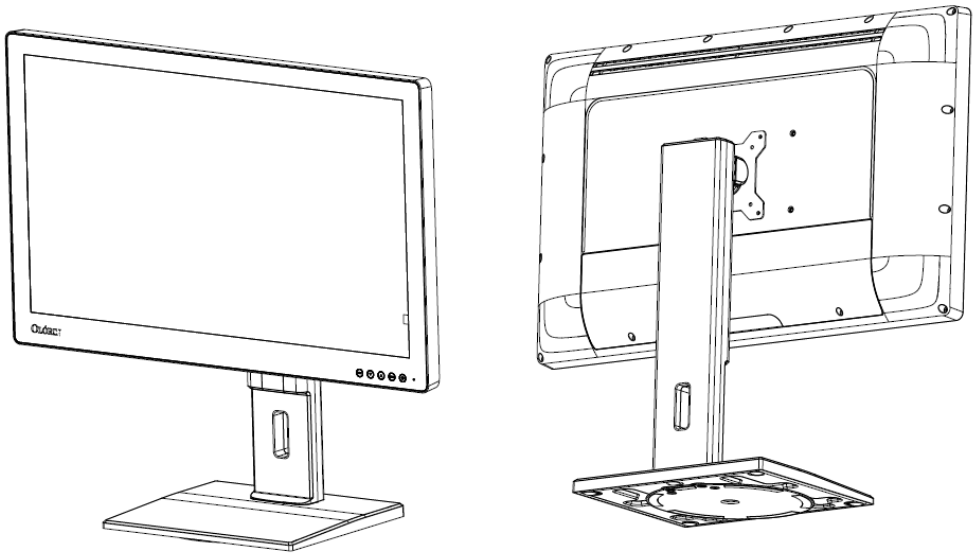
27” HIGH RESOLUTION
HIGH BRIGHTNESS
LCD DISPLAY



OLORIN MCD27102
User Guide

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1. Introduction

1.1 Monitor description

Design and manufacturing.

The MCD27102 monitor has been specified and designed by:

Olorin AB
Arendalsvägen 40
434 39 Kungsbacka
SWEDEN

Subcontractor for manufacturing and regulatory testing is:

Diva Technology Ltd
9F, No. 351, Sec. 2, Zongshan Road, Zhonghe District
New Taipei City
235 TAIWAN R.O.C.

Intended Use

The Monitor is intended to be used for displaying and viewing digital images coming from PC, workstation or laptop in ordinary work or home environments. It has been designed to meet requirements from customers wanting to use products with high luminance and high resolution in images shown on the monitor. To further enhance picture quality the monitor can be calibrated with special software to meet standards set by the graphics and other industries.

Regulatory approvals

The Monitor has been tested to meet all regulatory approvals as an IT product. In addition, it has also been tested to meet EU regulations as a medical device needed for viewing of X-ray pictures according to the DICOM standard.

Documents showing results of regulatory tests can be requested by sending an e-mail to Info@olorin.se

EMC information

See appendix 1 for Electromagnetic Radiation information.

CE Declaration of Conformance

See appendix 2.

1.2 Box content

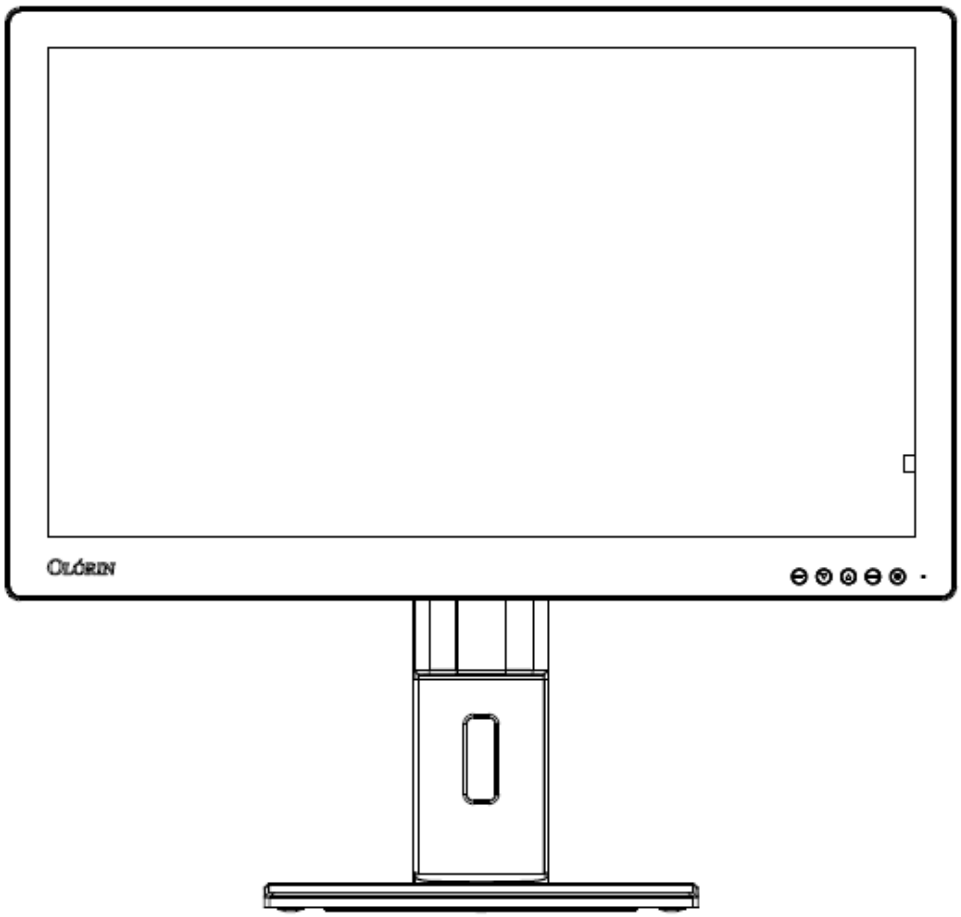
- 27” LCD Monitor panel
- Base unit in 2 parts
- Screws and tools to assemble panel and base unit.
- User Guide and instructions for assembly
- DP cable
- 24V power adapter
- EU standard grounded power cord
- Special device for calibration purpose consisting of:
    - USB to HDMI cable
    - HDMI to HDMI cable
    - Enclosed HID circuit board with connections for the two cables above

NOTE

- The accessories of the LCD monitor include relevant items mentioned in the user’s manual only but do not include graphic cards.
- Remember to save your original box and packing material to transport or ship the display.

