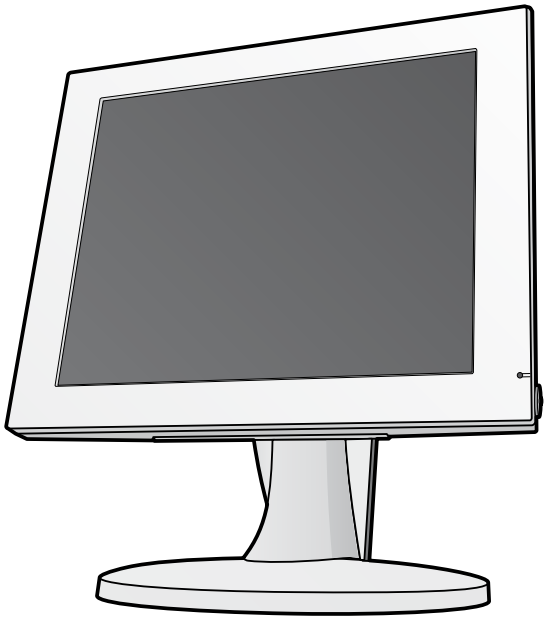
OLÓRIN

Display User's Manual



VistaLine & MedicLine

MLD198
VLD158, VLD178, VLD198
VL127D, VL221D, VL227D, VL241D, VL247D

www.olorin.com

Contents

1. Preface 4
2. Product features 5
3. Intended use of this product 6
4. Intended markets 6
5. Safety Precautions 7
6. Regulatory Tests and Certifications 10
7. Test of Medical Power adapter 11
8. Warranty and Limitation of Liability 12
9. Product identification 12
10. Cleaning of the Product 13
11. Disposal of the Product 13
12. Getting started 14
13. How to assemble Panel and Base unit 15
14. Mounting on a wall or LCD arm 16
15. Rotating the LCD Panel 17
16. Connection Method 18
17. Input signals 19
18. How to Operate 20
19. OSD Adjustment Functions 21
20. Marine & Touch technology information 24
21. Applicable Signal Timings 25
22. Specifications 26
23. Special Considerations for LCD Panels 44
24. Longer life for your monitor 46
25. Troubleshooting 48
26. Reference 48
27. Contact information 49

Preface

Thank-you for purchasing this Olorin LCD Monitor.

To get the full benefit of the features that this product offers you, it is important that you read this User's Manual which, among other things, will explain how to properly install and operate the monitor. In this user guide there are detailed product specifications, explanations for many of the technical terms used in this manual as well as information on regulatory approvals, cleaning, service instructions, warranty terms, waste disposal and some other useful information.

It is of utmost importance that you carefully read and follow the safety instructions and safety notices included in this User´s Manual.

Failure to comply with these instructions could in some instances cause bodily harm to yourself or other persons and/or un-repairable damage to the product or to other attached devices / appliances.

Throughout this manual the following symbols are used to guide you to the proper use of the product:

Symbols

Expresses DO NOT.

Warning

Person could be at risk of severe injury or death.

Caution

Person or properties could be at risk of injury or damage.

Expresses MUST DO.

Keep this Users Manual in an easy accessible and safe place for future reading of it. If you lose your copy, you may request a new one by contacting us at our internet home page www.olorin.com.

Olorin reserves the right to change the specifications of this product without any notice. Such changes could cause the operation of the product to be slightly different from the descriptions in this copy of the Users Manual.

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Product Features

Standard delivery

The product is normally delivered in 2 main parts, which, when mounted together, form a normal monitor for desktop use.

- a LCD panel with TFT picture element which also contains the lamps for the backlight along with necessary electronics and cable connectors as well as power connector. These parts are mounted inside a plastic housing.
- a base unit (stand) to be mounted at the VESA holes at the back of the panel.

For certain applications, when the monitor is to be placed on a wall or built into a desk, then only the LCD panel part is delivered. In these cases it is quite often delivered with the plastic housing removed in what is called “open frame”. Certain other options or special mounting components might have been pre-installed.

Warning

When the monitor has been delivered as open frame there is a greater risk to come in contact with electric parts which could cause harm to yourself or your property. It should therefore only be handled with special precaution and only by properly trained service personnel.

Power management

This unit has power management system. The monitor will go into “sleep mode”, where power consumption is less than 5W, whenever either horizontal or vertical signals or both disappear.

High performance panel element

The color LCD panel used in this product is specifically designed for advanced applications such as video, marine dimming and viewing digital X-ray images. ALC (Automatic Luminance Control) circuits will automatically adjust for the decay of the backlight lamps.

Protective glass

The GTF versions of monitors are fitted with a protective glass for easy cleaning.

Preloaded DICOM curve

The monitor has a preloaded Barten DICOM curve for use as a plug-n-play X-ray review display.

Ergonomic features

To ease eyestrain on the user, the panel features excellent viewing angles. In addition, the base unit can be adjusted to fit the individual user’s need by adjusting the height and tilt of the monitor.

VESA® standard wall / arm mountings

The unit is compliant with VESA’s 100mm-pitch (75 mm for 12” and 15” monitors) for hanging tools. The base unit is detachable; the panel can be mounted on a wall or arm according to user’s enviroment.

Intended use of this product

This product has been designed and developed for use as a visual output device for direct connection to a Personal Computer and PC compatible devices as well as other video generating equipment, such as cameras. The product will accept industry standard video signals coming over cables with industry standard type connectors. The product will operate and function properly in normal office environment and under conditions as specified in the Product Specification chapter.

Warning

Attempting to use the product for any other purpose than its intended use or connecting to other devices could cause damage to the product and / or to other property and equipment. There could also be a risk of bodily harm to yourself or other persons.

The product operates on 12V (some on 24V) DC power and must be connected thru the AC 100-240V, 50-60Hz to12V DC adapter (or 24V DC adapter) which is included with the product. Power to the adapter should be coming from an ordinary grounded AC 100-240V power outlet.

Warning

Never try to connect the product to any other power source than the 12V/24V adapter delivered together with the product. There would be a risk of electrical shock which could cause bodily harm, possibly even death. Most certainly such electrical shock will damage the product.

The product can also be delivered with certain options installed. Such options could be touch panel or other special accessories.

Warning

All other uses of the product, including but not limited to attempts such as;

• connection to other types of power sources

• using other types of mounting or placement of the product

• connection to other devices than those for which the monitor has been designed.

will void any and all warranties of the product and the manufacturer will not be responsible or libel for any bodily injury or property damage either directly or indirectly caused by such non-intended use of the product.

Intended Markets

Olorin products are developed primarily for sales and installation in countries within Europe and North America. The products comply with all regulations and directives issued by the European Union and by authorities in the United States.

Warning

The products are not intended for sales and/or installation in countries, which require other or additional mandatory approvals than those required by the authorities of the European Union or the United States.

Consult the product identification label or product specification for regulatory approvals that apply to this product.

Safety Precautions

It is important that you read through the following notes of Safety Precautions to avoid any damage to the Product, yourself or other property. Following these precautions will also ensure that you get the best use of the Product.

Warning

DO NOT OPEN THE PRODUCT. There are no user serviceable parts inside. Because of high voltage inside there is a risk of bodily injury or death. Only authorized and qualified service personnel should maintain the product.

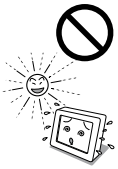
Cautions when setting up

Caution

Do not put the unit on unstable places (on a wonky table or in an inclined place), which might cause injuries if it falls down.

Caution

Do not place the unit where it is subject to direct sunlight or near any heating device. This could cause overheating resulting in damage to the product and eventually causing a fire.



Cautions when using

Warning

Do not put the unit in such a place where there is bad air circulation, dust, humidity, oily smoke or steam. It may lead to a fire.

Caution

Do not put any metal materials or flammable foreign objects into the unit through the vent holes. It may lead to electric shock and/or fire. Immediately disconnect the unit from the power outlet and contact your local re-seller for service.

Caution

Scratching or hitting with hard objects may damage the unit.

Safety Precautions

Warning

Do not use the unit turned over on its back, put on its side, or upside down. These positions may cause the heat that the unit generates to accumulate inside the unit. Such overheating can cause damage to the product and eventually start a fire.

Caution

When using the unit for several hours, you should take a 10-15 minute break every hour to reduce eyestrain. Failure to do so could cause injury to your eyes.

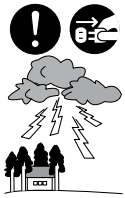
Abnormal circumstances

Warning

In case of any abnormality such as odor, sound, and overheat taking place, immediately turn off the power and disconnect the plug from the outlet. Continuing to use the unit under such condition may lead to electric shock and/or fire. For assistance contact your local re-seller.

