position. This section explains how to install and use the display in portrait orientation. Carefully follow the instructions hereafter to ensure proper product operation and to avoid physical damage to the product.

## Instructions

1. Physically mount the display in portrait position. Both clockwise and counterclockwise orientation are supported.

You can choose to either mount the display on the existing stand, or on a compatible VESA mount.

Follow the instructions as described in “[VESA-mount installation](#)”, page 16 to install the display on a VESA mount . These instructions can also be used to mount the display in portrait position on the existing display stand.

2. Connect the display to your workstation.

When using the display in portrait position only one DisplayPort cable can be connected. This will give you the full resolution at reduced refresh rate but with just one Windows taskbar at the bottom of the screen.

3. For your convenience, align the display's OSD menu orientation with the physical position of your display. For instructions, see “[OSD menu orientation](#)”, page 27.
4. In the EDID format menu of the OSD, change the format to *DisplayID 1.3*. For instructions, see “[EDID format](#)”, page 39.
5. In the *EDID timings* menu of the OSD, change the resolution to 12MP. For instructions, see “[EDID timings](#)”, page 39.
6. Rotate the Windows desktop in portrait mode.

From Windows 7 onwards, an “Orientation” option is available in the display settings. For Windows 10, see <https://support.microsoft.com/en-us/help/4027186/windows-10-change-screen-orientation>.



# Daily operation

# 3

3.1	Recommendations for daily operation .....	22
3.2	Shortcut bar .....	22
3.3	On/Off switching .....	23
3.4	SoftGlow light mode switching .....	23
3.5	KVM input switching .....	24
3.6	OSD menu access and use .....	24

## 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 supports 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](http://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:

- “KVM input switching”, page 24

- “SoftGlow light mode switching”, page 23
- “OSD menu access and use”, page 24
- “On/Off switching”, page 23



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 On/Off 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 (  ).
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.
2. If not selected by default, turn the jog dial and select the SoftGlow lights icon.
3. 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 28 and “SoftGlow Wall light”, page 28.



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 [www.barco.com/support](http://www.barco.com/support).

## 3.5 KVM input switching


### About the KVM switch

The Nio Fusion 12MP can be used in a dual workstation setup with KVM switch. This allows the display to be connected to two different workstations and control both with a single keyboard and mouse connected to the display. Switching the video and controls signals between the two workstations is done with the KVM switch operated via the OSD menu.



Your display system must be specifically set up and configured for KVM input switching. For instructions, see [“Dual workstation setup with KVM switch”, page 13](#)

### To switch KVM inputs

1. Press or turn the jog dial to activate the shortcut bar. The KVM switch icon (  ) is selected by default when the KVM switch is enabled.
2. Press the jog dial again to switch KVM inputs.



During normal operation, double-press the jogdial to switch KVM inputs more quickly. A first click will make the shortcut bar pop up, a second click will switch inputs (since the KVM switch icon is selected by default when the KVM switch is enabled).




When switching KVM inputs, the video is switched instantly while switching the USB signal might take a little longer (up to 2 seconds).

## 3.6 OSD menu access and use

### About the OSD menu

The OSD menu allows you to configure different settings to make your Nio Fusion 12MP 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

4.1	OSD menu language .....	27
4.2	OSD menu orientation.....	27
4.3	OSD menu automatic close function.....	27
4.4	Power lock function.....	27
4.5	SoftGlow Task light .....	28
4.6	SoftGlow Wall light.....	28
4.7	DPMS mode.....	29
4.8	Hibernate.....	29
4.9	Luminance target.....	30
4.10	Color presets.....	30
4.11	Color space.....	31
4.12	Viewing modes.....	32
4.13	Display functions .....	32
4.14	sRGB .....	33
4.15	Ambient Light Compensation (ALC) .....	33
4.16	Reading rooms.....	33
4.17	Continuous Ambient Light Compensation (ALC) .....	34
4.18	Embedded QA.....	34
4.19	Image scaling.....	36
4.20	Image source selection .....	37
4.21	KVM switch .....	37
4.22	Grayscale conversion modes.....	38
4.23	DisplayPort standard version.....	38
4.24	EDID format .....	39
4.25	EDID timings .....	39
4.26	Display info .....	40
4.27	Display status.....	40
4.28	SteadyColor™.....	40
4.29	Maximum luminance demo.....	40

## 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 Nio Fusion 12MP.

#### 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.

## 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 ["On/Off switching", page 23](#). 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.
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 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 [www.barco.com/support](http://www.barco.com/support).

### To adjust the SoftGlow Task light brightness

1. Bring up the OSD main menu.
2. Navigate to the *Configuration > Lights* menu.
3. 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 [www.barco.com/support](http://www.barco.com/support).

## 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 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 [www.barco.com/support](http://www.barco.com/support).

## 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.
4. 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 [www.barco.com/support](http://www.barco.com/support).

## 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 29 for more information.

### 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.

## 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 time-out.



DPMS mode must be enabled before hibernate can be enabled. See “[DPMS mode](#)”, page 29.



