PHILIPS

Brilliance

C240P4

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Table of Contents

1. Important

The monitor is intended for use with Medical Equipment to display alpha, numerical and graphical data. The subject equipment Philips monitor is powered by an external recognized AC/DC adaptor. (IEC/EN60601-1).

1.1 Power adapter safety Information

Power adapter

This adapter (Manufacture: Philips, Model: PMP60-13-1-HJ-S) is a forming part of the monitor.

The connection of external equipments

External equipment intended for connection to signal input/output or other connectors, shall comply with relevant UL / IEC standard (e.g. UL 60950 for IT equipment, UL 60601-1-1 and ANSI/AAMI ES60601-1 / IEC 60601 series for systems – shall comply with the standard IEC 60601-1-1, Safety requirements for medical electrical systems.

Disconnecting Device

The mains plug or appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable. Always completely disconnect the power cord set from your product whenever you are working or cleaning on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Classification

- Degree of protection against the ingress of water: IPX0
- Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide. (Non AP or APG Category)
- Mode of operation: Continuous
- Type of protection against electric shock: Class I ME Equipment
- No Applied part.

Shutdown Procedure

We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below.

- Close all application programs
- Close operating software
- Turn off power switch
- Disconnect power cord set
- Remove all devices

Safety Symbol Description

The following safety symbols are the further explanations for your reference.

	With respect to electric shock, fire and mechanical hazards only in accordance with ANSI/AAMI ES60601-1, and CAN/CSA C22.2 NO. 60601-1
	Attention, consult ACCOMPANYING DOCUMENTS.
	Type of Current- AC
	Dircet Current
	European Community Approval, The monitor complies with the 93/42/EEC and 2007/47/EC and conforms to the applicable following standards: EN60601-1, EN 60601-1-2, EN 61000-3-2 and EN 61000-3-3.
	TUV Type Testing Approval, The monitor complies with the EN60601-1 and IEC60601-1 of European Standards.
	Power "ON"
	Power "OFF"
	Medical Equipment With respect to electric shock,, fire and mechanical hazards only in accordance with ANSI/AAMI ES 60601-1:2005, and CAN/CSA C22.2 NO.60601-1:2008

Note

- Caution: Use suitable mounting apparatus to avoid risk of injury.
- Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standards of your particular country.
- Make sure user does not contact SIP/SOPs and the patient at the same time.

1.2 EMC information

Guidance and manufacturer's declaration – electromagnetic emissions – for all EQUIPMENT and SYTEMS

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

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The monitor 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 monitor 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	

Guidance and manufacturer's declaration – electromagnetic immunity – for all EQUIPMENT and SYTEMS:

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

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	6 kV contact 8 kV air	6 kV contact 8 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.
Surge IEC 61000-4-5	1 kV line(s) to line(s) 2 kV line(s) to earth	1 kV line(s) to line(s) 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % UT (>95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 sec	<5 % UT (>95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the monitor requires continued operation during power mains interruptions, it is recommended that the monitor be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Note

UT is the a.c. mains voltage prior to application of the test level.

Guidance and manufacturer's declaration – electromagnetic immunity – for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING:

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

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the monitor, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 1.2\sqrt{P}$ 800 MHz to 2.5 GHz where ***P*** is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey: a. Should be less than the compliance level in each frequency range. b. Interference may occur in the vicinity of equipment marked with the following symbol: 

Note

- At 80 MHz and 800 MHz, the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
- Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the monitor is used exceeds the applicable RF compliance level above, the monitor should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the monitor.
- Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the EQUIPMENT or SYSTEM – for EQUIPMENT and SYSTEMS that are not LIFE-SUPPORTING:

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

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

Note

- For transmitters rated at a maximum output power not listed above, the recommended separation distance ***d*** in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where ***P*** is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
- At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
- These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

1.3 Safety precautions and maintenance

Warnings

- We strongly recommended that you should shut down the system before you start to clean any single components.
- No modification of this equipment is allowed.
- Use of controls, adjustments or procedures other than those specified in this documentation may result in exposure to shock, electrical hazards and/or mechanical hazards.
- Read and follow these instructions when connecting and using your computer monitor.

Operation

- Please keep the monitor out of direct sunlight, very strong bright lights and away from any other heat source. Lengthy exposure to this type of environment may result in discoloration and damage to the monitor.
- Remove any object that could fall into ventilation holes or prevent proper cooling of the monitor's electronics.
- Do not block the ventilation holes on the cabinet.
- When positioning the monitor, make sure the power plug and outlet are easily accessible.
- If turning off the monitor by detaching the power cable or DC power cord, wait for 6 seconds before attaching the power cable or DC power cord for normal operation.
- Please use approved power cord provided by Philips all the time. If your power cord is missing, please contact with your local service center. (Please refer to Customer Care Consumer Information Center)
- Do not subject the monitor to severe vibration or high impact conditions during operation.
- Do not knock or drop the monitor during operation or transportation.

Maintenance

- To protect your monitor from possible damage, do not put excessive pressure on the monitor panel. When moving your monitor, grasp the frame to lift; do not lift the monitor by placing your hand or fingers on the monitor panel.
- Unplug the monitor if you are not going to use it for an extensive period of time.
- Unplug the monitor if you need to clean it with a slightly damp cloth. The screen may be wiped with a dry cloth when the power is off. However, never use organic solvent, such as, alcohol, or ammonia-based liquids to clean your monitor.
- To avoid the risk of shock or permanent damage to the set, do not expose the monitor to dust, rain, water, or excessive moisture environment.
- If your monitor gets wet, wipe it with dry cloth as soon as possible.
- If foreign substance or water gets in your monitor, please turn the power off immediately and disconnect the power cord. Then, remove the foreign substance or water, and send it to the maintenance center.