Warning

In the event of thunder, immediately turn off the power and disconnect the plug from the outlet. Lightning strikes may cause electric shock and/or fire.



Warning

In the event of broken panel and leaking liquid crystal, do not inhale, swallow, or touch the liquid crystal. It may cause you to get poisoned and/or having a skin irritation. If you put it in your mouth, immediately gargle with water and contact a doctor to get a checkup. In case of getting it on your skin and/or cloth, wipe it off with alcohol and rinse them.

Safety Precautions

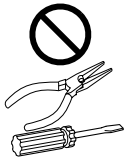
Maintenance

Warning

Do not remove the plastic cabinet. There are high voltage parts inside that may lead to electric shock. Ask a re-seller for adjustment and inspection.

Warning

Do not remodel or repair. It may lead to fire, electric shock, or injuries.



Caution

Clean the dust inside the display once a year. The dust that accumulates inside the unit may lead to fire. Ask a re-seller for adjustments and inspection.

Caution

Disconnect the plug from the outlet when you do not use the unit for a prolonged period.

Regulatory Tests and Certifications

All Olorin products have normally been tested to comply with all mandatory Regulatory requirements for the markets where the products are sold. Approvals are listed by each Regulatory Agency under the name of the manufacturer and model number as specified on the Product Identification Label. Copies of such approvals can be requested by contacting Olorin AB via www.olorin.com.

Approvals applicable for this specific product is listed in the Product Specification section of this manual.

Tests and Approvals for VistaLine Series

Products in the VistaLine series has been tested as an IT-category product for normal office environment and for use as a desktop monitor. In general, they comply with the following standards and regulations but you will need to verify with each indivual product specification.

- CE for use within the European Union member states
- WEEE for use within the European Union member states
- RoHS for use within the European Union member states

Tests and Approvals for MedicLine Series

Products in the MedicLine series are generally tested to comply with the following certifications, please check the specification for your product as it might differ from the ones noted below;

- MDD directive 93/42/EEC class 1 for the European Union member states
- EN60601-1, EN60601-1-2
- IEC 60601-1

Under these directives and regulations, MedicLine products are complying with the requirements for a Class 1 product with continuous mode of operation. The monitor must not be in direct contact with a patient.

Warning

Using any other 12V/24V adapter than the medical approved one delivered with the product or connecting this to a non-grounded power outlet voids the approval.

Warning

Before taking the product in use, the person installing it must test that the grounding of the monitor complies with the impedance requirements of the country where it is being installed.

Warning

When using at 240 V in the United States, supply must be from center-tapped, 240 V, single phase circuit.

Test of medical power adapter

The power supply is Class I. Protective earthed parts are only located inside the power supply enclosure and therefore are not accessible. The accessible parts of the enclosure and output are DOUBLE INSULATED from all mains voltage electrical parts. Ground continuality test is not relevant.

Leakage test of the adapter is made by having the measurement equipment connected to the AC plug, no need to open the plastic enclosure.

Warranty and Limitation of Liability

Warranty

For details of the warranty please see the separate warranty document included with this product.

Limitation of Liability

Olorin AB, including any of its affiliates, manufacturing partners and sales agents, is not liable for any claim for damages including, but not limited to, loss of business profits, disruption of business, change or loss of saved data, when damage is arising from

- fire, earthquakes, actions taken by any third party, any other accidents, intentionally or negligently, improper use of the product by the user, or any use under other abnormal circumstances,
- the use or inability to use this product,
- the use for other purposes than the intended use as described in this document
- malfunctions caused by the combination of connected devices

Product identification

Affixed to the panel part of the product is a Product Identification Label. It is normally affixed in the connector compartment. This label contains the following information:

- Olorin logo and web address
- Product Family name
- Manufacturers product number
- Part number
- Serial Number
- Power information
- Symbols for Regulatory approvals
- WEEE symbol for disposal of the product
- Manufacturers name
- Country of Origin

Cleaning of the Product

Caution

Be careful when cleaning the plastic housing of the panel so that no liquid or other objects will drip down into the product through the ventilation holes. This could cause electric shock and damage the product.

Normal dust and lint particles can be easily wiped off with a soft cloth tissue.

For grease or dirt that is more firmly fixed to the product, the use of a soft and dry micro fiber based cloth tissue will normally remove it all.

You can also use a mild liquid detergent mixed with water for cleaning together with a soft cloth tissue. This will clean both the cabinet and the LCD panel well. For the LCD panel you can also use isopropyl alcohol based liquids (without abrasive) or non-ammoniac glass cleaner.

When cleaning the LCD panel you will get the best result if you clean the panel when its surface has cooled down to normal room temperature. On a warm panel the liquid evaporates too quickly leaving traces of the cleaning. Afterwards wipe the surface dry with another soft cloth tissue.

Warning

When cleaning the cabinet do NOT use thinner, benzene or alcohol as these might damage the plastic and cause the paint to peel off. Do NOT use organic solvent such as acetone and toluene when cleaning the panel.

Warning

If you use any liquid for cleaning you must first un-plug the power to the monitor and not connect it again until you are certain that all the liquid particles have evaporated. Failure to do so could result in electric shock.

Caution

Do not use any tools with hard or sharp material for cleaning. The panel can very easily be scratched or damaged from such tools.

Caution

Do not press hard on the panel when cleaning. This could cause damage to the LCD panel element.

Disposal of the Product

Do not dispose of the unit with general wastes.

The monitor has been manufactured to comply with the EU directive on RoHS (Reduction of Harmful Substances) but even so the LCD panel contains a small amount of mercury and the monitor should therefore be disposed of according to local laws. Please get information from your local re-seller how collection is handled in your country. For countries that are members of the EU the WEEE directive applies and proper marking is on the product label affixed to the monitor.

Getting started

Before operating this monitor, please make sure that all items listed below are present in your delivery.

Standard Items

- The LCD monitor panel
- User's manual
- AC/DC adapter
- AC Power cord
- DVI to DVI cable
- DVI to VGA cable
- 3,5 mm Audio cable

Optional Items

- Base unit with 4 Screws and Screwdriver
- S-video cable
- DVI to VGA & DVI splitter cable

Optional Items for Touch panel

- USB cable
- Serial (RS-232) cable

If any of the above items are found missing or if you wish to order the optional items, please contact your reseller.

How to assemble Panel and Base unit

The product normally comes in 2 cartons and you need to assemble the panel and the base unit. A screwdriver and proper screws are included in the box for the base unit.

1. Remove the back of the base unit by grabbing it firmly at the top and pulling it up and backwards.

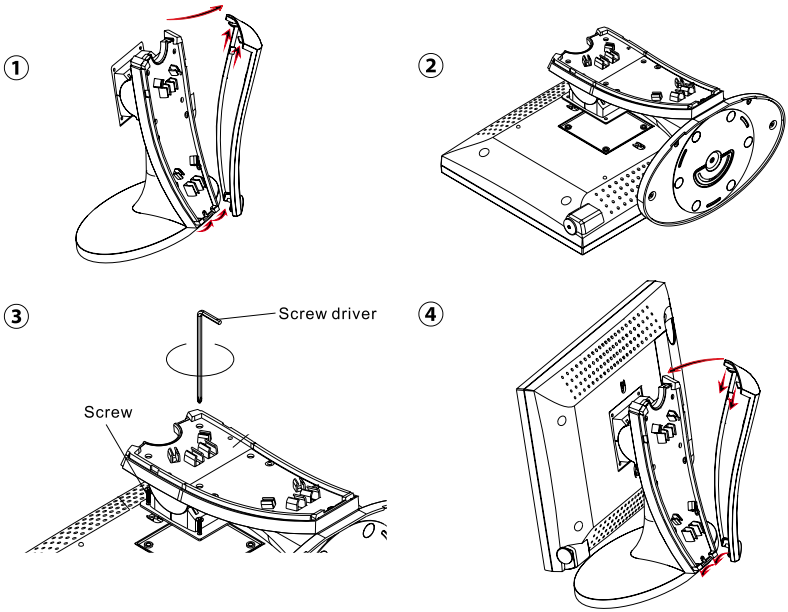
2. Place the monitor with the front down on a level surface. Make sure that there are no objects on the surface that could damage the panel element. It should be placed so that the OSD wheel is at the lower left corner seen from yourself.

   Place the metal plate onto the VESA mounting cut-out on the back of the panel. Hold the bottom of the base unit towards yourself.

   Test that you can swing the base unit to the left so that swivel between Landscape and Portrait will be correct.

3. Locate the holes in the back of the base unit through which you can stick the screwdriver to reach and put the 4 screws in place.

