OWNER'S MANUAL

MEDICAL MONITOR

Please read this manual carefully before operating your set and retain it for future reference.

21HQ513D

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Please note that this information is for proper use and safety of the equipment. The following symbols may indicate a hazardous situation in which, if not heeded, may result in serious injury or even death to the user or others, or damage to the equipment.

WARNING

- Indicates warning and safety instructions. If not adhered to, it could result in death or serious injury to the user or others.

CAUTION

- Indicates a hazardous situation which, if not heeded, may result in minor or moderate injury to the user or others, or damage to the equipment.

ON CLEANING

Recommended Cleaning Chemicals

- Isopropanol 70 %
- Ethanol 70 %
- 0.9 % NaCl solution
- Biospot 500 ppm

How to Use Cleaner

- Prior to cleaning, turn off the monitor and remove the power cable.
- Slightly dampen a soft non-abrasive cloth with a recommended cleaner, then lightly rub the screen with no more than 1 N of force.
- The cleaner could cause serious damage if it leaks inside the monitor while cleaning.
- Do not use benzene, thinner, acids or alkaline cleaners or other such solvents.
- Visually inspect the product for any contamination after cleaning. If contamination remains, repeat the cleaning process.
- If discolouration/cracks appear after cleaning, discontinue use and contact the manufacturer.
- Ensure lighting is adequate during the cleaning process.

NOTE

- LCD Panel cleaning method (Remove dust and finger print)
  - Rub gently by using soft cloth without cleaning chemicals.
  - Care must be taken when cleaning to avoid damage to the screen.

LICENSE

Each model has different licenses. Visit *www.lg.com* for more information on the license.

The SuperSpeed USB Trident logo is a registered trademark of USB Implementers Forum, Inc.

"DICOM® is the registered trademark of the National Electrical Manufacturers Association for its Standards publications relating to digital communications of medical information."

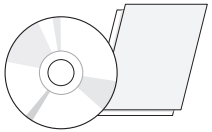
OPEN SOURCE SOFTWARE NOTICE INFORMATION

To obtain the source code that is contained in this product, under GPL, LGPL, MPL, and other open source licenses that have the obligation to disclose source code, and to access all referred license terms, copyright notices and other relevant documents, please visit *https://opensource.lge.com*. LG Electronics will also provide open source code to you on CD-ROM for a charge covering the cost of performing such distribution (such as the cost of media, shipping, and handling) upon email request to *opensource@lge.com*. This offer is valid to anyone in receipt of this information for a period of three years after our last shipment of this product.

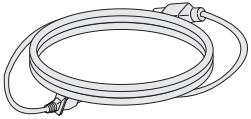
ASSEMBLY AND PREPARING

Product Composition

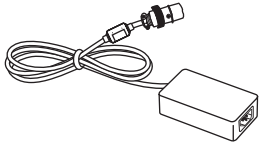
Please check whether all the components are included in the box before using the product. If there are any missing components, contact the retailer where you purchased the product. Note that the product and related components may look different from those shown here.



Owner's Manual/Regulatory Manual/Cards

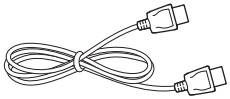


Power Cord

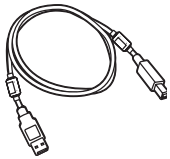


AC/DC Adaptor

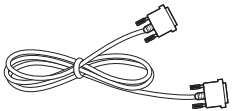
Cable Holder



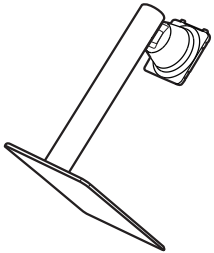
DisplayPort Cable



USB 3.0 Cable



DVI-D Cable



Stand Body/Stand Base

⚠ CAUTION

- Always use genuine LG components to ensure safety and product performance.
- The product warranty will not cover damage or injury caused by the use of unauthorised components.
- It is recommend to use the supplied components.
- If you use generic cables not certified by LG, the screen may not display or there may be image noises.
- Only use components listed below that meet the listed standard. Unauthorised components may cause damage to and malfunction of the product.

Component	Standard
DisplayPort Cable	Support DisplayPort 1.2 Version, UL, Impedance 100 ohm
USB 3.0 Cable	Support USB 3.0, UL
DVI-D Cable	UL, Impedance 100 ohm
Power Cord	US – Approved Medical grade regulation Others – Approved country safety regulation

- The AC/DC adaptors and etc. except the upper components need to be used only supplied by manufacturer.

NOTE

- The components may look different from those illustrated here.
- Without prior notice, all product information and specifications contained in this manual are subject to change to improve the performance of the product.
- To purchase optional accessories, visit an electronics store or an online shopping site, or contact the retailer from which you purchased the product.
- The power cord provided may differ depending upon the region.

Supported Software

Drivers and Software	Installation Priority
LG Calibration Studio Medical	Recommended
On Screen Control	Optional
Dual Controller	Optional

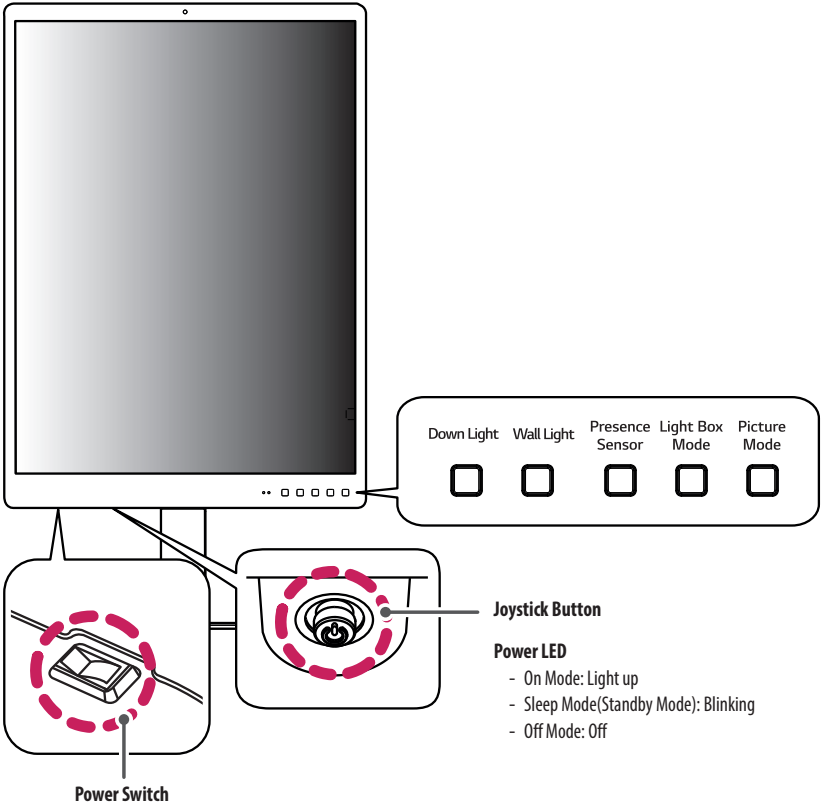
- LG Calibration Studio Medical calibrates the color output of the monitor using Hardware Calibration. The program supports USB communication, so connect your PC and monitor using a USB cable and launch the LG Calibration Studio Medical program.
- Required and Recommended: You can download and install the latest version from the LGE website (*www.lg.com*).
- Optional: You can download and install the latest version from the LGE website (*www.lg.com*).

