



OWNER'S MANUAL

# Safety and Reference

LG Digital Signage  
(MONITOR SIGNAGE)

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

[www.lg.com](http://www.lg.com)

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# Warning! Safety Instructions



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



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



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING : TO REDUCE THE RISK OF FIRE AND ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

- TO PREVENT THE SPREAD OF FIRE, KEEP CANDLES OR OTHER ITEMS WITH OPEN FLAMES AWAY FROM THIS PRODUCT AT ALL TIMES.
- Do not place the monitor and/or remote control in the following environments:
  - Keep the product away from direct sunlight.
  - An area with high humidity such as a bathroom.
  - Near any heat source such as stoves and other devices that produce heat.
  - Near kitchen counters or humidifiers where they can easily be exposed to steam or oil.
  - An area exposed to rain or wind.
  - Do not expose to dripping or splashing and do not place objects filled with liquids, such as vases, cups, etc. on or over the apparatus (e.g., on shelves above the unit).
  - Near flammable objects such as gasoline or candles, or expose the monitor to direct air conditioning.
  - Do not install in excessively dusty places.

Otherwise, this may result in fire, electric shock, combustion/explosion, malfunction or product deformation.

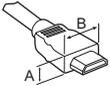
## • Ventilation

- Install your monitor where there is proper ventilation. Do not install in a confined space such as a bookcase.
- Do not install the product on a carpet or cushion.
- Do not block or cover the product with cloth or other materials while unit is plugged in.
- Take care not to touch the ventilation openings. When watching the monitor for a long period, the ventilation openings may become hot.
- Protect the power cord from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door, or walked upon. Pay particular attention to plugs, wall outlets, and the point where the cord exits the device.
- Do not move the monitor whilst the Power cord is plugged in.
- Do not use a damaged or loosely fitting power cord.
- Be sure to grasp the plug when unplugging the power cord. Do not pull on the power cord to unplug the monitor.
- Do not connect too many devices to the same AC power outlet as this could result in fire or electric shock.
- **Disconnecting the Device from the Main Power**
  - The power plug is the disconnecting device. In case of an emergency, the power plug must remain readily accessible.
- Do not let your children climb or cling onto the monitor. Otherwise, the monitor may fall over, which may cause serious injury.

- Make sure the power cord is connected securely to the monitor and wall socket if not secured damage to the Plug and socket may occur and in extreme cases a fire may break out.
  - Do not insert metallic or inflammable objects into the product. If a foreign object is dropped into the product, unplug the power cord and contact the customer service.
  - Do not touch the end of the power cord while it is plugged in. You may be electrocuted.
  - **If any of the following occur, unplug the product immediately and contact your local customer service.**
    - The product has been damaged.
    - If water or another substance enters the product (like an AC adapter, power cord, or monitor).
    - If you smell smoke or other odors coming from the monitor.Even the monitor is turned off by remote control or button, AC power source is connected to the unit if not unplugged in.
  - Do not use high voltage electrical equipment near the monitor (e.g., a bug zapper). This may result in product malfunction.
  - Do not attempt to modify this product in any way without written authorization from LG Electronics. Accidental fire or electric shock can occur. Contact your local customer service for service or repair. Unauthorized modification could void the user's authority to operate this product.
  - Use only an authorized attachments / accessories approved by LG Electronics. Otherwise, this may result in fire, electric shock, malfunction, or product damage.
  - Never disassemble the AC adapter or power cord. This may result in fire or electric shock.
  - Handle the adapter carefully to avoid dropping or striking it. An impact could damage the adapter.
  - To reduce the risk of fire or electrical shock, do not touch the monitor with wet hands. If the power cord prongs are wet or covered with dust, dry the power plug completely or wipe dust off.
- **Batteries**
    - Store the accessories (battery, etc.) in a safe location out of the reach of children.
    - Do not short circuit, disassemble, or allow the batteries to overheat. Do not dispose of batteries in a fire. Batteries should not be exposed to excessive heat.
  - **Moving**
    - When moving, make sure the product is turned off, unplugged, and all cables have been removed. It may take 2 or more people to carry larger monitors. Do not press or put stress on the front panel of the monitor. Otherwise, this may result in product damage, fire hazard or injury.
  - Keep the packing anti-moisture material or vinyl packing out of the reach of children.
  - Do not allow an impact shock, any objects to fall into the product, and do not drop anything onto the screen.
  - Do not press strongly upon the panel with a hand or a sharp object such as a nail, pencil, or pen, or make a scratch on it. It may cause damage to screen.
  - **Cleaning**
    - When cleaning, unplug the power cord and wipe gently with a soft/dry cloth. Do not spray water or other liquids directly on the monitor. Do not clean your monitor with chemicals including glass cleaner, any type of air freshener, insecticide, lubricants, wax (car, industrial), abrasive, thinner, benzene, alcohol etc., which can damage the product and/or its panel. Otherwise, this may result in electric shock or product damage.

## Preparing

- If the monitor is turned on for the first time after it was shipped from the factory, initialization of the monitor may take a few minutes.
- Image shown may differ from your monitor.
- Your monitor's OSD (On Screen Display) may differ slightly from that shown in this manual.
- The available menus and options may differ from the input source or product model that you are using.
- New features may be added to this monitor in the future.
- The device must be easily accessed to a location outlet near the access. Some devices are not made by turning on / off button, turning off the device and unplugging the power cord.
- The items supplied with your product may vary depending on the model.
- Product specifications or contents of this manual may be changed without prior notice due to upgrade of product functions.
- For an optimal connection, HDMI cables and USB devices should have bezels less than 10 mm thick and 18 mm width. Use an extension cable that supports USB 2.0 if the USB cable or USB memory stick does not fit into your monitor's USB port.



