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# MFCD 1218

## User Manual

# SAFETY INSTRUCTIONS



## CAUTION

RISK OF ELECTRIC SHOCK  
DO NOT OPEN



**CAUTION: TO REDUCE THE RISK OF  
ELECTRIC SHOCK, DO NOT REMOVE  
COVER (OR BACK)  
NO USER-SERVICEABLE PARTS INSIDE  
REFER TO QUALIFIED SERVICE PERSONNEL**

- Read the safety and operating instructions before operating the apparatus.
- Retain safety and operating instructions for future reference.
- Adhere to all warnings on the apparatus and in the operating instructions manual.
- Follow all instructions for operation and use.

• This apparatus conforms to: UL1950, cUL CAN/CSA C22.2 No. 950-95, CE

#### • FCC notice

This equipment has been tested and found to comply with the limits of a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment

in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



#### Power connection

- **Warning:** This apparatus must be earthed!
- **Power requirements:** connect the apparatus to an AC voltage as indicated at its back. Using a lower voltage, the apparatus will not be able to operate. Using a higher voltage may damage the apparatus. If you are not sure of the type of power supplied, consult the power company.
- Do not overload wall outlets and extension cords as this may result in fire or electric shock.
- **Mains lead protection (U.S.: Power cord):** Supply 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.

#### Water and moisture

- Never expose the apparatus to rain or moisture.
- Never use the apparatus 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 the ventilation openings in the cover of the set. When installing the apparatus in a cupboard or another closed location, heed the necessary space between the set and the sides of the cupboard.

#### Installation

- Place the apparatus on a flat, solid and stable surface that can bear the weight of at least 3 monitors. If you use an unstable cart or stand, the set may fall, causing serious injury to a child or adult, and serious damage to the equipment.

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# 1. OVERVIEW

## 1.1 Introduction

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The MFCD 1218, BARCO's full color 18" LCD display, guarantees perfect image quality in medical imaging applications.

The display combines a TFT (thin film transistor) liquid crystal display panel structure and a built-in backlight with inverter for a better picture quality. It is designed to meet users' needs for performance, consistency, and outstanding image quality through a streamlined development process in which wall-mount functionality provides a variety of capability.

The image on the display can be adjusted by means of the extended on-screen menu system (OSD).

The internal memory can contain settings for 24 different types of video signals (with different timings). 22 are factory-preset, 2 are user-definable.

### Multi-scan capabilities

The display accepts the most common display standards. However, it is limited to the following specifications: The horizontal frequency must be between 31 and 91 kHz, the vertical frequency between 56 and 85 Hz, and the maximum resolution is 1280 x 1024.

The optimum and recommended resolution is **1280 x 1024 / 60 Hz**.

### Power Saving

The monitor comes with a power saving feature; therefore, you may put the monitor into a power saving state when it is not in use. This feature complies with both EPA's Energy Star requirements and European NUTEK/TCO's power management guidelines. It conforms to Video Electronics Standard Association (VESA) approved DPMS power-down signaling method. This monitor automatically cuts down power consumption of monitor set when not detecting Hsync or Vsync signals. This feature is compliant with VESA DPMS.

## 1.2 Package contents

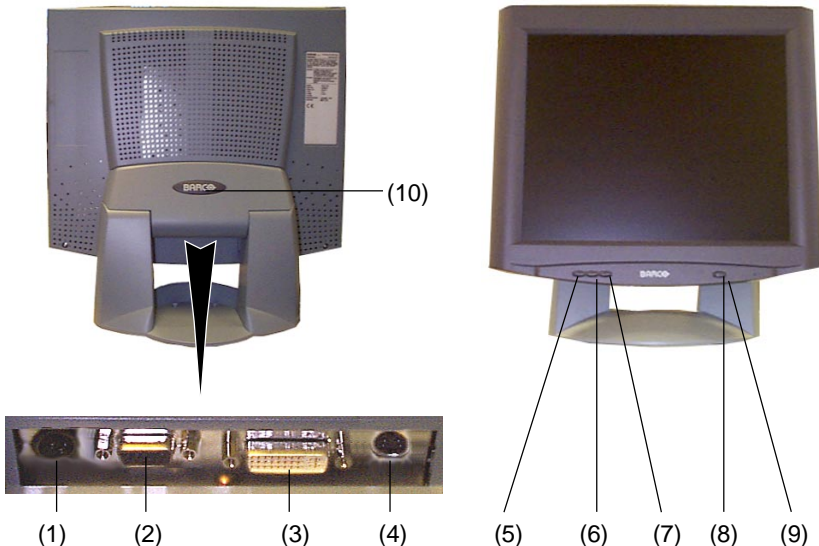
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The package should include the following items, please check. If some of the items are missing, please contact the reseller you have purchased the unit from.