NOTE

- When using multiple monitors, you must connect a USB cable to each monitor in order to use the LG Calibration Studio Medical program.

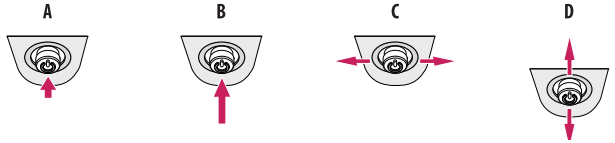
Product and Button Description

Front



How to Use the Joystick Button

You can easily control the functions of the monitor by pressing the joystick button or moving it left/right/up/down with your finger.



A (Power on): Press the joystick button once with your finger to turn on the monitor.

B (Power off): Press and hold the joystick button once more than 5 seconds with your finger to turn off the monitor.

C: Not functional

D (Show Information/Input Change): Moving the joystick button up once with your finger to show information on the current input.
Moving the joystick button down twice with your finger to change input, when multiple inputs are connected.

NOTE

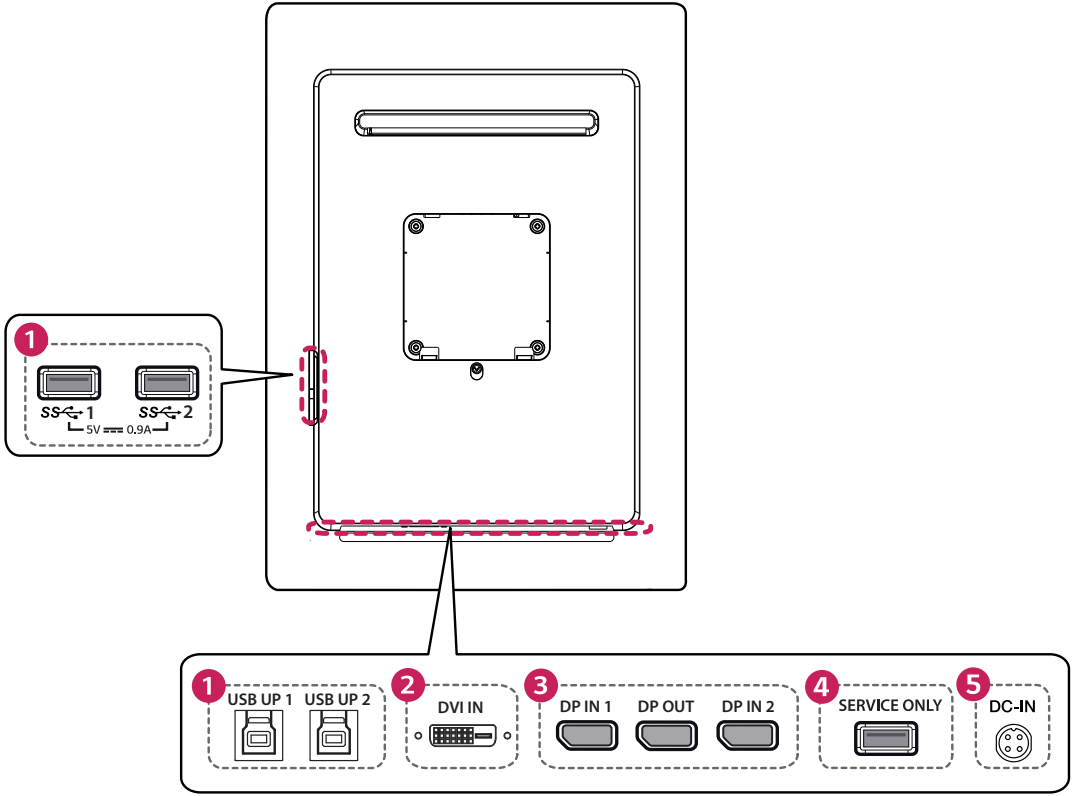
- The joystick button and power switch are located at the bottom of the monitor.
- Power switch: Turns the power on/off.

How to Use the Button

- **Down Light**: This allows you to have light on your desk in a dark environment.
- **Wall Light**: This allows you to have light on the wall at the back of your monitor in a dark environment.
- **Presence Sensor**: The display goes into standby mode if no movement is detected in front of the display for 5 minutes.
- **Light Box Mode**: This activates a rectangle screen on display with the max brightness to see a classic radiological film, and also you can select the duration of this rectangle.
- **Picture Mode**: Toggle the items to [Text], [Mono], [DICOM] and [Calibration 1] in circular.

Connectors

Back



1 **USB IN 1/2 (SS) 5 V ⎓ 0.9 A, USB UP 1/2**

- Used for HW Calibrator (Optional Accessory) connection.
- Connect peripheral device to the USB input port.
- A keyboard, mouse, or USB storage device can be connected.
- To use USB 2.0, connect the A-B type USB 2.0/USB 3.0 cable to the PC.

⚠ CAUTION

Cautions when using a USB storage device.

- A USB storage device which has a built-in automatic recognition program or uses its own driver might not be recognisable.
- Some USB storage devices may not be supported or may not work properly.
- It is recommended to use a USB hub or hard disk drive with power supplied. (If the power supplied is not enough, the USB device may not be detected properly.)

2 **DVI IN**

- Input digital video signal.

3 **DP IN 1/2, DP OUT**

- Receives or transmits digital video signals.
- There may be no video output depending on the DisplayPort version of your PC.
- A cable with DisplayPort 1.2 specifications is recommended when using a Mini DisplayPort to DisplayPort cable.

4 **SERVICE ONLY**

- This USB port is used only for service.

5 **DC-IN**

- Connect an AC/DC adapter.
- The output of the enclosed adaptor is 19 V.

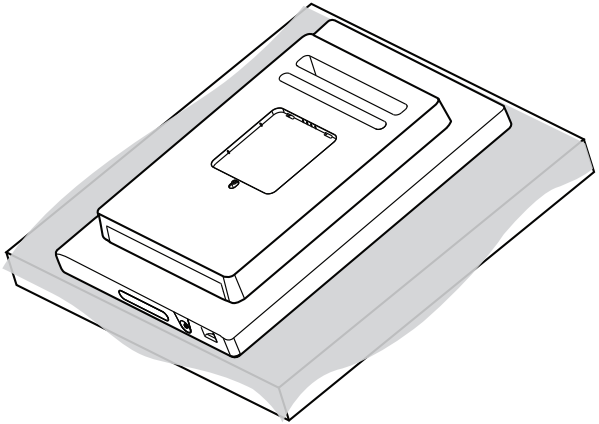
NOTE

- This monitor supports the *Plug and Play feature.