\* A ≤ 10 mm

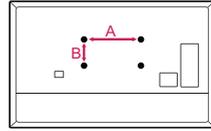
\* B ≤ 18 mm

- Use a certified cable with the HDMI logo attached.
- If you do not use a certified HDMI cable, the screen may not display or a connection error may occur. (Recommended HDMI Cable Types)
  - High-Speed HDMI<sup>®</sup>/™ Cable (3 m or less)
  - High-Speed HDMI<sup>®</sup>/™ Cable with Ethernet (3 m or less)
- SuperSign Software & Manual
  - Downloading from the LG Electronics website.
  - Visit the LG Electronics website (<http://partner.lge.com>) and download the latest software for your model.

## Wall Mounting Bracket

(Depending on model)

Make sure to use screws and wall mount bracket that meet the VESA standard. Standard dimensions for the wall mount kits are described in the following table.



Model	65UL3E	75UL3E 86UL3E
<b>VESA (A x B) (mm)</b>	300 x 300	600 x 400
<b>Standard screw</b>	M6	M8
<b>Number of screws</b>	4	4
<b>Wall mount bracket</b>	OLW480B	LSW640B

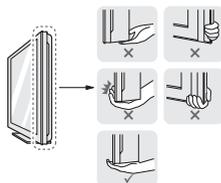
# Lifting and moving the monitor

Please note the following advice to prevent the monitor from being scratched or damaged and for safe transportation regardless of its type and size.

- It is recommended to move the monitor in the box or packing material that the monitor originally came in.
- Before moving or lifting the monitor, disconnect the power cord and all cables.
- When holding the monitor, the screen should face away from you to avoid damage.



- Hold the top and bottom of the monitor frame firmly. Make sure not to hold the transparent part, speaker, or speaker grill area.



- When transporting a large monitor, there should be at least 2 people.
- When transporting the monitor by hand, hold the monitor as shown in the following illustration.



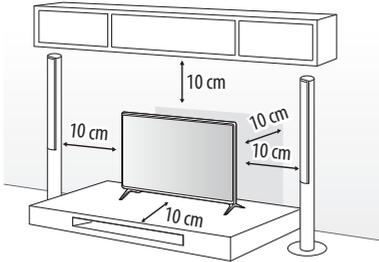
- When transporting the monitor, do not expose the monitor to jolts or excessive vibration.
- When transporting the monitor, keep the monitor upright, never turn the monitor on its side or tilt towards the left or right.
- Do not apply excessive pressure to cause flexing / bending of frame chassis as it may damage screen.
- When handling the monitor, be careful not to damage the protruding buttons.



- Avoid touching the screen at all times, as this may result in damage to the screen.
- Do not move the monitor by holding the cable holders, as the cable holders may break, and injuries and damage to the monitor may occur.
- When attaching the stand to the monitor set, place the screen facing down on a cushioned table or flat surface to protect the screen from scratches.

## Mounting on a Table

- 1 Lift and tilt the monitor into its upright position on a table.
  - Leave a 10 cm (minimum) space from the wall for proper ventilation.



(Depending on model)

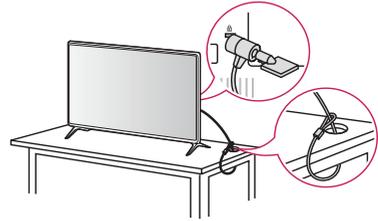
- 2 Connect the power cord to a wall outlet.



- Do not apply foreign substances (oils, lubricants, etc.) to the screw parts when assembling the product. (Doing so may damage the product.)
- If you install the monitor on a stand, you need to take actions to prevent the product from overturning. Otherwise, the product may fall over, which may cause injury.
- Do not use any unapproved items to ensure the safety and product life span.
- Any damage or injuries caused by using unapproved items are not covered by the manufacturer's warranty.
- Make sure that the screws are inserted correctly and fastened securely. (If they are not fastened securely enough, the monitor may tilt forward after being installed.) Do not use too much force and over tighten the screws; otherwise screw may be damaged and not tighten correctly.

## Using the Kensington security system

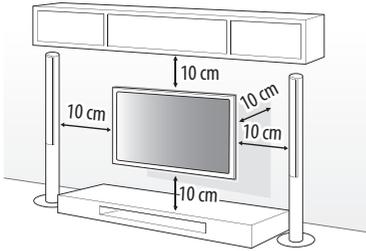
The Kensington security system connector is located at the rear of the monitor. For more information of installation and using, refer to the manual provided with the Kensington security system or visit <http://www.kensington.com>. Connect the Kensington security system cable between the monitor and a table.



(Depending on model)

# Mounting to the Wall

Attach an optional wall mount bracket at the rear of the monitor carefully and install the wall mount bracket on a solid wall perpendicular to the floor. When you attach the monitor to other building materials, please contact qualified personnel. LG recommends that wall mounting be performed by a qualified professional installer. We recommend the use of LG's wall mount bracket. LG's wall mount bracket is easy to move with cables connected. When you do not use LG's wall mount bracket, please use a wall mount bracket where the device is adequately secured to the wall with enough space to allow connectivity to external devices. It is advised to connect all the cables before installing fixed wall mounts.

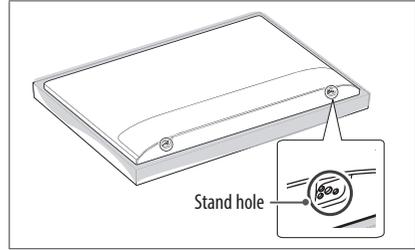


(Depending on model)

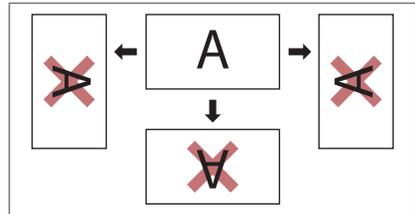


- Remove the stand before installing the monitor on a wall mount by performing the stand attachment in reverse.
- For more information of screws and wall mount bracket, refer to the Separate purchase.
- If you intend to mount the product to a wall, attach VESA standard mounting interface (optional parts) to the back of the product. When you install the set to use the wall mounting bracket (optional parts), fix it carefully so as not to drop.
- When mounting a monitor on the wall, make sure not to install the monitor by hanging the power and signal cables on the back of the monitor.
- Do not install this product on a wall if it could be exposed to oil or oil mist. This may damage the product and cause it to fall.