- The display with foot
- 12V DC adapter
- European power cord
- American power cord
- Video cable
- S-Video cable (S-Video and composite video (RCA)) - Optional
- Mounting plate with 8 screws
- This user manual
- CD-ROM containing the DICOM Optimizer and its User Manual in html format

## 1.3 Controls and connectors

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- (1) 12V DC power input
- (2) Analog video input
- (3) DVI input
- (4) S-Video input
- (5) Menu key
- (6) <-> Key
- (7) <+> Key
- (8) Power LED  
The LED is off when the display is off.  
The LED is green when the display is on.  
The LED is orange when the display is in power-saving mode (stand-by)
- (9) Power key
- (10) Push-button to release the panel from the foot

# 2. INSTALLATION

## 2.1 Precautions

---

- Keep your original packaging. It is designed for this display and is the ideal protection during transport.
- Avoid reflections in the flat panel to reduce eye strain.
- Place the display on a strong and stable table or desk.
- Keep the display away from heat sources and provide enough ventilation in case it is built in a rack or console.
- Make sure computer and display are switched off before connecting the signals.

## 2.2 Wall mounting

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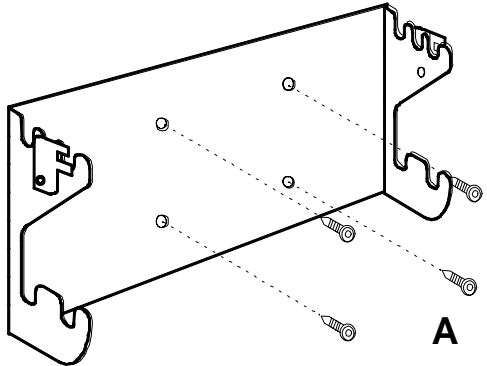
You can mount the panel to the wall instead of to the foot, by means of the supplied mounting plate. If you do not need to mount the panel to the wall, please skip this item.

### **Step 1: Remove the panel from the foot**

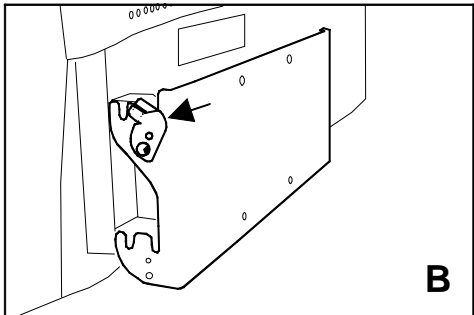
- 1 Position one hand under the panel at the front side. Position the other hand at the rear, under the push-button with BARCO logo (10).
- 2 Firmly press down the push-button (10) with one hand while carefully lifting the panel up with the other hand.
- 3 Remove the panel from the foot.

### **Step 2: Fix the mounting plate to the wall**

- 1 Screw the mounting plate to the wall with the 4 supplied screws (A).

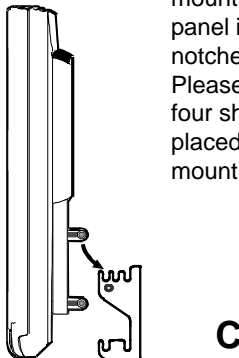


- 2 Slide back the locks at both sides of the mounting plate (B). In that way, you can secure the panel to the mounting plate after placing the panel.



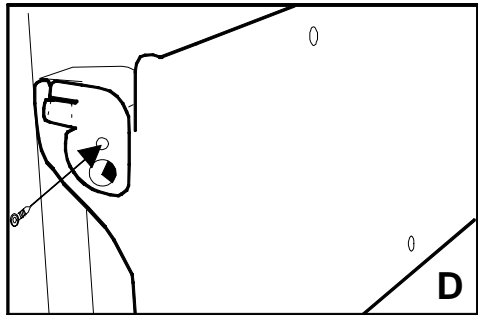
### Step 3: Place the panel on the mounting plate

- 1 Place the panel on the mounting plate (C). If you want to secure the panel to the mounting plate, place the panel in the frontmost notches. Please make sure that the four shafts are securely placed in the notches of the mounting plate.