1.3 Product overview

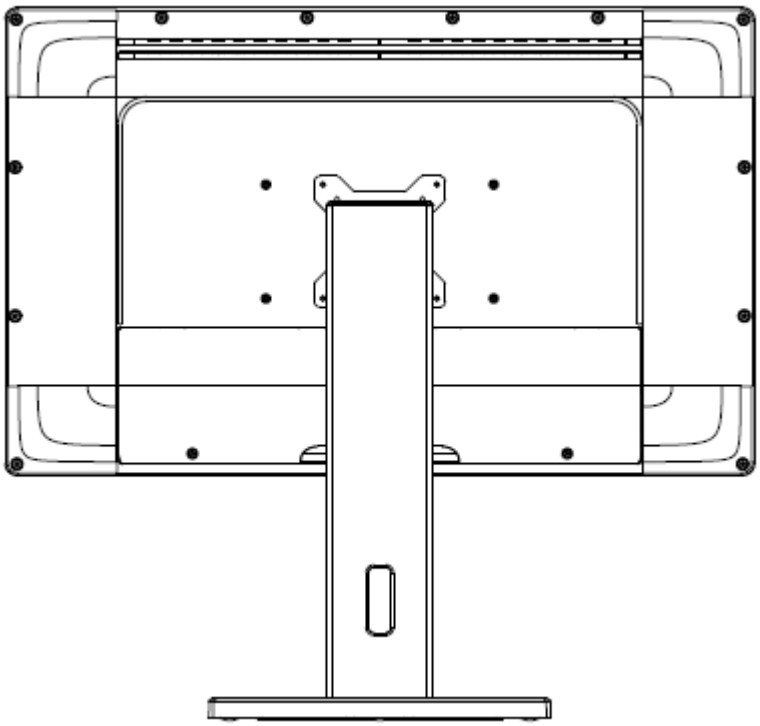
Front View



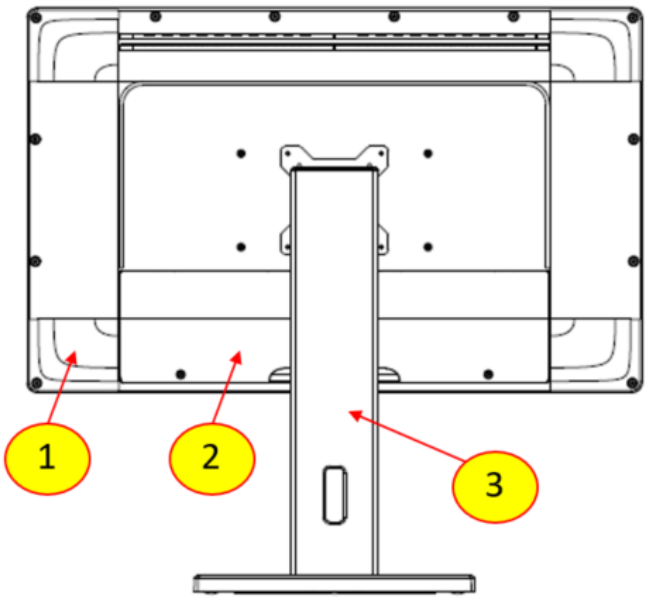
Touch control buttons for operating monitor settings (from left to right)

1. Exit the settings.
2. Move down.
3. Move up.
4. Menu (click to start settings and click to set selected item)
5. Power on/off
6. Indicator light
7. Green when on Yellow when stand-by or when no connection to PC.
8. Front sensor for luminance stabilization and calibration

Available monitor settings are described in section 4 of this user guide.

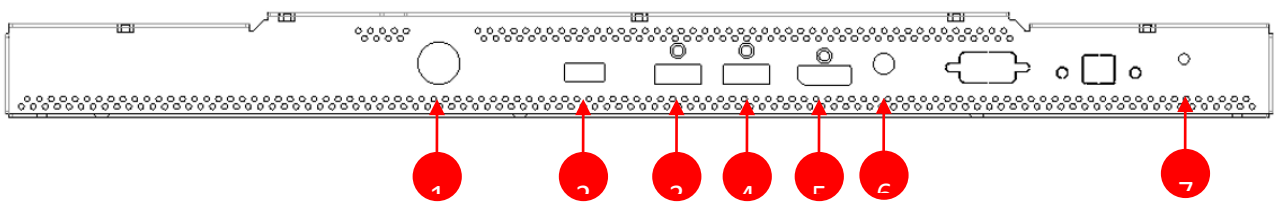


Rear View



1. Rear cover
2. Optional IO cover affixed with 2 screws. Not included.
3. Monitor stand

1.4 Available Connections



Available connections (bottom view)

No	Name	Connection Type	Remarks
1	DC 24V IN	Power Din-4pin	DC 24V input
2	USB	USB type A	Service Connection (For technician use only)
3	HDMI2	HDMI	HDMI signal input
4	HDMI1	HDMI	HDMI signal input
5	DP	DisplayPort	DisplayPort signal input
6	AUDIO	3.5mm stereo phone jack	Audio signal input
7	GND Post	Ground stud	Connect to the system to earth ground

1.5 Installation of the monitor

- Place the device on a flat, solid, and stable surface that can support the weight of at least 3 devices. If you use an unstable cart or stand, the device may fall, causing serious injury to persons and serious damage to the device.
- Assemble the 2 pieces that together form the stand. Use enclosed screws and tools to do this.
- Assemble the stand and the panel together with enclosed screws and tool. Be careful so you do not damage the front of the panel.
- Dismount the cover for the connectors at the back of the monitor. Only if installed.
- Connect the cables you will be using to the monitor as well as the cable from the 24V power adapter.
- Re/mount the cover for the connectors. If you have the cover.
- With power switched off, connect the cables to the PC.