4. Remount the back cover.



Caution

If you mount any device using these 4 holes on the back of the panel you must not use use screws longer than 10 mm. Longer screws will cause damage which is not covered by the product warranty.

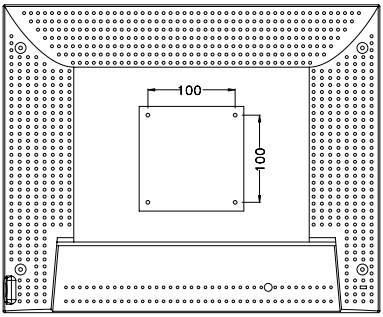
Mounting on a wall or LCD arm

The Monitor has Video Electronics Standards Association (VESA) standard mounting holes tapped into the rear panel. The standard holes are M4 set 100 mm (for 17” and larger monitors) or 75 mm (12” and 15” monitors) apart.

If you intend to mount the monitor on the wall, we strongly recommend that you use wall mount kits with attached M4*10mm screws and which can hold a load of more than the weight of the monitor. Ensure it is securely and safely installed.

Warning

If you mount any device using these 4 holes on the back of the panel you must not use use screws longer than 10 mm. Longer screws will cause damage which is not covered by the product warranty.



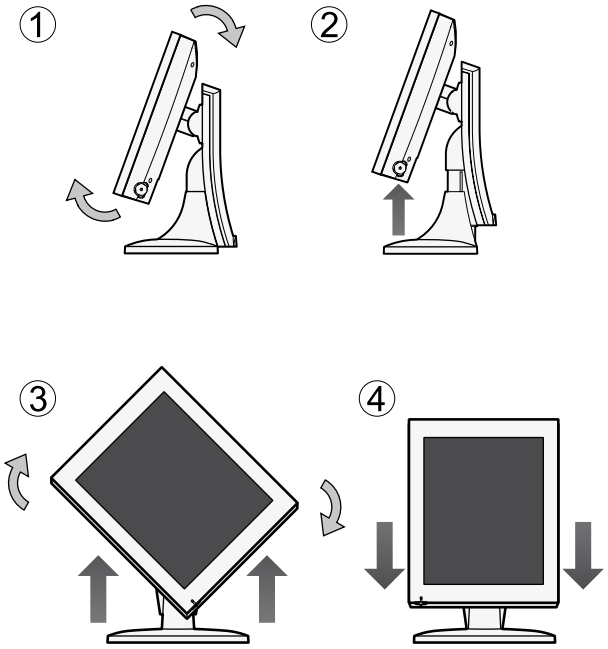
The position of the connectors can vary between models and they may or may not be covered with a flap.

Rotating the LCD Panel

When setting the LCD display to vertical display (portrait orientation), lift the LCD panel to the top of the base unit as shown in the figure below and rotate it by 90 degrees.

Procedure

1. Tilt the LCD panel upward.(Perform this procedure before sliding the panel upward.)
2. Lift the LCD panel to the top.
3. Rotate the LCD panel by 90 degrees.
4. Reposition the LCD panel to the bottom while in the vertical position (portrait orientation).



Display in portrait orientation

Pivot® software or graphics card that enables portrait orientation is necessary.

Connection Method

No tools are required to connect the LCD monitor to your PC or other device. Simply follow the instructions outlined in the next few pages.

Connectors for the signal cables and power are located on the back of the panel behind the cover lid. Please refer to the diagram on the next page for the connector configuration.

Connect Power Adapter and Cable

Connect the round shape plug end of the AC/DC adapter to the DC Power input connector of the LCD monitor. Connect the female end of the power cable to the AC power input receptacle on the AC/DC adapter. Then, plug the male end of the power cable into an grounded AC outlet.

Caution

Make sure you use the AC to DC adapter delivered with the product.

If your system is prone to changes in voltage, make sure you turn off the monitor before turning off the entire system to avoid damages. The unit requires constant 12V.

Connect Signal cable

On next page you can see which input connectors there are available on your monitor and which cable you should connect depends on your source for the input signal.

VGA, DVI, HDMI or Displayport output from a PC

If your source is VGA (analog) then use either a VGA to VGA cable for connection to the VGA connector or a VGA to DVI-I cable for connection to the DVI-I connector on the monitor.

If your source is DVI (digital) then use the DVI-DVI cable supplied with the monitor and connect to the DVI-I connector on the monitor.

If your source is HDMI or Display-Port then you need a converter from HDMI or Display-Port to DVI. Then you connect the DVI-DVI cable between the DVI-I connector on the monitor and the converter. There are also available HDMI or Display-Port to DVI cables that can purchased from your local reseller.

Video input from camera or other NTSC/PAL signal generating equipment

Use S-video cable or for Composite video, BNC cables.

Connect Audio Cable

Connect an audio output device to the monitor with the included stereo mini cable, using the 9mm audio jack.

RJ45 Connector

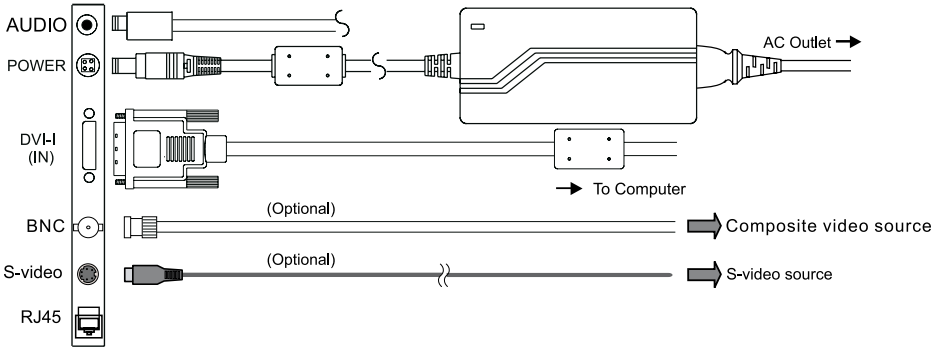
If you want to control the On/Off and OSD at a distance from the monitor there is an optional external control box available. This box is connected with an RJ45 cable.

Caution

When you disconnect the cord /cables, be sure to hold the connector and not the cable itself. Also make sure you use cables and connectors of high quality.

Input signals

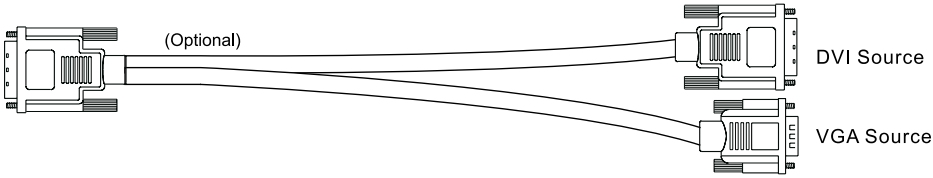
Input signals, connections



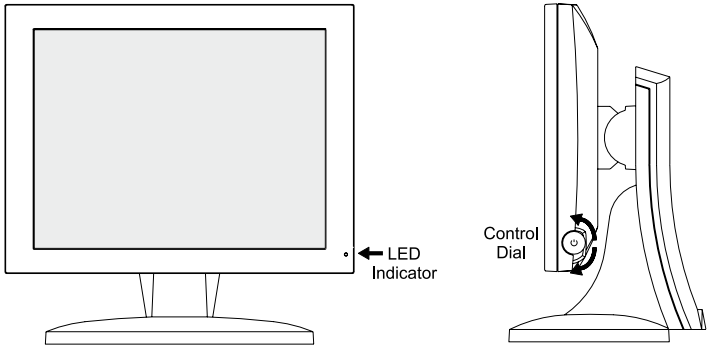
Depending on the size of monitor, some of the inputs might be arranged in a different order.

The MLD198 model does not have an RJ45 connection.

DVI-I to DVI-D & VGA splitter cable



How to Operate



Control Dial

The Control Dial is a multi-functional device located behind the LED Indicator on the right side of the front bezel. It has three movements-rotate upward, rotate downward and press inward as a button.

1. **Power On/Off**
   Press the Control Dial to power the unit on from the off stage (the display is off). To turn the power off, press the Control Dial and hold for at least 1 second until the display turns off.

OSD Control

While the monitor is on (image on the screen), pressing on the Control Dial activates the OSD. While the OSD menu is active, use the three way movements of the Control Dial to adjust the monitor.

Rotate Downward:	Move Up/Right, Increase, Larger, More
Rotate Upward:	Move Down/Left, Decrease, Smaller, Less
Button Press:	Execute, Do, Save

In the **SOURCE** menu, clicking navigates the menu, letting it idle confirms.

2. **Change of Brightness Setting**
   If you rotate the Control Dial without first having clicked to enter the OSD, then it will change the brightness setting. It will do so in a quick way by adjusting with larger steps in the bright area and gradually lower values towards the dark area. This is to facility quick change of brightness when you have the “Dimming option” installed.