- 2 To secure the panel, slide forward the locks on both sides of the mounting plate. Lock the panel with one screw at both sides (D).

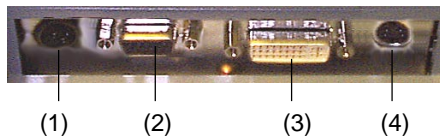


## 2.3 Connecting the signals

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### To connect the video & sync signals:

- 1 Connect one end of the appropriate video cable to the corresponding video input of the monitor.  
Analog video: Connect to input (2)  
S-Video: Connect to input (4)  
DVI: Connect to input (3)
- 2 Connect the other end of the video cable to the video output of your video source.  
Analog video: Computer graphics board with analog video output  
S-Video: E.g., S-VHS video player  
DVI: Computer graphics board with digital video output



### To connect the power:

- 1 Connect one end of the proper power cable to the AC input of the 12V DC adapter.
- 2 Connect the 12V supply of the 12V DC adapter to the DC input (1) of the monitor.
- 3 Connect the other end of the power cord to a grounded power outlet.

## 2.4 Starting up

---



### Proceed as follows:

- 1 Switch on the computer.
- 2 Switch on the display by pushing the Power key (9).
- 3 If necessary, select a suitable resolution in the computer operating system. Please refer to Appendix A, "Possible resolutions" in the back of this manual.

**Note:** The recommended resolution for best image quality is **1280x1024 at 60 Hz**.

The microcontroller in the display checks if the connected video signal has been adjusted before, and if these adjustments have been stored in the memory. There are 2 possibilities:

**a) The video signal has been adjusted and stored in the memory.**

In this case, the display switches to this memory location (the so-called mode) and the image will need no further adjustments.

**b) The video signal has not been adjusted and stored yet.**

In this case, the display will auto-size the picture and store the settings in one of the user modes.

## 2.5 Install the DICOM Optimizer software

---

### Proceed as follows:

Install the CD-ROM in the CD-ROM drive. The CD-ROM starts automatically. Please follow the instructions on the screen.

The CD-ROM contains user instructions about the usage of the DICOM Optimizer.

# 3. ON-SCREEN DISPLAY (OSD) MENUS

## 3.1 How to use the OSD



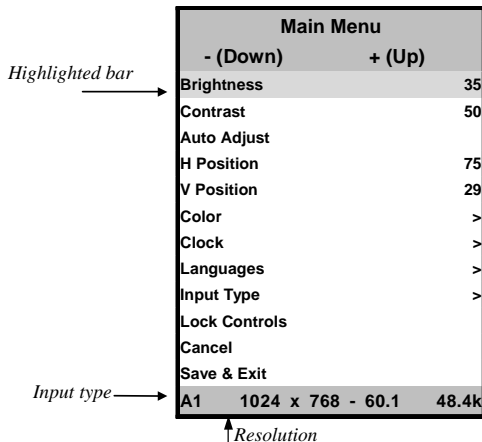
### Proceed as follows:

- 1 Press the Menu key (5) on the front to display the OSD main menu.

### Note:

It may be possible that the OSD menu does not appear. If this is the case, the front Controls are locked. To unlock them, please follow the procedure described in § 3.2 below.

- 2 Press the <+> key (7) or <-> key (6) to scroll to the desired menu item.
- 3 Press the Menu key (5) to activate the selected function or to enter the selected secondary menu.
- 4 If you have activated a function:
  - a) Press the <+> key (7) or <-> key (6) to change the value.
  - b) Press the Menu key (5) to enter the new value and return to the menu.
- 5 To exit the OSD while saving the changes, select **Save & Exit**.  
To exit the OSD *without* saving the changes, select **Cancel**.



**Note:** The OSD disappears automatically after an inactivity period of 30 seconds.

*The color of the highlight bar indicates the status of the mode.*

*RED indicates the function is selected and ready to be adjusted.*

*Blinking RED indicates OSD is in parameter adjusting mode.*

## 3.2 Description of the menu items

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### Main menu

Function	Description
<b>Brightness</b>	To adjust the overall image and background brightness level.
<b>Contrast</b>	To adjust the image brightness in relation to the background (the background is unchanged).
<b>Auto Adjust *</b>	To automatically set the H Position, V Position and Clock.
<b>Horizontal Position*</b>	To move the screen horizontally left or right.
<b>Vertical Position*</b>	To move the screen vertically upward or downward.
<b>Color</b>	To adjust parameters for the screen colors of Red, Green and Blue.
<b>Clock</b>	To adjust the function only when characteristics are blurred.
<b>Languages</b>	To select English, French, Italian, German or Spanish for OSD language.
<b>Input Type</b>	To select Analog (A1), DVI-D (D), or S-Video (SV) input source.
<b>Lock Controls **</b>	When locked, the OSD menu will not appear when pressing the Menu key.
<b>Cancel</b>	To restore the previous setting.
<b>Save &amp; Exit</b>	To save the adjustments and quit the OSD menu.