1.6 Precautions

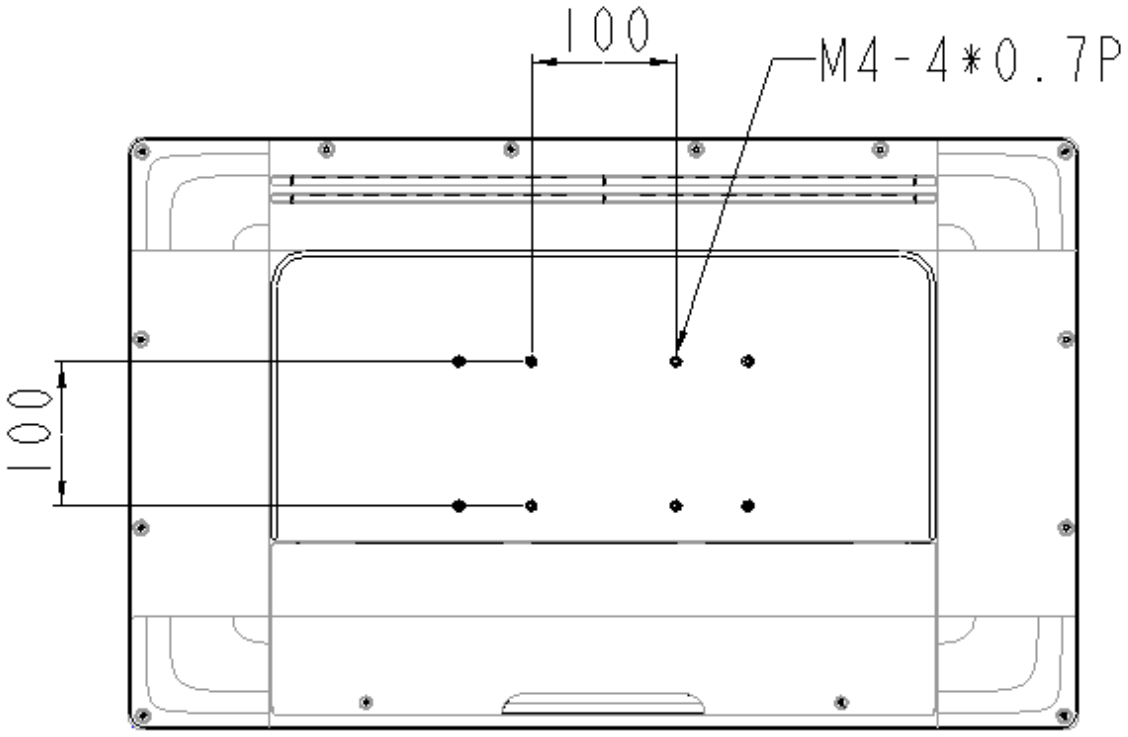
- Make sure to carefully read the User Manual prior to using the monitor in order to properly use the monitor.
- Note that, excluding those cases where a responsibility for legal compensation is recognized, the manufacturer shall bear absolutely no responsibility for damage to this product by a customer or a third party that results from the ignoring of contents entered in this User Manual and mistaken use.
- Place the monitor on a flat and level surface.
- Place the monitor in a well-ventilated place.
- Keep the monitor away from:
  - overly hot, cold, or humid places, places directly under sunlight, dusty surroundings,
  - Equipment that generates strong magnetic fields.
- The display mounting direction is landscape only.
- Accessory equipment connected to the analog and digital interfaces must be in compliance with the respective national IEC standards.
- When operating the Display with a 240V AC power source in Europe, use the power cord provided with the monitor. In the UK, a BS approved power cord with a molded plug has a Black (five Amps) fuse installed for use with this equipment. If a power cord is not supplied with this equipment please contact your supplier.
- When operating the Display with a 240V AC power source in Australia, use the power cord provided with the monitor. If a power cord is not supplied with this equipment please contact your supplier.
- For all other cases, use a power cord that matches the AC voltage of the power outlet and which has been approved by and complies with the safety standard of your particular country.

1.7 **VESA mount installation**

This monitor provided with a validated stand. The monitor has been designed to be used in landscape position with a maximum tilt of -5° to 30° backward. If a different stand is needed in the final application, the monitor VESA interface (VESA 100 mm standard) could be used.

To remove the stand and install the VESA mount:

- Remove the panel from the stand.
- Attach the monitor in landscape position to a 100 mm VESA mounting bracket. Mounting in portrait position is not feasible. To be installed by skilled person only.



2. Important Information

2.1 Safety information

General recommendations

- Read the safety and operating instructions before operating the device. Save the safety and operating instructions for future reference.
- Adhere to all warnings on the device and in the operating instructions manual. Follow all instructions for operation and use.
- To prevent an electrical shock or fire hazard, do not remove the cover.
- No serviceable parts are inside. Refer servicing to qualified personnel. Do not expose this apparatus to rain or moisture.
- Do not modify this equipment without authorization of the manufacturer.
- Equipment is not suitable for use in the presence of a flammable anesthetic mixture of air, oxygen or nitrous oxide.
- We strongly recommend there to be a replacement monitor immediately available in mission critical applications.
- Use a power cord that matches the voltage of the power outlet, which should be approved and in compliance with the safety standard of your particular country.
- Do not overload wall outlets and extension cords as this may result in fire or electric shock.
- Power cords should be routed so that they are not walked upon or pinched by items placed upon or against them. Pay particular attention to cords at plugs and receptacles.
- Avoid placing the monitor near places that is hard to reach or difficult to disconnect the power supply cord.

WARNINGS!

- To avoid risk of electric shock, this equipment must only be connected to a mains with protective ground.
- Grounding reliability can only be achieved when the equipment is connected to an equivalent receptacle.
- Never expose the monitor to liquids or moisture.
- Never use the monitor near water - e.g. near a bathtub, washbasin, swimming pool, kitchen sink, laundry tub or in a wet basement.
- Unplug the monitor from the power outlet before cleaning.
- Do not cover or block any ventilation openings in the cover of the monitor. When installing the device in a cupboard or another closed location, heed the necessary space between the monitor and the sides of the cupboard.

- Do not touch a damaged LCD panel directly with bare hands. The liquid crystal which leaks from the panel is poisonous if it enters the eyes or mouth.
- Do not leave the LCD screen facing the sun as it can damage the LCD screen. Take care when you place the unit by a window.
- Do not push or scratch the LCD monitor's screen. Do not place a heavy object on the LCD monitor's screen. The result is color uniformity imperfection.
- If the unit is used in a cold place, a residual image may appear on the screen. This is not a malfunction. When the monitor becomes warm, the screen returns to normal.
- If a still picture is displayed for a long time, a residual image may appear. Fortunately, unlike CRT burn-in, Image Persistence can be removed most of the time.
- The screen and the cabinet become warm during operation. This is not a malfunction.
- Avoid keeping a static picture on this monitor, or it may cause a "Image Persistence" (image retention).
- The LCD monitor heats up when it's working, please do not touch the panel and plastic enclosure over 60 seconds, and do not touch the metal enclosure on the back of the LCD monitor over 1 second.