In a single workstation setup (see “[Single workstation setup](#)”, page 12), connect your keyboard, mouse, touchpad, etc. directly with your workstation (and not with the display) to be able to use them to awake your system from hibernate.



When your workstation and display don't awake from hibernate within 10 seconds after a keyboard or mouse trigger, press the jog dial to awake your system.



Hibernate will be automatically disabled on your display when enabling the KVM switch (see “[KVM switch](#)”, page 37).

### 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 Nio Fusion 12MP 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 33](#) 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 30](#)) 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 Nio Fusion 12MP 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 Nio Fusion 12MP 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 than 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 33 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:

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.

## 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 30 for more info.
- **Color space:** sRGB. See “Color space”, page 31 for more info.
- **Display function:** sRGB. See “Display functions”, page 32 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 32.

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 33.

### 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.

## 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 32

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 33 to enable ALC.

The available reading rooms for your Nio Fusion 12MP 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 32](#).

### 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.
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.

## 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 Nio Fusion 12MP 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.



The *Image source selection* menu is not available when the *KVM switch* is enabled (to disable, see [“KVM switch”, page 37](#)).

**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 KVM switch

**About the KVM switch**

The Nio Fusion 12MP can be used in dual workstation setup with KVM switch. This allows the display to be connected to two different workstations and control both with a single keyboard and mouse connected to the display. Switching the video and controls signals between the two workstations is done with the KVM switch, which must be enabled as explained below.



Your display system must be specifically set up and configured for KVM input switching. For instructions, see [“Dual workstation setup with KVM switch”, page 13](#)

**To enable/disable the KVM switch**

1. Bring up the OSD main menu.
2. Navigate to the *Configuration > Image Sources* menu.

3. Enter the *KVM Switch* submenu.
4. Select *Enabled/Disabled* as desired and confirm.



When enabling the KVM switch, the *Image Source Selection* menu will be inaccessible. In addition, *Hibernate* will be disabled to guarantee correct USB port switching also when one or both workstations are in sleep mode.

### To switch KVM inputs

1. Bring up the OSD main menu.
2. Navigate to the *Configuration > Image Sources* menu.
3. Enter the *KVM Input Selection* submenu.
4. Select the desired KVM input and confirm.



When switching KVM inputs, the video is switched instantly while switching the USB signal might take a little longer (up to 2 seconds).



KVM input switching can also be done more quickly via the shortcut bar. See “[KVM input switching](#)”, [page 24](#).

## 4.22 Grayscale conversion modes



Your Nio Fusion 12MP 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 37](#) 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.

## 4.23 DisplayPort standard version

### About DisplayPort standard version

The Nio Fusion 12MP 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.

## 4.24 EDID format

### About EDID format

Following EDID formats are available for your Nio Fusion 12MP:

- **EDID 1.4:** Factory default setting and advised for a single workstation setup (see “[Single workstation setup](#)”, page 12).
- **DisplayID 1.3:** Necessary to drive 12MP (i.e. 4200x2800) resolution over 1 video cable. Advised for a dual workstation setup with KVM switch (see “[Dual workstation setup with KVM switch](#)”, page 13).

### To set the EDID format

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

## 4.25 EDID timings

### About EDID timings

Following EDID timings are available for your Nio Fusion 12MP:

- **Resolution:** Allows to manually modify the resolution of the image source video input signal:
  - 5.8MP : 2096 x 2800
  - 6MP : 2100 x 2800
  - 12MP : 4200 x 2800, only available when the EDID format is set to *DisplayID 1.3*
- **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 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.

## 4.26 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.

## 4.27 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:

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

## 4.28 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 16. The QAWeb Enterprise user guide describes how to enable and configure SteadyColor on your display.

## 4.29 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.
2. Navigate to *Enable Service mode*.

3. Enter the keycode: 9-0-0-1.
4. Enter the *Service* menu.
5. 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 the display

# 5

## 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% Chlorhexidine in 70% ethanol/isopropanol
- Ortho-Phthalaldehyde (OPA) 0.55%
- Haemo-sol, 1% in water
- 250 ppm Chlorine solution
- 1.0% Iodine in 70% ethanol
- 1.6% aqueous ammonia
- "Green soap" (USP)
- 0.5% Chlorhexidine 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