LED Indicator

This LED indicator turns green when the power is switched ON and the power cord is properly attached. It turns amber when the monitor goes into a power saving mode (Active Off). On some models it will be switched off entirely after 10 minutes to avoid that the lamp will distract your vision.

OSD Adjustment Functions

On-Screen Display (OSD)

The LCD monitor features a On-Screen Display (OSD) menu with easily identifiable icons designed to make adjusting your monitor display settings a more user-friendly process. When highlighted, the icon illustrates the control function and a brief instruction to assist the user in identifying which control needs adjustment.

The OSD menu is activated by pressing the Control Dial inward and you can select and adjust the function of your choice by rotating and clicking the Control Dial.

In the Source menu, clicking the Control dial inward lets you choose the next Source, let it idle to confirm. To select the MAIN MENU, rotate the dial and select Main menu, then click to confirm. The Main menu displays a list of control icons and the current video input mode. Rotate the dial to move the highlights to the control you would like to adjust, then press the Control Dial inward to select that control or to activate that function. Depending on the control you selected, a submenu of the control with a status bar will appear. The status bar indicates in which direction, from the factory preset, your adjustments are being made. Rotate the Control Dial to adjust the control.

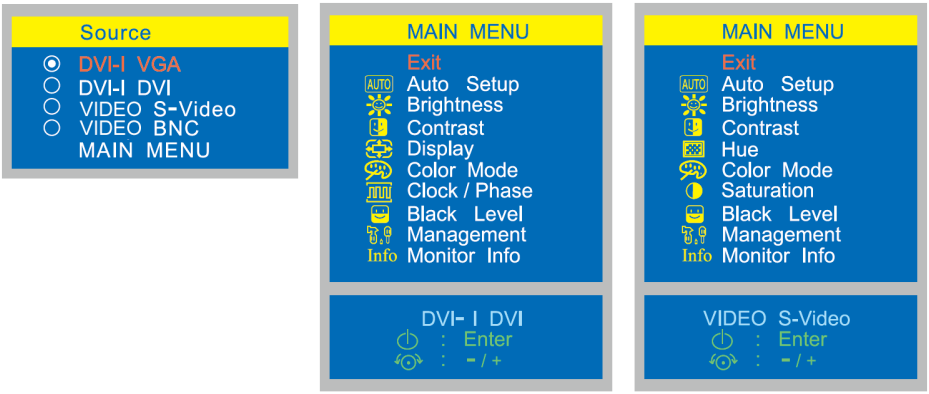
When you have finished making the adjustments, the setting is saved automatically by exiting the control function. If you do not touch the control dial for 20 seconds, the OSD is automatically exited saving your current settings.

Menu descriptions

The LCD monitor is capable of accepting DVI-I VGA, DVI-I DVI, S-Video and Composite/BNC signal inputs and therefore has three different sets of OSD control functions.

Depending on your input source and also depending on which color mode you have selected there are some functions that are not necessary, cannot be executed or are locked out to comply with certain standards. You will then encounter the message “Not Available” when you try to select such functions.

The following charts show the function tree and brief explanations of the functions.



Charts of OSD Adjustment Functions

When you enter the OSD you first come to the menu for selection of input so, if you have 2 sources connected (i.e. PC and camera) you can quickly switch from one source to the other. When you click on another source you will leave the OSD system. If you want to proceed to the regular Main Menu you must choose “MAIN MENU”.

Source selection

• DVI-I VGA	Selects VGA
• DVI-I DVI	Selects DVI
• VIDEO S-video	Selects S-video
• VIDEO BNC	Selects Composite video
• MAIN MENU	Continue to Main Menu

Main menu

Exit		Exit OSD Menu, in sub menus 'Exit' will move you up in the tree structure.
Auto setup *1		Adjust monitor to analog signal from graphics card.
	Image OK?	If you answer YES then you will exit the menu. If you answer NO, proceed to Clock / Phase menu.
Brightness		Adjust brightness level. See also special note on brightness adjustment in special situations.
Contrast		Adjust contrast of the monitor. Not active when Clear base Barten color mode has been selected.
Display *1		
	H. Position	Adjust horizontal screen position.
	V. Position	Adjust vertical screen position.
Hue *2		Adjust the hue of the color settings.
Color mode		
	Cool	Select a cold color temperature of about 9000K.
	Neutral	Select a neutral color temperature of about 6500K.
	Warm	Select a warm color temperature of about 5500K.
	User	In a separate sub-menu you can set individual values for Red, Green and Blue.
	Clear base Barten	A special color mode intended for viewing of X-ray pictures. Has a preset greyscale curve in accordance with the DICOM standard. Automatically sets the monitor to brightness of about 170 candela and color temperature of about 6500K. When set to this mode the OSD functions for Brightness, Contrast, Black Level are in-activated. It also locks ALC to ON.
Clock/phase *1		
	Clock	Fine tune video signal for positioning of the picture horizontally on the screen.
	Phase	Adjust Phase frequency to control flickering or horizontal waves on the screen.
Saturation *2		Adjust the saturation of the color settings.
Black level		Adjust the offset level for black color, inactive when Clear Base Barten color mode is selected.

Charts of OSD Adjustment Functions

Main menu continued

Management			
	Scaling *3		Scaling of the input signal
		Full	Displays the image on the full screen
		1:1	Will display the input without any scaling. For instance a resolution of 640x480 will be displayed over the corresponding number of pixels in the center of the screen.
		4:3	Will scale the picture to 4:3 format.
		5:4	Will scale the picture to 5:4 format.
		16:9	Will scale the picture to 16:9 format.
		16:10	Will scale the picture to 16:10 format.
	OSD Display		Positioning of the OSD on the display.
		H. Position	Move position of the OSD display horizontally.
		V. Position	Move position of the OSD display vertically.
	Language		Select language for OSD. Returns to Main Menu and will from then on show the OSD in the selected language. You can choose between English, French, German, Italian, Spanish or Japanese.
	Key lock		A function with which you can lock the OSD menu to settings you have made. When you then try to enter into the OSD you will stop at source menu. To enter into this function you must click on the OSD wheel 3 times within 2 seconds. You also do the same when you want to un-lock the Key Lock.
	Bright bar		Special setting used to select if the setting bar for Brightness adjustment shall be shown on the monitor or not. Active only for when you adjust the brightness by turning the control wheel without having entered the OSD menu. You select YES or NO if it should be shown or not.
	ALC		Automatic Luminance Control (ALC) is a function which can be set to ON or OFF. When set to ON it will automatically increase the Brightness setting to off-set the wear on the backlight lamps. It has been developed mainly for when you select Clear base Barten color mode and is always ON in that mode. It will make the monitor to better comply with the DICOM requirements during the full life of the product and not only at the time of delivery. In other color modes you can set it to ON or OFF but since you have the ability to manually adjust brightness in these color modes the recommendation is to set it to OFF.
	Recall		If you execute Recall the monitor will be reset to values that are default values at time of delivery.
	Mute		You can set this to ON or OFF and the function is to switch off the speaker sound.
	Volume		You can adjust the sound volume from the built in speakers.
Monitor info			This will show some information of the monitor which are useful for service. The information contains the following: Model number, Firmware version, Operating Hours, ALC check, Dimming check, Resolution and Color mode.

*1 Only available if the monitor input source is VGA
*2 Only available if the monitor input source is S-video or BNC.
*3 Does not work in Pseudo-display mode, see page 25.

Marine functionality

The following features are optional.

Dimming

To lower the brightness to minimum on a monitor without sacrificing contrast values. This is especially useful on ships during night use in order to keep night vision intact.

Sunlight readable

Polarizing filter that is applied on top of the LCD display, increases color saturation and decreases reflections on the panel in environments where strong sunlight is common.

Touch technologies

The following features are optional.

Projected Capacitive Touch (PCAP)

Projected Capacitive Touch (PCAP) are made up of a matrix of rows and columns of conductive material, layered on sheets of glass. Voltage applied to this grid creates a uniform electrostatic field, which can be measured. When a conductive object, such as a finger, comes into contact with a PCAP panel, it distorts the local electrostatic field at that point.

This is measurable as a change in capacitance. If a finger bridges the gap between two of the ”tracks,” the charge field is further interrupted and detected by the controller. The capacitance can be changed and measured at every individual point on the grid (intersection). Therefore, this system is able to accurately track touches. Due to the top layer of a PCAP being glass, it is a more robust solution than less costly resistive touch technology. It is possible for a PCAP system to sense most types of passive stylus or gloved fingers.