2.2 Notice for this monitor

- This product is not used in relation to nuclear, biological or chemical weapons, or missiles capable of delivering these weapons.
- This product has been adjusted specifically for use in the region to which it was originally shipped. If the product is used outside the region, it may not operate as specified in the specifications.
- The specifications noted in this manual are only applicable for power cords and signal cables specified by us.
- As it takes about 30 minutes for the performance of electrical parts to stabilize, adjust the monitor 30 minutes or more after the monitor power has been turned on.
- In order to suppress the luminosity change by long-term use and to maintain stable luminosity, use of the monitor set to lower brightness is recommended.
- The screen may have defective pixels. These pixels may appear as slightly light or dark areas on the screen. This is due to the characteristics of the panel itself, and not the product.
- The backlight of the LCD panel has a fixed life span. When the screen becomes dark or begins to flicker, please contact your dealer.
- Maintenance/repair personnel – only by manufacturer trained and authorized technician.
- This product may not be covered by warranty for uses other than those described in this manual.
- Staring at the monitor for a long time tires your eyes. Take a 10-minute rest every hour.
- Please follow the national guidelines for unit disposal.

2.3 Environmental information

Disposal Information

Waste Electrical and Electronic Equipment

- Within the European Union

This symbol on the product indicates that under the European Directive 2012/19/EU, governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal waste.

This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product, or if applicable, follow any agreements made between yourself. The mark on electrical and electronic products only applies to the current European Union Member States. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

- Outside the European Union

If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.

ROHS

EU Directive 2011/65/EC; 2015/863/EU ; EN IEC 63000:2018(IEC 63000:2016);

On the restriction of certain hazardous substances in electrical and electronic equipment.

This product is RoHS compliant.

2.4 Recommended Use

For optimum performance, please note the following when setting up and using the multi-sync LCD monitor:

- Do not insert objects of any kind into the cabinet slots, as they may touch dangerous voltage points, which can be harmful or fatal or may cause electric shock, fire or equipment failure.
- Do not place any heavy objects on the power cord. Damage to the cord may cause shock or fire.
- Do not place this product on a sloping or unstable cart, stand or table, as the monitor may fall, causing serious damage to the monitor.
- Do not place any objects onto the monitor and do not use the monitor outdoors. Immediately unplug your monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions:
- When the power supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the monitor.
- If the monitor has been exposed to rain or water.
- If the monitor has been dropped or the cabinet damaged.
- If the monitor does not operate normally by following operating instructions.
- Do not bend power cord.
- Do not use monitor in high temperature, humid, dusty, or oily areas.
- Do not cover vent on monitor.
- If monitor or glass is broken, do not come in contact with the liquid crystal and handle with care.

CAUTION

- Allow adequate ventilation around the monitor so that heat can properly dissipate. Do not block ventilated openings or place the monitor near a radiator or other heat sources. Do not put anything on top of monitor.
- The power cable connector is the primary means of detaching the system from the power supply. The monitor should be installed close to a power outlet, which is easily accessible.
- Handle with care when transporting. Save packaging for transporting.
- Image persistence is when a residual or “ghost” image of a previous image remains visible on the screen. LCD monitors’ image persistence is not permanent, but constant images being displayed for a long period of time should be avoided. To alleviate image persistence, turn off the monitor for as long as the previous image was displayed. For example, if an image was on the monitor for one hour and a residual image remains, the monitor should be turned off for one hour to erase the image.

2.5 Ergonomics

Correct placement and adjustment of the monitor can reduce eye, shoulder and neck fatigue. To realize the maximum ergonomics benefits, we recommend the following:

- Use the preset Size and Position controls with standard signals.
- Position your monitor no closer than 40 cm and no further away than 70 cm from your eyes. The optimal distance is 50 cm.
- Adjust the monitor height so that the top of the screen is at or slightly below eye level. Your

eyes should look slightly downward when viewing the middle of the screen.

- Rest your eyes periodically by focusing on an object at least 50 cm away.
- If reflected light makes it hard for you to see your screen, use an anti-glare filter.
- Adjust the backlight to best state. Do not position the Contrast control to its maximum setting.
- Use the preset Color Setting. Do not use primary color blue on a dark background, as it is difficult to see and may produce eye fatigue to insufficient contrast.
- For optimum performance, allow 30 minutes for warm-up.
- Avoid displaying fixed patterns on the monitor for long periods of time to avoid image persistence (after-image effects).

3. Cleaning the Display

3.1 Cleaning instructions

To clean the display

- When the screen has dust on the LCD panel surface, using a soft sponge, cleaning cloth, or soft tissue with moistened to wipe it off.
- Cleaners usable for the LCD panel are isopropyl alcohol (without abrasive), non-ammonic glass cleaner, and watered-down neutral cleaning solution. Do not use organic solvent such as acetone and toluene.
- In case of doubt about a certain cleaning product, use plain water.
- Do not apply or spray liquid directly to the display as excess liquid may cause damage to internal electronics. Instead, apply the liquid to a cleaning sponge, cloth, or tissue.

CAUTION

- For safety reasons, turn-off the power switch and unplug the monitor before cleaning.
- Take care not to damage or scratch the front glass or LCD. Be careful with rings or other jewellery and do not apply excessive pressure on the front glass or LCD. This can lead to unevenness in the screen and also to failure of the product.

WARNING

- If you dropped any material or liquid such as water into the monitor when cleaning, immediately contact your dealer or the nearest service center.

3.2 Cleaning the cabinet

- Remove dirt with a lightly moistened cloth then wipe the cabinet with a soft dry cloth.
- Do not use thinner, benzine, alcohol or such on the cabinet that is made of plastic. Also do not leave rubber and vinyl products or such in contact with it for long hours. These can damage the cabinet, alter its quality and cause the paint to peel off.

4. Daily Operation

4.1 Power / Status indication

Power Indicator diode at front of the monitor in lower right corner.

