PLANAR

User Manual

EP Series Ultra HD LCD Displays

EP5024K
EP5024K-T
EP5824K
EP5824K-T
EP6524K
EP6524K-T
EPX100
EPX100-T

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RoHS Compliance Statement

The Planar EP Series is fully RoHS compliant.

Part Number: 020-1350-01D

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Introduction

The Ultra HD resolution Planar EP Series LCD displays offer best-in-class reliability with the stunning image quality of 4K resolution. The displays come standard with commercial-grade features - such as 4K@60Hz support through both HDMI and DisplayPort and HDCP 2.2 compliance - which are required for digital signage, corporate, and control room environments.

Also available in touch versions, Ultra HD Planar EP Series displays bring interactivity to the 4K immersive experience.

Caution: This manual is intended for use by qualified service persons and end users with experience installing LCD displays.

1. Safety Information

Before using the Planar EP Series, please read this manual thoroughly to help protect against damage to property, and to ensure personnel safety.

- Be sure to observe the following instructions.
- For your safety, be sure to observe ALL the warnings detailed in this manual.
- For installation or adjustment, please follow this manual's instructions, and refer all servicing to qualified service personnel.

2. Safety Precautions

- **If water is spilled or objects are dropped inside the display, remove the power plug from the outlet immediately.** Failure to do so may result in fire or electrical shock. Contact your dealer for inspection.
- **If the display is dropped or the chassis is damaged, remove the power plug from the outlet immediately.** Failure to do so may result in fire or electrical shock. Contact your dealer for inspection.

WARNING! Wall mounts must be secure.

- **If the display is hung on a wall, the wall must be strong enough to hold it.** Simply mounting it to wallboard or wall paneling won't be adequate or safe.

Caution: The screen could be damaged by heavy pressure.

- **Slight pressure on the LCD will cause distortion of the image.** Heavier pressure will cause permanent damage. Displays should be mounted where viewers cannot touch the screen or insert small objects in the openings that will create hazards by contacting bare conductive parts.

Caution: The front polarizer is soft and subject to scratches from sharp objects.

- **The polarizer is a thin sheet of film laminated to the outside layer of glass on the LCD screen.** Take care when handling items near the screen.
- **If the power cord or plug is damaged or becomes hot, turn off the main power switch of the display. Make sure the power plug has cooled down and remove the power plug from the outlet.** If the display is still used in this condition, it may cause a fire or an electrical shock. Contact your dealer for a replacement.

2.1 Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use the display near water.
6. Clean the LCD screens with an LCD screen cleaner or LCD wipes.
7. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for the replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from any of the displays.
10. Only use the attachments/accessories specified by the manufacturer.
11. Unplug all displays during lightning storms or when unused for long periods of time.
12. You must follow all National Electrical Code regulations. In addition, be aware of local codes and ordinances when installing your system.
13. Refer all servicing to qualified service personnel. Servicing is required when any of the displays have been damaged in any way. For example, if the AC power cord or plug is damaged, liquid has been spilled or objects have fallen into a display, the displays have been exposed to rain or moisture, do not operate normally or have been dropped.
14. Keep the packing material in case the equipment should ever need to be shipped.
15. Wall mounts must be secure. The wall must be strong enough to hold all displays, brackets and cables.
16. Slight pressure on the LCD will cause distortion of the image. Heavier pressure will cause permanent damage. Displays should be mounted where viewers cannot touch the screen or insert small objects in the openings that will create hazards by contacting bare conductive parts.
17. The front polarizer is soft and subject to scratches from sharp objects. The polarizer is a thin sheet of film laminated to the outside layer of glass on the LCD screen. Take care when handling items near the screen.

3. Recommended Usage

In order to get the most out of your LCD, use the following recommended guidelines to optimize the display.

3.1 Burn-In Versus Temporary Image Retention

Burn-in causes the screen to retain an image essentially forever, with little or no way to correct the problem. Under normal use, an LCD will not experience burn-in, as plasma displays do, nor will it retain images in any way.

Normal use of an LCD is defined as displaying continuously changing video patterns or images. However, LCDs can experience *temporary* image retention when recommended usage guidelines are not followed.

What is Temporary Image Retention?

Temporary image retention (TIR) can occur when a static image is displayed continuously for extended periods of time (12 hours or longer). An electrical charge differential may build up between the electrodes of the liquid crystal, which causes a negative-color video image (color-inverted and brightness-inverted version of the previous image) to be retained when a new image is displayed. This behavior is true for any LCD device from any LCD manufacturer.

TIR is not covered under warranty. See standard warranty terms and conditions for details. Here are some guidelines to help you avoid TIR:

- Use the LCD to show a screen saver, moving images or still pictures that change regularly. When using high-contrast images, reposition the images frequently.
- Turn off the LCD when it is not in use. To use your source computer's Power Options Properties, set up your computer to turn off the display when not in use.

3.2 Warranty Coverage

The following models are warranted for **24 x 7** usage:

- 50”: EP5024K, EP5024K-T
- 58”: EP5824K, EP5824K-T
- 65”: EP6524K, EP6524K-T
- 100”: EPX100, EPX100-T

Planar recommends turning off the power for **4 hours per day** for optimal performance.

For complete warranty details, please visit http://www.planar.com/warranty.

3.3 Important Waste Disposal Information

Please recycle or dispose of all electronic waste in accordance with local, state, and federal laws. Additional resources can be found online at http:/www.planar.com/about/green/.

The crossed-out wheelie bin symbol is to notify consumers in areas subject to Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU that the product was placed on the market after August 13, 2005 and must not be disposed of with other waste. Separate collection and recycling of electronic waste at the time of disposal ensures that it is recycled in a manner that minimizes impacts to human health and the environment. For more information about the proper disposal of electronic waste, please contact your local authority, your household waste disposal service, or the seller from whom you purchased the product.

3.4 European Product Database for Energy Labeling (EPREL)

Registration numbers:

- EP5024K: 268992
- EP5024K-T: 313154
- EP5824K: 268993
- EP5824K-T: 313155
- EP6524K: 268994
- EP6524K-T: 313156

3.5 Normal Usage Guidelines

Normal use of the LCD is defined as operating in the open air to prevent heat buildup, and without direct or indirect heat sources such as lighting fixtures, heating ducts, or direct sunlight that can cause the modules to experience high operating temperatures. For all modules, do not block fans or ventilation openings. If the LCD module will be installed in a recessed area with an LCD surround or enclosure, ensure adequate openings are applied for proper air flow and ventilation.

At 3000 meters or below, the maximum ambient operating temperature for the LCD module cannot be above 40º C nor below the minimum ambient operating temperature of 0º C. If one of these conditions exists, it is up to the installer to ensure that module placement is changed, thermal shielding is provided and/or additional ventilation is provided to keep the display within its nominal operating parameters.

Cooling Requirements

For optimal performance, active cooling by the installer should be planned for when the ambient temperature at the top of the wall is predicted to be above the specified ambient temperature for the panel. Cooling may be done behind the displays and depending on the wall configuration.

3.6 EPX100 Eyebolts

Each EPX100 display ships with two lifting eyebolts attached that can be removed after installation. Refer to EPX100 and EPX100-T dimensional drawings on pages 89 and 90 for more information.

- Dimensions: 2.5in (63mm) x 1.4in (35mm)
- Max Load each: 992.1 lbs (450kg)

4. VESA Mounts, General Description

VESA mounts are used to secure the Planar EP Series for display. The display can be installed using a variety of VESA mounts available through Planar. If you do not have a VESA mount and would like to purchase one, contact Planar.

If you purchased a VESA mount, you should have a received a separate box with mounting supplies and an Installation manual. Follow these instructions carefully.

Keep in mind the following general installation guidelines:

- Screw length is crucial and will vary depending on the type of mount you use. Total screw length will include the penetration length plus the length required by the type of VESA mount in use.
- Mount spacers may be required to accommodate the protruding back panel of the OPS slot.

Caution: Shorter screws will result in insufficient mounting strength and longer screws could puncture parts inside the display.

- Prior to installation, make sure you know where all of the mounting points are located.
- Follow all safety precautions outlined in the VESA Installation manual.
- Verify the parts received with the list shown in the VESA Installation manual.

5. Cleaning the Display

If dust has collected on the power plug, remove the plug from the outlet and clean off the dust. Dust build-up may cause a fire.

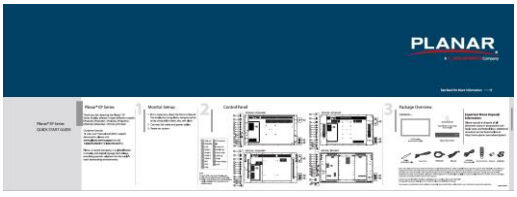
Remove the power plug before cleaning. Failure to do so may result in electrical shock or damage.

Keep the following points in mind when cleaning the surface of the display:

- When the surface of the display becomes dirty, wipe the surface lightly with a soft clean cloth.
- If the surface requires additional cleaning, use LCD screen cleaner or LCD wipes, which are available at most electronics stores.
- Do not let cleaner seep into the display, as it may cause electrical shock or damage.
- Refer to the Planar Display Cleaning Guidelines for more information.

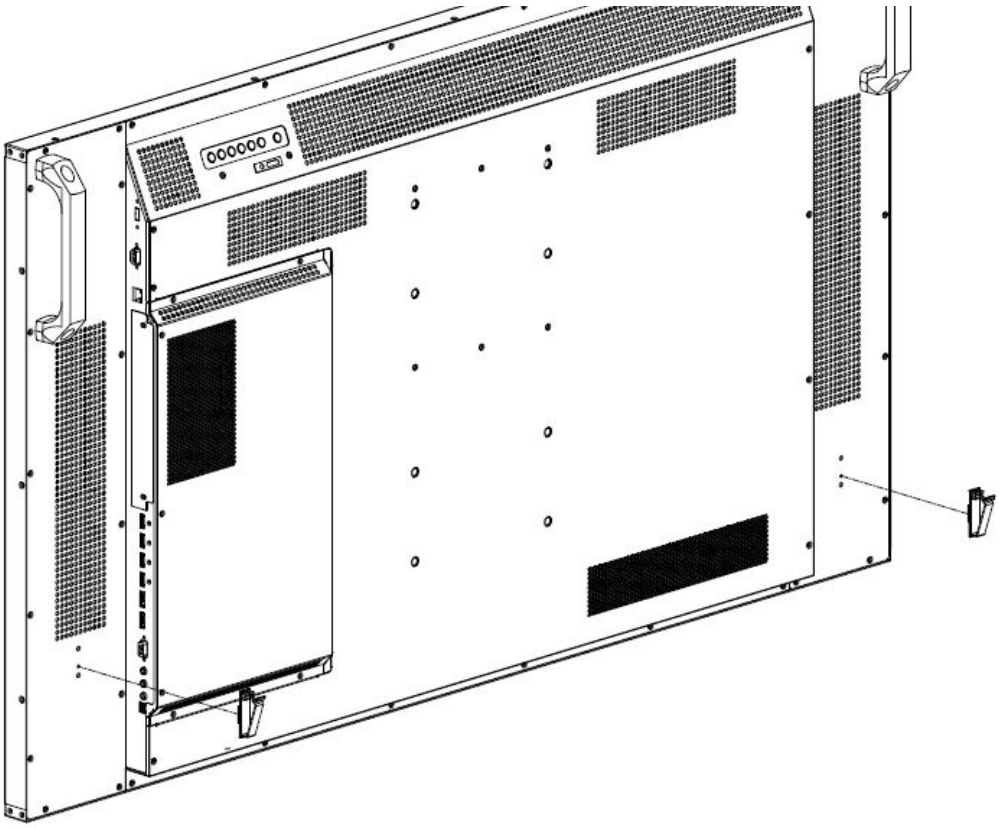
Package Contents

Part	Description	Number	Picture
LCD Display	One per box.	1	
HDMI Cable	HDMI cable.	1	
USB Cable	Connects to a PC for touch functionality (touch models only).	1	
AC Power Cord	Power cord.	1	

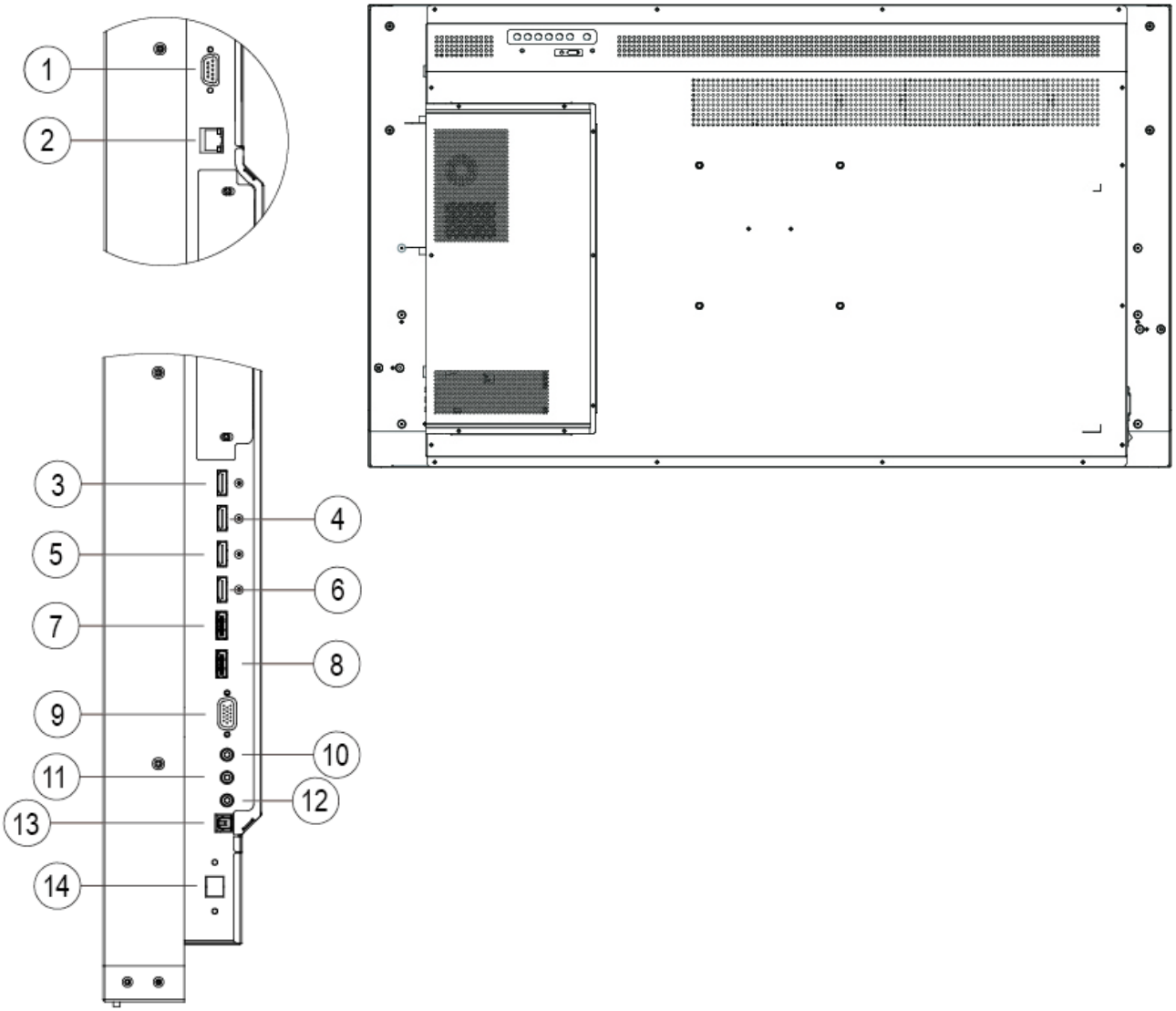
Part	Description	Number	Picture
IR Extender Cable	Used to receive signals from the remote control.	1	
Remote Control	Used to control the display (AAA batteries included).	1	
Cable Clips	Used to clamp and organize the cables.	2	
Passive Stylus	Passive stylus, 3mm tip (EPX100-T only)	1	
TouchMark License Key	TouchMark License Key (touch models only).	1	
Quick Start Guide	Quick Start Guide.	1	