## 6.1 Repackaging instructions

### To repack your display

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

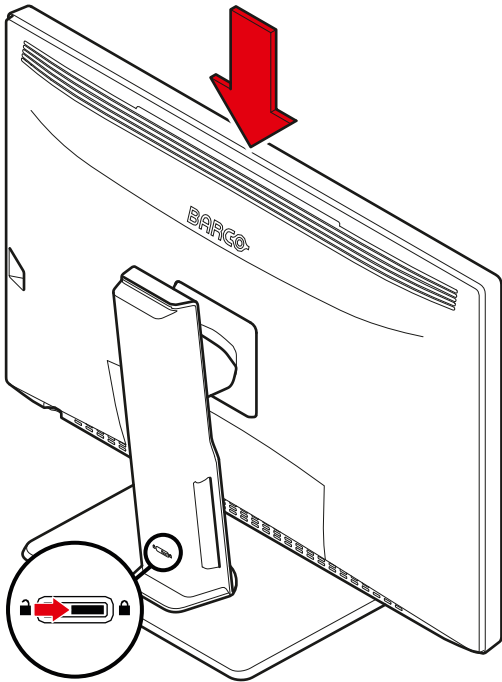


Image 6-1

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

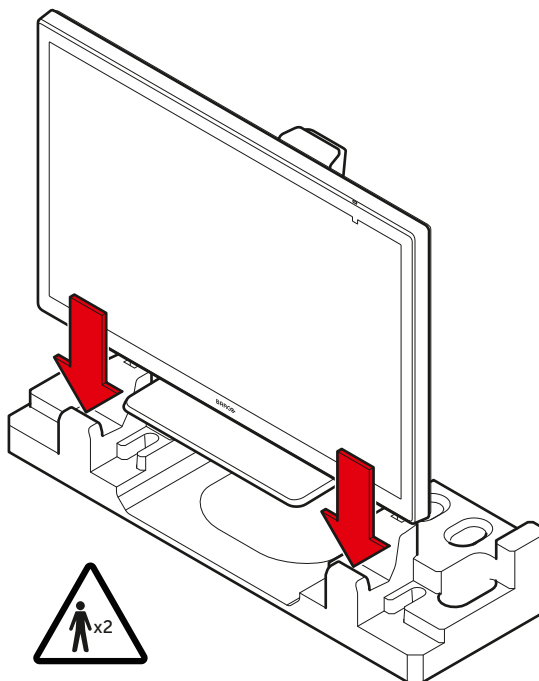


Image 6-2

3. Insert the rear buffer in the bottom buffer.

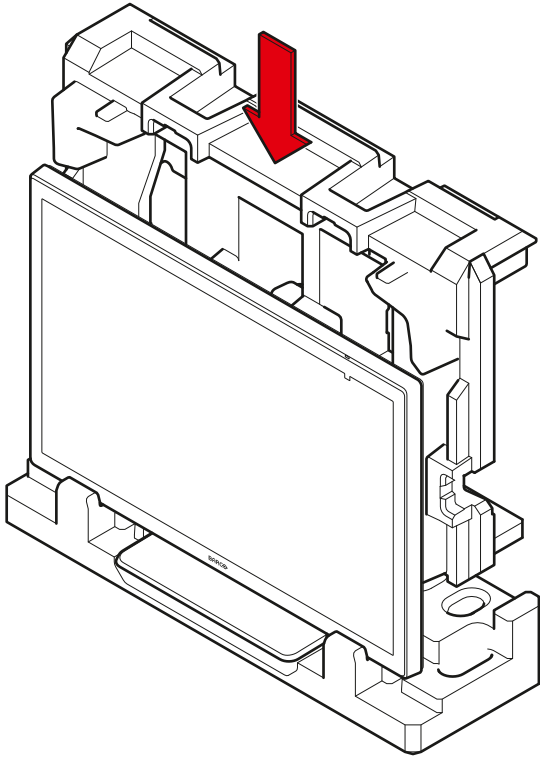


Image 6-3

4. Position the front buffer.

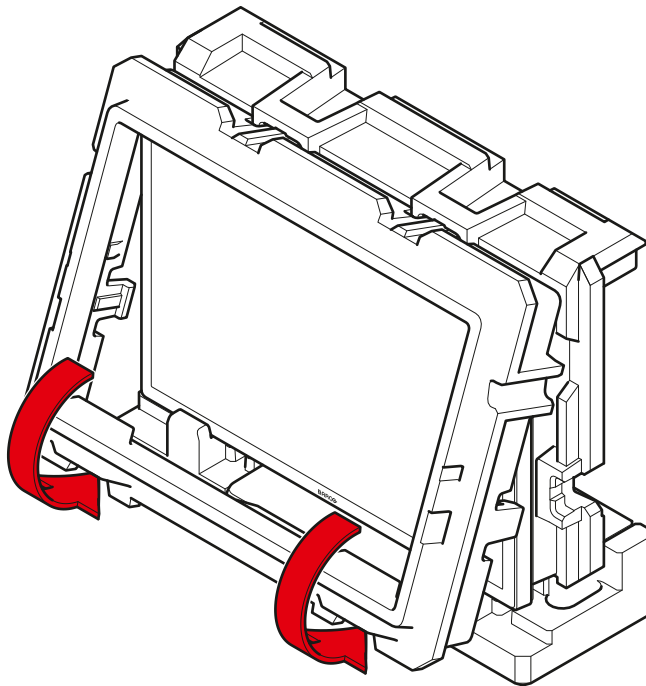


Image 6-4

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

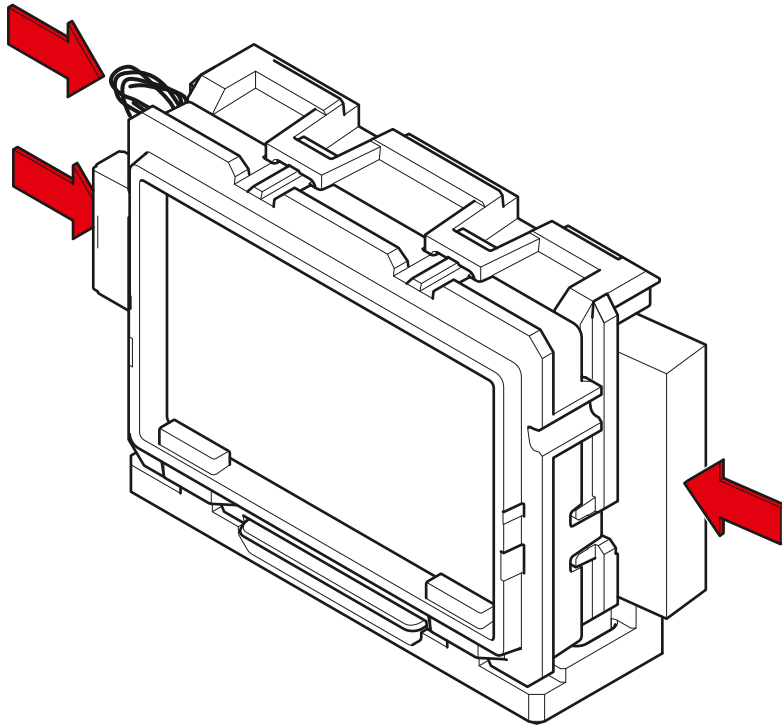


Image 6-5

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