* Plug and Play: A feature that allows you to add a device to your computer without the need for physical device configuration or user intervention.

Assembling the Stand base

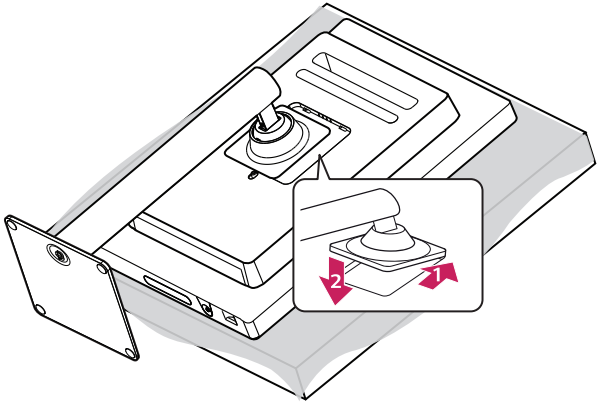
1



CAUTION

- To protect the screen from scratches, cover the surface with a soft cloth.

2



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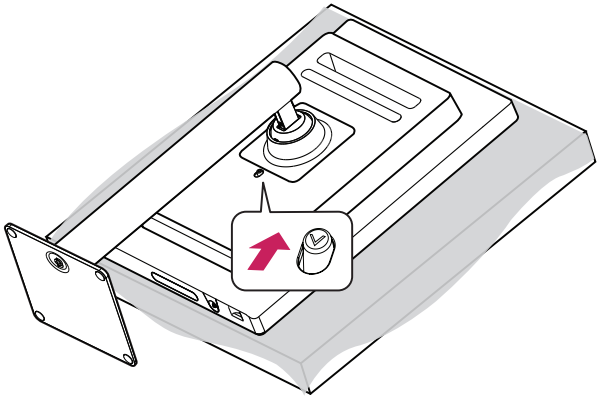

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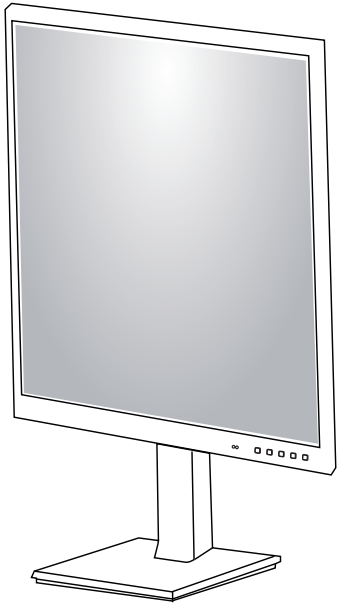
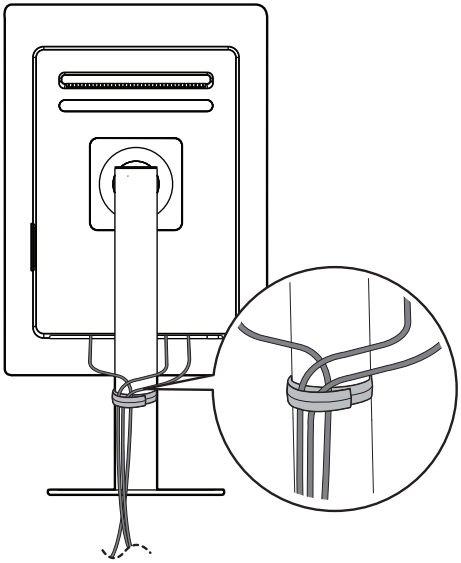


5



CAUTION

- Illustrations in this document represent typical procedures, so they may look different from the actual product.
- Do not apply foreign substances (oils, lubricants, etc.) to the screw parts when assembling the product. (Doing so may damage the product.)
- Applying excessive force when tightening screws may cause damage to the monitor. Damage caused in this way will not be covered by the product warranty.
- Do not carry the monitor upside down by just holding the base. This may cause the monitor to fall off the stand and could result in personal injury.
- When lifting or moving the monitor, do not touch the monitor screen. The force applied to the monitor screen may cause damage to it.

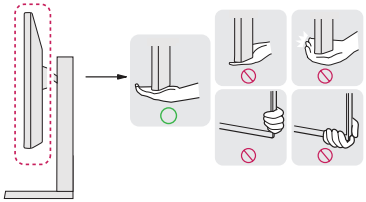
NOTE

- You can disassemble the stand in the reverse order of the assembly.

Moving and Lifting the Monitor

When moving or lifting the monitor, follow these instructions to prevent the monitor from being scratched or damaged and to ensure safe transportation, regardless of its shape or size.

- Place the monitor in the original box or packing material before attempting to move it.
- Before moving or lifting the monitor, disconnect the power cord and all other cables.
- Hold the bottom and side of the monitor frame firmly. Do not hold the panel itself.
- When holding the monitor, the screen should face away from you to prevent it from being scratched.
- When transporting the monitor, do not expose the monitor to shock or excessive vibration.
- When moving the monitor, keep it upright and never turn the monitor on its side or tilt it sideways.

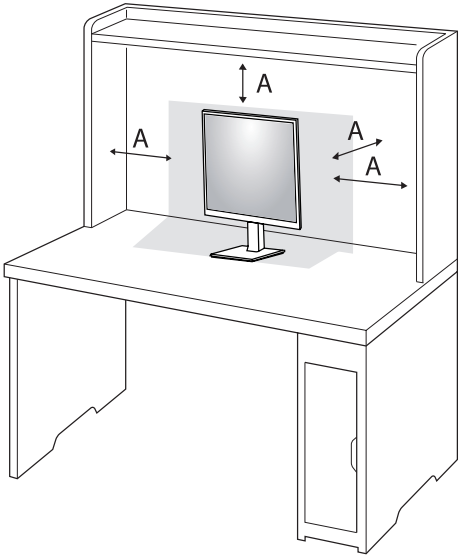


⚠ CAUTION

- Avoid touching the monitor screen as much as possible.
  - This may result in damage to the screen or some of the pixels used to create images.
- If you use the monitor panel without the stand base, its joystick button may cause the monitor to become unstable and fall, resulting in damage to the monitor or human injury. In addition, this may cause the joystick button to malfunction.

Installing on a Table

- Lift the monitor and place it on the table in an upright position. Place the monitor at least 100 mm away from the wall to ensure sufficient ventilation.