6. Installing the Cable Clips

The cable clips included in the Accessory Kit are used to assist with cable management. These clips snap into place as shown in the image below.



7. Planar EP Series - Standard Inputs



1	RS232 In	8	DP2
2	LAN	9	VGA
3	HDMI 1	10	PC Audio In
4	HDMI 2	11	IR
5	HDMI 3	12	Audio Out
6	HDMI 4	13	SPDIF Out
7	DP 1	14	Touch USB (Touch models)

Installing the Display

This section explains how to install your display. We suggest that you read the entire section before you attempt to install the unit.

8. Before You Begin

Make sure you have all the items in these lists before you begin unpacking and installing your display(s).

8.1 Tools/Equipment List

Depending on your installation, you may need one or more of the following items:

- String/string level
- Digital/laser level
- Ladders/lift
- Back brace
- Stud finder (if hanging display on a wall)

8.2 Other Things You May Need

- LCD screen cleaner or LCD wipes - available at most electronics stores
- At least three (EPX100 and EPX100-T) or two (all other models) very strong people to help lift units into place.

8.3 Plan Your Installation

You should have a detailed plan of how the units are to be configured. The plan should include calculations for the following:

- Power maximums reference below by display size
    - EP5024K(-T): 5 units max per 20A circuit for 115V operation
    - EP5824K(-T): 5 units max per 20A circuit for 115V operation
    - EP6524K(-T): 5 units max per 20A circuit for 115V operation
    - EPX100(-T): 2 units max per 20A circuit for 115V operation
- Cable runs
- Ventilation and cooling requirements
- If hanging display on a wall, location of studs in the wall

8.4 Prepare Your Installation Location

You should have prepared the area where you will install the unit. If custom enclosures are part of the installation, they must be fully designed to accommodate the installation of the displays, as well as the installed unit and ventilation and cooling requirements.

If your installation included a lot of construction or dust, it is **highly recommended** that you clean all of the screens after the wall installation and configuration are complete.

8.5 Cable Length Recommendations

Cable length performance may vary between different cables and sources. The recommended maximum cable lengths are as follows:

HDMI

- 4K @ 50/60Hz: 8m (25 ft) maximum
- 4K @ 24/25/30Hz: 15m (50 ft) maximum
- 1080p @ 60Hz and lower resolutions: 20m (65 ft) maximum

DisplayPort

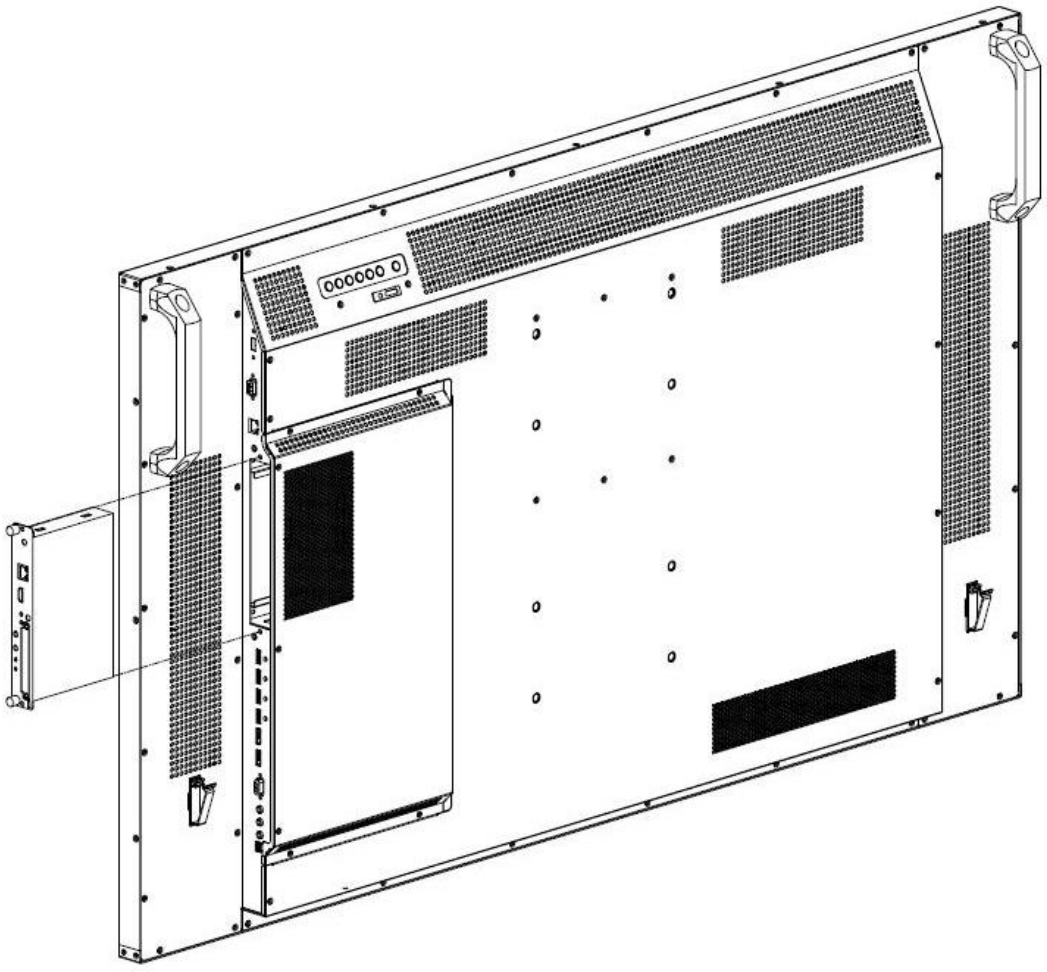
- DP 1.2: 5m (15 ft) maximum
- DP 1.1: 8m (25 ft) maximum

9. Installing OPS Expansion (Optional)

The Planar EP Series displays are equipped with an expansion slot that supports the Intel® Open-Pluggable Specification (OPS). The slot will support OPS devices such as PC's, SDI modules etc.

To install an OPS device, remove the protective cover on the display and slide the device firmly into position. When installed, the OPS device will be connected internally to the display. No external video or power cables are required.

For convenience, two Type-A USB 2.0 ports and one Type-A USB 3.0 port are provided on the rear cover of the display. When an OPS device is installed, these USB ports can be used for a keyboard, webcam, USB drive, or other peripherals.

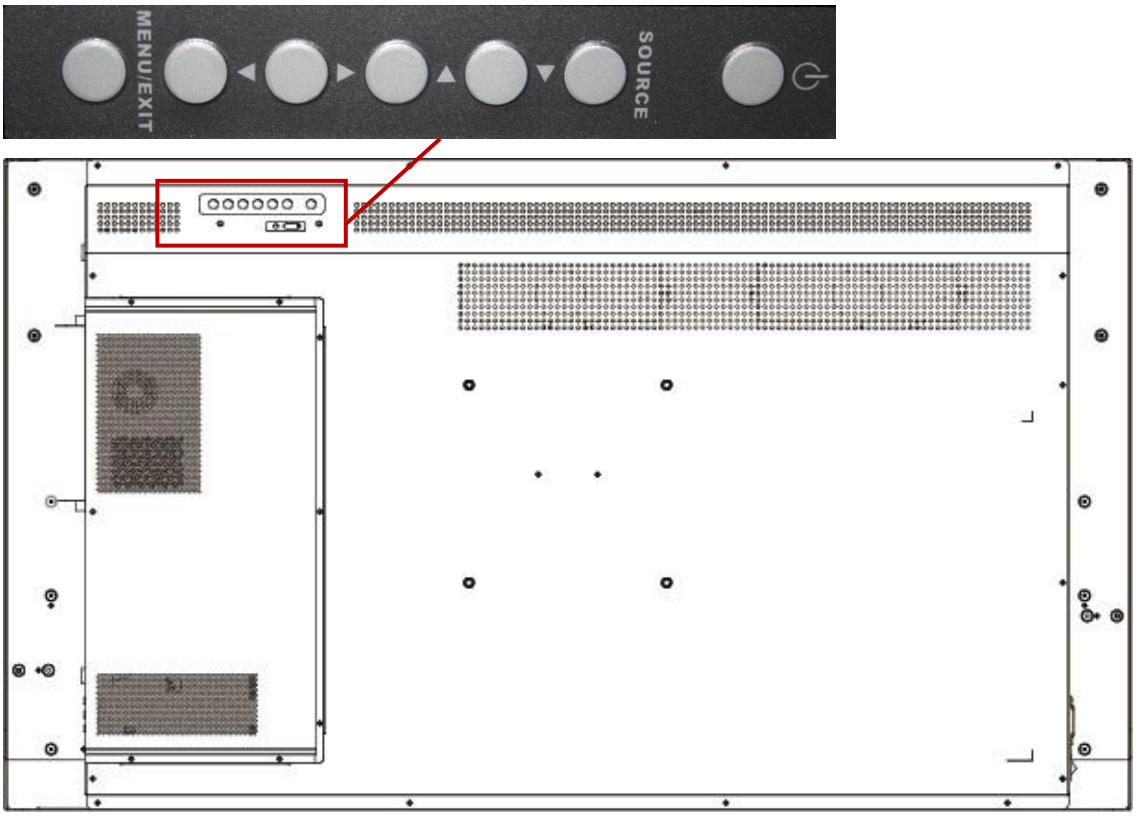


Operating the Display

10. OSD Keypad

Keypad Location (EP5024K, EP5824K and EP6524K)

The OSD keypad is located on the rear of the display.

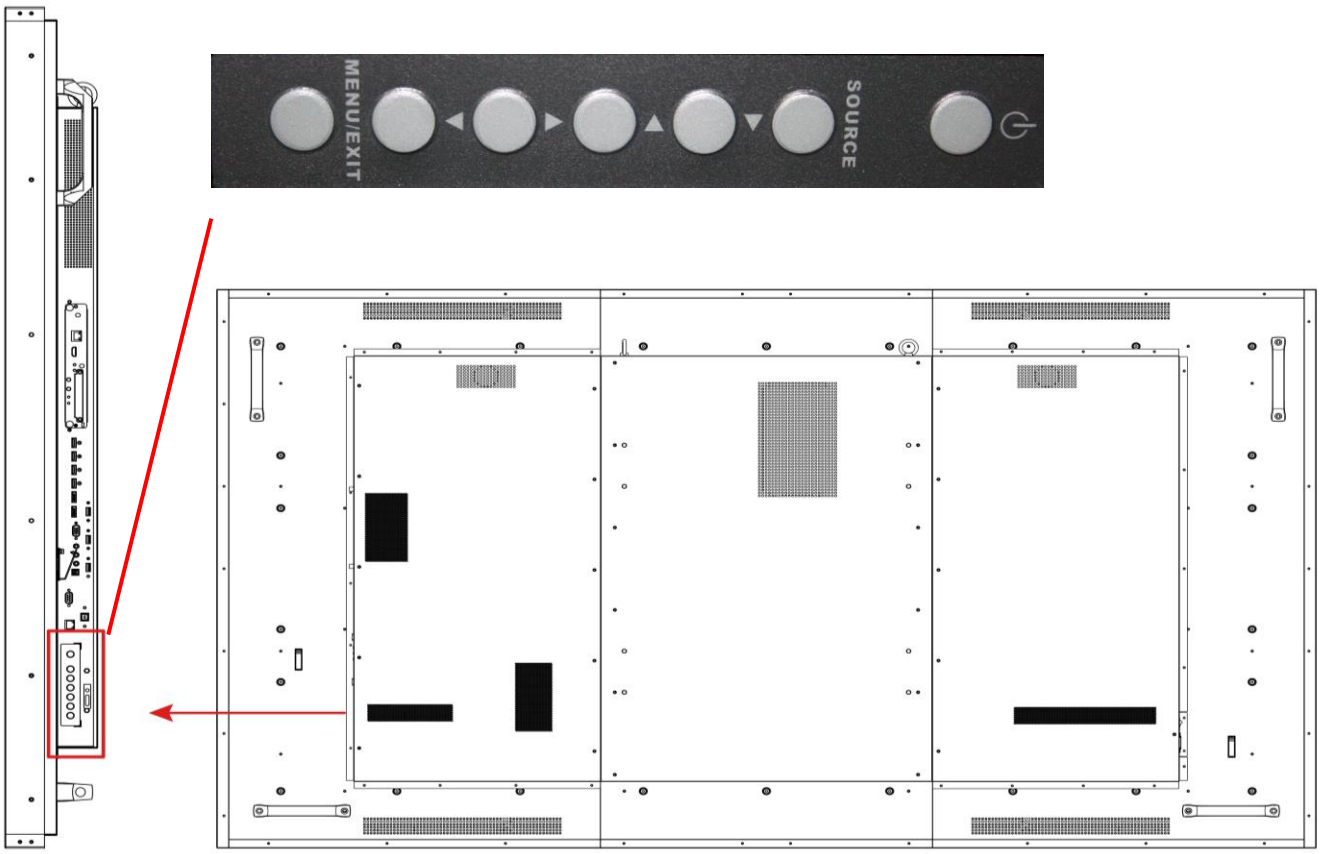


OSD Keypad Buttons

Key	Descriptions
Power	Power on/Power off
Source	Source selection (toggle)
▶	Menu Right/Increase value
◀	Menu Left/Decrease value
▲	Menu Up
▼	Menu Down
Menu/Exit	Menu/Exit

Keypad Location (EPX100)

The OSD keypad is located on the rear right side of the display.