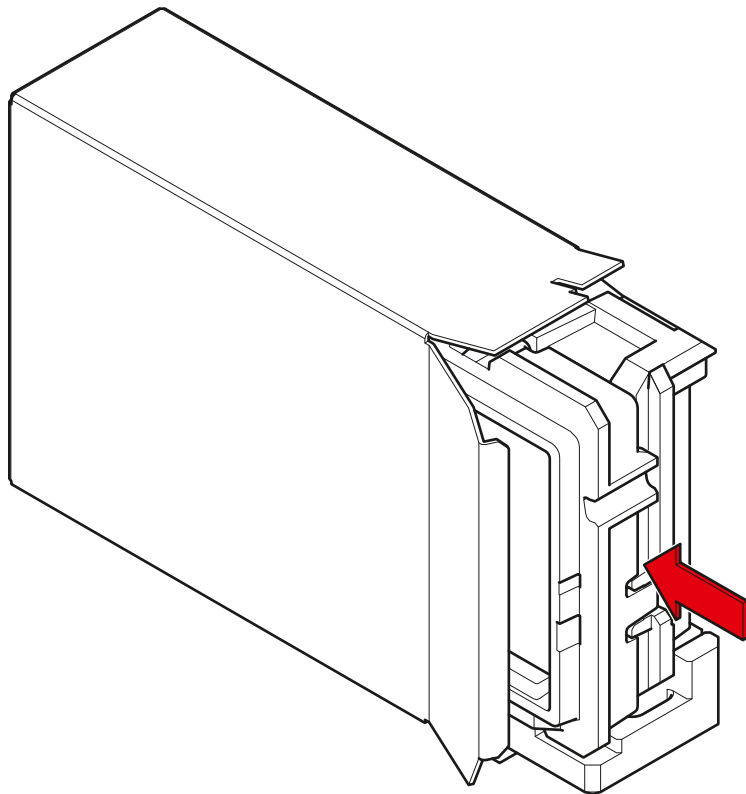


Image 6-6

7. Close and seal the box.

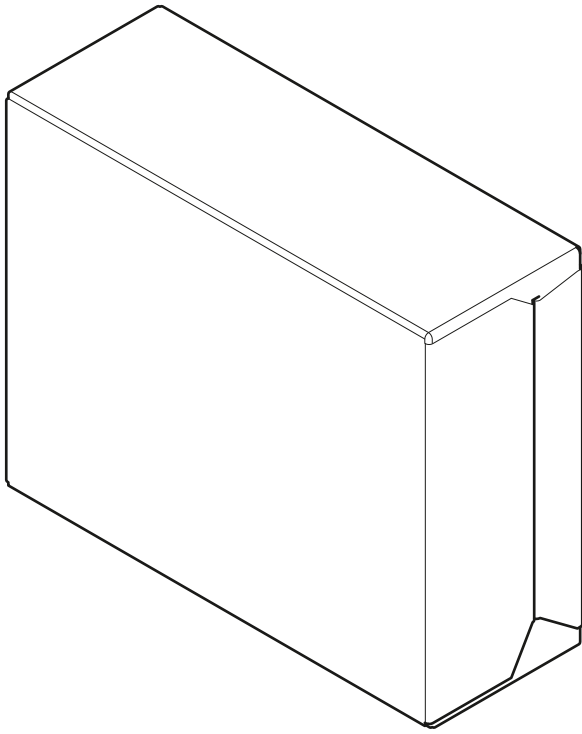


Image 6-7



# Important information

# 7

7.1	Safety information.....	52
7.2	Cybersecurity.....	53
7.3	Environmental information.....	54
7.4	Regulatory compliance information.....	56
7.5	EMC notice.....	57
7.6	Explanation of symbols.....	60
7.7	Legal disclaimer.....	63
7.8	Open source license information.....	64
7.9	Technical specifications.....	65

## 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.

### Child safety

Equipment not suitable for use in locations where children are likely to be present.