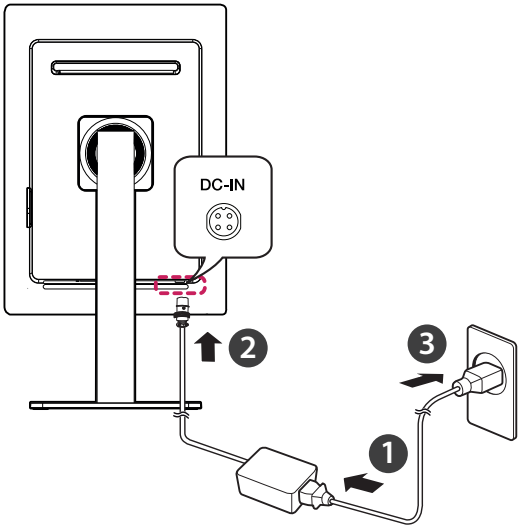


A: 100 mm

⚠ CAUTION

- Unplug the power cord before moving or installing the monitor. There is risk of electric shock.
- Make sure to use the power cord that is provided in the product package and connect it to a grounded power outlet.
- If you need another power cord, please contact your local dealer or the nearest retail store.

Precautions for Connecting the Power Cord



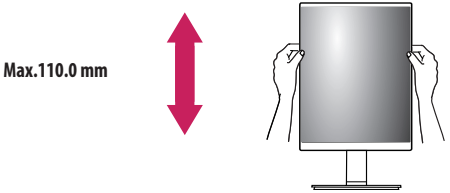
CAUTION

- Make sure to use the power cord that is provided in the product package. Connect the cord to a grounded power outlet.
- If you need another power cord, please contact your local dealer or the nearest retail store.

Adjusting the Stand Height

1 Place the monitor mounted on the stand base in an upright position.

2 Handle the monitor with both hands for safety.



WARNING

- When adjusting the screen height, do not place your hand on the stand body to avoid injury to your fingers.

Adjusting the Angle

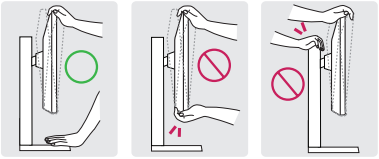
1 Place the monitor mounted on the stand base in an upright position.

2 Adjust the angle of the screen.

The angle of the screen can be adjusted forward or backward from -5 ° to 20 ° for a comfortable viewing experience.

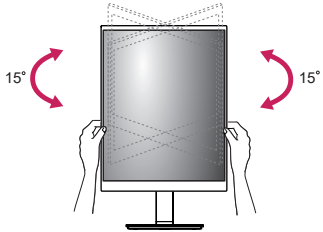
WARNING

- To avoid injury to the fingers when adjusting the screen, do not hold the lower part of the monitor's frame as illustrated below.
- Be careful not to touch or press the screen area when adjusting the angle of the monitor.



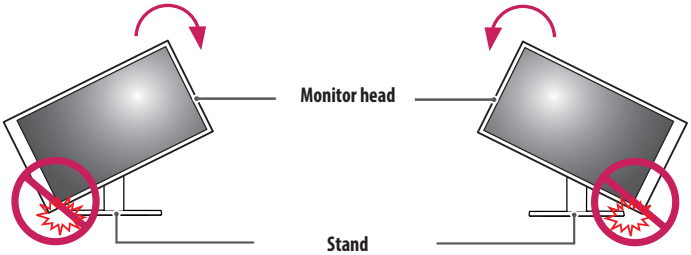
NOTE

- Swivel 15 degrees to the left or right and adjust the angle of the monitor to suit your view.



Pivot Feature

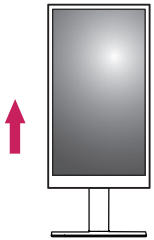
The pivot feature allows the monitor to rotate 90 degrees clockwise or counter-clockwise.



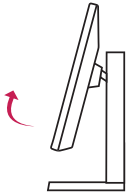
WARNING

- To avoid scratching the stand base, do not use excessive force or speed when rotating the monitor using the pivot feature, and make sure that the stand does not make contact with the monitor.
- To avoid injury to your fingers, do not put them between the screen and the stand base when turning the monitor's screen.
- Take care when rotating the monitor if the cable is connected.

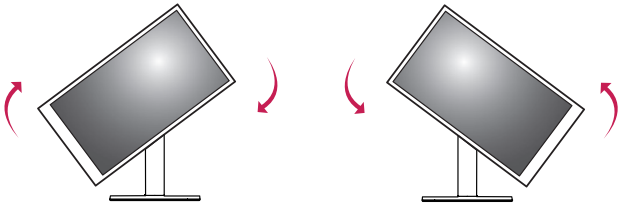
1 Raise the monitor up to the maximum height.



2 Adjust the angle of the monitor in the direction of the arrow as shown in the figure.



3 Rotate the monitor clockwise or counter-clockwise as shown in the figure.



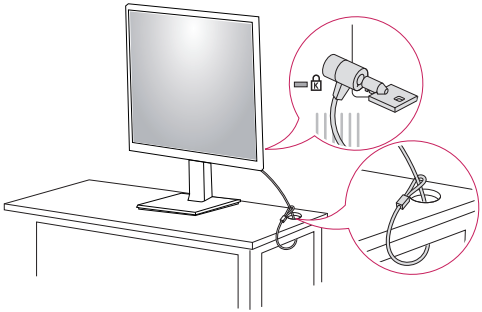
4 Complete the installation as shown in the figure.

NOTE

- The [Screen Rotation] feature supports the auto mode by default, which automatically rotates the video based on the pivot orientation.
- To select manual [Screen Rotation], Go to [Input] > [Screen Rotation] and select the option required.
- The screen can be rotated easily using the screen pivot shortcut key provided with your Windows operating system. Note that some Windows versions and some graphics card drivers may use different settings for the screen pivot key or may not support the pivot key at all.
- Windows operating system screen pivot shortcut key.
  - 0 °: Ctrl + Alt + keyboard up key (↑)
  - 90 °: Ctrl + Alt + keyboard left key (←)
  - 180 °: Ctrl + Alt + keyboard down key (↓)
  - 270 °: Ctrl + Alt + keyboard right key (→)

Using the Kensington Lock

For more information on installation and usage, refer to the Kensington lock owner's manual or visit the website at *http://www.kensington.com*.

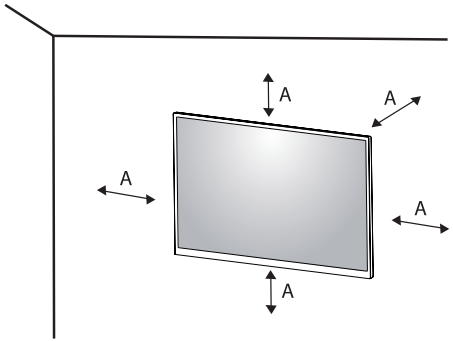


NOTE

- The Kensington Lock is optional. You can obtain optional accessories from most electronics stores.

Installing on the Wall

Install the monitor at least 100 mm away from the wall on each side of the monitor to ensure sufficient ventilation. Detailed installation instructions can be obtained from your local dealer. Please refer to the manual to install and set up a tilting wall mounting bracket.



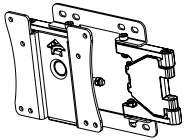
A: 100 mm

Installing the Wall Mount Plate

This monitor meets the specifications for the wall mount plate or other compatible devices.