OSD Keypad Buttons

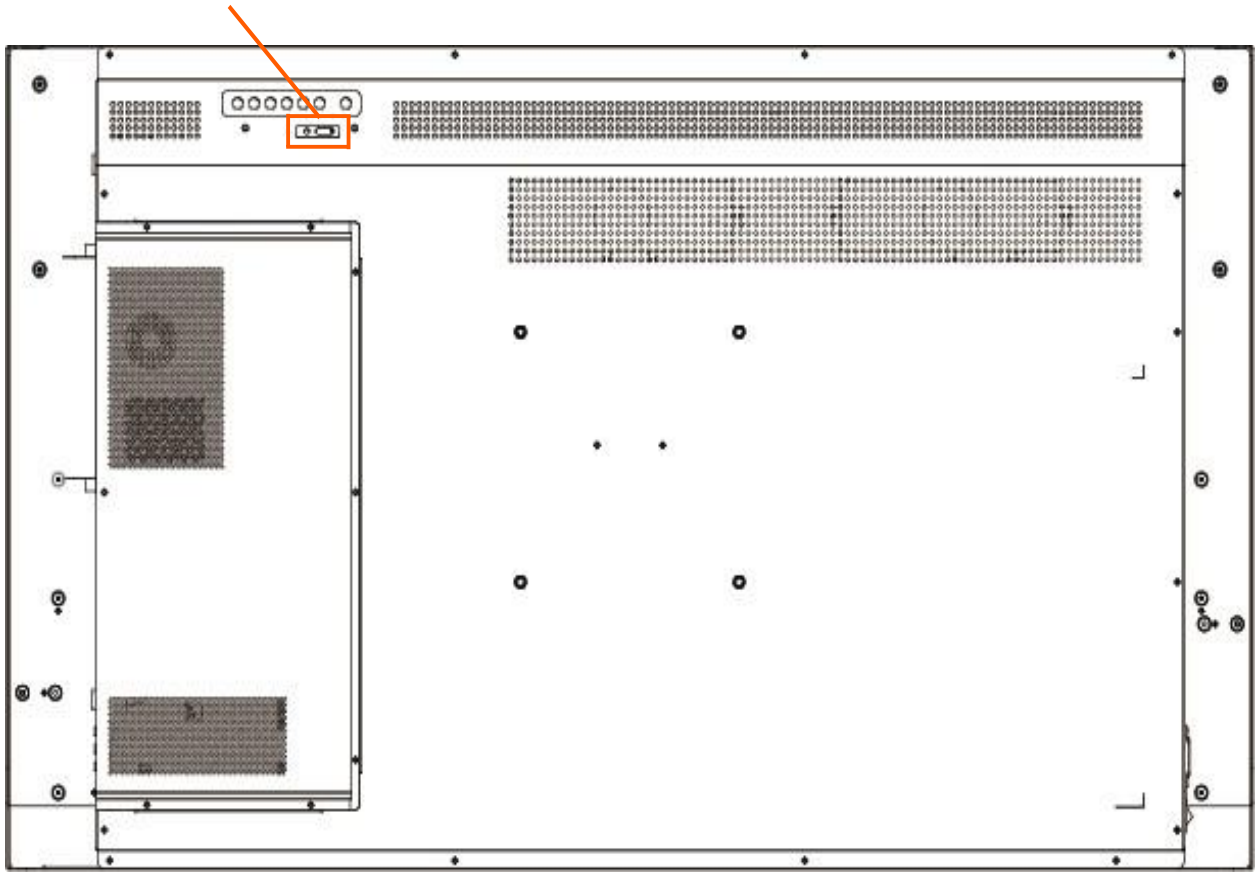
Key	Descriptions
Power	Power on/Power off
Source	Source selection (toggle)
▶	Menu Right/Increase value
◀	Menu Left/Decrease value
▲	Menu Up
▼	Menu Down
Menu/Exit	Menu/Exit

11. Remote Control Receiver

Receiver Location (EP5024K, EP5824K and EP6524K)

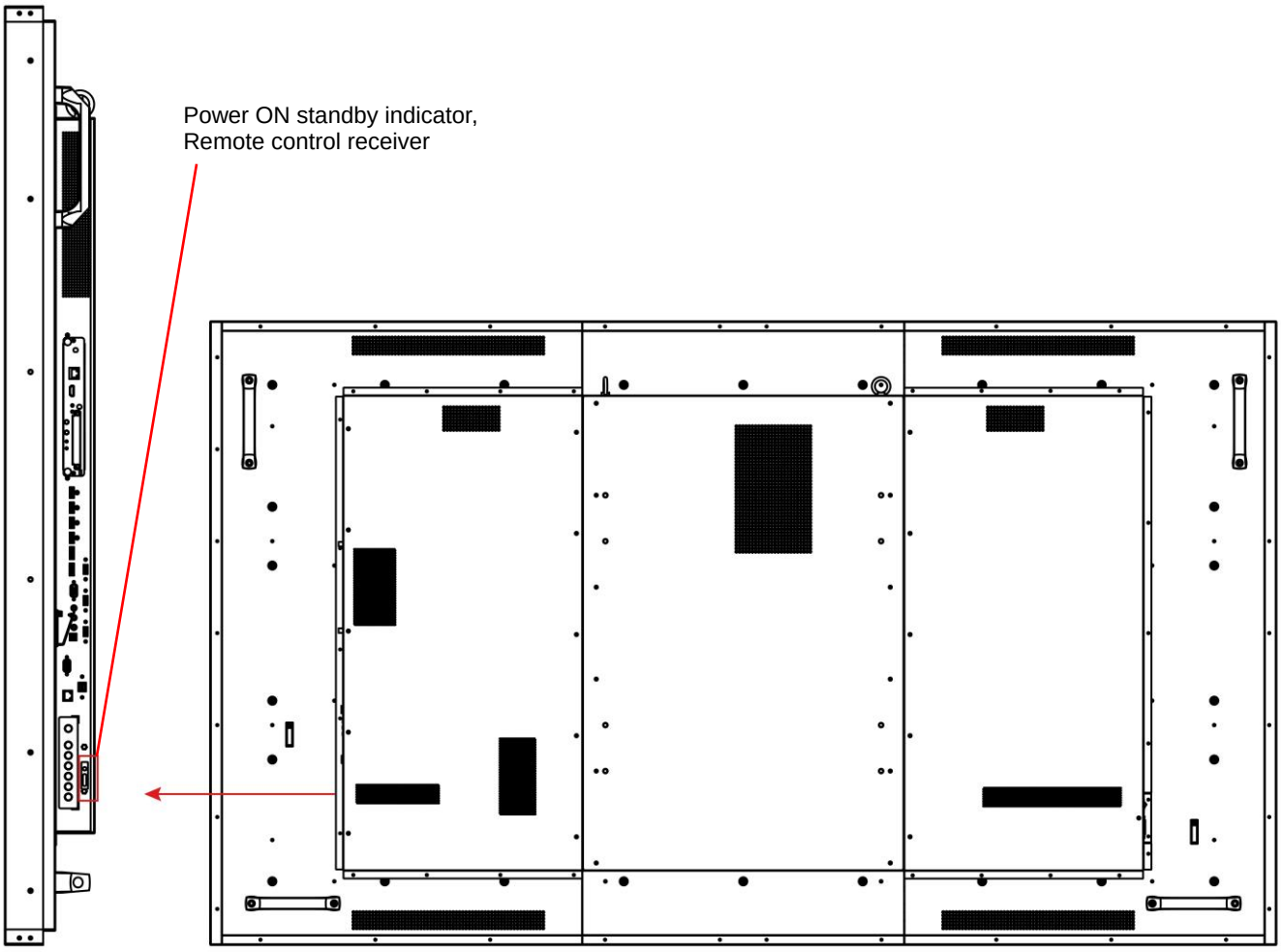
The remote control receiver is located near the keypad on the rear of the display. Use the IR extender cable for operating the remote from the front of the display

Power ON standby indicator,
Remote control receiver



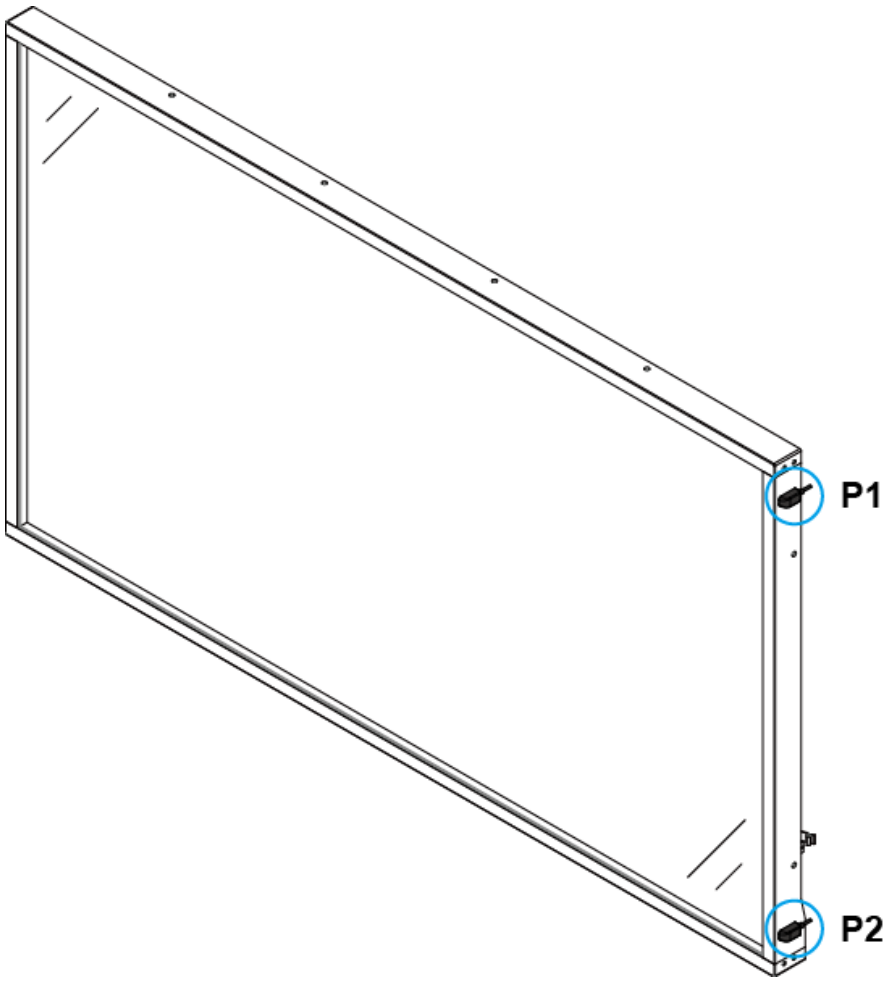
Receiver Location (EPX100)

The remote control receiver is located near the keypad on the rear right side of the display. Use the IR extender cable for operating the remote from the front of the display.



12. Installing IR Extender

The position of the IR extender will affect the reception of the IR signal. To ensure the best IR reception, P1 and P2, the two positions marked in the figure below, are recommended for installing the IR extender.



13. LED Indicators

The LED indicator light is located on the rear of the display near the keypad. The following table explains what the different colors and blink patterns mean.

LED On

Power Status	Condition
Green	Power on
Blinking Orange	No signal
Orange	Power saving mode
Off	AC off
Off	Power off

14. Using the Display in Portrait Mode

When using the display in the portrait position and looking at the rear of the display, it should be rotated according to the arrow stickers on the back of the display. This will allow for proper ventilation. Then select the OSD rotation of landscape or portrait on the OSD menu (MAIN MENU > OSD SETTINGS > OSD ROTATION).