Microsoft Windows 7, Windows 8, Windows 8.1 and Windows 10 have native driver support for PCAP touch on Olorin monitors.

The latest drivers can be downloaded from:
http://www.eeti.com.tw/drivers.html

Applicable Signal Timings

The display may not work correctly with timings other than listed below.

X = Recommended timing **O** = Applied timing

Timing Mode	12”	15"	17"	19"	21.5"
640 x 400 @ 70 Hz		O	O	O	O
720 x 400 @ 70 Hz	O	O	O	O	O
640 x 480 @ 60 Hz	O	O	O	O	O
640 x 480 @ 72 Hz	O	O	O	O	O
640 x 480 @ 75 Hz	O	O	O	O	O
800 x 600 @ 56 Hz	O	O	O	O	O
800 x 600 @ 60 Hz	O	O	O	O	O
800 x 600 @ 70 Hz	O	O	O	O	O
800 x 600 @ 72 Hz	O	O	O	O	O
800 x 600 @ 75 Hz	O	O	O	O	O
1024 x 768 @ 60 Hz	**X**	**X**	O	O	O
1024 x 768 @ 70 Hz	O	O	O	O	O
1024 x 768 @ 75 Hz	O	O	O	O	O
1280 x 720p @ 60 Hz			O	O	O
1280 x 768 @ 60 Hz			O	O	O
1280 x 800 @ 60 Hz			O	O	O
1280 x 960 @ 60 Hz			O	O	O
1280 x 1024 @ 60 Hz			**X**	**X**	O
1280 x 1024 @ 75 Hz			O	O	O
1360 x 768 @ 60 Hz					O
1366 x 768 @ 60 Hz					O
1440 x 900 @ 60 Hz					O
1600 x 900 @ 60 Hz					O
1600 x 1200 @ 60 Hz					O
1680 x 1050 @ 60 Hz					O
1920 x 1080 @ 60 Hz					**X**
NTSC, progressive scan	O	O	O	O	O
PAL, progressive scan	O	O	O	O	O

Caution

The monitor might not work with timings other than the ones listed above, please contact Olorin before using the monitor with a non-standard timing. Failure to do so might cause image artifacts.

Specifications

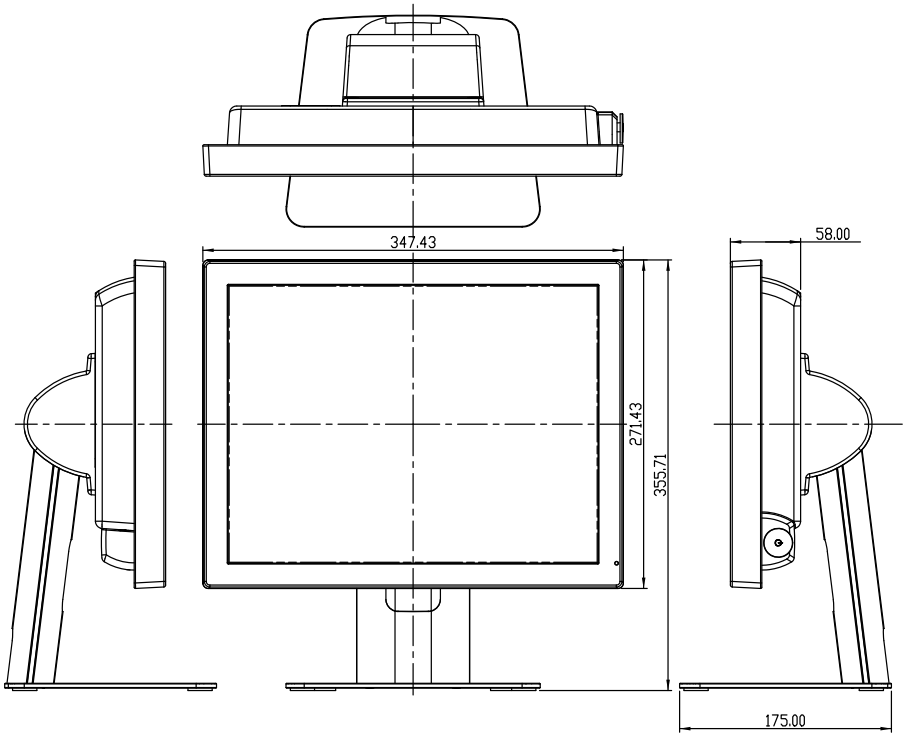
VLD158

Display	Screen size, Format	15” 4:3	
	Brightness, candela/m2	350 cd/m2	
	Contrast	800:1	
	Resolution, Megapixel	1024 x 768	
	Response time	8 ms	
	Viewing angles, H/V	160/150	
	Color depth	16.2M	
	Panel type	TN	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 c	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	External 12V	
	Power consumption	Approx. 20W Max. / < 2.5 W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	Optional, true flat. IP65	
	Touch panel	Optional, PCAP Touch panel IP65	
	Dimming	Optional	
	Sunlight Readable	Optional	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VLD158

Appearance	Net. weight	2.3 Kgs *
	Measurements (WxHxD)	347.43 x 271.43 x 58 mm *
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	75 x 75 mm / 100 x 100 mm



Shown here with optional base unit.

* Weight and measurements might differ slightly depending on whether or not the monitor has a touch panel or protective glass.

Specifications

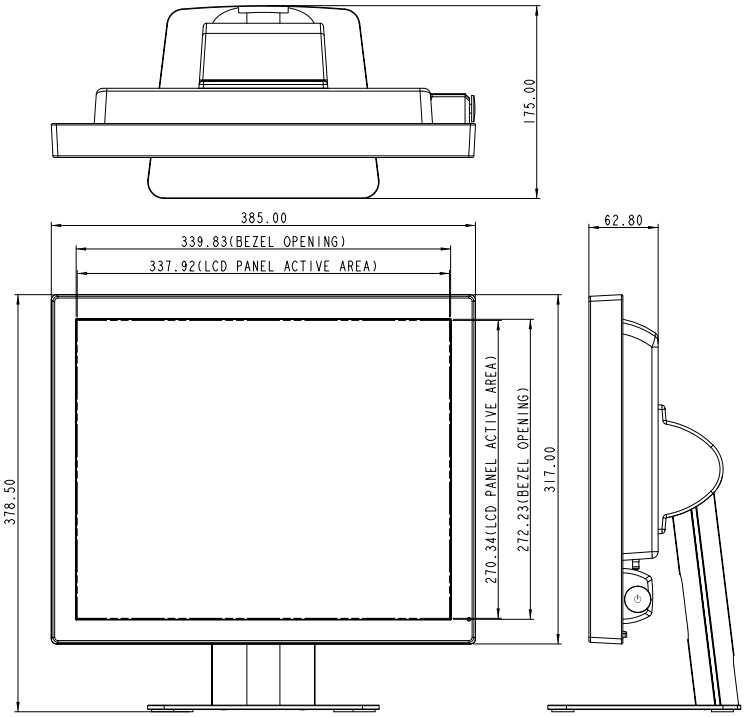
VLD178

Display	Screen size, Format	17” (338 x 270 mm), 5:4	
	Brightness, candela/m2	350 cd/m2	
	Contrast	1000:1	
	Resolution, Megapixel	1280x1024 1,3 Mpix	
	Response time	5 ms	
	Viewing angles, H/V	170 / 160	
	Color depth	16,7M	
	Panel type	TN	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	5 to 35 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12Vdc, 3,7A	
	Power consumption	Approx. 25W Max. / < 2.5 W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	Optional, true flat. IP65	
	Touch panel	N/A	
	Dimming	Optional	
	Sunlight Readable	N/A	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VLD178

Appearance	Net. weight	3.2 kgs *
	Measurements (WxHxD)	385 x 317 x 62,8 mm *
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm



Shown here with optional base unit.

* Weight and measurements might differ slightly depending on whether or not the monitor has a touch panel or protective glass.