- Do not store or use the monitor in locations exposed to heat, direct sunlight or extreme cold.
- In order to maintain the best performance of your monitor and use it for a longer lifetime, please use the monitor in a location that falls within the following temperature and humidity ranges.
  - Temperature: 10°C to 40°C
  - Humidity: 30% to 75%
  - Atmospheric pressure: 700 to 1060 hPa

Important information for Burn-in/ Ghost image

- Always activate a moving screen saver program when you leave your monitor unattended. Always activate a periodic screen refresh application if your monitor will display unchanging static content. Uninterrupted display of still or static images over an extended period may cause “burn in”, also known as “after-imaging” or “ghost imaging”, on your screen.
- “Burn-in”, “after-imaging”, or “ghost imaging” is a well-known phenomenon in LCD panel technology. In most cases, the “burned in” or “after-imaging” or “ghost imaging” will disappear gradually over a period of time after the power has been switched off.

Warning

Failure to activate a screen saver, or a periodic screen refresh application may result in severe “burn-in” or “after-image” or “ghost image” symptoms that will not disappear and cannot be repaired. The damage mentioned above is not covered under your warranty.

Service

- The casing cover should be opened only by qualified service personnel.
- If there is any need for any document for repair or integration, please contact with your local service center. (please refer to the chapter of “Consumer Information Center”)
- For transportation information, please refer to “Technical Specifications”.
- Do not leave your monitor in a car/ trunk under direct sun light.

Note

Consult a service technician if the monitor does not operate normally, or you are not sure what procedure to take when the operating instructions given in this manual have been followed.

1.4 Notational Descriptions

The following subsections describe notational conventions used in this document.

Notes, Cautions and Warnings

Throughout this guide, blocks of text may be accompanied by an icon and printed in bold or italic type. These blocks contain notes, cautions or warnings. They are used as follows:

Note
This icon indicates important information and tips that help you make better use of your computer system.

Caution
This icon indicates information that tells you how to avoid either potential damage to hardware or loss of data.

Warning
This icon indicates the potential for bodily harm and tells you how to avoid the problem.

Some warnings may appear in alternate formats and may not be accompanied by an icon. In such cases, the specific presentation of the warning is mandated by the relevant regulatory authority.

Do not modify this equipment without authorization of the manufacturer.

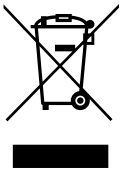
The monitor shall not be used for critical diagnosis purpose or for life supporting system.

WARNING

TO AVOID RISK OF ELECTRIC SHOCK, THIS EQUIPMENT MUST ONLY BE CONNECTED TO A SUPPLY MAINS WITH PROTECTIVE EARTH.

1.5 Disposal of product and packing material

Waste Electrical and Electronic Equipment-WEEE



This marking on the product or on its packaging illustrates that, under European Directive 2012/19/EU governing used electrical and electronic appliances, this product may not be disposed of with normal household waste. You are responsible for disposal of this equipment through a designated waste electrical and electronic equipment collection. To determine the locations for dropping off such waste electrical and electronic, contact your local government office, the waste disposal organization that serves your household or the store at which you purchased the product.

Your new monitor contains materials that can be recycled and reused. Specialized companies can recycle your product to increase the amount of reusable materials and to minimize the amount to be disposed of.

All redundant packing material has been omitted. We have done our utmost to make the packaging easily separable into mono materials.

Please find out about the local regulations on how to dispose of your old monitor and packing from your sales representative.

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product

Taking back/Recycling Information for Customers

Philips establishes technically and economically viable objectives to optimize the environmental performance of the organization's product, service and activities.

From the planning, design and production stages, Philips emphasizes the important of making products that can easily be recycled. At Philips, end-of-life management primarily entails participation in national take-back initiatives and recycling programs whenever possible, preferably in cooperation with competitors, which recycle all materials (products and related packaging material) in accordance with all Environmental Laws and taking back program with the contractor company.

Your display is manufactured with high quality materials and components which can be recycled and reused.

To learn more about our recycling program please visit:

http://www.philips.com/a-w/about/sustainability.html

MMD Monitors & Displays Nederland B.V.

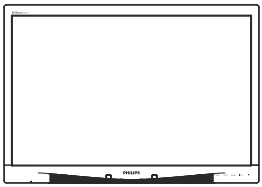
Prins Bernhardplein 200, 6th floor
1097 JB Amsterdam, The Netherlands

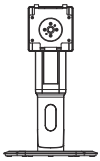
Disposal of Waste Equipment by Users in Private Household in the European Union.

2. Setting up the monitor

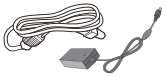
2.1 Installation

1 Package contents

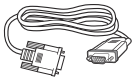




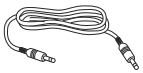
*CD



AC/DC Adapter



*VGA



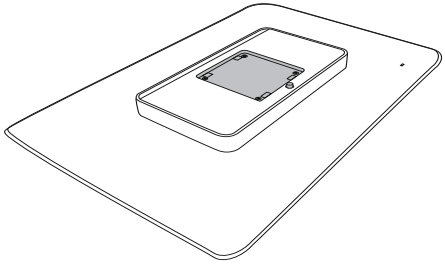
*Audio cable

*DVI

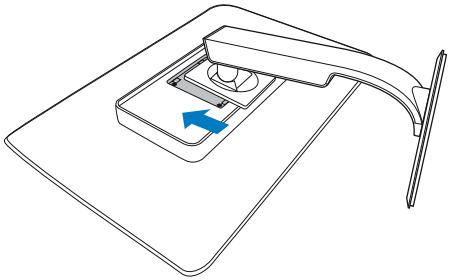
* Different according to region.

2 Install the base

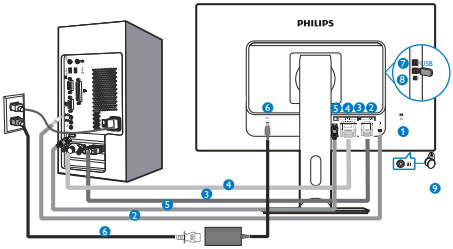
1. Place the monitor face down on a smooth surface. Pay attention not to scratch or damage the screen.