- When installing the wall mounting bracket, it is recommended to cover the stand hole using tape, in order to prevent the influx of dust and insects. (Depending on model)



- This model does not support rotating installation of the monitor except the default installation.



# Connections

Connect various external devices to the monitor and switch input modes to select an external device. For more information of external device's connection, refer to the manual provided with each device.

## Other connections

Connect your monitor to external devices. For the best picture and audio quality, connect the external device and the monitor with the HDMI cable. Some separate cable is not provided.

### HDMI

- Supported HDMI Audio format (Depending on model):  
DTS (44.1 kHz / 48 kHz / 88.2 kHz / 96 kHz),  
DTS HD (44.1 kHz / 48 kHz / 88.2 kHz / 96 kHz / 176.4 kHz / 192 kHz),  
True HD (48 kHz),  
Dolby Digital / Dolby Digital Plus (32 kHz / 44.1 kHz / 48 kHz),  
PCM (32 kHz / 44.1 kHz / 48 kHz / 96 kHz / 192 kHz)

(Only UHD models)

- ⚙️ → **Picture** → **Additional Settings** → **HDMI ULTRA HD Deep Colour**

- On : Support 4K @ 50/60 Hz (4:4:4, 4:2:2, 4:2:0)
- Off : Support 4K @ 50/60 Hz 8 bit (4:2:0)

If the device connected to Input Port also supports ULTRA HD Deep Colour, your picture may be clearer. However, if the device doesn't support it, it may not work properly. In that case, change the monitor's HDMI ULTRA HD Deep Colour setting to Off.

## USB

Some USB Hubs may not work. If a USB device connected through a USB Hub is not detected, connect it directly to the USB port on the monitor.

### External Devices

Available external devices are: Blu-ray player, HD receivers, DVD players, VCRs, audio systems, USB storage devices, PC, gaming devices, and other external devices.

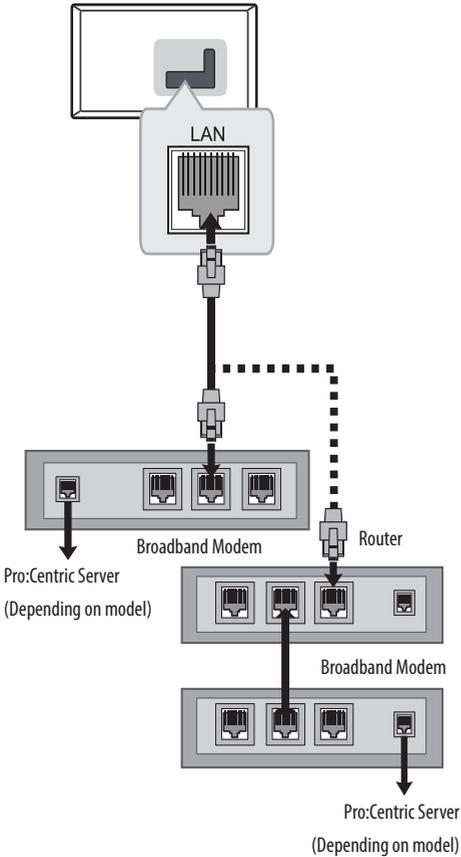
- The external device connection may differ from the model.
- Connect external devices to the monitor regardless of the order of the monitor port.
- Refer to the external equipment's manual for operating instructions.
- If you connect a gaming device to the monitor, use the cable supplied with the gaming device.
- If ULTRA HD content is played on your PC, video or audio may become disrupted intermittently depending on your PC's performance. (Depending on model)
- When connecting via a wired LAN, it is recommended to use a CAT 7 cable. (Only when **LAN** port is provided.)

# Network

## Wired network connection

This monitor can be connected to a Pro:Centric server via the LAN port. After making the physical connection, the monitor needs to be set up for network communication.

Connect the LAN port of the Modem or Router from Pro:Centric server to the LAN port on the monitor.

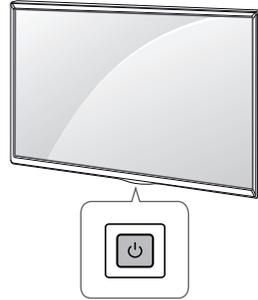


- 1 Connect the LAN port of the Modem or Router to the LAN port on the monitor.
- 2 Connect the LAN port of the PC to the AUX LAN port on the monitor. (Depending on model)

- ! Do not connect a modular phone cable to the LAN port.
- ! Since there are various connection methods, please follow the specifications of your telecommunication carrier or internet service provider.

# Using Button

You can simply operate the monitor functions, using the button.



## Basic functions

	<b>Power On</b> (Press the button When the monitor is turned off.)
	<b>Power Off<sup>1</sup></b> (Press and Hold the button When the monitor is turned on.)
	<b>Menu Control</b> (Press the button When the monitor is turned on. <sup>2</sup> )
	<b>Menu Selection</b> (Press and Hold the button when you access menu control. <sup>3</sup> )

- 1 All running apps will close.
- 2 You can access and adjust the menu by pressing the button when monitor is on.
- 3 You can use the function when you access menu control.

## Adjusting the menu

When the monitor is turned on, press the button one time. You can adjust the Menu items using the button.

	Turns the power off.
	Changes the input source.
+ -	Adjusts the volume level.