Specifications

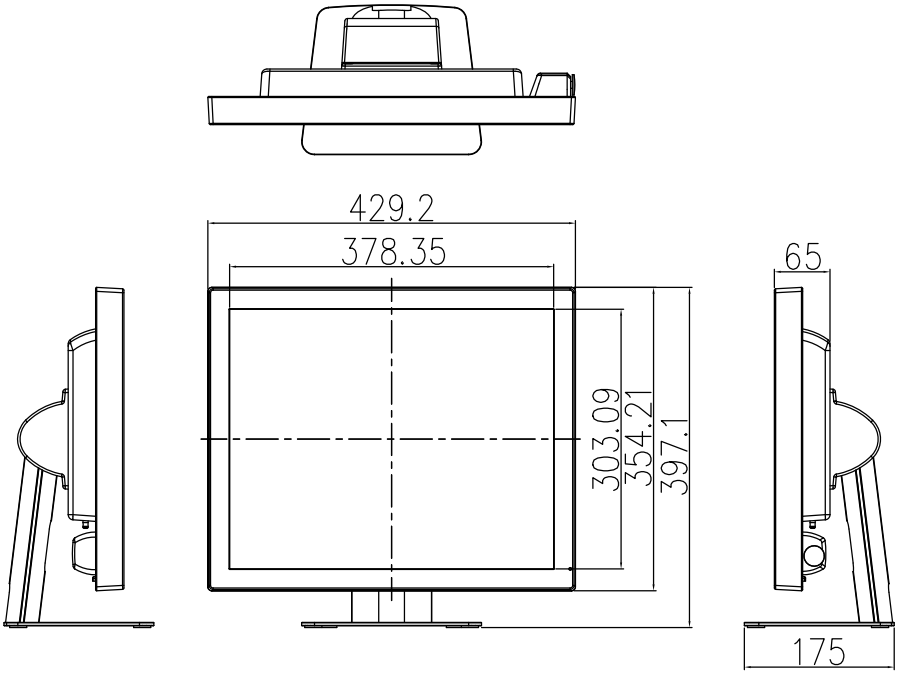
VLD198

Display	Screen size, Format	19” 5:4	
	Brightness, candela/m2	300 cd/m2	
	Contrast	1000:1	
	Resolution, Megapixel	1280x1024 1.3 Mpix	
	Response time	25 ms	
	Viewing angles, H/V	178 / 178	
	Color depth	16.7M	
	Panel type	TN	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12V External power supply	
	Power consumption	Approx. 30W Max. / < 2.5 W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	Optional, true flat. IP65	
	Touch panel	Optional, PCAP Touch panel IP65	
	Dimming	Optional	
	Sunlight Readable	Optional	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VLD198

Appearance	Net. weight	4.5 Kgs *
	Measurements (WxHxD)	429.2 x 354.21 x 65 mm *
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm



Shown here with optional base unit.

* Weight and measurements might differ slightly depending on whether or not the monitor has a touch panel or protective glass.

Specifications

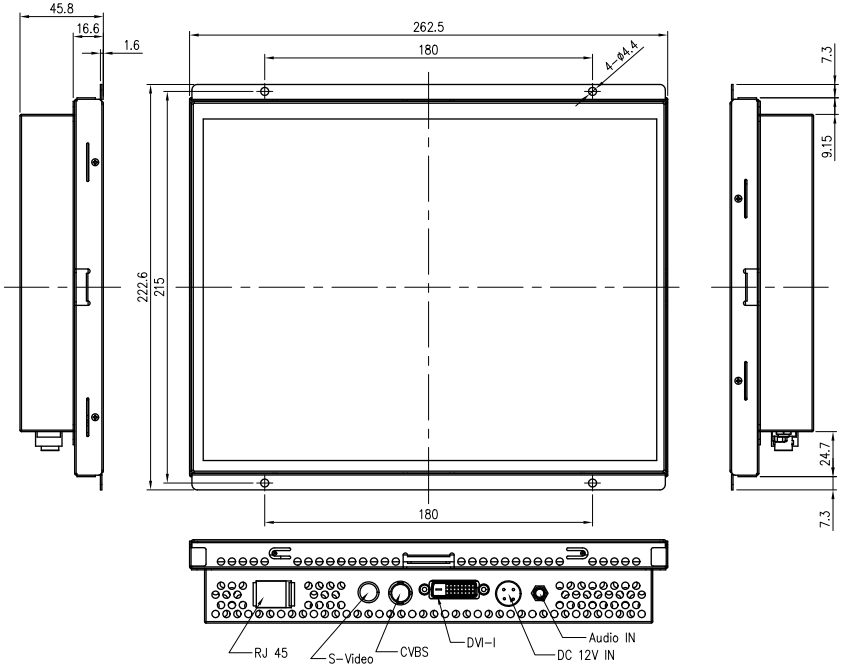
VL127D

Display	Screen size, Format	12.1”, 4:3	
	Brightness, candela/m2	500 cd/m2 (Sunlight readable version: 800)	
	Contrast	700:1	
	Resolution	1024 x 768	
	Response time	12 ms	
	Viewing angles, H/V	160 / 140	
	Color depth	16.2M	
	Panel type	TN	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	0 to 40 degrees C	-20 to 60 degrees C
	Humidity (non-condensation)	30 to 75% RH	5 to 90% RH
	Air pressure	700 to 1060 hPa	500 to 1060 hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12V External power supply	
	Power consumption	Approx. 20W Max. / 2.5W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	N/A	
	Touch panel	N/A	
	Dimming	Optional	
	Sunlight Readable	Optional	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VL127D

Appearance	Net. weight	1.6 Kgs
	Measurements (WxHxD)	262.5 x 222.6 x 45.8 mm
	Product color	Open frame, gray
	Open frame	Yes
Mounting	Kensington lock	N/A
	VESA standard	75 x 75 mm



Specifications

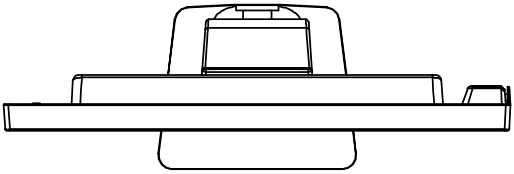
VL221D

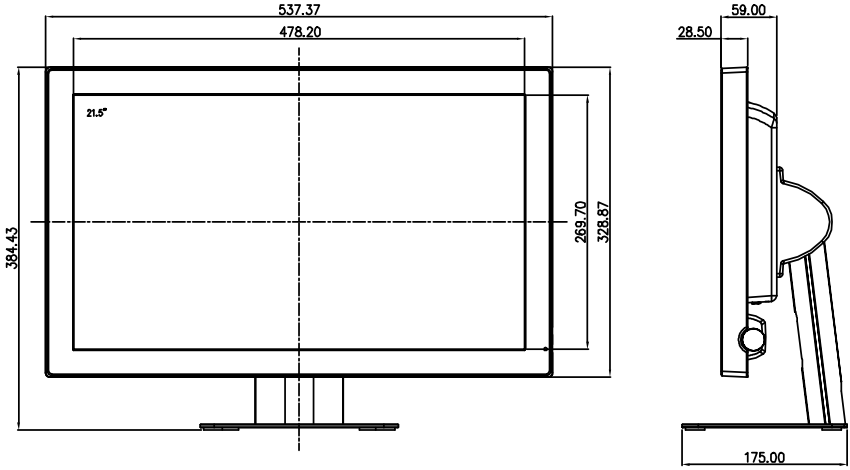
Display	Screen size, Format	21.5” 16:9	
	Brightness, candela/m2	250 cd/m2	
	Contrast	1000:1	
	Resolution, Megapixel	1920x1080, 2.1 MP	
	Response time	14 ms	
	Viewing angles, H/V	178/178	
	Color depth	16.7M	
	Panel type	N/A	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12V External power supply	
	Power consumption	Approx. 40W Max. / < 2W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	Yes, true flat. IP65	
	Touch panel	Optional, PCAP Touch panel IP65	
	Dimming	Optional	
	Sunlight Readable	Optional	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VL221D

Appearance	Net. weight	5.8 kgs *
	Measurements (WxHxD)	537.37 x 328.87 x 59 mm *
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm





Shown here with optional base unit.

* Weight and measurements might differ slightly depending on whether or not the monitor has a touch panel.