2. Snap in the base in the VESA mount area.



3 Connecting to your PC



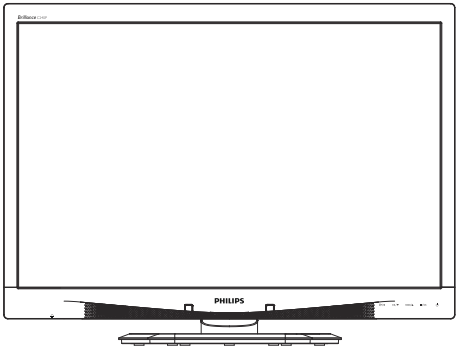
1. Kensington anti-theft lock
2. Audio input
3. VGA input
4. DVI input
5. DisplayPort
6. AC-DC Adapter
7. USB downstream
8. USB upstream
9. Earphone jack

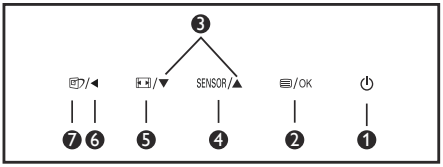
Connect to PC

1. Connect the power cord to the back of the monitor firmly.
2. Turn off your computer and unplug its power cable.
3. Connect the monitor signal cable to the video connector on the back of your computer.
4. Plug the power cord of your computer and your monitor into a nearby outlet.
5. Turn on your computer and monitor. If the monitor displays an image, installation is complete.

2.2 Operating the monitor

1 Description of the control buttons





1	⏻	Switch monitor's power ON and OFF.
2	/OK	Access the OSD menu. Confirm the OSD adjustment.
3	▲ ▼	Adjust the OSD menu.
4	SENSOR	Set the sensor level for backlight automatic control.
5		Change display format.
6	◀	Return to previous OSD level.
7		SmartImage[CLINIC] hot key. There are 6 modes to select: Clinical D-Image, Text, sRGB image, Video, Standard, Off.

2 Description of the On Screen Display

What is On-Screen Display (OSD)?

On-Screen Display (OSD) is a feature in all Philips LCD monitors. It allows an end user to adjust screen performance or select functions of the monitors directly through an on-screen instruction window. A user friendly on screen display interface is shown as below:

Basic and simple instruction on the control keys

In the OSD shown above, you can press ▼▲ buttons at the front bezel of the monitor to move the cursor, and press OK button to confirm the choice or change.

The OSD Menu

Below is an overall view of the structure of the On-Screen Display. You can use this as a reference when you want to work your way around the different adjustments later on.

Main menu	Sub menu	
Power Sensor	On	0, 1, 2, 3, 4
	Off	
Input	VGA	
	DVI	
	DisplayPort	
Picture	Picture Format	Wide Screen, 4:3
	Brightness	0~100
	Contrast	0~100
	BlackLevel	0~100
	SmartResponse	off, Fast, Faster, Fastest
	SmartTxt	Off, On
	Pixel Orbiting	Off, On
	OverScan	Off, On
Audio	Volume	0~100
	Stand-Alone	Off, On
	Mute	Off, On
	DP Audio	DP, Audio In
Color	Color Temperature	5000K, 6500K, 7500K, 8200K, 9300K, 11500K
	sRGB	
	User Define	Red: 0~100
		Green: 0~100
		Blue: 0~100
Language	English, Español, Français, Deutsch, Italiano, Português, Русский , 简体中文, Türkçe, Nederlands, Svenska, Suomi, Polski, Čeština 한국어, 日本語, Maryar, Українська, Português do Brasil, Ελληνική, 繁體中文	
OSD Settings	Horizontal	0~100
	Vertical	0~100
	Transparency	Off, 1, 2, 3, 4
	OSD Time Out	5s, 10s, 20s, 30s, 60s
	Power On Logo	Off, On
Setup	Auto	
	Power LED	0, 1, 2, 3, 4
	H.Position	0~100
	V.Position	0~100
	Phase	0~100
	Clock	0~100
	Resolution Notification	On, Off
	Reset	Yes, No
	Information	

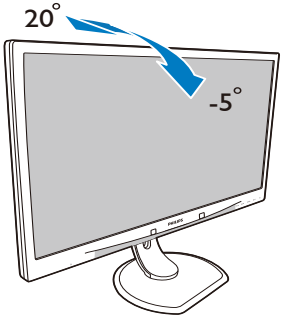
3 Resolution notification

This monitor is designed for optimal performance at its native resolution, 1920 × 1200 @ 60 Hz. When the monitor is powered on at a different resolution, an alert is displayed on screen: Use 1920 × 1200 @ 60 Hz for best results.

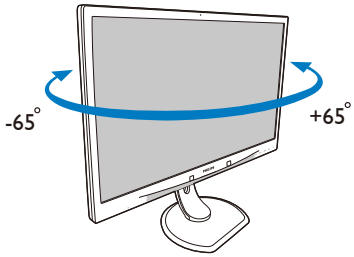
Display of the native resolution alert can be switched off from Setup in the OSD (On Screen Display) menu.