# Using Remote Control

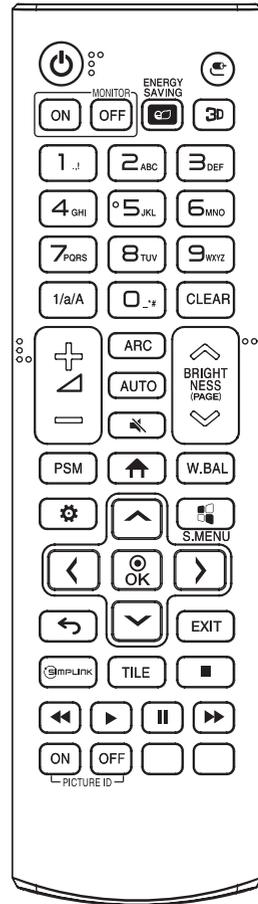
The descriptions in this manual are based on the buttons on the remote control. Please read this manual carefully and use the monitor correctly.

To replace batteries, open the battery cover, replace batteries (1.5 V AAA) matching the ⊕ and ⊖ ends to the label inside the compartment, and close the battery cover. To remove the batteries, perform the installation actions in reverse.

Make sure to point the remote control toward the remote control sensor on the monitor.

(Some buttons and services may not be provided depending on models or regions.)

\* **To use the button, press and hold for more than 3 seconds.**



**⏻ (POWER)** Turns the monitor on or off.

**MONITOR ON** Turns the monitor on.

**MONITOR OFF** Turns the monitor off.

**⚡ ENERGY SAVING** Adjusts the brightness of the screen to reduce energy consumption.

**📺 (INPUT)** Changes the input source.

**3D** Used for viewing 3D videos.

**1/a/A** Toggles between numerical and alphabetical.

**Number and Alphabet buttons** Enters numerical or alphabetical characters depending upon the setting.

**CLEAR** Deletes the entered numerical or alphabetical character.

**Volume Up/Down Button** Adjusts the volume.

**ARC** Selects the Aspect Ratio mode.

**AUTO** Automatically adjusts picture position and minimizes image instability (available for RGB input only).

**MUTE** Mutes all sounds.

**BRIGHTNESS (PAGE)** Adjusts the brightness of the display. PAGE function is not supported in this model.

**PSM** Selects the Picture Mode.

**HOME** Activates the Launcher.

**W.BAL** Enters the White Balance menu.

**SETTINGS** Accesses the main menus or saves your input and exit menus.

**S.MENU** SuperSign menu key.

**Navigation Buttons** Scrolls through menus or options.

**OK** Selects menus or options and confirms your input.

**BACK** Allows you to move back one step in the user interaction function.

**EXIT** Quit all OSD tasks and applications.

**SIMPLINK** Allows you to control various multimedia devices to enjoy multimedia simply by using the remote control through the SimpLink menu.

**TILE** Selects the TILE Mode.

**PICTURE ID ON/OFF** When the Picture ID number matches the Set ID number, you can control whichever monitor you want in multi-display format.

**USB Menu Control Buttons** Controls media playback.

**Trick key** May not be supported on some models.



- Do not mix new batteries with old batteries. This may cause the batteries to overheat and leak.
- Failure to match the correct polarities of the battery may cause the battery to burst or leak, resulting in fire, personal injury, or ambient pollution.
- This apparatus uses batteries. In your community there might be regulations that require you to dispose of these batteries properly due to environmental considerations. Please contact your local authorities for disposal or recycling information.
- Batteries inside or inside the product shall not be exposed to excessive heat such as sunshine, fire or the like.

## Troubleshooting

The software version can be updated for improvement in performance.

Customer needs to ensure the compatibility of customer's equipment with LGE software. If needed, please consult with LGE and upload revised software version according to the guidance provided by LGE.

Cannot control the monitor with the remote control.

- Check the remote control sensor on the product and try again.
- Check if there is any obstacle between the product and the remote control.
- Check if the batteries are still working and properly installed (⊕ to ⊕, ⊖ to ⊖).

No image display and no sound is produced.

- Check if the product is turned on.
- Check if the power cord is connected to a wall outlet.
- Check if there is a problem in the wall outlet by connecting other products.

The monitor turns off suddenly.

- Check the power control settings. The power supply may be interrupted.
- Check if the auto-off function is activated on the settings related time.

When connecting to the PC (HDMI/DVI), no signal is detected.

- Turn the monitor off/on using the remote control.
- Reconnect the HDMI cable.
- Restart the PC with the monitor on.

### Abnormal display

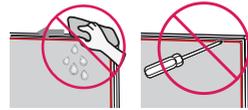
- If the product feels cold to the touch, there may be a small “flicker” when it is turned on. This is normal, there is nothing wrong with product.
- This panel is an advanced product that contains millions of pixels. You may see tiny black dots and/or brightly coloured dots (red, blue or green) at a size of 1 ppm on the panel. This does not indicate a malfunction and does not affect the performance and reliability of the product. This phenomenon also occurs in third-party products and is not subject to exchange or refund.
- You may find different brightness and color of the panel depending on your viewing position(left/right/top/down). This phenomenon occurs due to the characteristic of the panel. It is not related with the product performance, and it is not malfunction.
- Displaying a still image for a prolonged period of time may cause image sticking. Avoid displaying a fixed image on the monitor screen for a long period of time.

### Generated sound

- “Cracking” noise: A cracking noise that occurs when watching or turning off the monitor is generated by plastic thermal contraction due to temperature and humidity. This noise is common for products where thermal deformation is required.
- Electrical circuit humming/panel buzzing: A low level noise is generated from a high-speed switching circuit, which supplies a large amount of current to operate a product. It varies depending on the product. This generated sound does not affect the performance and reliability of the product.