Specifications

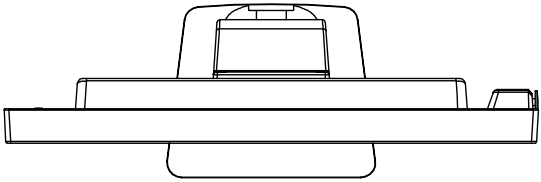
VL227D

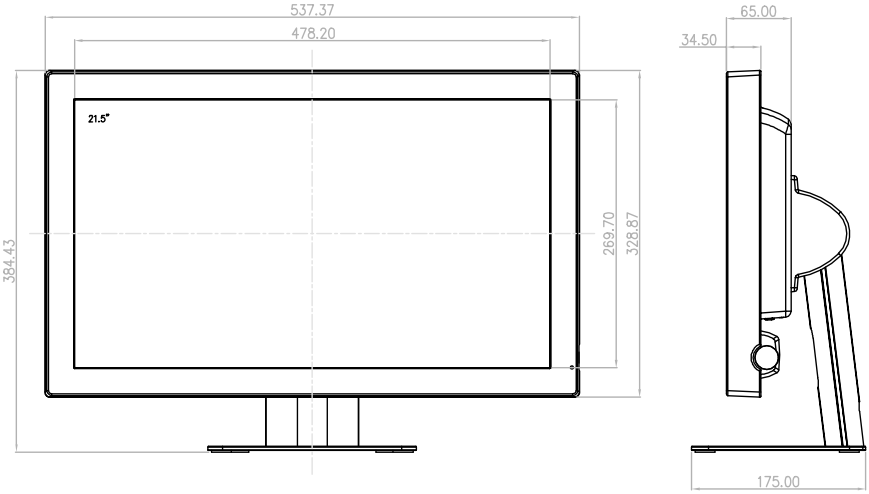
Display	Screen size, Format	21.5” 16:9	
	Brightness, candela/m2	250 cd/m2	
	Contrast	1000:1	
	Resolution, Megapixel	1920x1080, 2.1 MP	
	Response time	14 ms	
	Viewing angles, H/V	178/178	
	Color depth	16.7M	
	Panel type	N/A	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12V External power supply	
	Power consumption	Approx. 40W Max. / < 2W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	N/A	
	Touch panel	N/A	
	Dimming	Optional	
	Sunlight Readable	N/A	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VL227D

Appearance	Net. weight	5.0 kgs
	Measurements (WxHxD)	537.37 x 328.87 x 65 mm
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm





Shown here with optional base unit.

Specifications

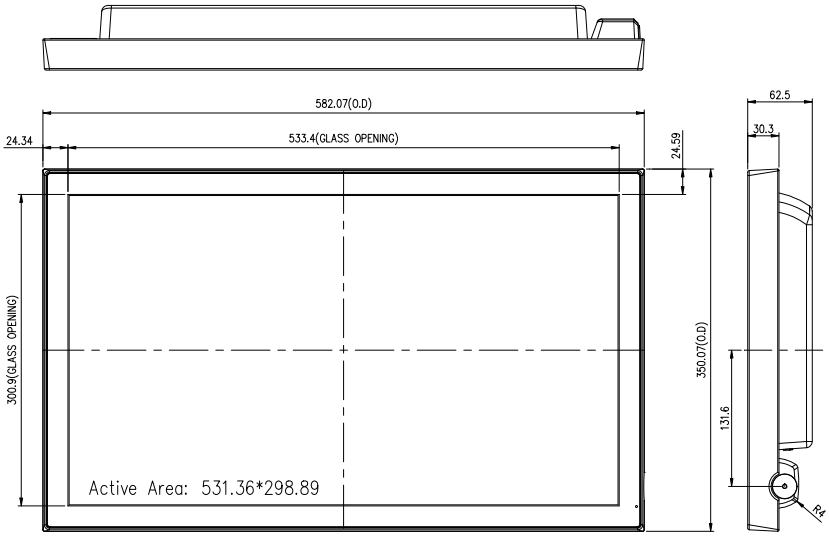
VL241D

Display	Screen size, Format	24” 16:9	
	Brightness, candela/m2	300	
	Contrast	5000:1	
	Resolution, Megapixel	1920x1080, 2Mpix	
	Response time	25 ms	
	Viewing angles, H/V	178/178	
	Color depth	16,7M	
	Panel type		
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12V External power supply	
	Power consumption	40W, < 2.5W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	Yes, true flat. IP65	
	Touch panel	N/A	
	Dimming	Optional	
	Sunlight Readable	N/A	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VL241D

Appearance	Net. weight	7.4 kg *
	Measurements (WxHxD)	582.07 x 350.07 x 62.5 mm *
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm



* Weight and measurements might differ slightly depending on whether or not the monitor has a touch panel.

Specifications

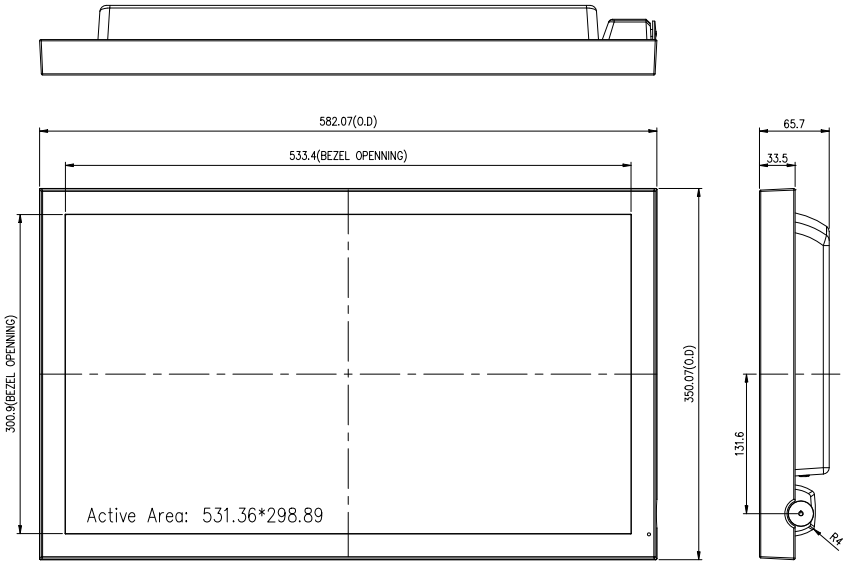
VL247D

Display	Screen size, Format	24” 16:9	
	Brightness, candela/m2	300	
	Contrast	5000:1	
	Resolution, Megapixel	1920x1080, 2Mpix	
	Response time	25 ms	
	Viewing angles, H/V	178/178	
	Color depth	16,7M	
	Panel type	N/A	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms (5) RJ 45 connector: Extended interface (OSD control)	
Power	Power supply	12V External power supply	
	Power consumption	40W, < 2.5W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	N/A	
	Touch panel	N/A	
	Dimming	Optional	
	Sunlight Readable	N/A	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	N/A	
	IT certificates	CE(EN 60950-1, EN55032+EN55024)	
Warranty	Replacement warranty	Two (2) years	

Specifications

VL247D

Appearance	Net. weight	6,4 kg
	Measurements (WxHxD)	582,07 x 350,07 x 65,7 mm
	Product color	Graphite grey
	Open frame	
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm



Specifications

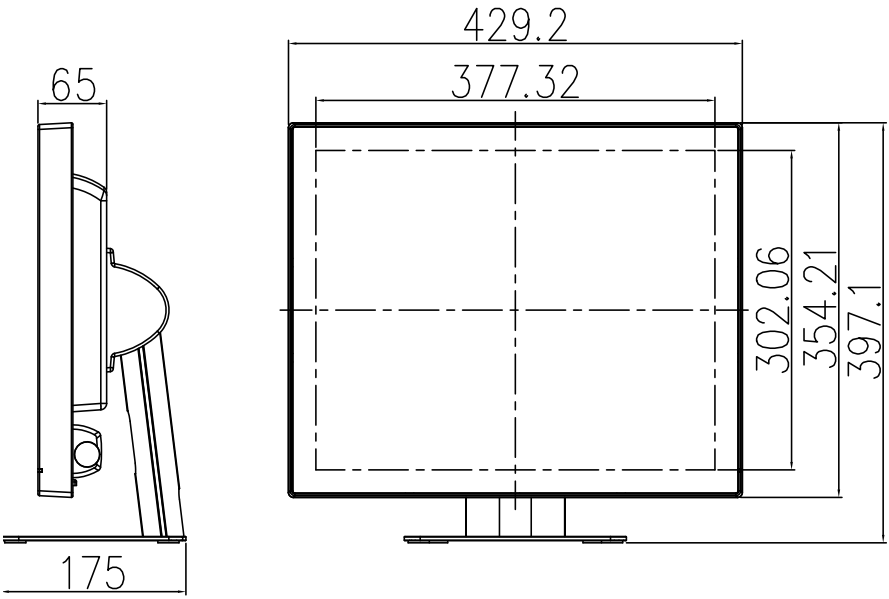
MLD198

Display	Screen size, Format	19” 5:4	
	Brightness, candela/m2	300 cd/m2	
	Contrast	1000:1	
	Resolution, Megapixel	1280x1024 1.3 Mpix	
	Response time	25 ms	
	Viewing angles, H/V	178 / 178	
	Color depth	16.7M	
	Panel type	TN	
	Backlight type	LED	
Environmental		**Operating**	**Storage**
	Temperature, Celcius	10 to 40 C	-20 to 60 C
	Humidity (non-condensation)	30 to 75 % RH	10 to 90 % RH
	Air pressure	700~1060hPa	500~1060hPa
Input signal	Connections	(1) DVI-I (29-pin) connector:Compliant with DVI 1.0 (2) S-video connector: Color signal:0.286Vp-p/75 Ω Brightness signal:1Vp-p/75 Ω (3) BNC connector: Composite signal:1Vp-p/75 Ω (4) Audio signal (pin jack3.5mm) connector:0.2-2.0 Vrms	
Power	Power supply	12V External power supply	
	Power consumption	Approx. 30W Max. / < 2.5 W in stand-by	
Functionality	Automatic adjustment	Yes, via OSD.	
	OSD for settings	Yes	
	Speakers	Yes	
	Luminance compensation	ALC	
	Pivot	Yes, graphics card dependent.	
	Protective glass	Yes, true flat. IP65	
	Touch panel	Optional, PCAP Touch panel IP65	
	Dimming	N/A	
	Sunlight Readable	N/A	
	DICOM pt. 14 preset	N/A	
International standards	Medical certificates	CE(EN 60601-1-1/EN60601-1-2)	
	IT certificates	N/A	
Warranty	Replacement warranty	Two (2) years	

Specifications

MLD198

Appearance	Net. weight	4.5 Kgs *
	Measurements (WxHxD)	429.2 x 354.21 x 65 mm *
	Product color	Graphite grey
	Open frame	Optional
Mounting	Kensington lock	Yes
	VESA standard	100 x 100 mm



Shown here with optional base unit.