Green	Normal operation. Power is on with signal to PC is connected
Amber	No signal/Power saving
LED Off	Power Off

4.2 OSD Menu Operation

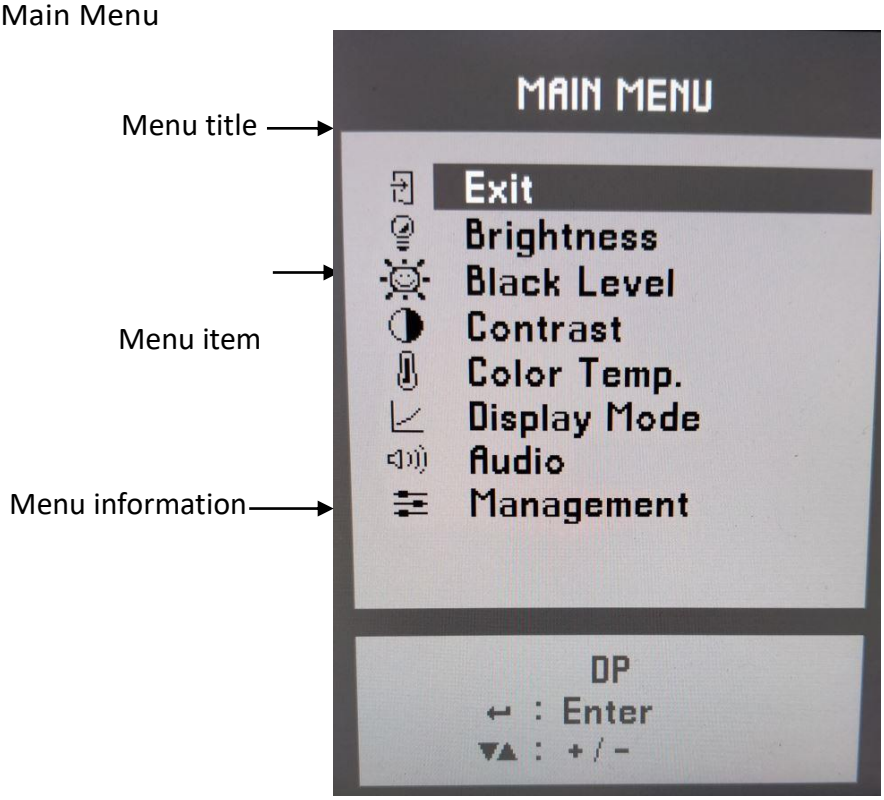
Touching the “Menu” selection activates the OSD Menu System. Below is shown the opening window of the OSD system.

There are 2 information pages showing certain settings and information of the monitor such as serial number. You must step down to “OSD menu” to enter the regular OSD Menu selections.

You navigate by touching the up and down and you confirm a selection by touching Menu.

OSD display:

Main Menu



4.3 OSD Structure

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	Description
Exit				Exit the OSD menu, in sub menus this will take you one step higher in the menu tree structure.
Brightness	0~100			Adjust the Brightness of the monitor when ALS is Off. ALS must be On when using DICOM or Calibration display mode.
Black Level	0~100			Adjust the Black Level of the monitor.
Contrast	0~100			Adjust the Contrast value.
Color Temp.	Exit			Setup the Color Temperature.
	Cool			
	Neutral			
	Warm			
	User	Exit		Adjust the Color Temperature independently.
		Red	0~100	
		Green	0~100	
		Blue	0~100	
Display Mode	Exit			Setup different gamma curve of the image.
	Native			
	Gamma 1.8			
	Gamma 2.0			
	Gamma 2.2			
	Gamma 2.4			
	DICOM			Set the mode to DICOM, 450 cd/m2.
	Calibration			Set the mode to Calibration, only for compatible calibration software.

	Light Box			Set the mode the Light Box.
Audio	Exit			
	Input	Exit		Select the Audio Input Source.
		Digital		
		Line In		
	Mute	Exit		Setup the Mute function of the Audio.
		On		
		Off		
	Volume	0~100		Adjust the Volume of the Audio.
Management	Exit			Adjust the display ratio of image.
	Scaling	Exit		
		FULL		
		5:4		
		4:3		
		16:9		
		1:1		
		16:10		
	OSD Display	Exit		Adjust the OSD position on the screen.
		OSD H Position	0~10	Adjust the OSD horizontal position on the screen.
		OSD V Position	0~10	Adjust the OSD vertical position on the screen.
	OSD Timer	5 ~ 30		Adjust the OSD Time Out OSD menu.
	Transparent	0 ~ 7		Adjust the OSD Transparent OSD menu.
	Language	Exit		Select this item to change the OSD language.
		English		
		Francais		

		Deutsch		
		Italiano		
		Español		
		日本語		
	Source	Exit		Select an input source.
		Auto Source	Exit	Select this function to search an input signal automatically.
			On	
			Off	
		DP		Select DisplayPort input.
		HDMI1		Select HDMI 1 input.
		HDMI2		Select HDMI 2 input.
	Recall	Exit		Reset OSD value to the default settings.
		Yes		

5. Supported Video Modes

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

◎ : Recommended timing ○ : Applied timing

Resolution	Pixel-rate [MHz]	Line-rate [kHz]	Frame-rate [Hz]	HDMI	DP
640x480	25.200	31.500	60.000	O	O
720x400	28.322	31.469	70.087	O	O
800x600	40.000	37.879	60.317	O	O
1024x768	65.000	48.363	60.004	O	O
1280x1024	108.000	63.981	60.020	O	O
1600x1200	162.000	75.000	60.000	O	O
1920x1080	148.504	67.502	60.002	O	O
1920x1200	154.000	74.038	60.000	O	O
720x480p	22.836	26.000	50.000	O	O
720x480p	27.000	31.469	60.000	O	O
980x980	102.280	77.250	75.000	O	
1280x720p	74.250	37.500	50.000	O	O
1280x720p	74.250	45.000	60.000	O	O
1920x1080p	148.500	56.250	50.000	O	O
1920x1080p	148.500	67.500	60.000	O	O
3840x2160p	297.000	54.000	24.000	O	O
3840x2160p	297.000	56.250	25.000	O	O
3840x2160p	297.000	67.500	29.000	O	O
3840x2160p	297.000	67.500	30.000	O	O
3840x2160p	594.000	112.500	50.000	O	O
3840x2160p	594.000	134.900	59.000	O	O
3840x2160p	594.000	135.000	60.000	◎	◎