4 Physical Function

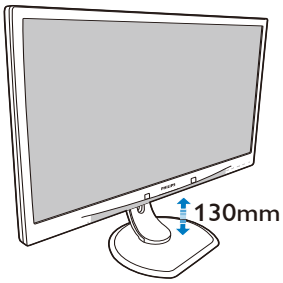
Tilt



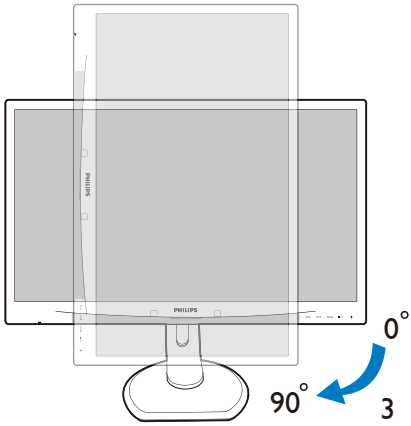
Swivel



Height adjustment



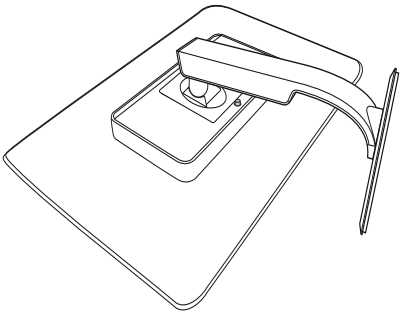
Pivot



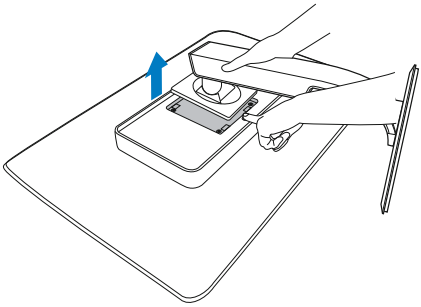
2.3 Remove the Base Assembly for VESA Mounting

Before you start disassembling the monitor base, please follow the instructions below to avoid any possible damage or injury.

1. Place the monitor face down on a smooth surface. Pay attention not to scratch or damage the screen.



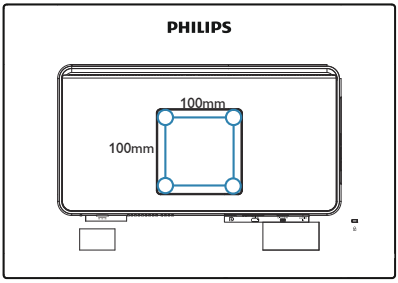
2. Remove the base assembly.



Note

This monitor accepts a 100mm x 100mm mounting interface.

(Screw type: M4x10)



3. Image Optimization

3.1 SmartImage^{CLINIC}

1 What is it?

SmartImage^{CLINIC} provides presets that optimize display for different types of content, dynamically adjusting brightness, contrast, color and sharpness in real time. Whether you're working with text applications, displaying images or watching a video, Philips SmartImage^{CLINIC} delivers great optimized monitor performance.

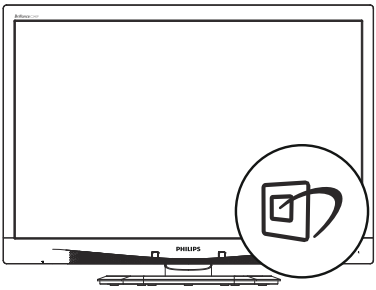
2 Why do I need it?

You want a monitor that delivers optimized display all your favorite types of content, SmartImage^{CLINIC} software dynamically adjust brightness, contrast, color and sharpness in real time to enhance your monitor viewing experience.

3 How does it work?

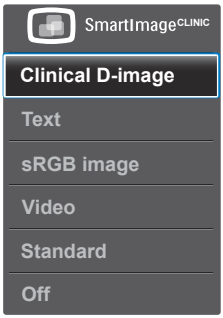
SmartImage^{CLINIC} is an exclusive, leading edge Philips technology that analyzes the content displayed on your screen. Based on a scenario you select, SmartImage^{CLINIC} dynamically enhances the contrast, color saturation and sharpness of images to enhance the contents being displayed - all in real time with the press of a single button.

4 How to enable SmartImage^{CLINIC}

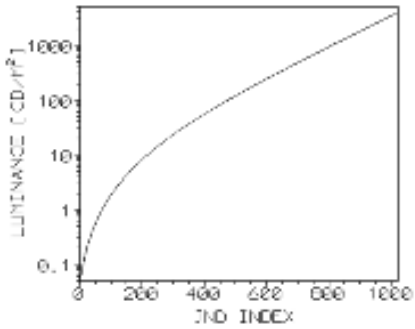


1. Press to launch the SmartImage^{CLINIC} on screen display.
2. Keep pressing ▼▲ to toggle among Clinical D-Image, Text, sRGB image, Video, Standard, Off.
3. The SmartImage^{CLINIC} on screen display will remain on screen for 5 seconds, or you can also press "OK" to make confirmation.

There are six modes to select: Clinical D-Image, Text, sRGB image, Video, Standard, Off.



- Clinical D-Image:



Monitors must show medical images consistently with high quality in order to achieve reliable interpretations. The rendering of medical Grayscale images on standard monitors is mostly inconsistent at best, making them unsuitable for usage in a clinical environment. Philips clinical review displays with clinical D-image preset are factory calibrated to give DICOM part 14 compatible Grayscale standard display performance. By using high quality LCD panels with LED technology, Philips offers you consistent and reliable performance at an affordable price point. For more information on DICOM please visit http://medical.nema.org/

- Text: It helps improve reading of text based application like PDF ebooks. By using a special algorithm which increases the contrast and boundary sharpness of text content, the display is optimized for a stress-free reading by adjusting the brightness, contrast and color temperature of the monitor.
- sRGB image: sRGB is an industry standard supported by major companies that ensures the best possible match between the colors displayed on your screen and those in your printouts. The sRGB color space is well specified and is designed to match typical home and office viewing conditions, rather than the darker environment typically used for commercial color matching.
- Video: This mode boosts up luminance (brightness), deepens color saturation and activates dynamic contrast. Pictures become razor sharp. Details in darker areas of your videos are now visible, without the associated color washout in brighter areas, giving you ultimate viewing experience.
- Standard: This preset mode switches the Philips display to a factory standard image default mode.
- Off: No optimization by SmartImage^{CLINIC}.

Note

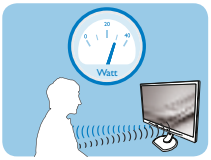
D-image mode for usage in a clinical environment, Stand mode for normal display mode.