### 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 mm<sup>2</sup> / 60227 IEC 53, 3G1.0 mm<sup>2</sup>; 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

## Security objectives

The Nio Fusion 12MP will be used for displaying and viewing digital images. Therefore, ensuring the availability of the digital images has been identified as the primary security objective of this product.

Nevertheless, the availability, integrity, and confidentiality of information processed by the product relies on the non-mandatory security recommendations described below.

The lack of storage or processing of patient or personal information, combined with the limited (network) connectivity, results in the Nio Fusion 12MP entailing a low cybersecurity risk profile.

## Security recommendations

The security measures listed below should be considered as a non-exhaustive list of possible security controls for the operating environment. The operating environment must not hinder the application of security measures on the product or force the device to operate in a lower security setting.

The operator shall maintain the necessary state-of-the-art policies, processes, standards and other security controls to incorporate, support and protect the product. This shall include the application of risk management (e.g. by implementing relevant standards).

The operating environment should provide physical security via security measures such as:

- Regulated and authenticated physical access enforced via suitable technical measures (e.g. badges)
- Physical security policy defining roles and access rights, including for physical access to the product
- Use of segregated, secure areas with appropriate access controls

The operating environment should include appropriate security controls such as:

- User access management (credentials for accessing software applications or devices, user access policy, etc.)
- Antivirus / anti-malware software
- Firewall
- Application whitelisting / system hardening
- Exclusive use of genuine software and ban of all illegitimate software and applications
- Session management measures (e.g. session timeouts)

The operating environment should provide control and security of network traffic via appropriate measures, such as:

- Network segmentation & network access control
- Traffic filtering
- Encrypted communication

Specifically for workstations connected to the product, appropriate security measures include:

- Operating system hardening and application whitelisting
- Use of strong passwords
- Install only software necessary for the intended use of the operating environment.

To ensure that the security posture of the operating environment and of the product itself remain at a suitable level, appropriate provisions regarding patch management should be in place, such as:

- The operating environment should support patching without compromising interoperability/compatibility
- The operator should have appropriate patch management processes to ensure that security patches for the product are deployed in a timely manner
- The operator should have appropriate patch management processes to ensure that the operating environment (e.g. operating systems, applications) is up-to-date in terms of security

## 7.3 Environmental information

### Disposal Information



Waste Electrical and Electronic Equipment (WEEE)

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: <https://www.barco.com/about/sustainability/waste-of-electronic-equipment-customers>

## 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) 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
塑胶外壳 Plastic enclosure	O	O	O	O	O	O
散热片(器) Heatsinks	O	O	O	O	O	O
风扇 Fan	O	O	O	O	O	O
电源供应器 Power Supply Unit	X	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

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 in displaying and viewing digital images, including standard and multiframe digital mammography, for review, analysis, and diagnosis by trained medical practitioners. It is specially designed for breast tomosynthesis applications.

### 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

Not applicable

### Intended users

Barco diagnostic and mammography 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.

### 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.l.**, Via Saul Banfi 1, 21047 Saronno, VA, Italy
- **巴可 (苏州) 医疗科技有限公司**, 苏州工业园区苏桐路111号  
**Barco (Suzhou) Healthcare Technology Co., Ltd.**, No.111, Sutong Road, Suzhou Industrial Park, 215021 Suzhou China

## 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 ([www.barco.com](http://www.barco.com)).

## 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 - Andar 8 - Bloco 2 - Conj 82, Bairro:Ibirapuera, Distrito:Moema, 4028-002, São Paulo, Brasil

# 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 Nio Fusion 12MP, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

## Electromagnetic emissions

The Nio Fusion 12MP is intended for use in the electromagnetic environment specified below. The customer or the user of the Nio Fusion 12MP should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – Guidance
RF emissions CISPR 11	Group 1	The Nio Fusion 12MP 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 Nio Fusion 12MP 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 Nio Fusion 12MP 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 Nio Fusion 12MP is intended for use in the electromagnetic environment specified below. The customer or the user of the Nio Fusion 12MP 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	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 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

Immunity test	IEC 60601-1-2 test levels	Compliance level	Electromagnetic environment – guidance
	100 kHz repetition frequency	100 kHz repetition frequency	
Surge IEC61000-4-5	Line to line: $\pm 0.5$ kV, $\pm 1$ kV Line to ground: $\pm 0.5$ kV, $\pm 1$ kV, $\pm 2$ kV	Line to line: $\pm 0.5$ kV, $\pm 1$ kV Line to ground: $\pm 0.5$ kV, $\pm 1$ kV, $\pm 2$ 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 IEC 61000-4-11	0% residual voltage for 0.5 period at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% residual voltage for 1 period at 0° 70% residual voltage for 25 periods at 0° Voltage interruptions: 0% residual voltage for 250 periods at 0°	0% residual voltage for 0.5 period at 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0% residual voltage for 1 period at 0° 70% residual voltage for 25 periods at 0° Voltage interruptions: 0% residual voltage for 250 periods at 0°	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Nio Fusion 12MP requires continued operation during power mains interruptions, it is recommended that the Nio Fusion 12MP 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>3</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 IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz	3 V/m	