- When cleaning the product, be careful not to allow any liquid or foreign objects to enter the gap between the upper, left or right side of the panel and the guide panel. (Depending on model)



- Make sure to wring any excess water or cleaner from the cloth.
- Do not spray water or cleaner directly onto the monitor screen.
- Make sure to spray just enough of water or cleaner onto a dry cloth to wipe the screen.

# Specifications

## Wireless module (LGSBWAC72) specifications

### Wireless LAN (IEEE 802.11a/b/g/n/ac)

Frequency Range	Output Power (Max.)
2,400 to 2,483.5 MHz	14 dBm
5,150 to 5,725 MHz	16.5 dBm
5,725 to 5,850 MHz (Not for EU)	11.5 dBm

### Bluetooth

Frequency Range	Output Power (Max.)
2,400 to 2,483.5 MHz	8.5 dBm

As band channels can vary per country, the user cannot change or adjust the operating frequency. This product is configured for the regional frequency table.

For consideration of the user, this device should be installed and operated with a minimum distance of 20 cm between the device and the body. "IEEE 802.11ac" is not available in all countries.

## Environment condition

<b>Operating Temperature</b>	0 °C to 40 °C
<b>Operating Humidity</b>	Less than 80 %
<b>Storage Temperature</b>	-20 °C to 60 °C
<b>Storage Humidity</b>	Less than 85 %

<b>Embedded battery</b>	Applied
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## HDMI-DTV supported mode

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
640 x 480p	31.469	59.94
	31.5	60.00
720 x 480p	31.47	59.94
	31.5	60.00
720 x 576p	31.25	50.00
1280 x 720p	44.96	59.94
	45	60.00
	37.5	50.00
1920 x 1080i	28.125	50.00
	33.72	59.94
	33.75	60.00
1920 x 1080p	26.97	23.976
	27.00	24.000
	33.71	29.97
	33.75	30.00
	56.25	50.00
	67.432	59.94
	67.5	60.00
	135	120
	134.86	119.88
	112.5	100
3840 x 2160p	53.95	23.98
	54	24.00
	56.25	25.00
	61.43	29.97
	67.5	30.00
	112.5	50.00
	134.865	59.94
4096 x 2160p	53.95	23.98
	54	24.00
	56.25	25.00
	61.43	29.97
	67.5	30.00
	112.5	50.00
	134.865	59.94
135	60.00	

## HDMI-PC supported Mode

- PC audio is not supported.
- Use HDMI IN 1 for PC mode. (Depending on model)

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
640 x 350	31.468	70.09
720 x 400	31.469	70.08
640 x 480	31.469	59.94
800 x 600	37.879	60.31
1024 x 768	48.363	60.00
1360 x 768	47.712	60.015
1152 x 864	54.348	60.053
1280 x 1024	63.981	60.020
1920 x 1080	67.5	60
	135	120
3840 x 2160	54	24.00
	56.25	25.00
	67.5	30.00
4096 x 2160	53.95	23.97
	54	24

## Supported Photo Formats

File Format	Format	Resolution
.jpeg, .jpg, .jpe	JPEG	Minimum: 64 (W) x 64 (H) Maximum (Normal Type): 15360 (W) x 8640 (H) Maximum (Progressive Type): 1920 (W) x 1440 (H)
.png	PNG	Minimum: 64 (W) x 64 (H) Maximum: 5760 (W) x 5760 (H)
.bmp	BMP	Minimum: 64 (W) x 64 (H) Maximum: 1920 (W) x 1080 (H)

## Supported Audio Formats

File Format	Item	Info
.mp3	Bit rate	32 Kbps - 320 Kbps
	Sample freq.	16 kHz - 48 kHz
	Support	MPEG1, MPEG2
	Channels	mono, stereo
.wav	Bit rate	-
	Sample freq.	8 kHz - 96 kHz
	Support	PCM
	Channels	mono, stereo
.ogg	Bit rate	64 kbps - 320 kbps
	Sample freq.	8 kHz - 48 kHz
	Support	Vorbis
	Channels	mono, stereo
.wma	Bit rate	128 kbps - 320 kbps
	Sample freq.	8 kHz - 48 kHz
	Support	WMA
	Channels	up to 6 ch
.flac	Bit rate	-
	Sample freq.	8 kHz - 96 kHz
	Support	FLAC
	Channels	mono, stereo

## Supported Video Formats

Extension	Codec	
.asf .wmv	Video	VC-1 Advanced Profile (except for WMVA), VC-1 Simple and Main Profiles
	Audio	WMA Standard (except for WMA v1/WMA Speech)
.avi	Video	Xvid (except 3 warp-point GMC), H.264/AVC, Motion Jpeg, MPEG-4
	Audio	MPEG-1 Layer I, II, MPEG-1 Layer III (MP3), Dolby Digital, LPCM, ADPCM, DTS
.mp4 .m4v .mov	Video	H.264/AVC, MPEG-4, HEVC
	Audio	Dolby Digital, Dolby Digital Plus, AAC, MPEG-1 Layer III (MP3)
.3gp .3g2	Video	H.264/AVC, MPEG-4
	Audio	AAC, AMR-NB, AMR-WB
.mkv	Video	MPEG-2, MPEG-4, H.264/AVC, VP8, VP9, HEVC
	Audio	Dolby Digital, Dolby Digital Plus, AAC, PCM, DTS, MPEG-1 Layer I, II, MPEG-1 Layer III (MP3)
.ts .trp .tp .mts	Video	H.264/AVC, MPEG-2, HEVC
	Audio	MPEG-1 Layer I, II, MPEG-1 Layer III (MP3), Dolby Digital, Dolby Digital Plus, AAC, PCM
.mpg .mpeg .dat	Video	MPEG-1, MPEG-2
	Audio	MPEG-1 Layer I, II, MPEG-1 Layer III (MP3)
.vob	Video	MPEG-1, MPEG-2
	Audio	Dolby Digital, MPEG-1 Layer I, II, DVD-LPCM
.mkv .mp4 .ts	Video	H.264/AVC, HEVC
	Audio	Dolby Digital, Dolby Digital Plus, AAC

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(Depending on model)





Record the model number and serial number of the monitor.