4. PowerSensor™

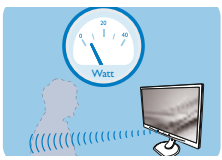
1 How does it work?

- PowerSensor works on principle of transmission and reception of harmless “infrared” signals in order to detect user-presence.
- When the user is in front of the monitor the monitor operates normally, at the predetermined settings that the user has set- i.e. Brightness, contrast, color, etc
- Assuming that the monitor was set to 100% of brightness for example, when the user leaves his seat and is no longer in front of the monitor, the monitor automatically reduces the power consumption upto 80%.

User present in front



User not present



Power consumption as illustrated above is for reference purpose only

2 Setting

Default settings

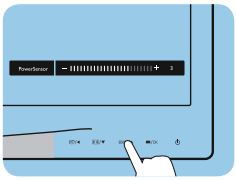
PowerSensor is designed to detect the presence of the user located between 30 and 100 cm (12 and 40 inches) from the display and within five degrees left or right of the monitor.

Custom settings

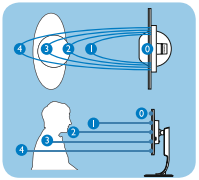
If you prefer to be in a position outside the perimeters listed above, choose a higher strength signal for optimal detection efficiency: The higher the setting, the stronger the detection signal. For maximum PowerSensor efficiency and proper detection, please position yourself directly in front of your monitor.

- If you choose to position yourself more than 100 cm or 40 inches from the monitor use the maximum detection signal for distances up to 120 cm or 47 inches. (Setting 4)
- Since some dark colored clothing tends to absorb infrared signals even when the user is within 100 cm or 40 inches of the display, step up signal strength when wearing black or other dark clothes.

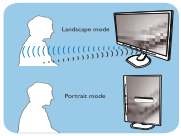
Hot key



Sensor distance



Landscape/Portrait mode



Above illustrations are for reference purpose only

3 How to adjust settings

If PowerSensor is not operating correctly inside or outside the default range, here’s how to fine-tune detection:

- Press the PowerSensor hot key
- You will find the adjustment bar.
- Adjust the PowerSensor detection adjustment to Setting 4 and press OK.
- Test the new setup to see if PowerSensor properly detects you in your current position.

4. PowerSensor™

- PowerSensor function is designed to work in Landscape mode (horizontal position) only. After PowerSensor turn on it, it will automatically turn Off if the monitor is used in Portrait mode (90 degree/vertical position); it will automatically turn ON if monitor is returned to its default Landscape position.

Note

A manually selected PowerSensor mode will remain operational unless and until it is readjusted or the default mode is recalled. If you find that the PowerSensor is excessively sensitive to nearby motion for some reason, please adjust to a lower signal strength.

5. Technical Specifications

Picture/Display	
Monitor Panel Type	IPS LCD
Backlight	LED
Panel Size	24" W (61 cm)
Aspect Ratio	16:10
Pixel Pitch	0.270 x 0.270 mm
Response time	14 ms
Optimum Resolution	1920 x 1200 @ 60Hz
Viewing Angle	178° (H) / 178° (V) @ C/R > 10
Display Colors	16.7M
Vertical Refresh Rate	48 Hz - 85 Hz
Horizontal Frequency	24 kHz - 94 kHz
sRGB	YES
Connectivity	
Signal Input	DVI(Digital), VGA(Analog), Display Port 1.2, USB2.0 x 4
Input Signal	Separate Sync, Sync on Green
Audio In/Out	PC audio-in,headphone out
Convenience	
DICOM compatible curve	Clinical D-image
Built-in speakers	2 W x 2
User Convenience	/◄ /▼ SENSOR/▲ /OK
OSD Languages	English, French, German, Spanish, Italian, Russian, Simplified Chinese, Portuguese, Turkish, Dutch, Swedish, Finnish, Polish, Czech, Korean, Japanese, Hungarian, Ukraine, Brazil Portuguese, Greek, Traditional Chinese
Other Convenience	Kensington Lock
Plug & Play Compatibility	DDC/CI, sRGB, Windows 8/7/Vista/XP, Mac OSX, Linux
Stand	
Tilt	-5° / +20°
Swivel	-65°/+65°
Height adjustment	130 mm
Pivot	90°

Power			
Consumption	AC Input Voltage at 100VAC, 50Hz	AC Input Voltage at 115VAC, 60Hz	AC Input Voltage at 230VAC, 50Hz
Normal Operation (typ.)	31.3 W	31.4 W	31.5 W
Sleep (Standby) (typ.)	0.5 W	0.5 W	0.5 W
Off (typ.)	0.3 W	0.3 W	0.3 W
Off (AC switch) (typ.)	0W	0W	0W
Heat Dissipation*	AC Input Voltage at 100VAC , 50Hz	AC Input Voltage at 115VAC , 60Hz	AC Input Voltage at 230VAC , 50Hz
Normal Operation	106.83 BTU/hr	107.17 BTU/hr	107.51 BTU/hr
Sleep (Standby)	1.71 BTU/hr	1.71 BTU/hr	1.71 BTU/hr
Off	1.02 BTU/hr	1.02 BTU/hr	1.02 BTU/hr
Off (AC switch)	0 BTU/hr	0 BTU/hr	0 BTU/hr
PowerSensor (typ.)	6.3 W		
Power LED indicator	On mode: White, Standby/Sleep mode: White (blinking)		
Power Supply	External AC/DC Adapter: Philips/PMP60-13-1-HJ-S Input: 100-240Vac, 47-63Hz, 1.22-0.68A Output: 17-21Vdc, 3.53A Monitor DC Input: 17-21Vdc, 3.53A		

Dimension	
Product with stand (WxHxD)	555 x 550 x 244 mm
Product without stand (WxHxD)	555 x 388 x 65 mm
Product with packaging (WxHxD)	632 x 457 x 286 mm
Weight	
Product with stand	6.97 kg
Product without stand	4.64 kg
Product with packaging	9.80 kg