For reference, the following list indicates the rotation direction of each display model when placed in portrait mode:

- EP5024K(-T): Clockwise
- EP5824K(-T): Clockwise
- EP6524K(-T): Counterclockwise
- EPX100(-T): Clockwise

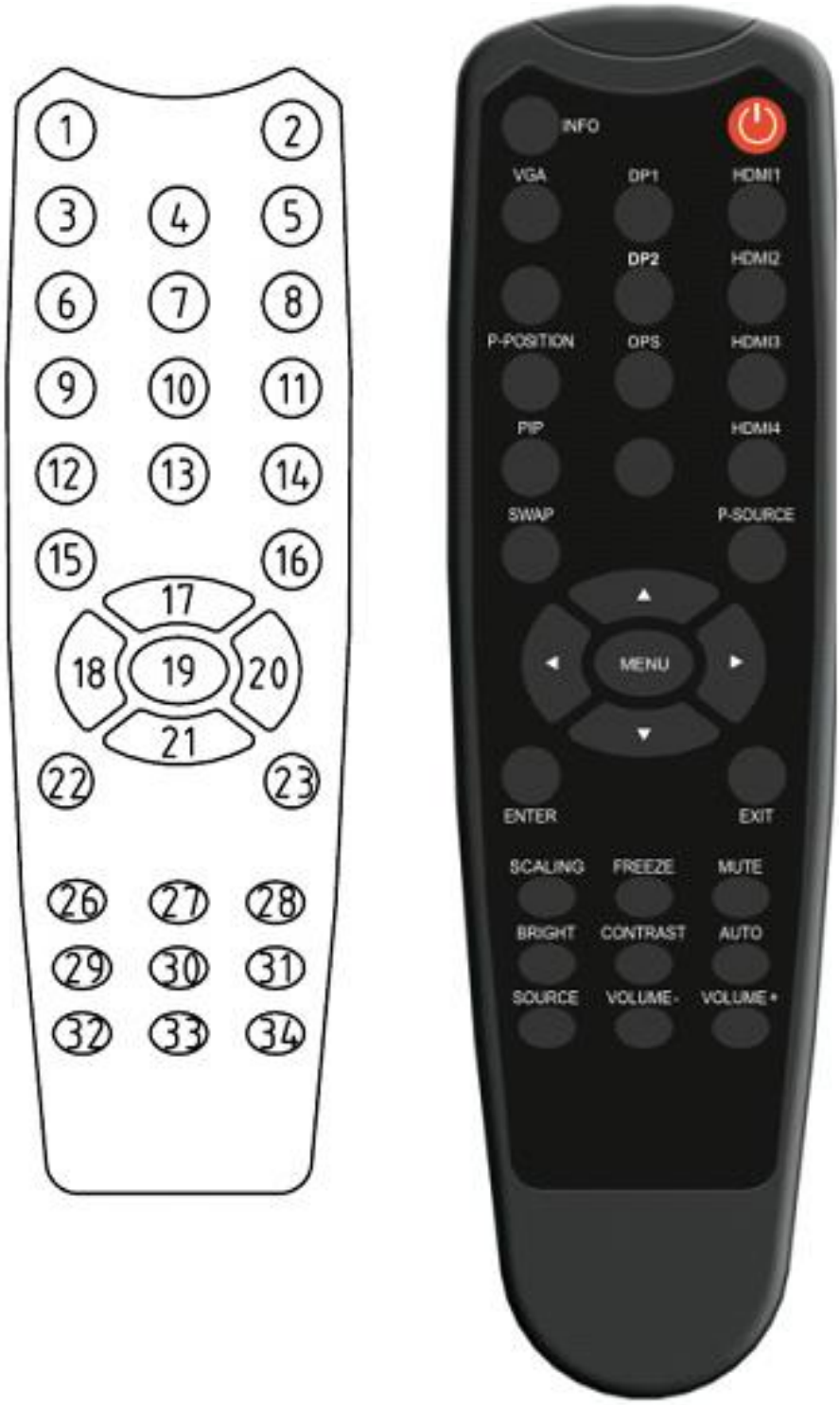
Caution: Improper ventilation may shorten the life of the display.

15. Using the Display in Flat or Tilted Orientation

The display is not recommended for use in flat orientation for tabletop, floor, or ceiling installations. LCD panels of this size are at risk of panel deflection, which can cause cosmetic sagging, brightness uniformity issues, a shortened life span, and malfunction of optional touch sensors. Installations where the display is tilted downward or upward at an angle may also be prone to these issues and are not recommended.

16. Using the Remote Control

Below is a picture of the remote control and its corresponding Hex codes. See the following page for button descriptions and Hex codes.



Num	Function	Customer Code	Hex Code	Description
1	INFO	40AF	04FB	Provides source and resolution information
2	⏻	40AF	1CE3	Turns the display on and off
3	VGA	40AF	07F8	Selects the VGA source
4	DP1	40AF	08F7	Selects the DP1 source
5	HDMI1	40AF	09F6	Selects the HDMI source 1
6				Not used
7	DP2	40AF	0BF4	Selects the DP2 source
8	HDMI2	40AF	0CF3	Selects the HDMI source 2
9	P-POSITION	40AF	1AE5	Selects the PiP (Picture-in-Picture) position
10	OPS	40AF	15EA	Selects the OPS source
11	HDMI3	40AF	10EF	Selects the HDMI source 3
12	PIP	40AF	11EE	Selects the Multi-Source View
13				Not used
14	HDMI4	40AF	16E9	Selects the HDMI source 4
15	SWAP	40AF	06F9	Swaps the main input source with source 2
16	P-SOURCE	40AF	13EC	Selects the PiP (Picture-in-Picture) source
17	▲	40AF	02FD	Navigates up through submenus and settings
18	◀	40AF	01FE	Navigates back through submenus and settings
19	MENU	40AF	0EF1	Opens the display's on-screen menu system. When the menu system is already open, pressing this button will select the previous submenu.
20	▶	40AF	03FC	Navigates forward through submenus and settings
21	▼	40AF	19E6	Navigates down through submenus and settings

Num	Function	Customer Code	Hex Code	Description
22	ENTER	40AF	12ED	Selects highlighted menu choices
23	EXIT	40AF	05FA	Closes the menu system
26	SCALING	40AF	14EB	Toggles between different aspect ratios (Auto, Native, 4 x 3, Full Screen and Letterbox)
27	FREEZE	40AF	43BC	Freezes the current source image
28	MUTE	40AF	00FF	Turns off the sound
29	BRIGHT	40AF	17E8	Adjusts the brightness
30	CONTRAST	40AF	18E7	Adjusts the contrast
31	AUTO	40AF	1EE1	Synchronizes the display to the source
32	SOURCE	40AF	0FF0	Allows selection of the different sources
33	VOLUME -	40AF	1BE4	Decreases the sound volume
34	VOLUME +	40AF	1DE2	Increases the sound volume
	ON	06F9	01FE	Turns the display on
	OFF	06F9	09F6	Turns the display off

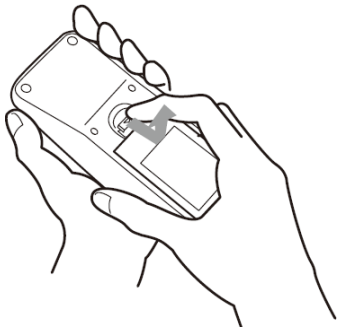
16.1 Locking/Unlocking the OSD Menus

You can lock or unlock the OSD menus by pressing a series of key commands on the remote control. To **lock** the menu, press the following keys on the remote in the order listed: ENTER, ENTER, EXIT, EXIT, ENTER and EXIT. To **unlock** it, simply follow the same sequence.

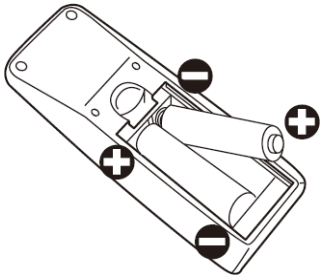
Depending on whether you locked or unlocked the menu, you will see one of the following messages on the screen.

16.2 Changing the Remote Control Battery

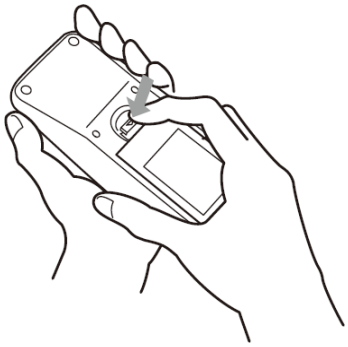
1 Remove the battery cover.
Slide back and remove the battery cover in the direction of the arrow.



2 Insert the batteries.
Align and insert two AAA batteries according to their plus and minus ports (as indicated in the remote control).



3 Close the battery cover.
Replace the battery cover in the direction of the arrow and snap it back into place.



16.3 Turning the Display On

1. Insert the power cord into the display and into the power outlet.
2. Ensure the AC switch is set to "—".
3. Press the power button on the remote or side control panel.

16.4 Turning the Display Off

With the power on, press the power button on the remote or side control panel to put the LCD panel in a standby mode. To turn off power completely, turn the AC switch to “O” or disconnect the AC power cord from the power outlet.

Note: If there is no signal for a certain period of time, the LCD panel will automatically go into standby mode.

16.5 Adjusting the Volume

1. Using the remote, press the VOLUME - or VOLUME + to increase or decrease the volume.
2. Press the MUTE button to temporarily turn off all sound. To restore the sound, press the MUTE button again.

Note: The analog audio out is variable. S/PDIF is fixed.

16.6 Selecting the Input Source

Do one of the following:

- Using the remote, press the desired source button (DP1, DP2, HDMI1, HDMI2, HDMI3, HDMI4, OPS, VGA).
- Press the source button on the display’s keypad. Use the arrow buttons (▲▼) to select one of the following input sources and press ENTER: DP1, DP2, HDMI1, HDMI2, HDMI3, HDMI4, OPS, VGA).

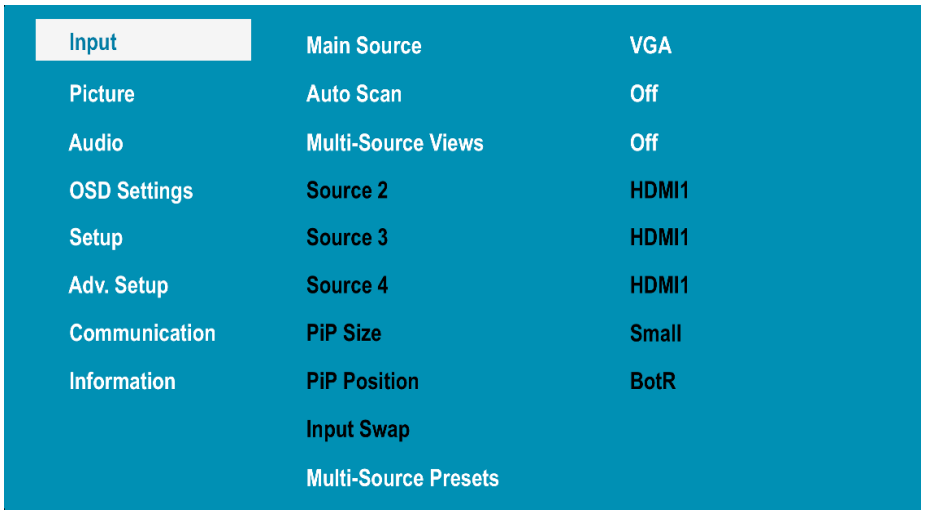
Note: When the display cannot find a source, a “No signal” message will appear.

16.7 Navigating Through the Menus

1. With the power on, press MENU. The INPUT menu appears.
2. Within the menu, use ▲, ▼, ◀, ▶, and ENTER to navigate through the menus and adjust options.
3. Press MENU to return to the previous menu. To exit the menu system, press EXIT.

17. Input Menu

This menu is used for selecting the input sources. Up to four sources can be displayed at the same time.



Main Source

- Select the Main Input source
- **Options:** DisplayPort1, DisplayPort2, HDMI1, HDMI2, HDMI3, HDMI4, VGA, OPS
- **Default:** VGA

Auto Scan

- Select whether the display will automatically scan for a Main Input source
- **Options:** On, Off, Multi, All
- **Default:** Off

Multi-Source Views

- Select the Multi-Source View mode
- **Options:** Off, PiP, Dual View, Quad View
- **Default:** Off

Source 2

- Select the second source
- **Options:** DP1, DP2, HDMI1, HDMI2, HDMI3, HDMI4, VGA, OPS
- **Note:** This function is only available when Multi-Source Views is set to PiP, Dual View or Quad View. If HDMI4 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI4 cannot be selected.

Source 3

- Select the third source
- **Options:** DP1, DP2, HDMI1, HDMI2, HDMI3, HDMI4, VGA, OPS
- **Note:** This function is only available when Multi-Source Views is set to Quad View. If HDMI4 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI4 cannot be selected.

Source 4

- Select the fourth source
- **Options:** DP1, DP2, HDMI1, HDMI2, HDMI3, HDMI4, VGA, OPS
- **Note:** This function is only available when Multi-Source Views is set to Quad View. If HDMI4 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI4 cannot be selected.

PIP Size

- Select the size of the PiP (Picture-in-Picture)
- **Options:** Small, Mid, Large
- **Note:** This function is only available when Multi-Source Views is set to PiP.

PIP Position

- Set the position of the PiP (Picture-in-Picture)
- **Options:** TopR (Top Right), TopL (Top Left), BotR (Bottom Right), BotL (Bottom Left)
- **Note:** This function is only available when Multi-Source Views is set to PiP.

Input Swap

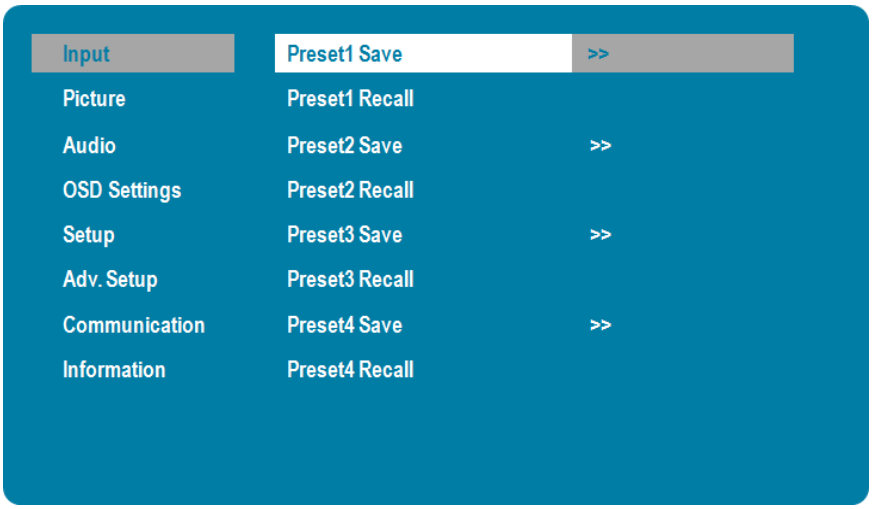
- Swap the Main Input source with Source 2
- **Note:** This function is only available when Multi-Source Views is set to PiP or Dual View.

Multi-Source Presets

- Save or Recall Multi-Source Preset1, Preset2, Preset3 or Preset4
- **Note:** See Multi-Source Presets Submenu on page 34 for more information.

17.1 Multi-Source Presets Submenu

Save and recall up to four configurations of single or multi-source layouts. Source selection and location are saved within each preset.