To install the monitor to a wall, attach a wall mount plate (optional) to the back of the monitor.

Make sure that the wall mount plate (optional) is securely fixed to the monitor and to the wall.

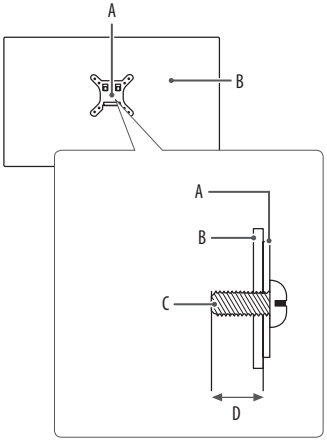
Wall Mount	100 mm x 100 mm
Standard screw	M4 x L10
Required screws	4
Wall Mount Plate (Optional)	LSW149 

NOTE

- A non-VESA standard screw may damage the product and cause the monitor to fall. LG Electronics is not liable for any accidents relating to the use of non-standard screws.
- The wall mount kit includes the installation guide and all necessary parts.
- The wall mounting bracket is optional. You can obtain optional accessories from your local dealer.
- The length of the screw may differ for each wall mounting bracket. If you use screws longer than the standard length, it may damage the inside of the product.
- For more information, please refer to the user manual for the wall mounting bracket.
- Be careful not to apply too much force while mounting the wall mount plate as it may cause damage to the screen.
- Remove the stand before installing the monitor on a wall mount by performing the stand attachment in reverse.

CAUTION

- Disconnect the power cord first. Then move or install the monitor. There is risk of electric shock.
- Installing the monitor on the ceiling or on a slanted wall may result in the monitor falling off, which could lead to injury. Use an authorised LG wall mount and contact the local dealer or qualified personnel.
- To prevent injury, this apparatus must be securely attached to the wall in accordance with the installation instructions.
- Applying excessive force when tightening screws may damage the monitor. Such damage is not covered by the product warranty.
- Use the wall mounting bracket and screws that confirm to VESA standards. Damage caused by the use or misuse of inappropriate components is not covered by the product warranty.
- When measured from the back of the monitor, the length of each installed screw must be 8 mm or less.



A: Wall Mount Plate
B: Back of the Monitor
C: Standard screw
D: Max. 8 mm

USING THE MONITOR

- Illustrations in this manual may differ from the actual product.

Press the joystick button, go to [Menu] → [Input], and then select the input option.

⚠ CAUTION

- Do not press the screen for a prolonged time. This may cause image distortion.
- Do not display a still image on the screen for a prolonged time. This may cause image retention. Use a PC screensaver if possible.
- When connecting the power cord to the outlet, use a grounded (3-hole) power strip or a grounded power outlet.
- The monitor may flicker when turned on in an area where the temperature is low. This is normal.
- Sometimes red, green, or blue spots may appear on the screen. This is normal.

Connecting to a PC

- This monitor supports the *Plug and Play feature.

* Plug and Play: A feature that allows you to add a device to your computer without having to reconfigure anything or install any manual drivers.

CAUTION

- DisplayPort to HDMI cable may cause compatibility issues.

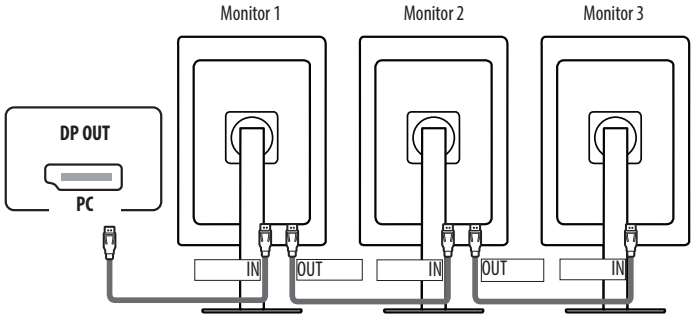
DVI-D Connection

Transmits the digital video signal from your PC to the Monitor set.

Connect the PC and the monitor with the DVI-D cable as shown in the following illustrations.

DisplayPort Connection

Transmits digital video and audio signals from your PC to the monitor.



CAUTION

- When using multiple monitors connected, it is recommended to use an LG monitor. In other models, this function may not work.
  - The recommended LG monitor model names are as follows.

    Monitor 1,2: 21HQ513D

    Monitor 3: 22/24/27BL450*
- You can connect up to 3 monitors. The last connected "Monitor 3" supports only up to [2MP] resolution.
- MST(Multi-Stream Transport) is supported in DP IN 1 port only.

NOTE

- There may be no video or audio output depending on the DisplayPort version of the PC.
- Make sure to use the supplied DisplayPort cable of the product. Otherwise, this may cause the device to malfunction.
- If you are using a Mini DisplayPort output graphics card, use a Mini DisplayPort to DisplayPort cable or gender that supports DisplayPort1.2. (Sold separately)

Connecting Peripherals

USB Device connection

The USB port on the product functions as a USB hub.

Peripheral devices connected to the USB IN port can be controlled from the PC.

NOTE

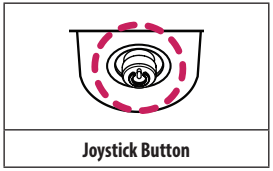
- It is recommended you install all Windows Updates to keep your Windows up-to-date before connecting to the product for use.
- Peripheral devices are sold separately.
- A keyboard, mouse, or USB device can be connected to the USB port.
- As with the DisplayPort Connection, when using multiple monitors, you can communicate with the PC by connecting the USB Upstream and Downstream ports on each monitor.

USER SETTINGS

NOTE

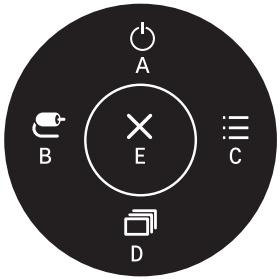
- Your monitor's OSD (On Screen Display) may differ slightly from that shown in this manual.

Activating the Main Menu



1. Press the joystick button on the bottom of the monitor.
2. Move the joystick up/down and left/right to set the options.
3. Press the joystick button once more to exit the main menu.

Main Menu Features



Main Menu	Description
A: [Power Off]	Turns off the monitor.
B: [Input]	Sets input mode.
C: [Menu]	Configures the screen settings.
D: [Picture Mode]	Sets the Picture mode.
E: [Exit]	Exits the main menu.

Menu Settings

1 To view the OSD menu, press the joystick button at the bottom of the monitor and then enter the [Menu].

2 Move the joystick up/down and left/right to set the options.

3 To return to the upper menu or set other menu items, move the joystick to ◀ or pressing (⏻) it.

4 If you want to exit the OSD menu, move the joystick to ◀ until you exit.

[Quick Settings]

[Input]

[Picture]

[General]

[Quick Settings]

[Menu] > [Quick Settings]	Description
[Brightness]	Adjusts the contrast and brightness of the screen.
[Contrast]	
[Color Temp]	Set color temperature. ([Custom], [6500K], [7500K], [9300K], [Manual])
[User Preset]	User Preset allows the user to save or load up to 10 picture quality settings for multiple connected devices in each preset. **NOTE** • You can use User Preset to import or save items in [Picture Adjust] and [Color Adjust] of the [Picture] menu.