Operating Condition	
Operation Condition	Temperature: 10ºC to 40ºC Humidity: 30% to 75% RH Atmospheric pressure: 700 to 1060 hPa
Non-operation Condition	Temperature: -20ºC to +60ºC Humidity: 10% to 90% RH Atmospheric pressure: 500 to 1060 hPa

Environmental	
ROHS	YES
Packaging	100% recyclable
Specific Substances	100% PVC BFR free housing
Compliance and standards	
Regulatory Approvals	CE Mark, TCO Certified, TUV/GS, TUV Ergo, WEEE, JIS Z2801, IEC/EN60601-1-2,UL/cUL, RCM, IEC/EN60601-1, ISO13485, CCC, CECP
Cabinet	
Color	White
Finish	Texture

Note

1. This data is subject to change without notice. Go to www.philips.com/support to download the latest version of leaflet.

5.1 Resolution & Preset Modes

1 Maximum Resolution
1920 x 1200 @ 60 Hz (analog input)
1920 x 1200 @ 60 Hz (digital input)

2 Recommended Resolution
1920 x 1200 @ 60 Hz (digital input)

H. freq (kHz)	Resolution	V. freq (Hz)
31.47	720x400	70.09
31.47	640x480	59.94
35.00	640x480	66.67
37.86	640x480	72.81
37.50	640x480	75.00
37.88	800x600	60.32
46.88	800x600	75.00
48.36	1024x768	60.00
60.02	1024x768	75.03
44.77	1280x720	59.86
63.89	1280x1024	60.02
79.98	1280x1024	75.03
55.94	1440x900	59.89
70.64	1440x900	74.98
64.67	1680x1050	59.88
65.29	1680x1050	59.95
66.59	1920x1080	59.93
74.04	1920x1200	59.95
67.50	1920x1080	60.00
75.00	1600x1200	60.00

Note
Please notice that your display works best at native resolution of 1920 x 1200 @ 60Hz. For best display quality,please follow this resolution recommendation.

6. Power Management

If you have VESA DPM compliance display card or software installed in your PC, the monitor can automatically reduce its power consumption when not in use. If an input from a keyboard, mouse or other input device is detected, the monitor will 'wake up' automatically. The following table shows the power consumption and signaling of this automatic power saving feature:

Power Management Definition					
VESA Mode	Video	H-sync	V-sync	Power Used	LED Color
Active	ON	Yes	Yes	31.4 W (typ.) 61 W (Max)	White
Sleep (Standby)	OFF	No	No	0.5 W (typ.)	White (blink)
Switch Off	OFF	-	-	0 W (AC switch)	OFF

The following setup is used to measure power consumption on this monitor.

- Native resolution: 1920 x 1200
- Contrast: 50%
- Brightness: 100%
- Color temperature: 6500k with full white pattern

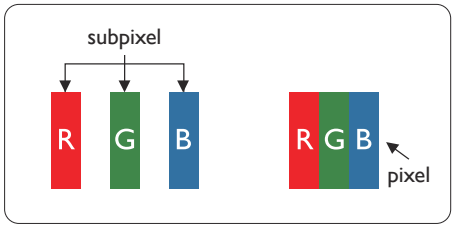
Note

This data is subject to change without notice.

7. Customer care and warranty

7.1 Philips' Flat Panel Monitors Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or sub pixel defects on the TFT Monitor panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT Monitor panel must exceed these acceptable levels. For example, no more than 0.0004% of the sub pixels on a monitor may be defective. Furthermore, Philips sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide.



Pixels and Sub pixels

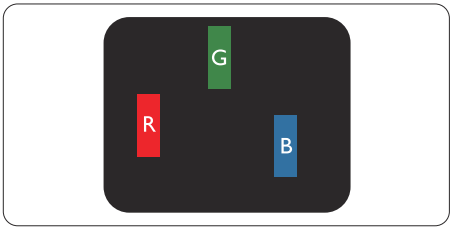
A pixel, or picture element, is composed of three sub pixels in the primary colors of red, green and blue. Many pixels together form an image. When all sub pixels of a pixel are lit, the three colored sub pixels together appear as a single white pixel. When all are dark, the three colored sub pixels together appear as a single black pixel. Other combinations of lit and dark sub pixels appear as single pixels of other colors.

Types of Pixel Defects

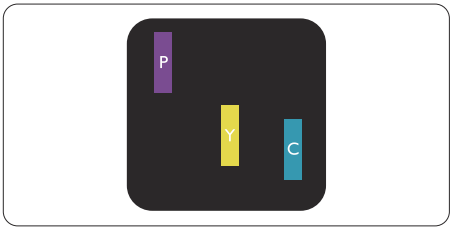
Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category.

Bright Dot Defects

Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. That is, a bright dot is a sub-pixel that stands out on the screen when the monitor displays a dark pattern. There are the types of bright dot defects.

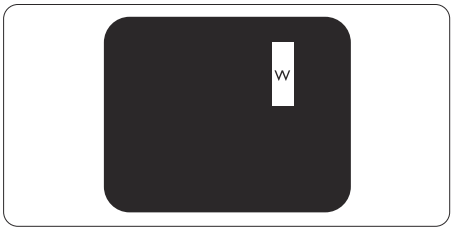


One lit red, green or blue sub pixel.



Two adjacent lit sub pixels:

- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)

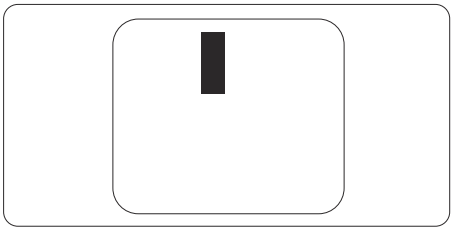


Three adjacent lit sub pixels (one white pixel).

Note
A red or blue bright dot must be more than 50 percent brighter than neighboring dots while a green bright dot is 30 percent brighter than neighboring dots.