Saving Configurations

1. Set up the single or multi-source layout as desired.
2. Select PRESET1 SAVE, PRESET2 SAVE, PRESET3 SAVE, or PRESET4 SAVE to assign the configuration to one of the preset slots.

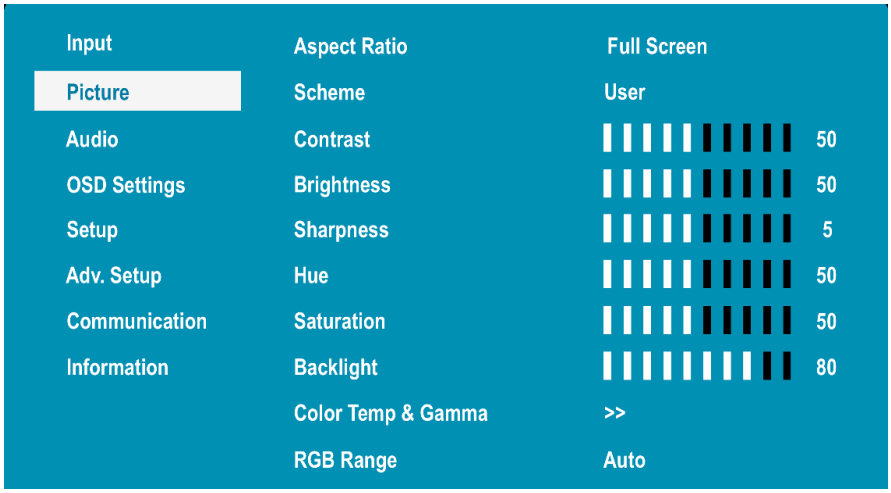
Recalling Stored Configurations

1. Select PRESET1 RECALL, PRESET2 RECALL, PRESET3 RECALL, or PRESET4 RECALL in the on screen menu to recall the desired saved configuration. Presets can be also be recalled from RS-232.

Note: Presets can be overridden but cannot be deleted.

18. Picture Menu

This menu is used for making common image adjustments.



Aspect Ratio

- Adjust the aspect ratio of the screen. The first selection is for the main source, and the second selection is for sources 2-4.
- **Options:** Full Screen, Letterbox, 4:3, Native
- **Default:** Full Screen

Scheme

- Press or to select one of the following:
- **Options:** User, Vivid, Cinema, Game, Sport
- **Default:** User

Contrast

- Increase or decrease the contrast of picture. Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50

Brightness

- Increase or decrease the brightness of picture. Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50

Sharpness

- Adjust the definition of picture. Press or to select the desired level.
- **Range:** 0~10
- **Default:** 5

Hue

- Increase or decrease the green hue. Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50
- **Note:** This function is not available when displaying PC or graphics sources

Saturation

- Adjust the brilliance and brightness. Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50
- **Note:** This function is not available when displaying PC or graphics sources

Backlight

- Increase or decrease the intensity of the LCD backlight. Press or to select the desired level.
- **Range:** 0~100
- **Default:** 80

Color Temp and Gamma

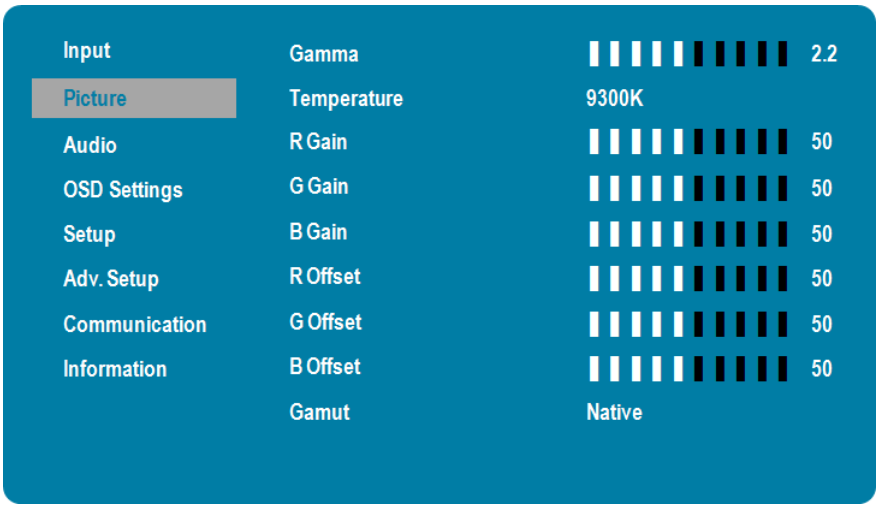
- Select gamma
- **Options:** Off, 1.85, 1.9, 1.95, 2.0, 2.05, 2.10, 2.15, 2.2, 2.25, 2.3, 2.35, 2.4, 2.45, 2.5, 2.55, 2.6
- **Default:** 2.2

- Select color temperature
- **Options:** User, 3200K, 5000K, 6500K, 7500K, 9300K
- **Default:** 9300K

RGB Range

- Select RGB range for HDMI and DisplayPort sources
- **Options:** Auto, Full, Limited
- **Default:** Auto

18.1 Picture Menu – RGB Adjust Submenu (Color Temp = User)



Gamma
- Select gamma
- **Options:** Off, 1.85, 1.9, 1.95, 2.0, 2.05, 2.10, 2.15, 2.2, 2.25, 2.3, 2.35, 2.4, 2.45, 2.5, 2.55, 2.6
- **Default:** 2.2

Temperature
- Select color temperature
- **Options:** User, 3200K, 5000K, 6500K, 7500K, 9300K
- **Default:** 9300K

R Gain
- Adjust the amount of red in bright content
- **Range:** 0~100
- **Default:** 50

G Gain
- Adjust the amount of green in bright content
- **Range:** 0~100
- **Default:** 50

B Gain
- Adjust the amount of blue in bright content
- **Range:** 0~100
- **Default:** 50

R Offset
- Adjust the amount of red in dark content
- **Range:** 0~100
- **Default:** 50

G Offset

- Adjust the amount of green in dark content
- **Range:** 0~100
- Default: 50

B Offset

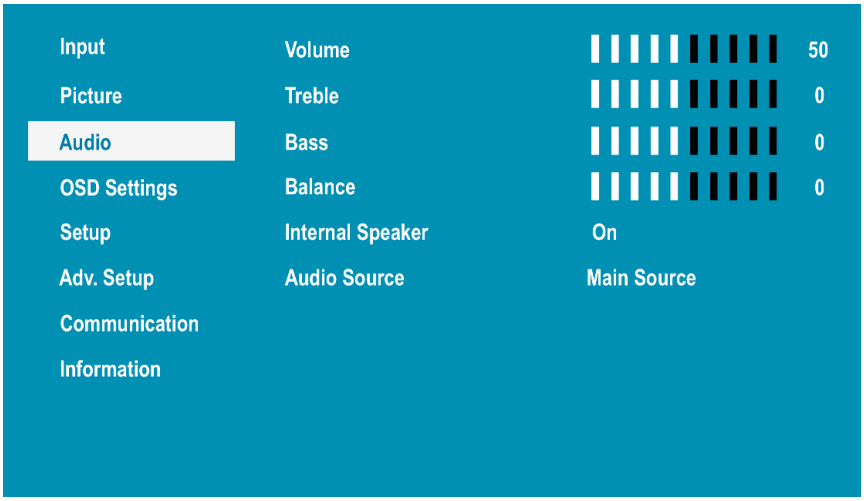
- Adjust the amount of blue in dark content
- **Range:** 0~100
- **Default:** 50

Gamut

- Select the range of colors shown on the display
- **Options:**
  - Native: Select the maximum range of colors
  - REC709: Select the color gamut used in HDTV content
  - SMPTE C: Select the color gamut used in SD content in the US
  - EBU: Select the color gamut used in SD content in Europe
- **Default:** Native

19. Audio Menu

This menu is used for adjusting audio settings.



Volume

- Adjust the sound. Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50

Treble

- Adjust the sound in high tones (treble). Press or to select the desired level.
- **Range:** -6~+6
- **Default:** 0

Bass

- Adjust the sound in low tones (bass). Press or to select the desired level.
- **Range:** -6~+6
- **Default:** 0

Balance

- Adjust the balance of the left and right speakers. Press or to select the desired level.
- **Range:** -6~+6
- **Default:** 0

Internal Speaker

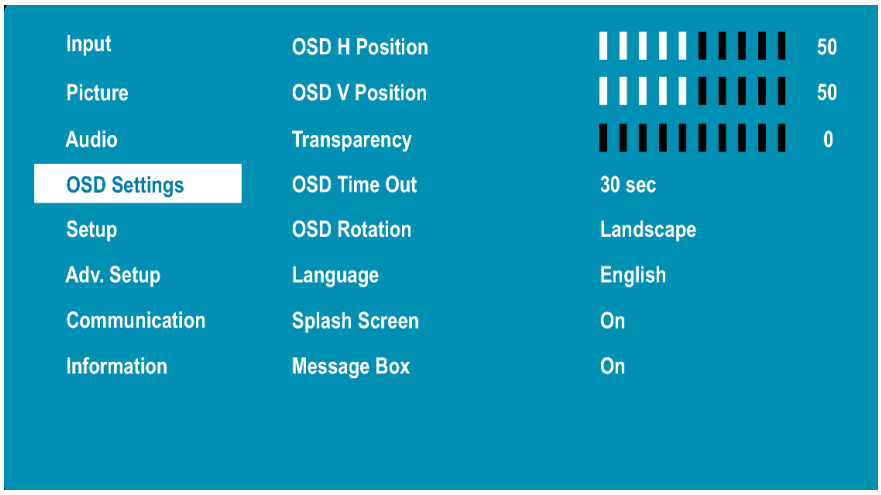
- Turn the internal speaker on or off
- **Default:** On

Audio Source

- Select the audio source that is played through the display's internal speakers, audio out and digital audio out.
- **Options:** Audio In, Main Input, Source 2, Source 3, Source 4
- **Default:** Main Source
- **Note:** Settings for Source 2, Source 3 and Source 4 will only be enabled when Multi-Source Views mode is set to On.

20. OSD Settings Menu

This menu is used to make initial setup adjustments to the OSD (On-Screen Display) menu and other on-screen messages.



OSD H Position

- Adjust the horizontal position of the OSD menu. Press or to select the desired level.
- Range: 0~100
- **Default:** 50

OSD V Position

- Adjust the vertical position of the OSD menu. Press or to select the desired level.
- Range: 0~100
- **Default:** 50

Transparency

- Submenu to adjust the transparency of the OSD menu. Press or to select the desired level.
- **Options:** 0~10
- **Default:** 0

OSD Time Out

- Submenu to adjust the time in seconds before the OSD menu disappears. Press or to select the desired level.
- **Options:** 5 sec, 10 sec, 20 sec, 30 sec, 60 sec
- **Default:** 30 sec

OSD Rotation

- Select the OSD Rotation. Press to select the rotation.
- **Options:** Landscape, Portrait
- **Default:** Landscape

Language

- Select the OSD language
- **Options:** English, French, German, Italian, Portuguese, Spanish, Chinese (Traditional), Chinese (Simplified), Japanese
- **Default:** English

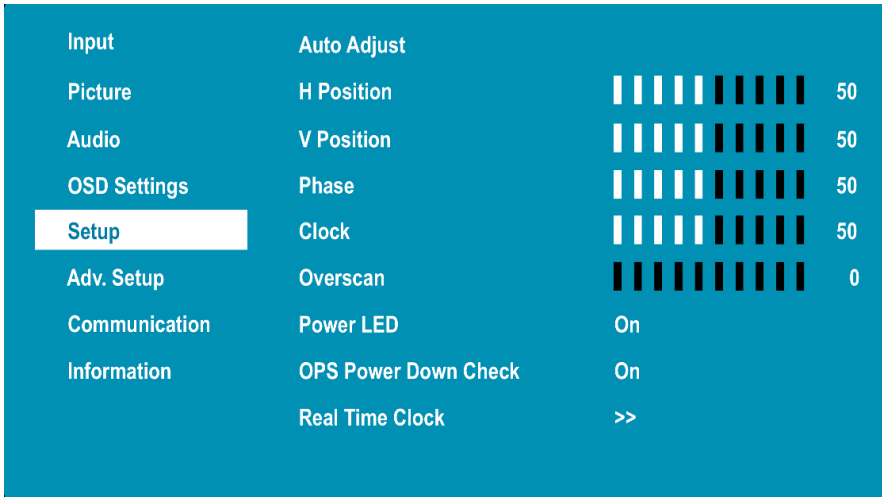
Splash Screen

- Select whether a splash screen appears when the monitor is powered up
- **Options:** On, Off
- **Default:** On

Message Box

- Select whether a message box is displayed on screen
- **Options:** On, Off
- **Default:** On

21. Setup Menu



Auto Adjust

- Force the display to reacquire and lock to the input signal (VGA source only). This is useful when the signal quality is marginal.
- **Note:** This feature does not continually reacquire the signal.
- **Options:** No, Yes
- **Default:** No

H Position

- Adjust the horizontal position of the image (VGA source only). Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50

V Position

- Adjust the vertical position of the image (VGA source only). Press or to select the desired level.
- **Range:** 0~100
- **Default:** 50

Phase

- Adjust the phase of the displayed signal (VGA source only). Press or to select the desired level.
- **Range:** 0~100

Clock

- Adjust the clock of the displayed signal (VGA source only). Press or to select the desired level.
- **Range:** 0~100