### 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 $\pm 5$ kHz deviation 1 kHz sine	2	0.3	28
710	704 – 787	LTE Band 13, 17	Pulse modulation 217 Hz	0.2	0.3	9
745						
780						
810	800 – 960	GSM 800/ 900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation 18 Hz	2	0.3	28
870						
930						








3. Nio Fusion 12MP doesn't contain components that are susceptible to magnetic fields.










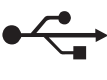




Test frequency (MHz)	Band (MHz)	Service	Modulation	Maximum power (W)	Distance (m)	Immunity test level (V/m)
1720	1700 – 1990	GSM 1800, CDMA 1900, GSM 1900, DECT, LTE Band 1/3/4/25, UMTS	Pulse modulation 217 Hz	2	0.3	28
1845						
1970						
2450	2400 – 2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217 Hz	2	0.3	28
5240	5100 – 5800	W LAN 802.11 a/n	Pulse modulation 217 Hz	0.2	0.3	9
5500						
5785						
















## 7.6 Explanation of symbols

### Symbols on the device


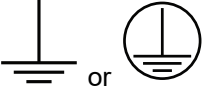
On the device or power supply, you may find the following symbols (nonrestrictive list):

	Indicates the device meets the requirements of the applicable EC directives/regulations.
	Indicates compliance with Part 15 of the FCC rules (Class A or Class B).
	Indicates the device is approved according to the UL regulations
	Indicates the device is approved according to the UL regulations for Canada and US
	Indicates the device is approved according to the UL regulations for Canada and US
	Indicates the device is approved according to the UL Demko regulations.
	Indicates the device is approved according to the CCC regulations.

	<p>Indicates the device is approved according to the VCCI regulations.</p>
	<p>Indicates the device is approved according to the KC regulations.</p>
	<p>Indicates the device is approved according to the BSMI regulations.</p>
	<p>Indicates the device is approved according to the PSE regulations.</p>
	<p>Indicates the device is approved according to the RCM regulations.</p>
	<p>Indicates the device is approved according to the EAC regulations.</p>
	<p>Caution: Federal law (United States of America) restricts this device to sale by or on the order of a licensed healthcare practitioner.</p>
<p>IS 13252 (Part 1) IEC 60950-1</p>  <p>R-xxxxxxx www.bis.gov.in</p>	<p>Indicates the device is approved according to the BIS regulations.</p>
 <p>INMETRO</p>	<p>Indicates the device is approved according to the INMETRO regulations.</p>
	<p>Indicates the USB connectors on the device.</p>
	<p>Indicates the DisplayPort connectors on the device.</p>
	<p>Indicates the legal manufacturer.</p>
	<p>Indicates the manufacturing date.</p>
	<p>Indicates the entity importing the medical device into the locale.</p>







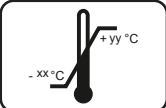

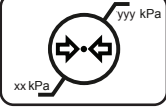
	<p>Indicates the temperature limitations<sup>4</sup> for the device to safely operate within specs.</p>
	<p>Indicates that the device is a Medical Device.</p>
	<p>Indicates the device Serial Number.</p>
	<p>Indicates the device part number or catalogue number.</p>
	<p>Indicates the Unique Device Identifier.</p>
	<p>Indicates the Authorised Representative for the European Union.</p>
	<p>Indicates the Authorised Representative for Switzerland.</p>
	<p><b>Warning:</b> dangerous voltage</p>
	<p><b>Caution</b></p>
	<p>Consult the Instructions For Use.</p>
	<p>Consult the Instruction For Use on the website address that is provided as eIFU indicator.</p>
	<p>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.</p>
	<p>Indicates Direct Current (DC).</p>
	<p>Indicates Alternating Current (AC).</p>
	<p>Stand-by</p>

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

	Equipotentiality
	Protective earth (ground)

## Symbols on the box

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

	Indicates a device that can be broken or damaged if not handled carefully when being stored.
	Indicates a 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 identical boxes which may be stacked on each other, where “n” is the limiting number.
	Indicates the weight of the box and that it 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 <sup>5</sup> to which the device can be safely exposed when being stored.
	Indicates the range <sup>5</sup> of humidity to which the device can be safely exposed when being stored.
	Indicates the range <sup>5</sup> of atmospheric pressure to which the device can be safely exposed when being stored.