\*The Auto Adjust and Horizontal/ Vertical Position cannot function under the S-Video input type.

\*Auto Adjust function will be automatically executed whenever the system is switched to a new mode. When the system is changed to this mode again later on, the system will not repeat the Auto Adjust function. This function is only valid when the mode concerned is selected for the first time.

\*\*To unlock the Controls, proceed as follows:

- 1 Press the Power key to switch off the display
- 2 With one hand, press and hold the <+> and the <-> key at the same time.  
With the other hand, press the Power key **shortly** to switch the display on again.
- 3 Keep holding the <+> and the <-> key for about 3 seconds.
- 4 At last, release the <+> and the <-> key.  
Now, by pressing the Menu key, the OSD menu will appear.

## Video menu

Video Menu	
- (Down)	+ (Up)
Brightness	35
Contrast	50
Saturation	50
Hue	60
Input Type	>
Lock Controls	
Cancel	
Save & Exit	
SV 1024 x 768 - 60.1 48.4k	

When you select a video input source, the Main menu changes into the **Video Menu**.

Function	Description
<b>Brightness</b>	To adjust the overall image and background brightness level.
<b>Contrast</b>	To adjust the image brightness in relation to the background (the background is unchanged).
<b>Saturation</b>	To adjust the color's saturation of a parameter, such as light and shade control of preference display colors.
<b>Hue</b>	To adjust the color's hue of a parameter, such as vivid colors control of preference display colors.
<b>Input Type</b>	To select Analog (A1), DVI-D (D), or S-Video (SV) input source.
<b>Lock Controls</b>	When locked, the OSD menu will not appear when pressing the Menu key.
<b>Cancel</b>	To restore the previous setting.
<b>Save &amp; Exit</b>	To save the adjustments and quit the OSD menu.

### Note:

The bottom line of the OSD shows the input type, current resolution of the monitor and status of vertical sync. If it shows user mode, please refer to the monitor Preset mode.

## Color Menu

Color Menu	
- (Down)	+ (Up)
Auto Balance	
Red	68
Green	65
Blue	70
Main Menu	>
A1 1024 x 768 - 60.1	48.4k

**Note:** The color menu cannot function under S-Video input type.

Function	Description
<b>Auto Balance</b>	To automatically adjust the contrast level of RGB. This does not support resolution of Mac 832 x 624 at 75Hz.
<b>R</b>	To adjust the level of color Red.
<b>G</b>	To adjust the level of color Green.
<b>B</b>	To adjust the level of color Blue.
<b>Main Menu</b>	To return to Main Menu.

**To perform the Autobalance function,** you need to select a proper test pattern before performing the function.

Proceed as follows:

- 1 You must have installed the Barco DICOM optimizer software.
- 2 Open the Windows Control Panel.
- 3 open the **Display** control panel.
- 4 Select the **Barco DICOM optimizer** tab.
- 5 Click on **Test Patterns**.
- 6 Select the **Auto Adjust** test pattern.
- 7 Now perform the function **Autobalance** from the MFCD 1218 control panel.
- 8 When finished, click on **Back to Optimizer** to close the test pattern.
- 9 Close the control panel.

## Clock Menu

Clock Menu	
- (Down)	+ (Up)
OSD Position	
Clock	1344
Clock Phase	4
Main Menu	>
A1 1024 x 768 - 60.1	48.4k

Function	Description
<b>OSD Position</b>	To display the OSD to your preferred position.
<b>Clock *</b>	To adjust the function only when characteristics are blurred.
<b>Clock Phase *</b>	To adjust ADC sampling clock phase.
<b>Main Menu</b>	To return to Main Menu.

\* **Note:** The Clock and Clock phase function cannot function under S-Video input type.

## 4. MAINTENANCE

### Panel

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Take care not to damage or scratch the panel. Clean with a soft woolen or cotton towel. Use a watery solution or a mild commercial glass cleaning solution.