[Input]

[Menu] > [Input]	Description	
[Input List]	Selects the input mode.	
[Aspect Ratio]	Adjusts the aspect ratio of the screen.	
	[Full Wide]	Displays the video in widescreen, regardless of the video signal input.
	[Original]	Displays video according to the aspect ratio of the video signal input.
	[Just Scan]	The aspect ratio is not adjusted from the original.
	NOTE • The display may look the same for [Full Wide], [Original] and [Just Scan] options at the recommended resolution.	
[Select Resolution]	The recommended resolution of the monitor can be changed to [3MP], [2MP].	
[Screen Rotation]	Adjusts the screen image rotation. ([Auto], [Landscape -90°], [Portrait], [Landscape +90°])	

[Picture]

NOTE

- The [Picture Mode] that can be set depends on the Input signal.

[Menu] > [Picture]	Description	
[Picture Mode]	[Custom]	Allows the user to adjust each element.
	[Mono]	Mono (black and white) color mode.
	[Pathology]	Turn on pathology mode. Image clarity and accuracy as if you were looking at a microscope.
	[Text]	Optimises the screen for text documents. You can brighten the screen in the OSD menu.
	[DICOM]	A mode that optimises the screen settings so you can view images for medical use.
	[DICOM(Custom)]	**NOTE** • Adjusts the brightness of screen in [DICOM(Custom)] mode.
	[Calibration 1]	Adjusts to the last calibrated screen.
	[Calibration 2]	Adjusts to the previously calibrated screen.
	NOTE • If the [Picture Mode] is changed in the DP (DisplayPort) input, the screen may flicker or the resolution of your PC screen may be affected. • [Calibration 2]: Installation of LG Calibration Studio Medical will enable this menu.	

[Menu] > [Picture]	Description		
[Picture Adjust]	[Brightness]	Adjusts the brightness of the screen. **NOTE** • Press the ▼ button to toggle between [Turn on 'Brightness Stabilization']/[Turn off 'Brightness Stabilization']. • When [Brightness Stabilization] is [On], the [Brightness] adjustment function is deactivated. • When [Brightness Stabilization] is [On], [SMART ENERGY SAVING] and [DFC] functions are deactivated. • When [Picture Mode] is set as [DICOM], or [Gamma] is set as [DICOM Gamma Curve] Setting, the [Brightness] adjustment function is deactivated. • When [Picture Mode] is set as [DICOM(Custom)], the [Brightness] adjustment function is activated.	
	[Auto Brightness]	Optimises the brightness automatically for surrounding illuminance.	
	[Contrast]	Adjusts the color contrast of the screen.	
	[Sharpness]	Adjusts the sharpness of the screen.	
	[Brightness Stabilization]	Maintains the brightness configured of the screen.	
		[On]	Automatically adjusts brightness.
		[Off]	Deactivates the applicable function and the user can adjust the brightness.
	[SUPER RESOLUTION+]	[High]	Optimises the screen for crystal clear images.
		[Middle]	Optimises the screen for comfortable viewing, with images at the middle level between the low and high modes.
		[Low]	Optimises the screen for smooth and natural images.
		[Off]	Displays in the most common setting. Disables [SUPER RESOLUTION+].
		NOTE • Because this is a function to increase the sharpness of low resolution pictures, it is not recommended to use the function for normal text or for desktop icons. Doing so may result in unnecessarily high sharpness.	

[Menu] > [Picture]	Description		
[Picture Adjust]	[DFC]	[On]	Automatically adjusts brightness depending on the screen.
		[Off]	Deactivates the [DFC] function.
	[Response Time]	Sets a response time for displayed pictures based on the movement of the picture on the screen. For a normal environment, it is recommended that you use [Fast]. When there is a lot of motion, it is recommended that you use [Faster]. Setting to [Faster] may cause image sticking.	
		[Faster]	Sets the response time to [Faster].
		[Fast]	Sets the response time to [Fast].
		[Normal]	Sets the response time to [Normal].
		[Off]	Does not use the response time improvement feature.
	[Black Stabilizer]	You can control the black contrast to have better visibility in dark scenes. Increasing the [Black Stabilizer] value brightens the low gray level area on the screen. (You can easily distinguish objects on dark screens.) Reducing the [Black Stabilizer] value darkens the low gray level area and increases the dynamic contrast on the screen.	
	[Uniformity]	Adjusts the uniformity of screen brightness. **NOTE** • Enabling [Uniformity] may reduce the overall brightness of the image.	

[Menu] > [Picture]	Description		
[Color Adjust]	[Gamma]	Set gamma value. ([Gamma 1.8], [Gamma 2.0], [Gamma 2.2], [Gamma 2.4], [Gamma 2.6], [DICOM Gamma Curve]) Higher gamma settings mean a darker image is displayed or vice versa.	
	[Color Temp]	Set color temperature.	
		[Custom]	The user can customise the red, green and blue color.
		[6500K]	Sets the picture color to the color temperature of a reddish 6500K.
		[7500K]	Sets the picture color to the color temperatures of 7500K, setting to a color between red and blue.
		[9300K]	Sets the picture color to the color temperature of a bluish 9300K.
		[Manual]	Adjusts the color temperature in 500K increments. (Note that 9300K is supported rather than 9500K.)
	[Red]/[Green]/[Blue]	You can customise the picture color using [Red], [Green], and [Blue] colors.	
	[Six Color]	Meets the user requirements for colors by adjusting the hue and saturation of the six colors (red, green, blue, cyan, magenta, and yellow) and then saving the settings.	
		Hue	Adjusts the tone of the screen colors.
		Saturation	Adjusts the saturation of the screen colors. The lower the value, the less saturated and brighter the colors become. The higher the value, the more saturated and darker the colors become.
[Picture Reset]	[Do you want to reset your picture settings?]	[No]	Cancel the select.
		[Yes]	Returns color to the default settings.

[General]

[Menu] > [General]	Description	
[Language]	Sets the menu screen to the desired language.	
[FOCUS VIEW]	Installation of On Screen Control and proceeding [FOCUS VIEW] will set max brightness of screen.	
[Down Light]	This allows you to have light on your desk in a dark environment. You can control the brightness [Light Preset] when enabled in the menu.	
[Wall Light]	This allows you to have light on the wall at the back of your display in a dark environment. You can control the brightness [Light Preset] when enabled in the menu.	
[Presence Sensor]	The display goes into standby mode if no movement is detected in front of the display for 5 minutes.	
[Light Box Mode]	This activates a rectangle screen on display with the max brightness to see a classic radiological film.	
	[Duration]	You can select the duration of this rectangle. ([3 min], [5 min], [10 min])
[USB Upstream]	Select the USB Upstream cable connection port to use the USB Hub of the monitor.	