Overscan

- Adjust the zoom (overscan) of the image
- **Range:**0~10
- **Default:** 0

Power LED

- Enable or disable the status LED
- **Options:** On, Off
- **Default:** On

OPS Power Down Check

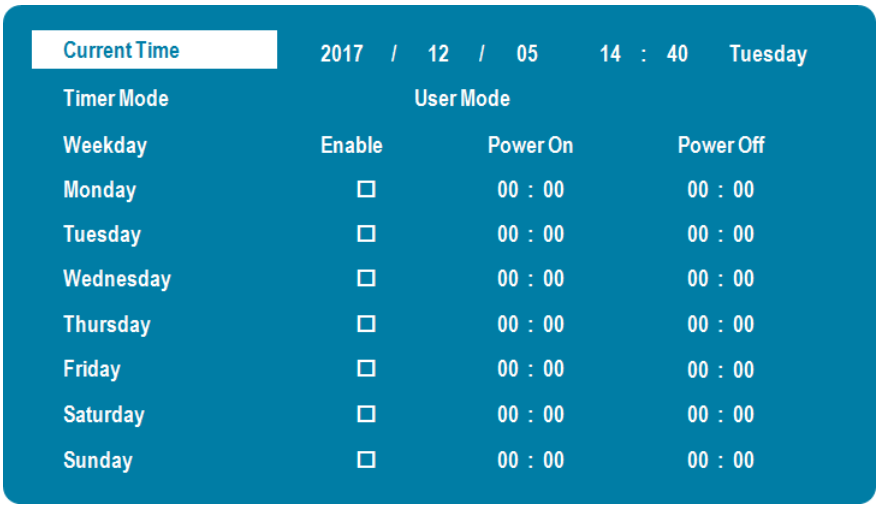
- Allow the display to skip waiting for the OPS module to power down when the display is powering down
- **Default:** On

Real Time Clock

- See details on next page

21.1 Real Time Clock Submenu

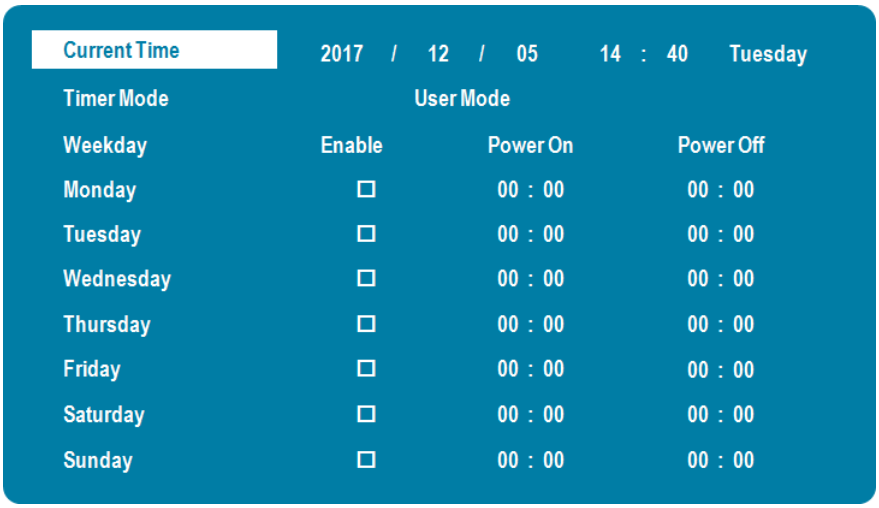
This menu is used to set the internal clock of the display, and to power on and power off the display at preset times if desired.



Current Time

- Set the year, month, day, and time of day
- **Options:** User Mode, Workday Mode, Everyday Mode

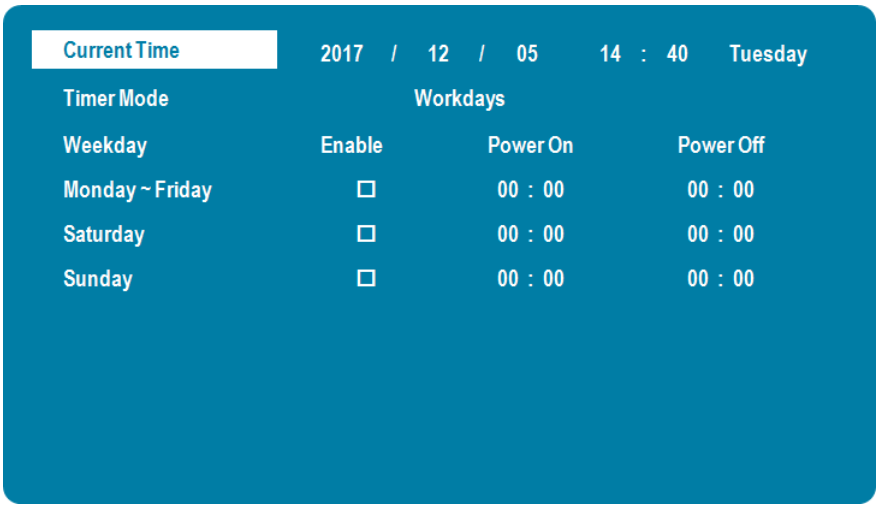
21.2 Real Time Clock – User Mode



User Mode

- Select the power on/off time for each day of the week
- **Options:** Disable, Enable
- Use the arrow keys to specify the on and off times.

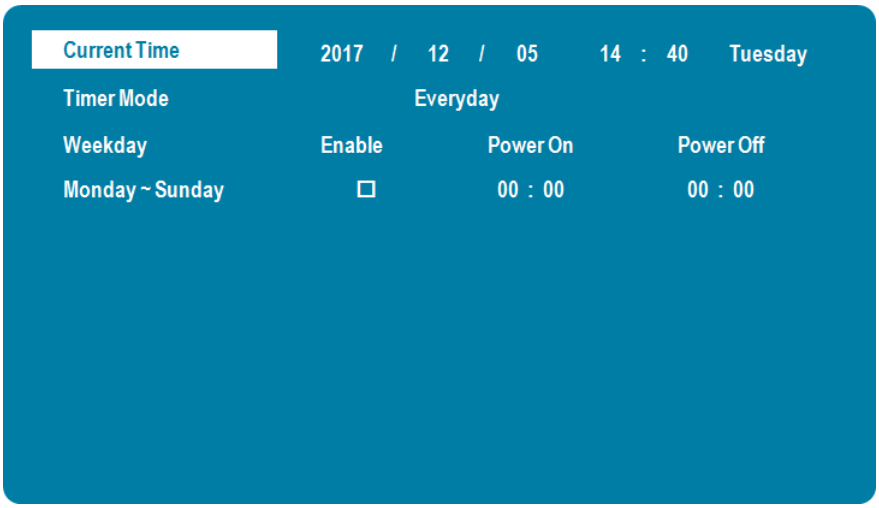
21.3 Real Time Clock – Workday Mode



Workday Mode

- Select the power on/off time for Monday–Friday, Saturday, and Sunday
- **Options:** Disable, Enable
- Use the arrow keys to specify the on and off times.

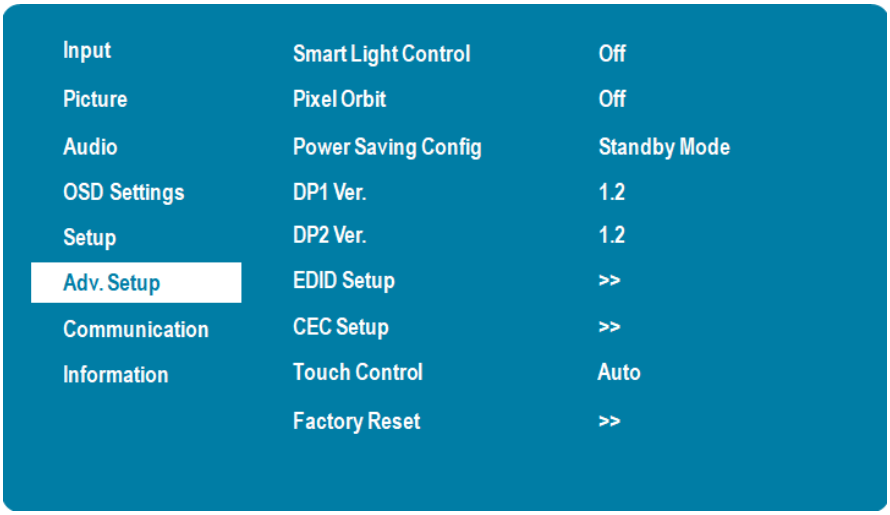
21.4 Real Time Clock – Everyday Mode



Everyday Mode

- Select the power on/off time for all days of the week
- **Options:** Disable, Enable
- Use the arrow keys to specify the on and off times.

22. Advanced Setup Menu



Smart Light Control

- Enable dynamic contrast (DCR) or ambient light sensor
- **Options:** Off, DCR, Light Sensor
- **Default:** Off

Pixel Orbit

- Create slight frame motion to help avoid image retention
- **Options:** On, Off
- **Default:** Off

MEMC

- Enable motion estimation motion compensation (frame interpolation). This improves smoothness for fast motion video content.
- **Options:** Off, Low, Medium, High
- **Default:** Off

Power Saving Config

- **Options:** Standby Mode, Networked Standby Mode, Wake on All, Always On
- **Default:** Standby Mode
- **Note:** For Standby Mode, Networked Standby Mode and Wake on All, the display will enter power saving mode if no signal is received for 5 minutes.
- **Note:** The LAN connection will not work in standby if Standby Mode is selected. Use one of the other modes to enable LAN support in standby.

DP1 Ver**.**

- Select the DisplayPort version of the DP1 input
- **Options:** 1.1, 1.2
- **Default:** 1.2
- **Note:** DisplayPort 1.2 is the more modern standard and supports 3840x2160 @ 60 Hz resolution. However, sometimes DisplayPort 1.1 is needed for compatibility with older graphics cards.

DP2 Ver.

- Select the DisplayPort version of the DP2 input
- **Options:** 1.1, 1.2
- **Default:** 1.2
- **Note:** DisplayPort 1.2 is the more modern standard and supports 3840x2160 @ 60 Hz resolution. However, sometimes DisplayPort 1.1 is needed for compatibility with older graphics cards.

EDID Setup

- Select EDID (Extended Display Identification Data) of the HDMI and DisplayPort inputs
- **Options:**
  - HDMI 1, HDMI2: 1080p, 4K2K 30Hz;
  - DP1, DP2, HDMI 3, HDMI 4 and OPS: 1080p, 4K2K 30Hz, 4K2K 60Hz.
- **Default:**
  - HDMI 1, HDMI2: 4K2K 30Hz;
  - Other inputs: 4K2K 60Hz.
- **Note:** Use the 1080p setting for the broadest support of lower resolution sources. Use the 4K2K setting to support high resolution sources such as 3840x2160.

Touch Control

- Select whether the touchscreen controls the internal OPS PC, or controls an external PC via the Touch USB connector
- **Options:** Auto, OPS, External
- **Default:** Auto

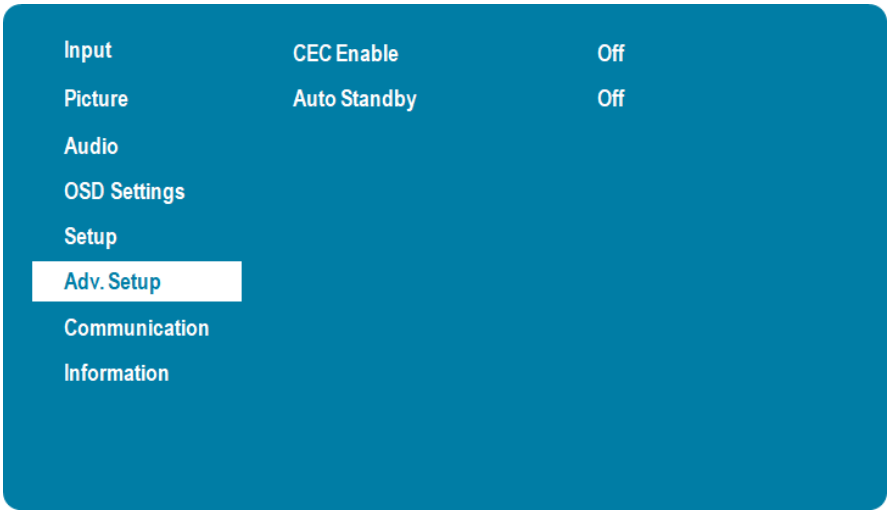
Factory Reset

- Restore all settings to their default
- **Options:** No, Yes
- **Default:** No

22.1 CEC Setup Submenu

This menu is used to enable HDMI CEC support on the display.

Note: CEC is supported only on -02 and later versions of the Planar EP Series.



The CEC commands listed in the table below are implemented:

Command	Value
Image View On	0x04
Text View On	0x0D
Standby	0x36
User Control Pressed	0x44
Routing Change	0x80
Active Source	0x82
Give Physical Address	0x83
Report Physical Address	0x84
Request Active Source	0x85
Set Stream Path	0x86
Give Device Power Status	0x8F
Report Power Status	0x90
Inactive Source	0x9D
CEC Version	0x9E
Get CEC Version	0x9F

Command	Value
Give Features	0xA5
Report Features	0xA6

CEC Enable

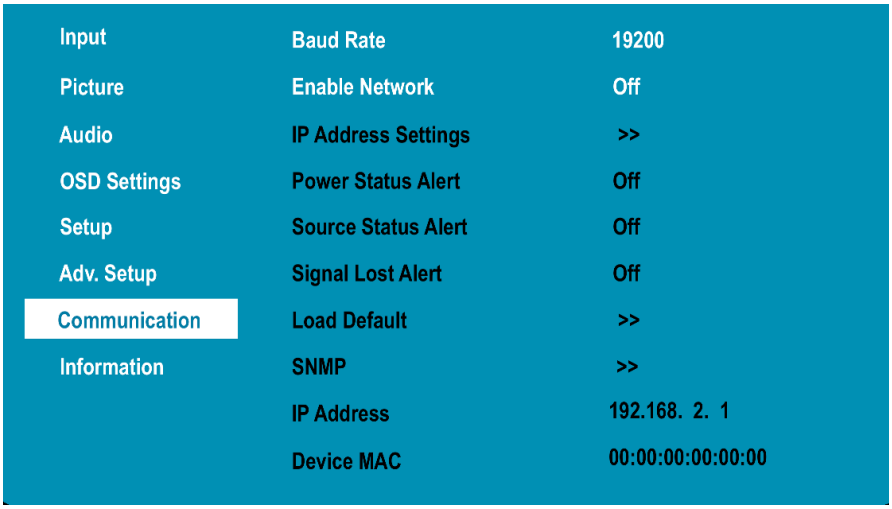
- Enable the HDMI CEC functionality
- **Options:** Off, On
- **Default:** Off

Auto Standby

- When the display is powered down, tells other CEC devices to enter standby as well
- **Options:** Off, On
- **Default:** Off

23. Communication Menu

This menu configures the display's RS-232 and Ethernet communication ports.