## 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.

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

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## 7.9 Technical specifications

### MDNC-12130

<b>Screen technology</b>	LCD
<b>Active screen size (diagonal)</b>	784 mm (30.9")
<b>Active screen size (H x V)</b>	653 x 435 mm (25.7 x 17.1")
<b>Aspect ratio (H:V)</b>	3:2
<b>Resolution</b>	Native 12MP (4200 x 2800 pixels) Configurable to 2 x 5.8MP (2100 x 2800 pixels)
<b>Pixel pitch</b>	0.1554 mm
<b>Color imaging</b>	Yes
<b>Gray imaging</b>	Yes
<b>Bit depth</b>	30 bit
<b>Viewing angle (H, V)</b>	178°
<b>Uniformity Technology</b>	ULT
<b>SteadyColor Calibration</b>	Yes (in display), when used with system components as outlined in the user guide
<b>Ambient light presets</b>	Yes, reading room selection
<b>Ambient light sensor</b>	Yes
<b>Front sensor</b>	Yes
<b>Maximum luminance (panel typical)</b>	1200 cd/m <sup>2</sup>
<b>DICOM calibrated luminance</b>	600 cd/m <sup>2</sup>
<b>Contrast ratio (panel typical)</b>	1500:1
<b>Response time ((Tr + Tf)/2) (typical)</b>	10 ms (average, with all single transitions within 1 frame period)
<b>Housing color</b>	Black / White
<b>Video input signals</b>	2x DisplayPort 1.2
<b>USB ports</b>	2x USB-B 2.0 upstream (switchable endpoint) 2x USB-A 2.0 downstream
<b>Power rating</b>	100-240 Vac, 50/60 Hz, 3.6-1.6 A
<b>Power consumption</b>	105 W (nominal) < 0.5 W (hibernate)

	< 0.5 W (standby)
<b>Dimensions with stand (W x H x D)</b>	695 x 528~628 x 239 mm
<b>Dimensions w/o stand (W x H x D)</b>	695 x 483 x 74 mm
<b>Dimensions packaged (W x H x D)</b>	800 x 650 x 295 mm
<b>Net weight with stand</b>	16.6 kg
<b>Net weight w/o stand</b>	12.0 kg
<b>Net weight packaged</b>	21.3 kg (without optional accessories)
<b>Tilt</b>	-5° to +25°
<b>Swivel</b>	-30° to +30°
<b>Pivot</b>	N/A
<b>Height adjustment range</b>	100 mm
<b>Mounting standard</b>	VESA (100 mm)
<b>Screen protection</b>	N/A
<b>Recommended modalities</b>	All digital images, including digital mammography and breast tomosynthesis
<b>Certifications</b>	<p>FDA 510(K) K203106  CE0123 (Medical Device)  CCC (China)  KC (Korea)  BIS (India)  EAC (Russia, Kazakhstan, Belarus, Armenia and Kyrgyzstan)  INMETRO (Brazil) Pending</p> <p>Safety specific:  IEC 60950-1:2005 + A1:2009  EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013  UL 60950-1:2019  CAN/CSA C22.2 No. 60950-1-07:2014</p> <p>IEC 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</p> <p>EMI specific:  IEC 60601-1-2:2014 (ed4)  EN 60601-1-2:2015 (ed4)  FCC part 15 Class B  ICES-001 Level B  VCCI</p> <p>Environmental:  EU RoHS  China RoHS, China Energy Label  Korea e-Standby  REACH</p>

	Canada Health WEEE Packaging Directive
<b>Supplied accessories</b>	User guide Documentation disc System sheet Video cables USB cables Mains cables
<b>Optional accessories</b>	Display controller
<b>QA software</b>	QAWeb
<b>Warranty</b>	5 years, including 40000 hrs backlight warranty
<b>Operating temperature</b>	0 °C to 35 °C (20 °C to 30 °C within specs)
<b>Storage temperature</b>	-20 °C to 60 °C
<b>Operating humidity</b>	10% to 70% (non-condensing)
<b>Storage humidity</b>	10% to 70% (non-condensing), max. 70% at max. 40 °C
<b>Operating pressure</b>	62 kPa minimum
<b>Storage pressure</b>	50 to 106 kPa

### MDNC-12130 H

<b>Screen technology</b>	LCD
<b>Active screen size (diagonal)</b>	784 mm (30.9")
<b>Active screen size (H x V)</b>	653 x 435 mm (25.7 x 17.1")
<b>Aspect ratio (H:V)</b>	3:2
<b>Resolution</b>	Native 12MP (4200 x 2800 pixels) Configurable to 2 x 5.8MP (2100 x 2800 pixels)
<b>Pixel pitch</b>	0.1554 mm
<b>Color imaging</b>	Yes
<b>Gray imaging</b>	Yes
<b>Bit depth</b>	30 bit
<b>Viewing angle (H, V)</b>	178°
<b>Uniformity Technology</b>	ULT
<b>SteadyColor Calibration</b>	Yes (in display), when used with system components as outlined in the user guide
<b>Ambient light presets</b>	Yes, reading room selection
<b>Ambient light sensor</b>	Yes
<b>Front sensor</b>	Yes