[Menu] > [General]	Description	
[SMART ENERGY SAVING]	Conserve energy by using luminance compensation algorithm.	
	[High]	Saves energy using the high-efficiency [SMART ENERGY SAVING] feature.
	[Low]	Saves energy using the low-efficiency [SMART ENERGY SAVING] feature.
	[Off]	Disables the feature.
	NOTE • The value of energy saving data may differ depending on panel and panel suppliers. • If you select the option of [SMART ENERGY SAVING] is [High] or [Low], monitor luminance become higher or lower depend on source.	
[Power LED]	When the Power LED function is turned on, it operates as follows: - On Mode: Light up - Sleep Mode(Standby Mode): Blinking - Off Mode: Off	
[User Preset]	User Preset allows the user to save or load up to 10 picture quality settings for multiple connected devices in each preset. **NOTE** • You can use User Preset to import or save items in [Picture Adjust] and [Color Adjust] of the [Picture] menu.	
	[User Name]	Allows the user to change and register a user name (User 1 ~ User 10). The user can enter a user name to be registered by using the screen keyboard.
	[Load User Settings]	Allows the user to change the picture quality settings by loading the User Preset settings.
	[Save User Settings]	Saves the current picture quality settings in the corresponding User Preset.
	[Default User Settings]	Loads the initial basic picture settings.
	[User Preset Reset]	Initializes User Preset settings. Initializes the existing user name and user settings to be restored to factory settings.

[Menu] > [General]	Description		
[Screen Off]	You can select system behavior in standby mode to only turn off screen.		
	[On]	Sets only turn off screen in sleep mode.	
	[Off]	Sets system sleep and turn off screen in sleep mode.	
[DisplayPort Version]	Set DisplayPort Version to the same version as the connected external device. ([1.2], [1.1])		
[OSD Lock]	This feature disables the configuration and adjustment of menus. **NOTE** • All features are disabled except: - [Brightness] / [Contrast] in [Quick Settings] - [Input] - [OSD Lock] / [Information] / [Open Source Software License] in [General]		
[Information]	The following display information will be shown; Total Power On Time, Resolution.		
[Open Source Software License]	You can check the Open Source Software notice information.		
[Reset to Initial Settings]	[Do you want to reset your settings?]	[No]	Cancel the reset.
		[Yes]	Returns to the default settings.

TROUBLESHOOTING

Nothing is displayed on the screen

- Is the monitor's power cord plugged in?
  - Check if the power cord is correctly plugged into the power outlet.
- Is the power LED on?
  - Check the power cable connection and press the power button.
- Is the power on and the power LED displaying?
  - Check that the connected input is enabled ([Menu] > [Input]).
- Is the [No Signal] message being displayed?
  - This is displayed when the signal cable between the PC and the monitor is missing or disconnected. Check the cable and reconnect it.
- Is the [Out of Range] message being displayed?
  - This occurs when signals transferred from the PC (graphics card) are out of the horizontal or vertical frequency range of the monitor. Please see the <PRODUCT SPECIFICATIONS> section of this manual to set the appropriate frequency.

Screen display is unstable and shaky. / Images displayed on the monitor leave shadow trails.

- Did you select the appropriate resolution?
  - Not setting the graphics card to the recommended (optimal) resolution may result in blurred text, a dimmed screen, a truncated display area or misalignment of the display.
  - The setting methods may be different depending on the computer or operating system, and some resolutions may not be available depending on the performance of the graphics card. If this is the case, contact the manufacturer of the computer or graphics card for assistance.
- Does image sticking occur even when the monitor is turned off?
  - Displaying a still image for a prolonged time may cause damage to the screen, resulting in the retention of the image.
  - To extend the lifetime of the monitor, use a screensaver.
- Are there spots on the screen?
  - When using the monitor, pixilated spots (red, green, blue, white, or black) may appear on the screen. This is normal for an LCD screen. It is not an error, nor is it related to the monitor's performance.

Some features are disabled.

- Are some functions not available when you press the Menu button?
  - The OSD is locked. Disable [OSD Lock] in [General].

PRODUCT SPECIFICATIONS

In order to improve the product, specifications may change without notice.

The symbol ~ means alternating current, and the symbol ⎓ means direct current.

LCD Screen	Type	TFT (Thin Film Transistor) LCD (Liquid Crystal Display) Screen	
	Pixel Pitch	0.2115 mm x 0.2115 mm	
Resolution	Max Resolution	1536 x 2048 @ 60 Hz	
	Recommended Resolution	1536 x 2048 @ 60 Hz	
Video Signal	Horizontal Frequency	30 kHz to 130 kHz	
	Vertical Frequency	56 Hz to 61 Hz	
Input Connector	USB IN 1/2 (SS⇐) 5 V ⎓ 0.9 A, USB UP 1/2, DVI IN, DP IN 1/2, SERVICE ONLY, DC-IN		
Output Connector	DP OUT		
Power Sources	Power Rating	19 V ⎓ 6.32 A	
	Power Consumption	MAX. 120 W* Off Mode: ≤ 0.3 W (Power Switch: Off)	
AC-DC Adaptor	Manufacturer: Asian Power Devices Inc. (APD) Model: DA-120D19 Input: 100-240 V~ 50-60 Hz, 1.8-0.7 A Output: 19 V ⎓ 6.32 A Classification by protection type against Electric Shock: Class I equipment		
Environmental Conditions	Operating Conditions	Temperature	0 °C to 40 °C
		Humidity	0 % to 80 %
		Pressure	700 hPa to 1060 hPa
	Storage / Transport Conditions	Temperature	-20 °C to 60 °C
		Humidity	0 % to 85 %
		Pressure	500 hPa to 1060 hPa

Monitor Size		
Dimensions (Width x Height x Depth)	With Stand	343.1 x 640 x 234.6 (mm)
	Without Stand	343.1 x 484 x 72.4 (mm)
Weight	With Stand	7.4 (kg)
	Without Stand	5.0 (kg)

Medical Specifications	Classification by protection type against Electric Shock	Class I equipment
	Mode of operation	Continuous Operation
	Environment of Use	This equipment is not suitable for use in the presence of flammable anesthetic or oxygen.

* The Operating Mode of Power Consumption is measured with LGE test standard. (Full White pattern, Maximum resolution)
* The Power Consumption level can be different by operating condition and monitor setting.