Baudrate

- Select the baud rate of the display's RS-232 port
- **Options:** 115200, 38400, 19200, 9600
- **Default:** 19200

Enable Network

- Enable the display's built-in Ethernet port
- **Options:** On, Off
- **Default:** Off

IP Address Settings

- Enable Dynamic IP mode or set the static IP address of the display's Ethernet port

Power Status Alert

- Enable an automatic alert when the display is powered down
- **Options:** On, Off
- **Default:** Off

Source Status Alert

- Enable an automatic alert when the source is changed
- **Options:** On, Off
- **Default:** Off

Signal Lost Alert

- Enable an automatic alert when the video signal is lost
- **Options:** On, Off
- **Default:** Off

Load Default

- Load default communication settings
- **Options:** No, Yes
- **Default:** No

SNMP

- Configure the Simple Network Management Protocol (SNMP) settings

IP Address

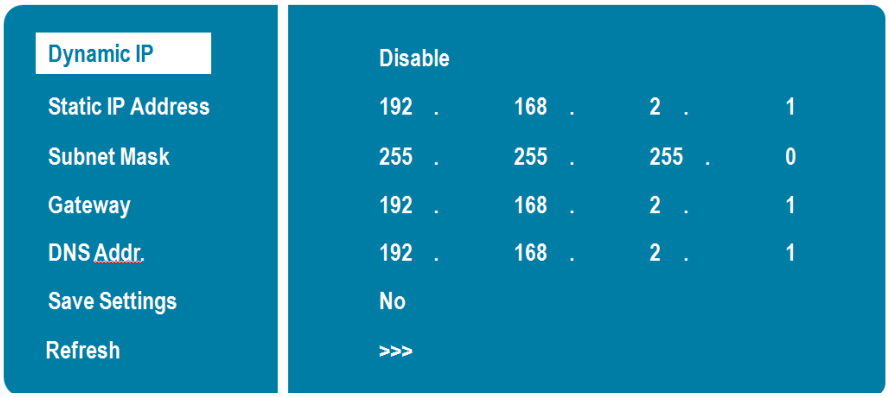
- Show the IP address of the display

Device MAC

- Show the MAC address of the display

Assigning an IP Address to the Display

To assign an IP address to your display, access the IP Address Settings Menu in the **Communication** menu. Consult your system administrator if you do not know how to configure the parameters shown in the menu.

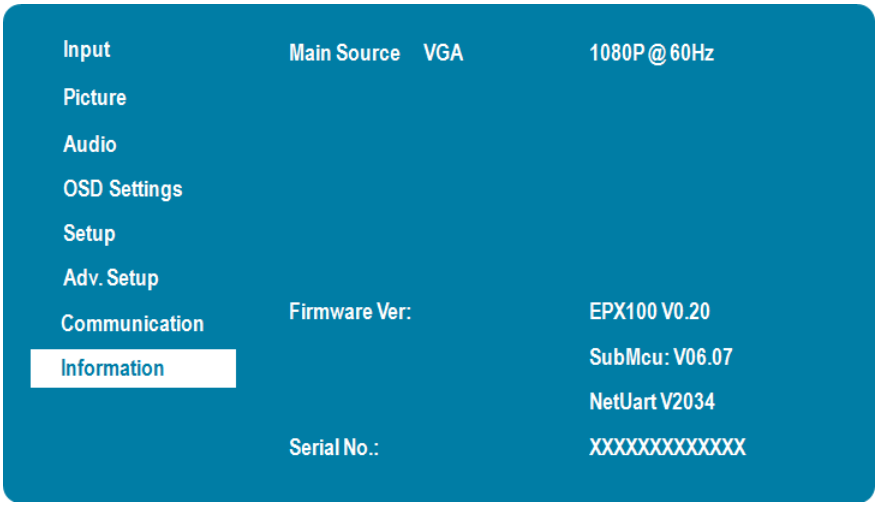


The default settings are shown below.

Item	Setting
Dynamic IP	Disable
Static IP Address	192.168.2.1
Subnet Mask	255.255.255.0
Gateway	192.168.2.1
DNS Addr.	192.168.2.1
Save Settings	No
Refresh	-

24. Information Menu

This read-only menu provides information on the active sources and the latest firmware version.



25. Using the Touch Screen

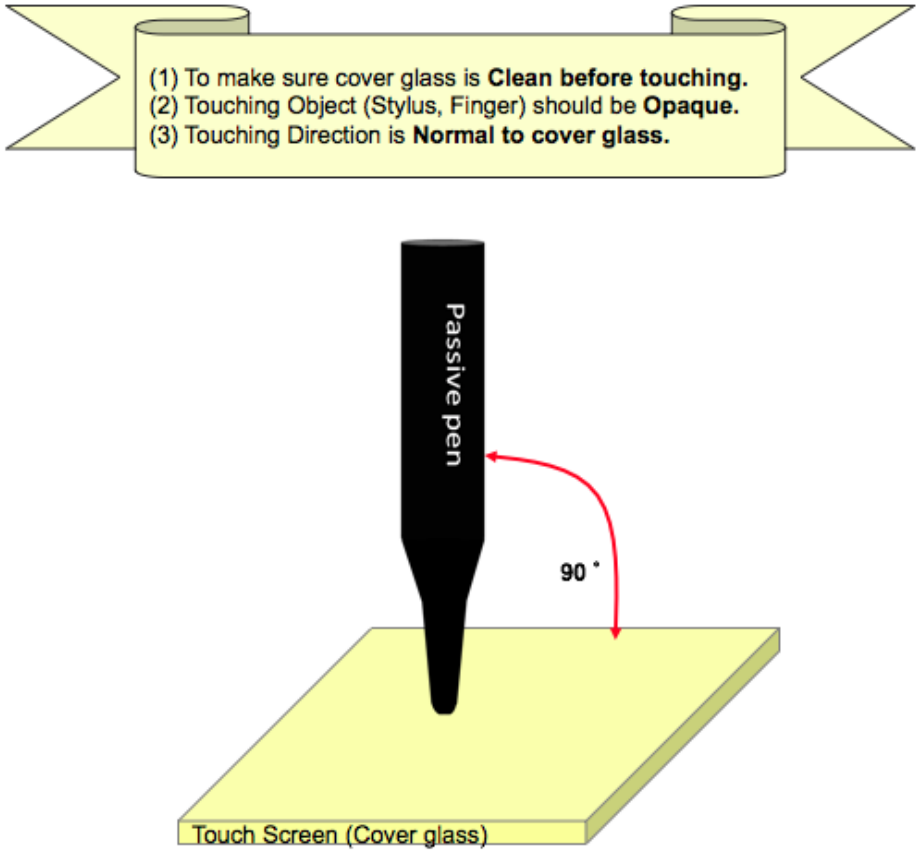
You can use the touch screen to control your Windows, Mac or Linux operating system. The Planar EP Series is HID compliant, delivering up to 20 points of touch on both Windows and Linux without a driver. Single touch only is supported for Mac operating systems. To achieve more than single touch Mac support, drivers will need to be installed, which can be found on http://www.planar.com/support/.

The EPX100-T can support a fine tip stylus containing a tip width of at least 2 mm and a tip length of at least 10 mm.

Note: Ensure that you have installed the USB cable on the display to a computer.

Note: If an OPS PC is installed in the OPS slot, the OPS PC will automatically be connected internally to the touch system. The touch functionality is configurable via the Touch Control settings.

Note: When using the passive stylus on the touch screen, make sure to follow the instructions shown in the picture below:



LAN Control

The Planar EP Series supports extending access to the RS232 commands over a network connection using a virtual COM port (VCOM). The VCOM driver can be found on http://www.planar.com/support.

Note: RS232 commands over LAN can be achieved by opening a TCP connection to Port 23 to the display. The LAN control functionality is most frequently used by control systems, and they won't be able to use the VCOM drivers

26. Supported Operating Systems

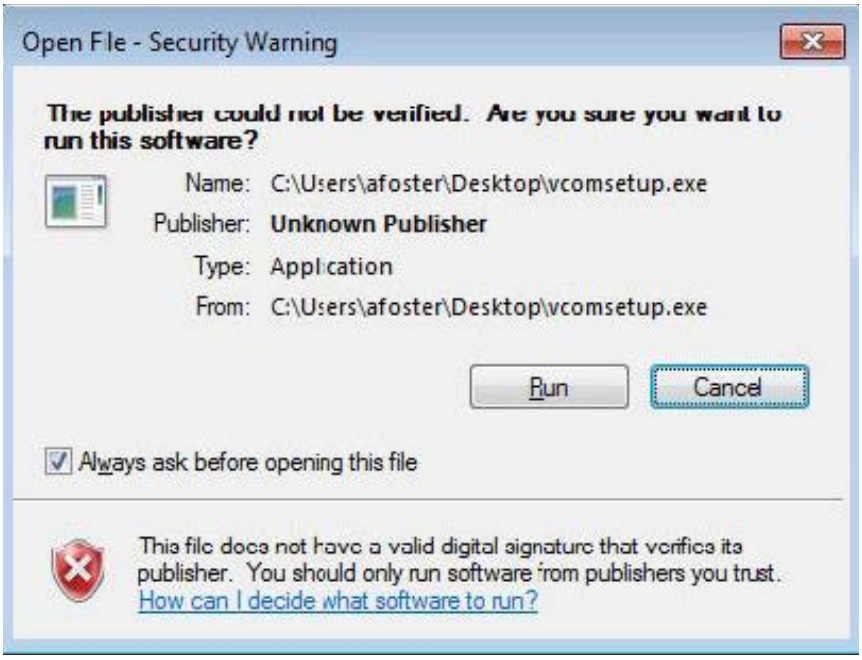
The utility supports the following operating systems:

- Windows 7
- Windows 8 and 8.1
- Windows 10

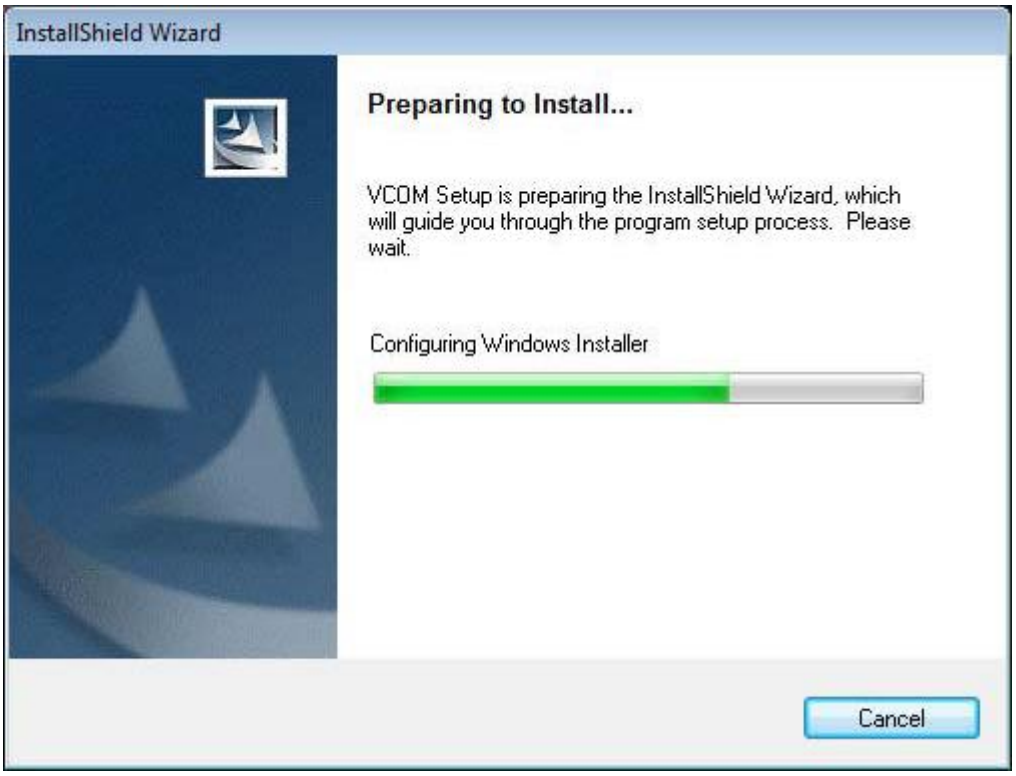
27. Installation

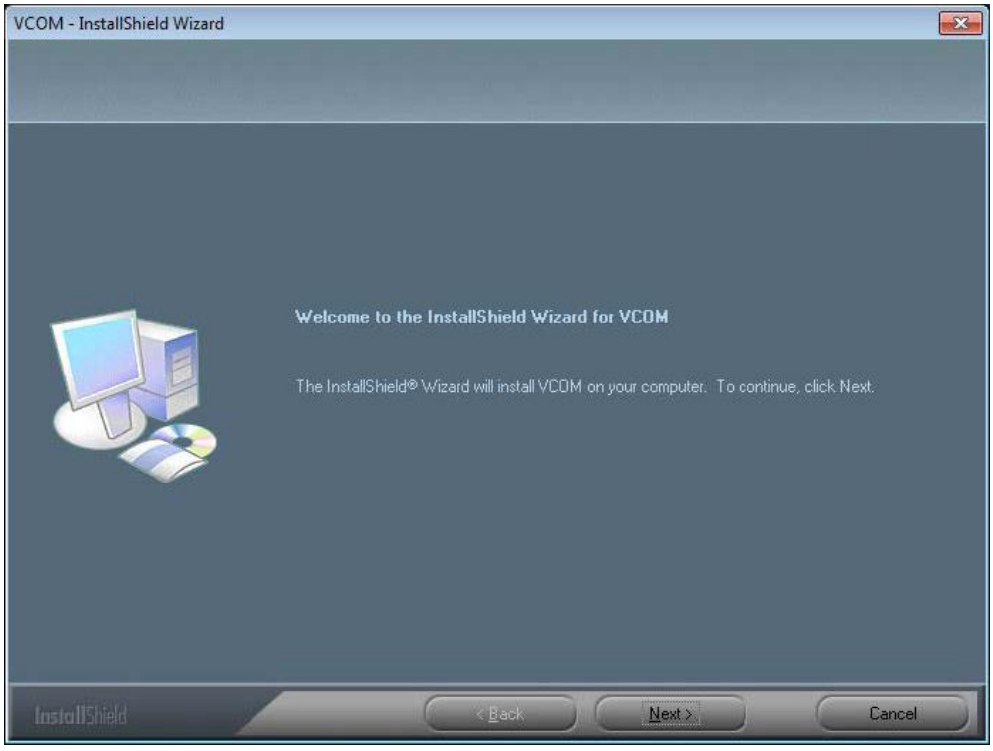
Use the following instructions to install the VCOM driver.