<b>Maximum luminance (panel typical)</b>	1200 cd/m <sup>2</sup>
<b>DICOM calibrated luminance</b>	800 cd/m <sup>2</sup>
<b>Contrast ratio (panel typical)</b>	1500:1
<b>Response time ((Tr + Tf)/2) (typical)</b>	10 ms (average, with all single transitions within 1 frame period)
<b>Housing color</b>	Black / White
<b>Video input signals</b>	2x DisplayPort 1.2
<b>USB ports</b>	2x USB-B 2.0 upstream (switchable endpoint) 2x USB-A 2.0 downstream
<b>Power rating</b>	100-240 Vac, 50/60 Hz, 3.6-1.6 A
<b>Power consumption</b>	135 W (nominal) < 0.5 W (hibernate) < 0.5 W (standby)
<b>Dimensions with stand (W x H x D)</b>	695 x 528~628 x 239 mm
<b>Dimensions w/o stand (W x H x D)</b>	695 x 483 x 74 mm
<b>Dimensions packaged (W x H x D)</b>	800 x 650 x 295 mm
<b>Net weight with stand</b>	16.6 kg
<b>Net weight w/o stand</b>	12.0 kg
<b>Net weight packaged</b>	21.3 kg (without optional accessories)
<b>Tilt</b>	-5° to +25°
<b>Swivel</b>	-30° to +30°
<b>Pivot</b>	N/A
<b>Height adjustment range</b>	100 mm
<b>Mounting standard</b>	VESA (100 mm)
<b>Screen protection</b>	N/A
<b>Recommended modalities</b>	All digital images, including digital mammography and breast tomosynthesis
<b>Certifications</b>	FDA 510(K) K203106 CE0123 (Medical Device) CCC (China) KC (Korea) BIS (India) INMETRO (Brazil) Pending Safety specific: IEC 60950-1:2005 + A1:2009 EN 60950-1:2006 + A1:2010 + A11:2009 + A12:2011 + A2:2013 UL 60950-1:2019 CAN/CSA C22.2 No. 60950-1-07:2014 IEC 60601-1:2005 + A1:2012

	<p>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 (ed4)  EN 60601-1-2:2015 (ed4)  FCC part 15 Class B  ICES-001 Level B  VCCI  Environmental:  EU RoHS  China RoHS, China Energy Label  Korea e-Standby  REACH  Canada Health  WEEE  Packaging Directive</p>
<b>Supplied accessories</b>	<p>User guide  Documentation disc  System sheet  Video cables  USB cables  Mains cables</p>
<b>Optional accessories</b>	<p>Display controller</p>
<b>QA software</b>	<p>QAWeb</p>
<b>Warranty</b>	<p>5 years, including 10000 hrs backlight warranty</p>
<b>Operating temperature</b>	<p>0 °C to 35 °C (20 °C to 30 °C within specs)</p>
<b>Storage temperature</b>	<p>-20 °C to 60 °C</p>
<b>Operating humidity</b>	<p>10% to 70% (non-condensing)</p>
<b>Storage humidity</b>	<p>10% to 70% (non-condensing), max. 70% at max. 40 °C</p>
<b>Operating pressure</b>	<p>62 kPa minimum</p>
<b>Storage pressure</b>	<p>50 to 106 kPa</p>

## Relation of storage and operating humidity and temperature

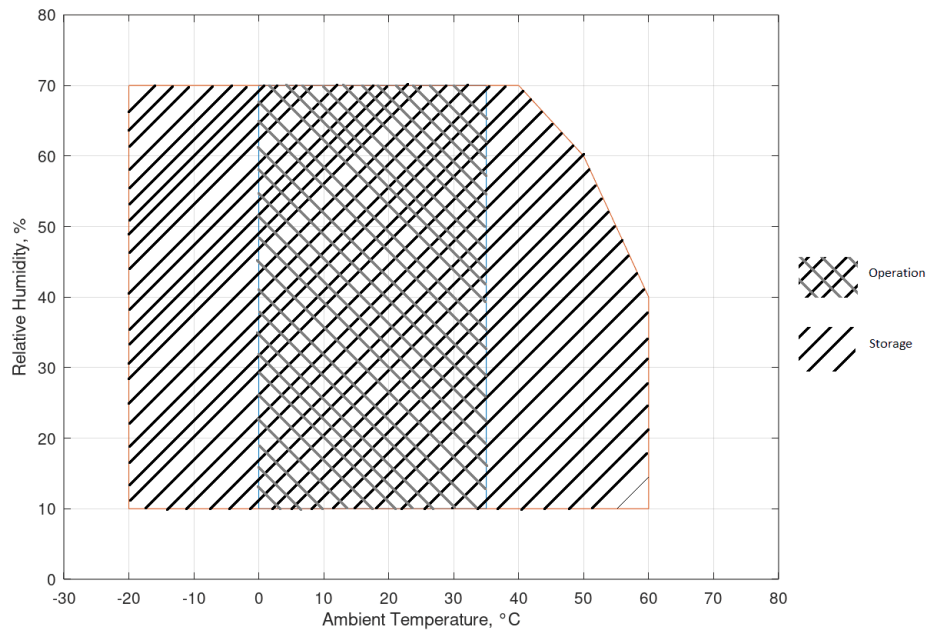


Image 7-1



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**0123**



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