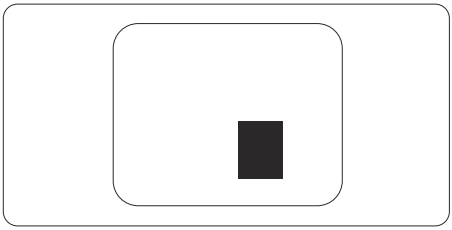
Black Dot Defects

Black dot defects appear as pixels or sub pixels that are always dark or 'off'. That is, a dark dot is a sub-pixel that stands out on the screen when the monitor displays a light pattern. These are the types of black dot defects.



Proximity of Pixel Defects

Because pixel and sub pixels defects of the same type that are near to one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.



Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT Monitor panel in a Philips flat panel monitor must have pixel or sub pixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL
1 lit subpixel	3
2 adjacent lit subpixels	1
3 adjacent lit subpixels (one white pixel)	0
Distance between two bright dot defects*	>15mm
Total bright dot defects of all types	3

BLACK DOT DEFECTS	ACCEPTABLE LEVEL
1 dark subpixel	5 or fewer
2 adjacent dark subpixels	2 or fewer
3 adjacent dark subpixels	0
Distance between two black dot defects*	>15mm
Total black dot defects of all types	5 or fewer

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL
Total bright or black dot defects of all types	5 or fewer

Note

1. 1 or 2 adjacent sub pixel defects = 1 dot defect
2. This monitor is ISO9241-307 compliant. (ISO9241-307: Ergonomic requirement,analysis and compliance test methods for electronic visual displays)
3. ISO9241-307 is the successor of formerly known ISO13406 standard, which is withdrawn by the International Organisation for Standardisation (ISO) per: 2008-11-13.

7.2 Customer Care & Warranty

For warranty coverage information and additional support requirements valid for your region, please visit www.philips.com/support website for details or contact your local Philips Customer Care Center.
For extended warranty, if you would like to extend your general warranty period, an Out of Warranty service package is offered via our Certified Service Center.

If you wish to make use of this service, please be sure to purchase the service within 30 calendar days of your original purchase date. During the extended warranty period, the service includes pickup, repair and return service, however the user will be responsible for all costs accrued.
If the Certified Service Partner cannot perform the required repairs under the offered extended warranty package, we will find alternative solutions for you, if possible, up to the extended warranty period you have purchased.

Please contact our Philips Customer Service Representative or local contact center (by Consumer care number) for more details.

Philips Customer Care Center number listed below.

• Local Standard Warranty Period	• Extended Warranty Period	• Total Warranty Period
• Depend on different Regions	• + 1 Year	• Local Standard warranty period +1
	• + 2 Years	• Local Standard warranty period +2
	• + 3 Years	• Local Standard warranty period +3

**Proof of original purchase and extended warranty purchase required.

Note

Please refer to Important Information manual for regional service hotline, which is available on the Philips website support page.

8. Troubleshooting & FAQs

8.1 Troubleshooting

This page deals with problems that can be corrected by a user. If the problem still persists after you have tried these solutions, contact Philips customer service representative.

1 Common Problems

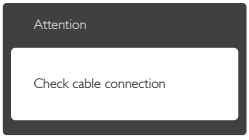
No Picture (Power LED not lit)

- Make sure the power cord is plugged into the power outlet and into the back of the monitor.
- First, ensure that the power button on the front of the monitor is in the OFF position, then press it to the ON position.

No Picture (Power LED is White)

- Make sure the computer is turned on.
- Make sure the signal cable is properly connected to your computer.
- Make sure the monitor cable has no bent pins on the connect side. If yes, repair or replace the cable.
- The Energy Saving feature may be activated

Screen says



- Make sure the monitor cable is properly connected to your computer. (Also refer to the Quick Start Guide).
- Check to see if the monitor cable has bent pins.
- Make sure the computer is turned on.

AUTO button doesn't function

- The auto function is applicable only in VGA-Analog mode. If the result is not satisfactory, you can do manual adjustments via the OSD menu.

Note

The Auto Function is not applicable in DVI-Digital mode as it is not necessary.

Visible signs of smoke or sparks

- Do not perform any troubleshooting steps
- Disconnect the monitor from mains power source immediately for safety
- Contact with Philips customer service representative immediately.

2 Imaging Problems

Image is not centered

- Adjust the image position using the “Auto” function in OSD Main Controls.
- Adjust the image position using the Phase/Clock of Setup in OSD Main Controls. It is valid only in VGA mode.

Image vibrates on the screen

- Check that the signal cable is properly securely connected to the graphics board or PC.

Vertical flicker appears

- Adjust the image using the “Auto” function in OSD Main Controls.
- Eliminate the vertical bars using the Phase/Clock of Setup in OSD

Main Controls. It is valid only in VGA mode.

Horizontal flicker appears

- Adjust the image using the “Auto” function in OSD Main Controls.
- Eliminate the vertical bars using the Phase/Clock of Setup in OSD Main Controls. It is valid only in VGA mode.

Image appears blurred, indistinct or too dark

- Adjust the contrast and brightness on On-Screen Display.

An "after-image", "burn-in" or "ghost image" remains after the power has been turned off.

- Uninterrupted display of still or static images over an extended period may cause "burn in", also known as "after-imaging " or "ghost imaging", on your screen. "Burn-in", "after-imaging", or "ghost imaging" is a well-known phenomenon in LCD panel technology. In most cases, the "burned in" or "after-imaging" or "ghost imaging" will disappear gradually over a period of time after the power has been switched off.
- Always activate a moving screen saver program when you leave your monitor unattended.
- Always activate a periodic screen refresh application if your LCD monitor will display unchanging static content.
- Failure to activate a screen saver, or a periodic screen refresh application may result in severe “burn-in” or “after-image” or “ghost image” symptoms that will not disappear and cannot be repaired. The damage mentioned above is not covered under your warranty.