Refer to the label on the back cover and quote this information to your dealer when requiring any service.

MODEL \_\_\_\_\_

SERIAL No. \_\_\_\_\_



OWNER'S MANUAL

**RS-232C**

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

# IR CODES

- This feature is not available for all models.

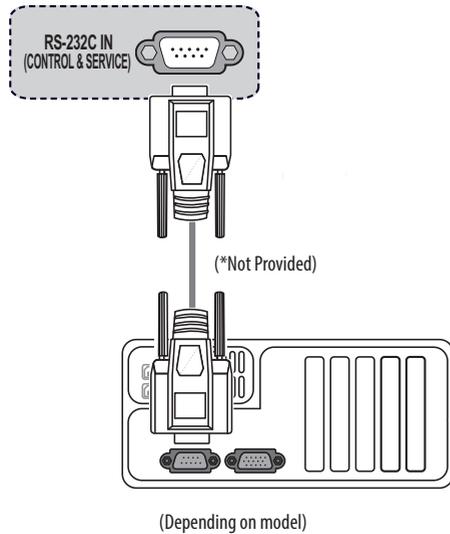
Code (Hexa)	Function	Note
08	 (POWER)	Remote control Button (Power On/Off)
C4	<b>MONITOR ON</b>	Remote control Button
C5	<b>MONITOR OFF</b>	Remote control Button
95	 ENERGY SAVING	Remote control Button
0B	 (INPUT)	Remote control Button
DC		Remote control Button
32	<b>1/a/A</b>	Remote control Button
10-19	<b>Number Key 0-9 Alphabet buttons</b>	Remote control Button
2F	<b>CLEAR</b>	Remote control Button
02		Remote control Button
03		Remote control Button
79	<b>ARC</b>	Remote control Button
99	<b>AUTO</b>	Remote control Button
09	 (MUTE)	Remote control Button
E0	<b>Brightness (PAGE)</b> 	Remote control Button
E1	<b>Brightness (PAGE)</b> 	Remote control Button
4D	<b>PSM</b>	Remote control Button
7C	 (HOME)	Remote control Button
5F	<b>W.BAL</b>	Remote control Button
43	 (SETTINGS)	Remote control Button

Code (Hexa)	Function	Note
3F	 S.MENU	Remote control Button
40		Remote control Button
41		Remote control Button
07		Remote control Button
06		Remote control Button
44	<b>OK</b> 	Remote control Button
28	 (BACK)	Remote control Button
5B	<b>EXIT</b>	Remote control Button
7E	 SIMPLINK	Remote control Button
7B	<b>TILE</b>	Remote control Button
72	<b>PICTURE ID ON (Red)</b>	Remote control Button
71	<b>PICTURE ID OFF (Green)</b>	Remote control Button
B1		Remote control Button
B0		Remote control Button
BA		Remote control Button
8F		Remote control Button
8E		Remote control Button
63	<b>Yellow</b>	Remote control Button
61	<b>Blue</b>	Remote control Button

# EXTERNAL CONTROL DEVICE SETUP

## RS-232C Setup

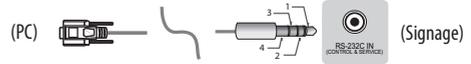
- Image shown may differ from your Signage.
- Connect the RS-232C (serial port) input jack to an external control device (such as a computer or an A/V control system) to control the product's functions externally.
- Connect the serial port of the control device to the RS-232C jack on the product back panel.
- RS-232C connection cables are not supplied with the product.



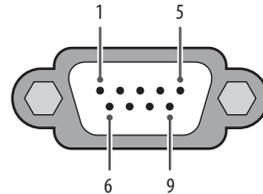
## Phone jack Type

(Depending on model)

- You need to purchase the phone-jack to RS-232C cable required for the connection between the PC and the Signage, which is specified in the manual.
- \* For other models, connect to the USB port.
- \* The connection interface may differ from your Signage.



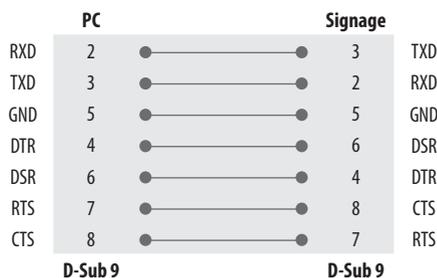
## Type of Connector : D-Sub 9-Pin Male



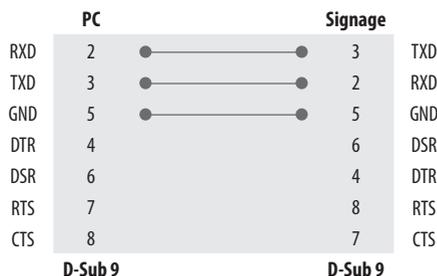
No.	Pin name
1	3.5V
2	RXD (Receive data)
3	TXD (Transmit data)
4	IR OUT from Signage
5	GND
6	No Connection
7	No Connection (5 V available in some models)
8	No Connection
9	No Connection (12 V available in some models)

## RS-232C Configurations

### 7-Wire Configurations (Standard RS-232C cable)



### 3-Wire Configurations (Not standard)



## Communication Parameters

- Baud rate: 9,600 bps (UART)
- Data length: 8 bits
- Parity : None
- Stop bit: 1 bit
- Communication code: ASCII code
- Use a crossed (reverse) cable.