### Cabinet

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Do not use chemical cleaning products, benzene, toluene, xylene or other solvents.

Clean with a soft cloth dampened with mild detergent and water. Repeat this with water only and wipe dry with a dry cloth.

## 5. TROUBLESHOOTING

### Pixel Faults

---

Permanently dark or bright pixels can happen to TFT displays. 10 or less permanently dead pixels do not make out a good case for exchanging the unit.

Please contact our Customer Service Department if the number of pixel faults exceeds the above-mentioned figure.

# APPENDIX A: POSSIBLE RESOLUTIONS

There are 22 preset modes and 2 user modes. The following modes are preset as factory defaults.

Resolution	Pixel Freq. (MHz)	Horizontal Freq. (kHz)	Vertical Freq. (Hz)	Standard	Analog	Digital
<b>640 x 350</b>	25.175	31.47	70	VGA	V	V
<b>640 x 480</b>	25.175	31.47	60	VGA/VESA	V	V
	30.24	35.00	67	Mac	V	
	31.50	37.90	72	VESA	V	
	31.50	37.50	75	VESA	V	
	36.00	43.30	83	VESA	V	
<b>720 x 400</b>	28.321	31.47	70	VGA	V	V
<b>800 x 600</b>	36.00	35.10	56	VESA	V	
	40.00	37.88	60	VESA	V	V
	50.00	48.10	72	VESA	V	
	49.50	46.88	75	VESA	V	
	56.25	53.70	85	VESA	V	
<b>832 x 624</b>	57.29	49.80	74.6	Mac	V	
<b>1024 x 768</b>	65.00	48.36	60	VESA	V	V
	75.00	56.50	70	VESA	V	
	78.80	60.02	75	VESA/CRUS	V	
	80	60.24	75	Mac	V	
	94.50	68.70	85	VESA	V	
<b>1152 x 864</b>	108	67.50	75	VESA	V	
<b>1280 x 1024</b>	108	63.98	60	VESA	V	V
	135	80	75	VESA	V	
	157.5	91.146	85	VESA	V	



# APPENDIX B: TECHNICAL SPECIFICATIONS

## Picture panel

18.1-inch diagonal viewable screen  
TFT (thin film transistor) active matrix,  
color liquid crystal display, RGB  
interface

## Resolution

SXGA 1280 x 1024 @ 85 Hz (native)

## Display area (H x V)

359 x 287 (mm)

## Viewing angle

Vertical: 160°

Horizontal: 160°

## Input signals

Analog: Hor. 31.47 to 91.2 kHz

Vert. 56 to 85 Hz

Digital: Hor. 31.47 to 64 kHz

Vert. 60 to 70 Hz

TV-video: NTSC (3.58M), PAL (4.43M)

Video: 0.7 Vpp

Sync: TTL level

## Max. video input bandwidth

157.5 MHz

## Display color

16M

## Signal system

Analog RGB signals, DVI Analog/

Digital, Video (S-Video, Composite)

## Luminance

250 cd/m<sup>2</sup> (typ.)

## Contrast ratio

350:1 (typ.)

## Response time

20ms rise time (typ.)

## Front panel controls

Menu, - (down / decrease), + (up /  
increase), Power

## Pixel Pitch

0.2805mm (H) x 0.2805mm (V)

## OSD menu controls

Brightness, Contrast, Color, H-  
position, V-position, Clock, Phase,  
Input Signal Source, OSD position,  
Language, Auto-Adjust, Auto-Balance,  
Factory Reset

## Input connectors

15-pin D-sub

(for PC graphic signal input)

3P - Mini - DIN - Power - Connector

(for DC 12V, 6.5A input)

Mini - DIN - 6 - Connector

(for S-video and composite input)

DVI connector

## Power source

100 ~ 240 VAC

## Power consumption

48 watts (max.)

## Power saving

VESA DPMS standard

EPA/Energy Star compliant

## PnP compatibility

VESA DDC 2B standards compliant

**Safety standards**

UL1950, cUL CAN/CSA C22.2 No.  
950-95, CE

**Dimensions (W x H x D)**

450 mm x 461.8 mm x 213.9 mm

**Net weight**

7.7 kg

**Operating Temperature**

10°C to 35°C

**Storage Temperature**

-10°C to 60°C

**NOTICE:**

*DUE TO OUR POLICY OF  
CONTINUOUS PRODUCT  
IMPROVEMENT, THE ABOVE  
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