6. Technical Specifications

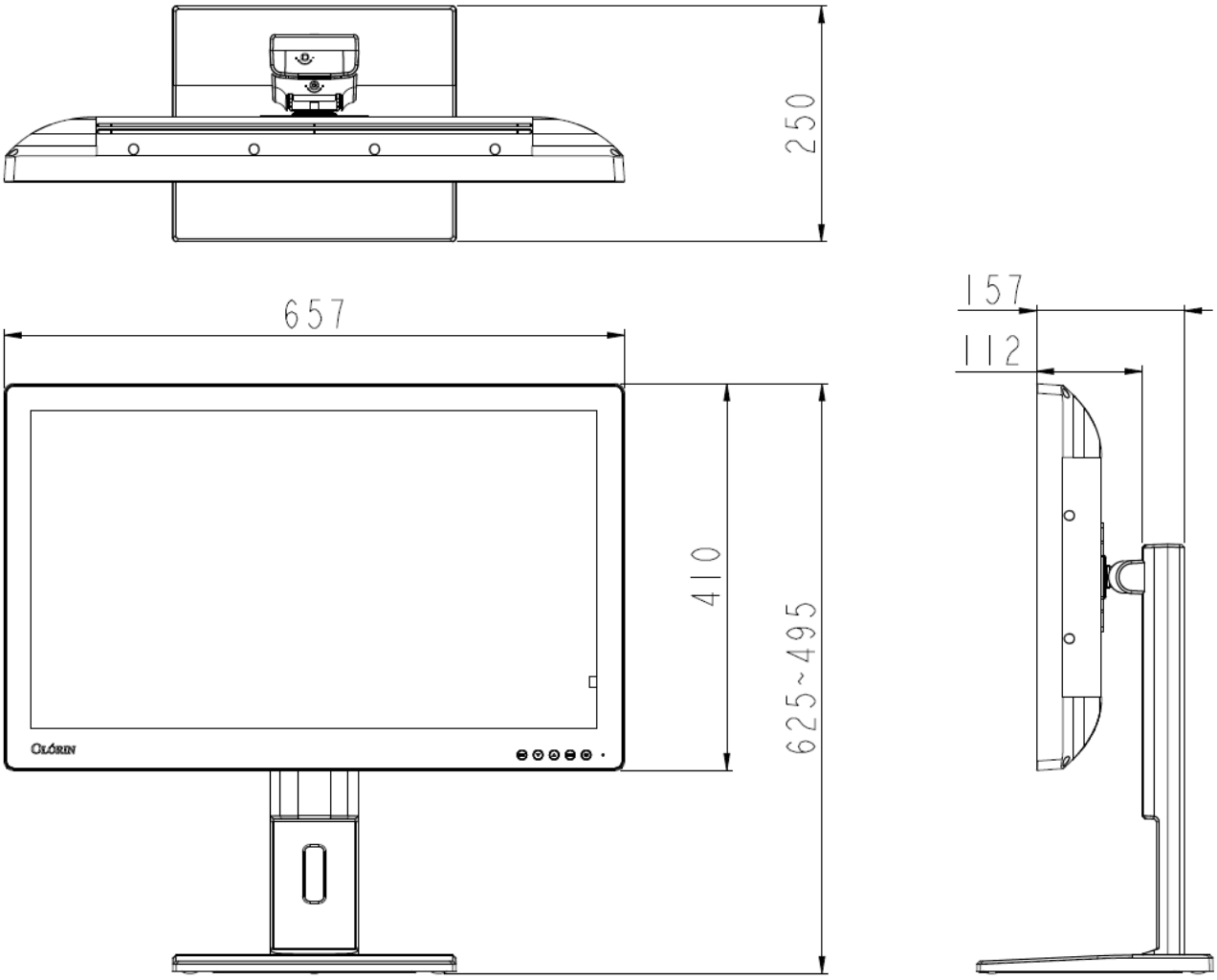
Product description	27” LCD Monitor
Screen technology	AHVA
Active screen size (H x V)	596.16 mm (H) × 335.34mm (V)
Aspect ratio (H:V)	16:09
Resolution	UHD (3840 x 2160) 8Mpix
Pixel pitch	0.15525 mm (H) x 0.15525 mm (V)
Color support	1.07 billion colors, 10Bit (8Bit + A-FRC)
Viewing angle (H, V)	178 / 178 Deg. (CR ≧ 10)
Panel Brightness	500(Typ.),400(Min.) cd/m²
Video input signals	1xDisplayPort 2xHDMI
Monitor Rating	24 V, 2.5 A
Power Supply	Delta Electronics, Inc. Model MDS-090AAS24 F Input: 100-250V ac, 1.5-0.75 A, 50-60Hz Output: 24 V dc, 3.75 A
Power consumption (maximum)	< 60 W
Power consumption (stand-by)	< 3 W
Dimensions (W x H x D)	651 x 442 x 175 mm
Net Weight	10.4kg ± 0.2 kg
Certifications	CE: EN 60601-1-2 ; IEC/EN 60601-1; RoHS (2011/65/EU & 2015/863/EU)