## Command Reference List

(Depending on model)

	Command1	Command2	Data (Hexadecimal)
<b>1 Power</b>	k	a	00 to 01
<b>2 Aspect Ratio</b>	k	c	(See p. 5)
<b>3 Screen Mute</b>	k	d	(See p. 6)
<b>4 Volume Mute</b>	k	e	00 to 01
<b>5 Volume Control</b>	k	f	00 to 64
<b>6 Contrast</b>	k	g	00 to 64
<b>7 Brightness</b>	k	h	00 to 64
<b>8 Colour</b>	k	i	00 to 64
<b>9 Tint</b>	k	j	00 to 64
<b>10 Sharpness</b>	k	k	00 to 32
<b>11 OSD Select</b>	k	l	00 to 01
<b>12 Remote Control Lock Mode</b>	k	m	00 to 01
<b>13 Balance</b>	k	t	00 to 64
<b>14 Colour Temperature</b>	x	u	00 to 64
<b>15 Energy Saving</b>	j	q	(See p. 8)
<b>16 Auto Configuration</b>	j	u	01
<b>17 Equalizer</b>	j	v	(See p. 8)
<b>18 Key</b>	m	c	(See p. 8)
<b>19 Control Backlight</b>	m	g	00 to 64
<b>20 Input select</b>	x	b	(See p. 9)

- During USB operations such as DivX or EMF, all commands except Power(ka) and Key(mc) are not executed and treated as NG.

## Transmission / Receiving Protocol

(Depending on Model)

### Transmission

**[Command1][Command2][Set ID][Data][Cr]**

[Command1] : First command to control the Signage. (j, k, m or x)

[Command2] : Second command to control the Signage.

[Set ID] : You can adjust the set ID to choose desired Signage ID number in option menu. Adjustment range is 1 to 99. When selecting Set ID '0', every connected set is controlled. Set ID is indicated as decimal (1 to 99) on menu and as Hexa decimal (0 x 0 to 0 x 63) on transmission/receiving protocol.

[Data] : To transmit command data. Transmit 'FF' data to read status of command.

[Cr] : Carriage Return

ASCII code '0 x 0D'

[ ] : ASCII code 'space (0 x 20)'

### OK Acknowledgement

**[Command2][Set ID][OK][Data][x]**

\* The set transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

### Error Acknowledgement

**[Command2][Set ID][NG][Data][x]**

\* The set transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data 00 : Illegal Code

### 1 Power (Command: k a)

▶ To control Power On/Off of the set.

Transmission

[k][a][Set ID][Data][Cr]

Data 00 : Off

Data 01 : On

Ack

[a][Set ID][OK/NG][Data][x]

▶ To Show Signage is Power On/Off.

Transmission

[k][a][Set ID][FF][Cr]

Ack

[a][Set ID][OK/NG][Data][x]

\* Similarly, if other functions transmit '0 x FF' data based on this format, Acknowledgement data feed back presents status about each function.

\* OK Ack., Error Ack. and other message may display on the screen when Signage is power On.

### 2 Aspect Ratio (Command: k c) (Main Picture Size)

▶ To adjust the screen format. (Main picture format) You can also adjust the screen format using the picture settings.

Transmission

[k][c][Set ID][Data][Cr]

Data 01 : 4:3 (Normal screen - Just Scan Off)

Data 02 : 16:9 (Wide screen - Just Scan Off)

Data 06 : Original (Just Scan Off)

Data 09 : Just Scan

Ack

[c][Set ID][OK/NG][Data][x]

\* Using the PC input, you select either 16:9 or 4:3 screen aspect ratio.

**3 Screen Mute** (Command: k d)

- ▶ To select screen mute on/off.

Transmission

[k][d][ ][Set ID][ ][Data][Cr]

Data 00 : Screen mute off (Picture on) / Video mute off

Data 01 : Screen mute on (Picture off)

Data 10 : Video mute on

Ack

[d][ ][Set ID][ ][OK/NG][Data][x]

\* In case of video mute on only, Signage will display On Screen Display (OSD). But, in case of Screen mute on, Signage will not display OSD.

**4 Volume Mute** (Command: k e)

- ▶ To control volume mute on/off.  
You can also adjust mute using the mute button on remote control.

Transmission

[k][e][ ][Set ID][ ][Data][Cr]

Data 00 : Volume mute on (Volume off)

Data 01 : Volume mute off (Volume on)

Ack

[e][ ][Set ID][ ][OK/NG][Data][x]

**5 Volume Control** (Command: k f)

- ▶ To adjust volume.  
You can also adjust volume with the volume buttons on remote control.

Transmission

[k][f][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64

\* Refer to "Real data mapping".

Ack

[f][ ][Set ID][ ][OK/NG][Data][x]

**6 Contrast** (Command: k g)

- ▶ To adjust screen contrast.  
You can also adjust contrast in the picture settings.

Transmission

[k][g][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64

\* Refer to "Real data mapping".

Ack

[g][ ][Set ID][ ][OK/NG][Data][x]

**7 Brightness** (Command: k h)

- ▶ To adjust screen brightness.  
You can also adjust brightness in the picture settings.

Transmission

[k][h][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64

\* Refer to "Real data mapping".

Ack

[h][ ][Set ID][ ][OK/NG][Data][x]

**8 Colour** (Command: k i)

- ▶ To adjust the screen colour.  
You can also adjust colour in the picture settings.

Transmission

[k][i][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 64

\* Refer to "Real data mapping".

Ack

[i][ ][Set ID][ ][OK/NG][Data][x]

**9 Tint** (Command: k j)

- ▶ To adjust the screen tint.

You can also adjust tint in the picture settings.

Transmission

[k][j][ ][Set ID][ ][Data][Cr]

Data Red : 00 to Green : 64

- \* Refer to "Real data mapping".

Ack

[j][ ][Set ID][ ][OK/NG][Data][x]

**10 Sharpness** (Command: k k)

- ▶ To adjust the screen sharpness.