Image appears distorted. Text is fuzzy or blurred.

- Set the PC’s display resolution to the same mode as monitor’s recommended screen native resolution.

Green, red, blue, dark, and white dots appears on the screen

- The remaining dots are normal characteristic of the liquid crystal used in today’s technology, Please refer the pixel policy for more detail.

The "power on" light is too strong and is disturbing

- You can adjust “power on” light using the power LED Setup in OSD main Controls.

For further assistance, refer to the Consumer Information Centers list and contact Philips customer service representative.

8.2 General FAQs

Q1: When I install my monitor what should I do if the screen shows 'Cannot display this video mode'?

Ans.: Recommended resolution for this monitor: 1920 x 1200 @ 60 Hz.

- Unplug all cables, then connect your PC to the monitor that you used previously.
- In the Windows Start Menu, select Settings/Control Panel. In the Control Panel Window, select the Display icon. Inside the Display Control Panel, select the 'Settings'

tab. Under the setting tab, in box labelled 'desktop area', move the sidebar to 1920 x 1200 pixels.

- Open 'Advanced Properties' and set the Refresh Rate to 60 Hz, then click OK.
- Restart your computer and repeat step 2 and 3 to verify that your PC is set at 1920 x 1200 @ 60 Hz.
- Shut down your computer, disconnect your old monitor and reconnect your Philips LCD monitor.
- Turn on your monitor and then turn on your PC.

Q2: What is the recommended refresh rate for LCD monitor?

Ans.: Recommended refresh rate in LCD monitors is 60 Hz, In case of any disturbance on screen, you can set it up to 75 Hz to see if that removes the disturbance.

Q3: What are the .inf and .icm files on the user manual? How do I install the drivers (.inf and .icm)?

Ans.: These are the driver files for your monitor. Follow the instructions in your user manual to install the drivers. Your computer may ask you for monitor drivers (.inf and .icm files) or a driver disk when you first install your monitor..

Q4: How do I adjust the resolution?

Ans.: Your video card/graphic driver and monitor together determine the available resolutions. You can select the desired resolution under Windows® Control Panel with the "Display properties".

Q5: What if I get lost when I am making monitor adjustments via OSD?

Ans.: Simply press the OK button, then select 'Reset' to recall all of the original factory settings.

Q6: Is the LCD screen resistant to scratches?

Ans.: In general it is recommended that the panel surface is not subjected to excessive shocks and is protected from sharp or blunt objects. When handling the monitor, make sure that there is no pressure or force applied to the panel surface side. This may affect your warranty conditions.

Q7: How should I clean the LCD surface?

Ans.: For normal cleaning, use a clean, soft cloth. For extensive cleaning, please use isopropyl alcohol. Do not use other solvents such as ethyl alcohol, ethanol, acetone, hexane, etc.

Q8: Can I change the color setting of my monitor?

Ans.: Yes, you can change your color setting through OSD control as the following procedures,

- Press "OK" to show the OSD (On Screen Display) menu
- Press "Down Arrow" to select the option "Color" then press "OK" to enter color setting, there are three settings as below.

1. Color Temperature: The six settings are 5000K, 6500K, 7500K, 8200K, 9300K and 11500K. With settings in the 5000K range the panel appears "warm, with a red-white color tone", while a 11500K temperature yields "cool, bluewhite toning".
2. sRGB: This is a standard setting for ensuring correct exchange of colors between different device (e.g. digital cameras, monitors, printers, scanners, etc).
3. User Define: The user can choose his/her preference color setting by adjusting red, green blue color.

Note

A measurement of the color of light radiated by an object while it is being heated. This measurement is expressed in terms of absolute scale, (degrees Kelvin). Lower Kevin temperatures such as 2004K are red; higher temperatures such as 9300K are blue. Neutral temperature is white, at 6504K.

Q9: Can I connect my LCD monitor to any PC, workstation or Mac?

Ans.: Yes. All Philips LCD monitors are fully compatible with standard PCs, Macs and workstations. You may need a cable adapter to connect the monitor to your Mac system. Please contact your Philips sales representative for more information.

Q10: Are Philips LCD monitors Plug-and- Play?

Ans.: Yes, the monitors are Plug-and-Play compatible with Windows 8/7/Vista/XP/NT, Mac OSX, Linux

Q11: What is Image Sticking, or Image Burn-in, or After Image, or Ghost Image in LCD panels?

Ans.: Uninterrupted display of still or static images over an extended period may cause "burn in", also known as "after-imaging" or "ghost imaging", on your screen. "Burn-in", "after-imaging", or "ghost imaging" is a well-known phenomenon in LCD panel technology. In most cases, the "burned in" or "atter-imaging" or "ghost imaging" will disappear gradually over a period of time after the power has been switched off.
Always activate a moving screen saver program when you leave your monitor unattended.
Always activate a periodic screen refresh application if your LCD monitor will display unchanging static content.

Warning

Failure to activate a screen saver, or a periodic screen refresh application may result in severe “burn-in” or “after-image” or “ghost image” symptoms that will not disappear and cannot be repaired. The damage mentioned above is not covered under your warranty.

Q12: Why is my Display not showing sharp text, and is displaying jagged characters?

Ans.: Your LCD monitor works best at its native resolution of 1920 x 1200 @ 60 Hz. For best display, please use this resolution.

8.3 Medical FAQ

Q1: Can I use color image in Clinical D-image mode?

Ans.: Clinical D-image mode is DICOM part-14 calibrated for Grayscale performance only.

Q2: Can I use alcohol to clean the monitor?

Ans.: Alcohol should not be used to clean the monitor as it has potential to damage or deform the plastics and LCD screen and its relevant coatings.

Q3: Can I use the monitor in a patient vicinity environment?

Ans.: Yes, this monitor can be used in the patient vicinity environments for it complies with MOPP of ANSI/AAMI ES60601-1.

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