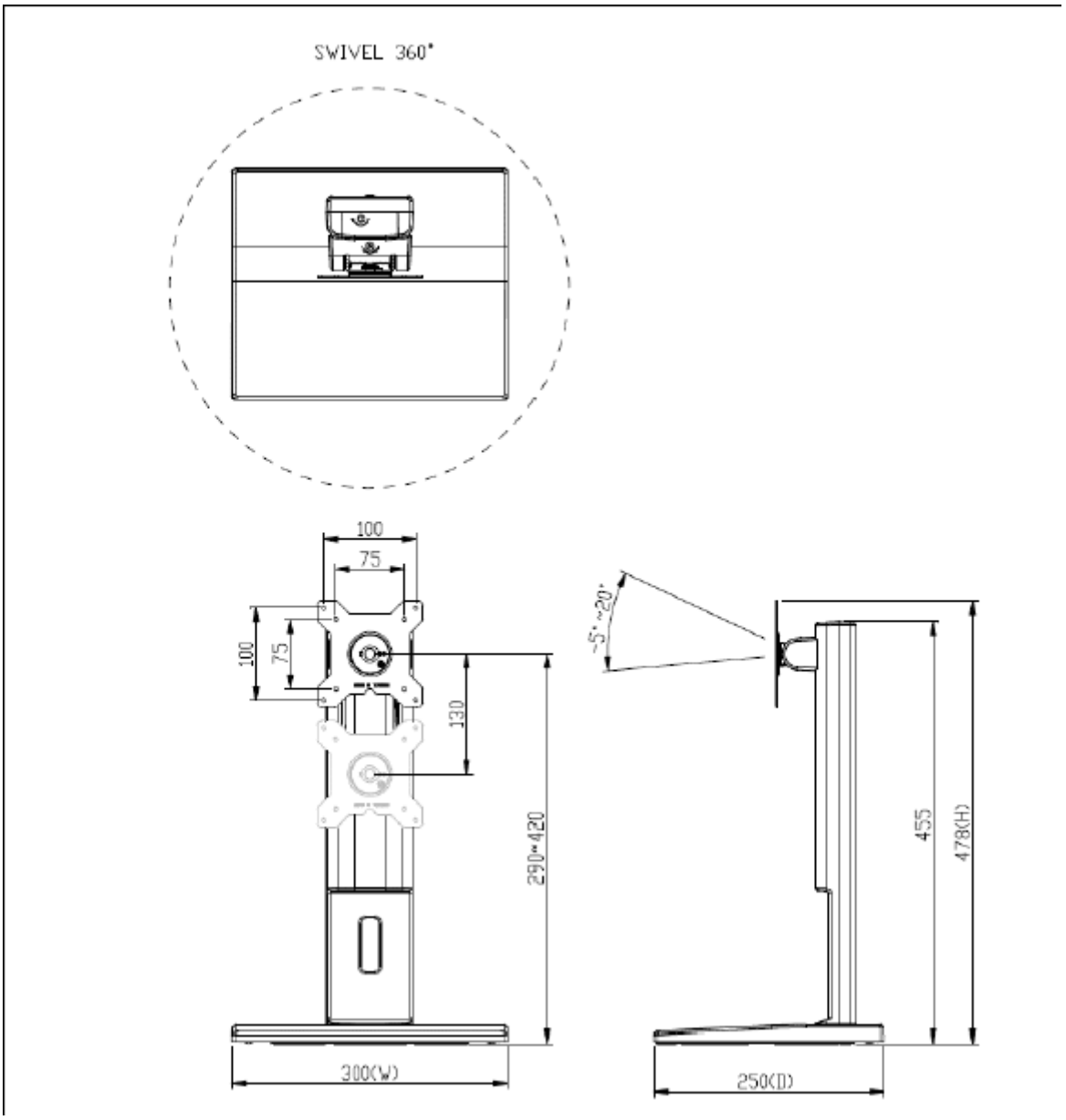
Operating temperature	0°C to 40°C
Transport / Storage temperature	-20°C to 60°C
Operating humidity	30% - 75% (performance; non-condensing)
Transport / Storage humidity	10% - 90% (non-condensing)
Operation altitude	3000m
Intended User Profile	・ Age: Adult (specify range 21~70) ・ Gender: Can be use by all genders ・ Linguistic/ Cultural Background: At least English ・ Education/ Professional Competence: General level of education ・ Intended User Group: Office worker. ・ Intended location: Office environment. ・ Type of equipment: Portable (on a table) ・ Mode of operation: Continuous Operation ・ Parts of the device: No Applied parts ・ Product Lifetime: 5 years ・ Unsuitable environment: The equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide; Not AP or APG Category.

NOTE

- The specifications shown above may be changed for quality improvement without prior notice.

6.2 Outline Dimension





Outline dimension with monitor tilt -5° & 20° backward

7. Troubleshooting

If the Display fails to function correctly, please follow these steps for a possible solution.

1. Perform the adjustments according to **Installation procedure** section.
2. Refer to the following troubleshooting chart if you cannot resolve the problem from other sections of this User's Manual.
3. If the problem is not described below or you cannot correct the problem, stop using the monitor and contact your dealer or the nearest service center for further assistance.

Problem	Check to see
No picture	The signal cable should be completely connected to the display card/computer.
	The display card should be completely seated in its slot.
	Check the AC Switch should be in the ON position. (AC Switch models only)
	DC Power Switch and computer power switch should be turned on.
	Check to make sure that a supported mode has been selected on the display card or system being used. (Please consult display card or system manual to change graphics mode.)
	Check the monitor and your display card with respect to compatibility and recommended settings.
	Check the signal cable connector for bent or pushed-in pins.
Image persistence (Image Sticking)	Image persistence is when a residual or "ghost" image of a previous image remains visible on the screen. To alleviate image persistence, turn off the monitor for as long as the previous image was displayed.
	Ensuring that a single image isn't on-screen all the time or more than thirty minutes.
The screen has defective pixels	The screen has defective pixels (e.g. slightly light or dark). This is due to the characteristics of the panel itself and not the LCD product.

Image is unstable, unfocused, or swimming is apparent	Signal cable should be completely attached to the computer.
	Check the monitor and your display card with respect to compatibility and recommended signal timings.
	If your text is garbled, change the video mode to non-interlace and use 60 Hz refresh rate.
OSD is not sized properly	Use the OSD Image Adjust controls to increase or decrease the Coarse total.
	Check to make sure that a supported mode has been selected on the display card or system being used.
No signal	Signal cable should be completely attached to the computer.
	Make certain the computer is not in a power-saving mode (touch the keyboard or mouse).
	If no video is present on the screen, turn the Power button off and on again.
LED on monitor is not lit (no blue or amber color can be seen)	Power Switch should be in the ON position and power cord should be connected.
	Check the power cable should be connected securely.

8. Appendix

Appendix **1** Electromagnetic Compatibility Notice

<table>
<tr><td colspan="3">Guidance and manufacturer’s declaration – electromagnetic emissions</td></tr>
<tr><td colspan="3">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.</td></tr>
<tr><td>Emissions test</td><td>Compliance</td><td>Electromagnetic environment – Guidance</td></tr>
<tr><td>RF emissions

CISPR 11</td><td>Group 1</td><td>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 with nearby electronic equipment.</td></tr>
<tr><td>RF emissions

CISPR 11</td><td>Class B</td><td rowspan="3">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.</td></tr>
<tr><td>Harmonic emissions

IEC 61000-3-2</td><td>Class D</td></tr>
<tr><td>Voltage fluctuations/ flicker emissions

IEC 61000-3-3</td><td>Complies</td></tr>
</table>

Guidance and manufacturer's declaration – electromagnetic emissions			
The monitor is intended for use in the electromagnetic immunity environment (Home healthcare environment defined in IEC60601-1-2) 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 levels**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) IEC 61000-4-2	± 8kV contact ± 15kV air	± 8kV contact ± 15kV 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 100 kHz ±1 kV for input/output lines 100 kHz	±2 kV for power supply lines 100 kHz ±1 kV for input/output lines 100 kHz	Mains power quality should be that of a typical commercial or hospital environment
Surge IEC61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0 % U_T (100 % dip in U_T) 0.5 cycles and 1 cycle 70 % U_T (30 % dip in U_T) 25/30 cycles 0 % U_T (100 % dip in U_T) 250/300 cycles	0 % U_T (100 % dip in U_T) 0.5 cycles and 1 cycle 70 % U_T (30 % dip in U_T) 25/30 cycles 0 % U_T (100 % dip in U_T) 250/300 cycles	Mains power quality should by 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	30 A/m 50Hz or 60Hz	30 A/m 50Hz or 60Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. The product should be kept at least 15 cm away from the source of power frequency magnetic fields during use.