Support Mode (Preset Mode - PC)

ENGLISH

DisplayPort/DVI

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Polarity (H/V)	Remarks
640 x 480	31.469	59.94	-/-	
800 x 600	37.879	60.317	+/+	
1024 x 768	48.363	60	-/-	
1280 x 1024	63.981	60.02	-/-	
1200 x 1600	67.5	60	+/-	[Select Resolution]: [2MP]
1536 x 2048	126.33	59.96	+/-	Recommended ([Select Resolution]: [3MP])
1600 x 1200	74.01	59.92	+/-	[Select Resolution]: [2MP] & [Screen Rotation]: [Landscape]
2048 x 1536	94.77	59.98	+/-	[Select Resolution]: [3MP] & [Screen Rotation]: [Landscape]

Supported Graphic Card List

Vendor	Graphic Card
NVIDIA	Quadro P/T/RTX Series
	RTX Ada/A Series
	Geforce RTX 3000/4000 Series
AMD	Radeon Pro WX x100/x200/W7000 Series
	Radeon Rx 7000 Series
Apple	M1/M2/M3/M4 Series

Principle of operation

This product is a medical image monitor with built-in converter (main controller) which outputs the image of medical device. When you connect the monitor to medical device, it displays medical image.

Qualified service personnel

All services except for the Quality Control Procedure must be performed by qualified service personnel.

For the Quality control procedure, please refer to the 'Quality control procedure section'.

Quality control procedure

- Quality control tests can be performed with LG Calibration Studio Medical.
- LG Calibration Studio Medical performs calibration, QA test, conformance test and maintains consistency to all medical workstations.
- The use of the quality control software enables healthcare professionals to maintain international standards of quality in terms of their displays performance.
- The display quality of monitors is affected by the quality level of input signals and the degradation of the product. It is recommended that daily checkups and periodical constancy test be performed to comply with medical standards/guidelines according to your application. Use of the LG Calibration Studio Medical monitor quality control software enables you to perform high-level total quality control that meets medical standards/guidelines.
- It takes about 30 minutes for the performance of electrical parts to stabilise. Please wait 30 minutes or more after the monitor power has been turned on or the monitor has recovered from the power saving mode, and then adjust the monitor.
- Periodically perform constancy tests. Calibrate if necessary. For details, refer to the User Manuals for the LG Calibration Studio Medical monitor quality control software.

Calibration procedure

LG Calibration Studio Medical

First select the "Calibration" button on the left bar to enter the calibration tap.

In this page, you can select a sensor and set Lmax, Lmin, color temperature and ambient light level.

After you customized the calibration settings, place the sensor on the display and start the calibration process by pressing the "Execute" button.

Make sure no ambient light reaches the sensor. After calibration is finished a report will pop up on the screen with the calibration results.

Maintenance schedule

LG Calibration Studio Medical

User can schedule multiple tasks with specific type, start date, time and period.

Even if the LG Calibration Studio Medical is not running, it reminds the schedule at the specified date and time.

Performance specifications

We perform the physical laboratory test according to the 'Display Devices for Diagnostic Radiology – Guidance for Industry and Food and Drug Administration Staff' like below and we set the acceptance criteria for the physical laboratory test, the product was all passed according to the criteria.

Test detail

1 Spatial resolution
- Measurements of the transfer of information from the image data to the luminance fields at different spatial frequencies of interest typically done by reporting the modulation transfer function.

2 Pixel defects
- Measurements (count, types (e.g., sub-pixel or entire pixel), always-on, always-off), and locations (map) of pixel defects.

3 Artifacts
- Evaluate for image artifacts such as ghosting and/or image sticking from displaying a fixed test pattern for a period of time.

4 Temporal response
- Measurements of the temporal behavior of the display in responding to changes in image values from frame to frame.

5 Luminance (achievable and recommended)
- Measurements of the luminance that the device outputs as used in the application under recommended conditions and the achievable values if the device is set to expand the range to the limit.

6 Conformance to a grayscale-to-luminance function (e.g., DICOM GSDF)
- Measurements of the mapping between image values and the luminance output following a target model response for 256 or more levels.

7 Color tracking
- Chromaticity at different luminance levels of gray shades, including the white point, as indicated by the color coordinates in an appropriate units system

CYBER SECURITY MANAGEMENT SERVICE

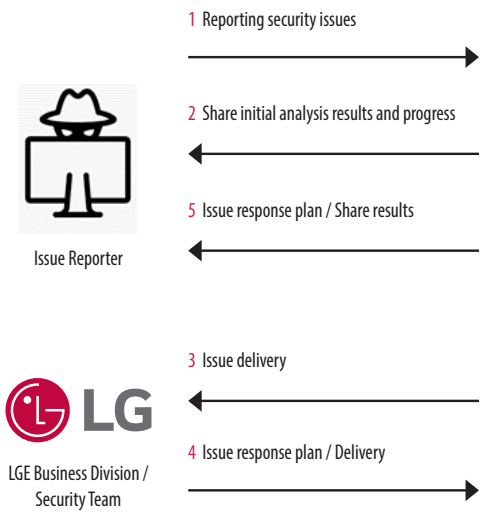
LGE operates an internal process for various cyber security-related issues that occur in the actual use environment.

The purpose of the process operation is to carry out plans, countermeasures, and response activities to respond to security issues when security issues such as security vulnerabilities in our products and product interlocking systems occur.

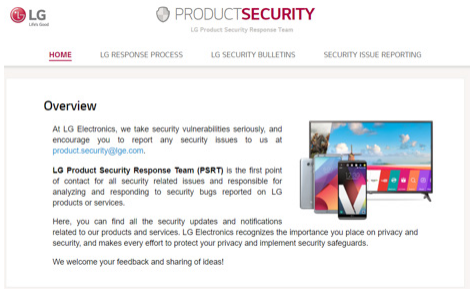
For initial application, access the PSRT (Product Security Response Team) web page or use the PSRT official email account.

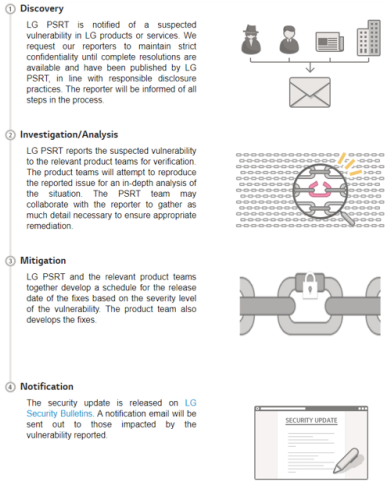
- PSRT website: *https://lgsecurity.lge.com/*
- PSRT email: product.security@lge.com

A typical response process is as follows:



PSRT System





- After the issue has been improved, if it is necessary to update the program, such as releasing a new installation file or applying some patch files, it is officially distributed through the head office sales/SE personnel along with the application guide to the person in charge of the corporation or the issue site.
- Responses to security issues may be further announced on the website (*https://lgsecurity.lge.com*) if necessary.
- After end of support of product life, security patch can be offered for cyber security incidents prevention.

The model and serial number of the product are located on the back and on one side of the product.
Record them below in case you ever need service.

Model

Serial No.

(Australia only)

This product must be installed by a professional installer.

After the installation of the product in the customer premises, fully remove all product packaging (including any expanded or moulded plastic packaging materials) and recycle or dispose of such packaging responsibly. Do not dispose any expanded plastic packaging in the household bin.

WARNING: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.