* Weight and measurements might differ slightly depending on whether or not the monitor has a touch panel.

Special Considerations for LCD Panels

Manufacturing of LCD panels is very delicate with large panel elements being manufactured in one unit and then cut to smaller sizes to be used in different products. In addition a panel consists of several layers of components (back-light lamps, diffusers, electronics and color filters). There are different technologies used with each having its advantages and disadvantages resulting in end user products with different specifications even when taken from the same manufacturing batch. Below are explanations to some observations that can be made and which are not considered defects since they are merely problems inherent in the technology of LCD monitors. Over time, the performance of the panel will also change.

Native resolution

All panels have a fixed number of pixels in both horizontal and vertical directions. For instance is a 19" panel normally built with 1280 pixels horizontal and 1024 vertical giving a native resolution of 1280x1024. At this resolution you will get the sharpest picture and it is therefore recommended that you use the native resolution. Thru scaling technologies it is possible to use other resolutions but the picture will be less sharp. Some text will appear to have shadows.

Native color temperature

Most commonly LCD panels are manufactured to have a color temperature of 6500K (Kelvin degrees) for full white picture. The color temperature can vary with shade of grey being showed. For instance it could be 7500K at 50% grey and more than 9000 at 90% grey. For an individual panel the color temperature at full white can also vary by +/- 15%. Inside the panel there is a color filter and over time this will age and become more yellow in its color tone. Therefore, over time, the color temperature will gradually go lower so that at full white it could come down to 5000K.

Typical values

In product specifications there are values for brightness, contrast, view angles etc. The values are given as "typical values" meaning that actual value for any given product can vary by up to 20% from this value. For instance, a product specified to give 300 candela as typical maximum value for brightness may for individual samples vary from 240 candela to 360 candela. The values specified are for a new product. Due to wear of the backlight lamps the values will change over time and gradually become lower.

Uniformity and Mura patterns

Depending on the placement of the backlight lamps, how many they are and the size of the panel the brightness over the entire panel will vary by up to 20%. Generally the highest brightness is in the centre of the panel and becoming gradually lower towards the outer edges. This does not follow a linear curve and there might also be "areas" on the screen where there is a noticeable difference in the uniformity. Such clouded areas are referred to as "Mura" and are more related to the panel itself than to the backlight. These Mura patterns are different in size and shape and are color and grayscale dependent since they are a result from deterioration of the liquid crystal alignment layer. Mura is most commonly caused by long term operation under high ambient temperature and is a phenomenon that cannot be repaired.

Non-performing pixels

Each pixel on the panel actually consists of 3 sub-pixels (one for each of Red, Green and Blue). A 19" panel with 1280x1024 therefore has almost 4 million sub-pixels. It can happen that a pixel can get stuck in ON status (bright pixel defect) or in OFF status (dead pixel defect) or in an in-between status (low bright pixel defect). Usually such defects only affect a sub-pixel and not an entire pixel. The defect can therefore only be seen at certain color settings. The ISO 13406-2 standard specifies how many pixel defects that are acceptable before an entire panel will be considered faulty.

Special Considerations for LCD Panels

Olorin products are warranted to follow this standard as a Class II product.

Image sticking

If the same image is shown for a long period of time there is a risk for “image sticking”. This is a result of that the thin film transistors will get stuck in a certain position and continue to show that image even when a new image is sent to the panel. The image will disappear if you put a full white picture on the monitor for several hours. The best solution is to have a screen saver that moves around on the screen so that no static image is constantly shown.

Slow operating in cold environments

The thin film transistors contain some liquid that will cause them to operate slowly in cold temperatures. When temperature inside the panel has increased to normal room temperature, the speed will be up to normal again.

Cable length and input signal

When using long cables from the video source (PC, camera etc) to the monitor the signal level will be lower and cause distortions in the picture shown. A low quality graphic board could also cause such problems. Always use high quality graphic boards and signal cables.

Longer life for your monitor

The components that have biggest influence on the useful life of the product are the backlight lamps. These are made of CCFL (Cold-cathode Fluorescent Lamp) or LED. Over time these will decay and give less and less light. They generally have a spedification of 40,000 hours before they are worn out. If they are constantly on one year of use corresponds to just over 8,000 hours and thus a life of 5 years.

There are ways to improve the useful life.

The most radical and efficient way is to always switch the monitor off when not used.

The second best is to use the Power Save feature within the PC´s DPMA system. This will not switch off the monitor entirely but the backlight lamps will be switched off which is the important thing. When you start to use the keyboard or mouse, the monitor will be switched on within a couple of seconds.

PLEASE, NOTE THAT A SCREENSAVER WILL NOT SWITCH OFF THE BACKLIGHT LAMPS AND THUS IS NOT A SOLUTION FOR LONGER LIFE.

The higher the luminance is set on the monitor the greater is the wear of the backlight lamps. All monitors have the facility to adjust brightness. Never set this at maximum since this will cause the lamps to decay faster. A setting at 50% will be sufficient for use in office environment.

Gradual change of color

As the backlight lamps ages they will show a warmer color temperature which can be perceived as more yellow for white color than it was initially when the monitor was new. There are color filters in the panel which also will age and add to the yellowish color tone.

You can usually from the monitors OSD set your own color and by setting the value for blue higher than red and green will change the color temperature back to more normal. However, the blue color filter has lower translucence so the consequence is that you will get a lower brightness.

Troubleshooting

Start your trouble shooting with the following actions

Possible power problem

- Make sure power is connected. If you switch the monitor off and then back on, the diode on the front should show green light. Some models have a main power switch next to the power inlet check that this is set to on. If you have a model **without power** adapter and still the no green light it's not a power problem.
  - If **not**, check your power connection to the 12V/24V adapter and to the wall. There is a similar diode on the 12V/24V adapter that should show green light.
    - If **not**, the adapter might be broken. If you have another adapter of the same type you can verify by using that adapter.
    - If **yes**, there is a problem with the panel which should be repaired.
  - If **yes**, then it is not a power problem.

Possible signal problem

- If picture is not stable or not shown at all or you get "No Sync" then check connection of the signal cable and graphic board settings.
- If cable connections and graphic board settings are OK, then try the following
  - Switch monitor off. Wait 10 seconds and switch it back on
  - Re-boot the PC
  - Test monitor by connecting it to another PC
- If nothing of this helps, then there is something wrong with the monitor and it should be repaired. Contact your local reseller for assistance.

Reference

Barten curve

Curve used to emphasize areas of a digital grayscale where the human eye have trouble discerning similar shades of gray, named after its creator Dr. Peter G.J. Barten.

DDC *1

This unit conforms with DDC-2B and VESA *2 standards.

The DDC function reads information stored in the monitor about its capabilities. It communicates over the 15-pin D-sub connector and the 24-pin DVI-D connector and it takes place during start-up of Windows®. It sets the detailed information of the color LCD display in the system file in order to achieve Plug & Play.

The video cable must be connected for reading of the information to take place.

**1 DDC (Display Data channel) and *2 VESA are registered trademarks of Video Electronics Standards Association.*

DICOM (Digital Imaging and Communications in Medicine)

DICOM is a standard for handling, storing, printing, and transmitting information in medical imaging, Part 14 refers to the chapter: ”Grayscale Standard Display Function”.

Kensington Anti-Theft Security Lock Slot

The LCD monitor is equipped with a security lock slot compatible to Kensington® security lock type. The security cable lock maybe available thru your dealer or it can be purchased at most computer peripheral stores near you.

Power management

This unit conforms to the DPMS standard (Display Power Management Signaling).

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