You can also adjust sharpness in the picture settings.

Transmission

[k][k][ ][Set ID][ ][Data][Cr]

Data Min : 00 to Max : 32

- \* Refer to "Real data mapping".

Ack

[k][ ][Set ID][ ][OK/NG][Data][x]

**11 OSD Select** (Command: k l)

- ▶ To select OSD (On Screen Display) on/off when controlling remotely.

Transmission

[k][l][ ][Set ID][ ][Data][Cr]

Data 00 : Off

Data 01 : On

Ack

[l][ ][Set ID][ ][OK/NG][Data][x]

**12 Remote Control Lock Mode** (Command: k m)

- ▶ To lock the front panel controls on the Signage and remote control.

Transmission

[k][m][ ][Set ID][ ][Data][Cr]

Data 00 : Off

Data 01 : On

Ack

[m][ ][Set ID][ ][OK/NG][Data][x]

- \* If you are not using the remote control, use this mode. When main power is on/off, external control lock is released.

- \* In the standby mode, if key lock is on, Signage will not turn on by power on key of IR & Local Key.

**13 Balance** (Command: k t)

- ▶ To adjust balance.

You can also adjust balance in the audio settings.

Transmission

[k][t][ ][Set ID][ ][Data][Cr]

Data L : 00 to R : 64

- \* Refer to "Real data mapping".

Ack

[t][ ][Set ID][ ][OK/NG][Data][x]

**14 Colour Temperature** (Command: x u)

- ▶ To adjust Colour Temperature. You can also adjust Colour Temperature in the picture settings.

Transmission

[x][u][ ][Set ID][ ][Data][Cr]

Data Warm: 00 to Cool:64

- \* Refer to "Real data mapping".

Ack

[u][ ][Set ID][ ][OK/NG][Data][x]

**15 Energy Saving** (Command: j q)

- ▶ To reduce the power consumption of the Signage. You can also adjust Energy Saving in picture settings.

Transmission

`[j][q][ ][Set ID][ ][Data][Cr]`

Power Saving Function					Level				Description
7	6	5	4		3	2	1	0	
0	0	0	0	Low Power	0	0	0	0	Off
0	0	0	0	Low Power	0	0	0	1	Minimum
0	0	0	0	Low Power	0	0	1	0	Medium
0	0	0	0	Low Power	0	0	1	1	Maximum
0	0	0	0	Low Power	0	1	0	1	Screen Off
0	0	0	0	Low Power	0	1	0	0	Auto

- ▶ 'Auto' is available in Signage that supports 'Intelligent Sensor'.

Ack

`[q][ ][Set ID][ ][OK/NG][Data][x]`**16 Auto Configuration** (Command: j u) (Only RGB support model)

- ▶ To adjust picture position and minimize image shaking automatically. It works only in RGB (PC) mode.

Transmission

`[j][u][ ][Set ID][ ][Data][Cr]`

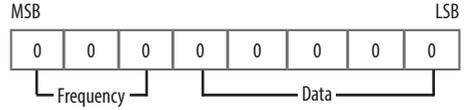
Data 01 : To set

Ack

`[u][ ][Set ID][ ][OK/NG][Data][x]`**17 Equalizer** (Command: j v)

- ▶ To adjust equalizer.

Transmission

`[j][v][ ][Set ID][ ][Data][Cr]`

7	6	5	Frequency	4	3	2	1	0	Step
0	0	0	1st Band	0	0	0	0	0	0 (decimal)
0	0	1	2nd Band	0	0	0	0	1	1 (decimal)
0	1	0	3rd Band	...	...	...	...	...	...
0	1	1	4th Band	1	0	0	1	1	19 (decimal)
1	0	0	5th Band	1	0	1	0	0	20 (decimal)

Ack

`[v][ ][Set ID][ ][OK/NG][Data][x]`**18 Key** (Command: m c)

- ▶ To send IR remote key code.

Transmission

`[m][c][ ][Set ID][ ][Data][Cr]`

Data IR CODES

Ack

`[c][ ][Set ID][ ][OK/NG][Data][x]`**19 Control Backlight** (Command: m g)

- ▶ To control the backlight.

Transmission

`[m][g][ ][Set ID][ ][Data][Cr]`

Data Min : 00 to Max : 64

Ack

`[g][ ][Set ID][ ][OK/NG][Data][x]`

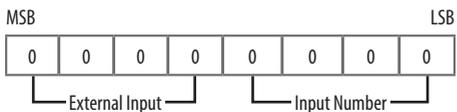
## 20 Input select (Command: x b) (Main Picture Input)

► To select input source for main picture.

Transmission

[x][b][ ][Set ID][ ][Data][Cr]

Data Structure



External Input				Data
0	0	0	0	DTV
0	0	0	1	Analogue
0	0	1	0	AV
0	1	0	0	Component
0	1	1	0	RGB
0	1	1	1	HDMI
1	0	0	0	
1	0	0	1	
1	0	1	0	

Input Number				Data
0	0	0	0	Input1
0	0	0	1	Input2
0	0	1	0	Input3
0	0	1	1	Input4

Ack

[b][ ][Set ID][ ][OK/NG][Data][x]

### \* Real data mapping

- 00 : Step 0
- ⋮
- A : Step 10 (Set ID 10)
- ⋮
- F : Step 15 (Set ID 15)
- 10 : Step 16 (Set ID 16)
- ⋮
- 64 : Step 100
- ⋮
- 6E : Step 110
- ⋮
- 73 : Step 115
- 74 : Step 116
- ⋮
- CF : Step 199
- ⋮
- FE : Step 254
- FF : Step 255



Record the model number and serial number of the Signage.

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MODEL \_\_\_\_\_

SERIAL No. \_\_\_\_\_