Guidance and manufacturer's declaration – electromagnetic emissions			
The monitor is intended for use in the electromagnetic immunity environment (Home healthcare environment defined in IEC60601-1-2) specified below.			
Immunity test	**IEC 60601 Test levels**	**Compliance level**	**Electromagnetic environment – guidance**
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	Proximity electromagnetic field from RF wireless communication equipment (Specified the table below) 3 V 0.15 MHz to 80 MHz 6V ISM bands and amateur radio between 150 kHz and 80 MHz 80% AM at 1kHz 10 V/m 80 MHz to 2.7 GHzz	3 V 0.15 MHz to 80 MHz 6V ISM bands and amateur radio between 150 kHz and 80 MHz 80% AM at 1kHz 10 V/m 80 MHz to 2.7 GHz	Portable and mobile RF communications equipment should be used no closer to any part of the monitor, including cables, than the recommend 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 **$d = 2.3\sqrt{P}$** 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 meters (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 symbol:

NOTE 1：UT is the a.c. mains voltage prior to application of the test level.

NOTE 2：At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 3：Guidelines regarding conducted disturbances induced by RF fields or radiated RF fields may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

NOTE 4：The ISM (industrial, scientific and medical) bands between 0.15 MHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz . The amateur radio bands between 0.15 MHz and 80 MHz are 1.8 MHz to 2.0 MHz, 3.5 MHz to 4.0 MHz, 5.3 MHz to 5.4 MHz, 7 MHz to 7.3 MHz, 10.1 MHz to 10.15 MHz, 14 MHz to 14.2 MHz, 18.07 MHz to 18.17 MHz, 21.0 MHz to 21.4 MHz, 24.89 MHz to 24.99 MHz, 28.0 MHz to 29.7 MHz and 50.0 MHz to 54.0 MHz.

a. 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.

b. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 10 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the monitor

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.

Immunity to proximity fields from following RF wireless communication equipment has been confirmed:

Test frequency (MHz)	Bandwidth a) (MHz)	Service a)	Modulation b)	Maximum power (W)	Minimum separation distance (m)	IEC/EN60601 test level (V/m)	Compliance level (V/m)
385	380-390	TETRA400	Pulse modulation b)	1.8	0.3	27	27
450	430-470	GMRS 460, FRS 460	FM ±5 kHz deviation 1 kHz sine	2	0.3	28	28
710	704-787	LTE Band 13, 17	Pulse modulation b) 217 Hz	0.2	0.3	9	9
745							
780							
810	800-960	GSM 800 / 900,	Pulse modulation b)	2	0.3	28	28
871							

930		TETRA 800, iDEN 820 CDMA 850, LTE Band 5	18 Hz				
1720 1845 1970	1700-1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation b) 217 Hz	2	0.3	28	28
2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation b) 217 Hz	2	0.3	28	28
5240 5500 5785	5100-5800	WLAN 802.11 a/n	Pulse modulation b) 217 Hz	0.2	0.3	9	9
2.4.1.1.1 For some services, only the uplink frequencies are included. 2.4.1.1.2 The carrier shall be modulated using a 50 % duty cycle square wave signal.							

The monitor is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer of 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** m		
	150kHz to 80MHz **d=1.2√P**	**80MHz to 800MHz** **d=1.2√P**	**800MHz to 2.5GHz** **d=2.3√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

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1：At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2：These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Appendix 2 CE Declaration of Conformity

鈺緯科技開發股份有限公司
DIVA Laboratories, Ltd.
9F, No.351,Sec.2,Zhongshan Road, Zhonghe District, New Taipei City, 235 TAIWAN
TEL : 886-2-22268631
FAX : 886-2-22262423

CE DECLARATION OF CONFORMITY

Standard(s) to which conformity is declared---

- ISO 13485:2016 ;ISO 14971:2012 ;ISO 9001:2015
- EN 60601-1: 2006+A11:2011+A1:2013+A12:2014+A2:2021;
- EN 60601-1-2:2015+A1:2021 ;
- CISPR 11:2009+A1 2010;
  EN 61000-3-2:2019/A11:2020;
  EN 61000-3-3:2013+A2:2021;
  IEC 61000-4-2:2008,
  IEC 61000-4-3:2020,
  IEC 61000-4-4:2012,
  IEC 61000-4-5:2014+A1:2017,
  IEC 61000-4-6:2013,
  IEC 61000-4-8:2009,
  IEC 61000-4-11: 2020
  IEC 61000-4-39: 2017
- EN 50581:2012; EN IEC 63000:2018 (IEC 63000:2016);

Manufacture's Name---------- DIVA Laboratories, Ltd.
Manufacture's Address ---------- 9F, No.351, Sec.2, Zhongshan Road, Zhonghe District, New Taipei City, 235 TAIWAN
Classification---------- Class I
Type of Equipment ---------- LCD Monitor
Model No. ---------- MCD27xxxx;RUH27xxxxxx(x may be alphanumeric character, symbol or blank, for marketing/offshoot models)

The undersigned hereby declare that the equipment specified above conforms to the above Directive(s) and Standards.

Signature:		Signature:		Signature:	
Full Name:	Rongchi Liao	Full Name:	Roy Lin	Full Name:	Michael young
Title:	Assistant Manager	Title:	Manager	Title:	Director

Place: Taipei, Taiwan Date: 2024/02/26

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M-Line MCD271

Model No.: MCD27102

OLÓRIN
www.olorin.com

EC REP
Olorin AB
Arendalsvägen 40
434 39 Kungsbacka SWEDEN

The content of this manual is subject to change without notice.

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