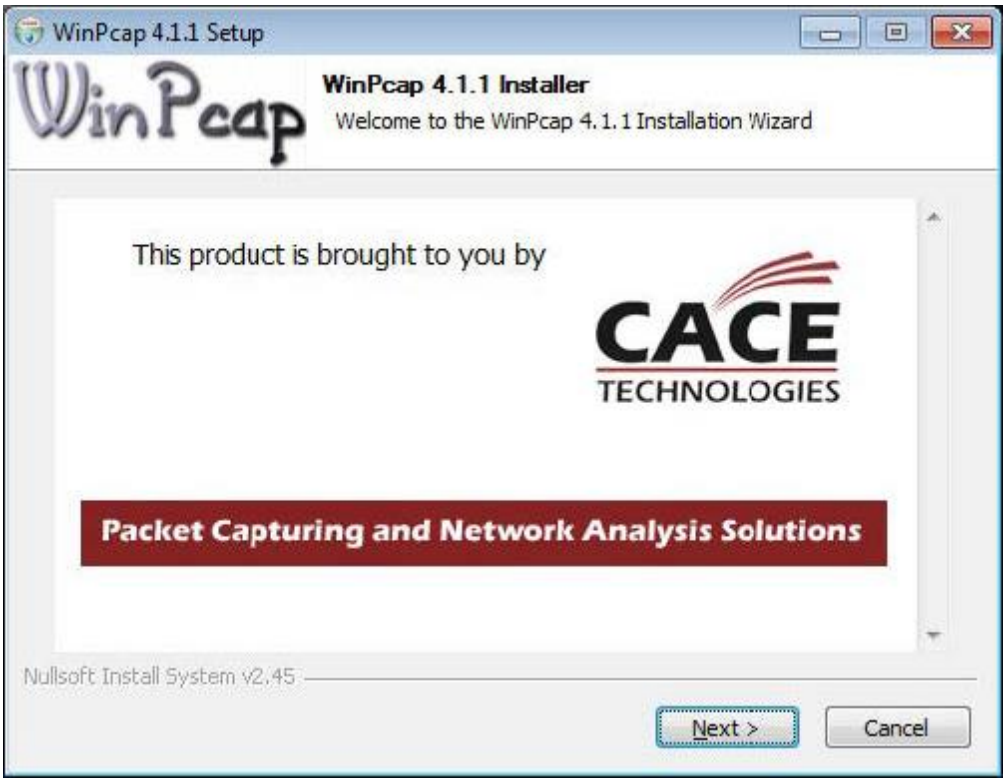
1. Launch the vcomsetup.exe file.
2. You may see a security warning similar to the following example. Click Run to continue.



3. The vcomsetup.exe installer installs both the VCOM virtual serial port and also a utility (WinPcap) for finding your displays on the network. Follow the steps in the two installers, accepting defaults and license agreements as needed.



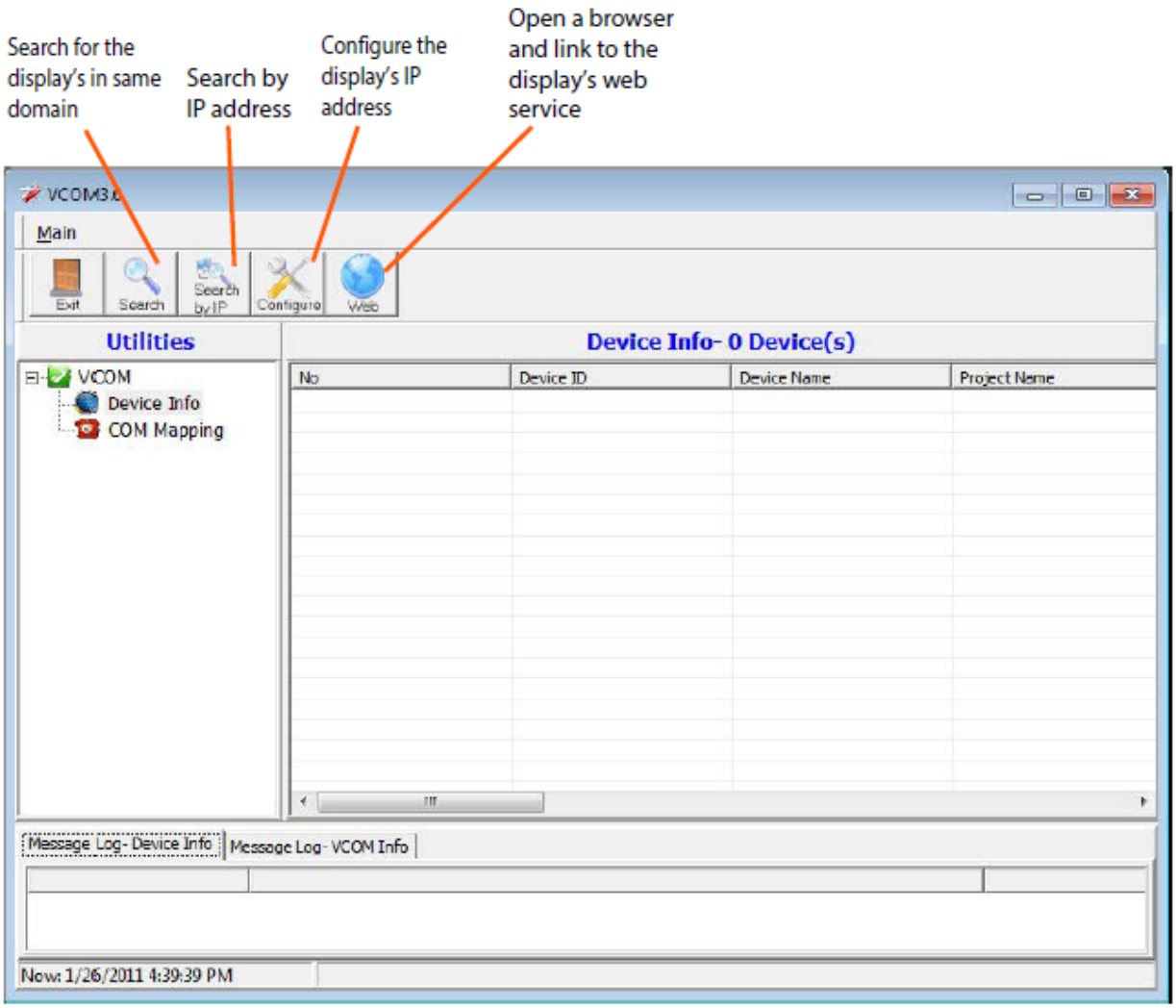




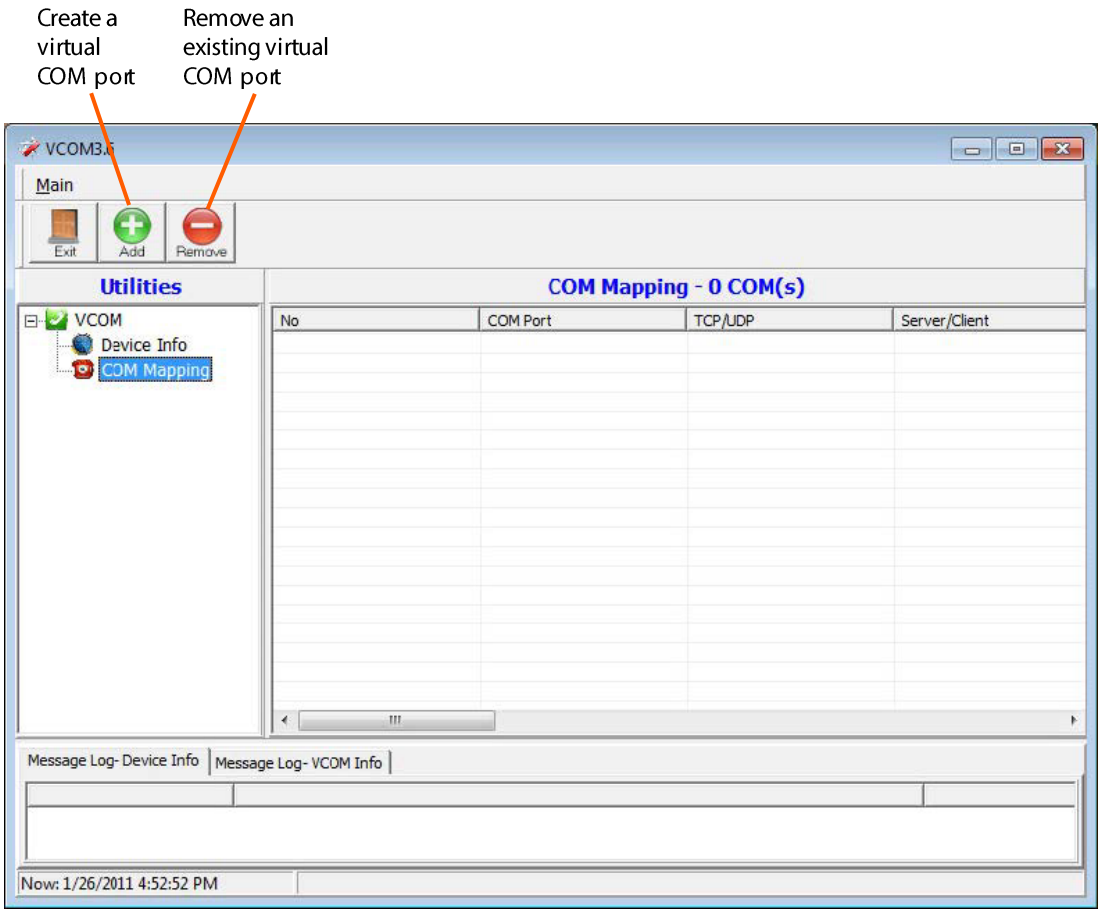
4. When the installers are finished, you will see a VCOM icon on your desktop and you find two new folders in your start menu: IC Plus corp (with VCOM sub folder) and WinPcap. If you need to uninstall the software, there are shortcuts to uninstall from these menus.

28. Configuring VCOM

Use the VCOM shortcut to launch the VCOM setup utility. The utility starts up on the Device Info page, shown below. The controls on this page allow you to find and configure each display that you want to access via virtual COM ports.



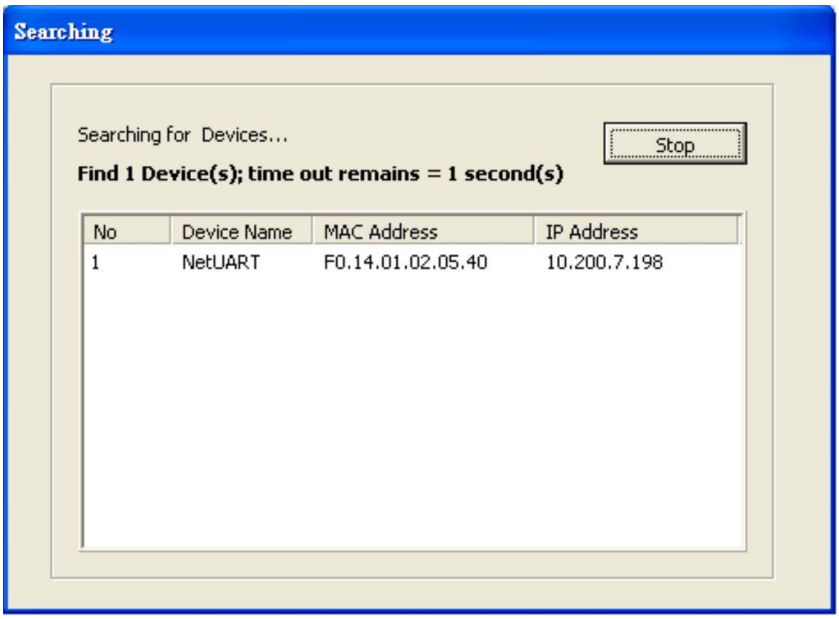
Click on COM Mapping to display the COM Mapping page, shown below. The controls on this page allow you to make virtual COM ports and select the display to which you want to map each virtual COM port.



29. Function Descriptions

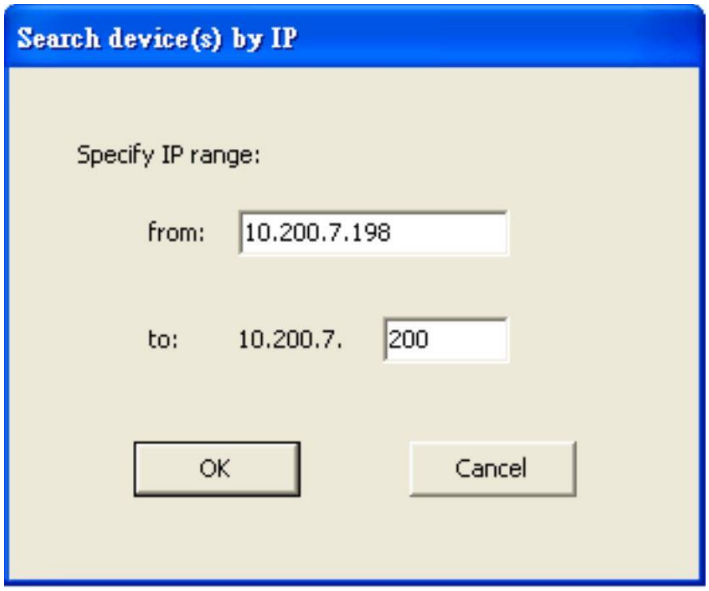
29.1 Search

In the Device Info page, click the Search icon. This function searches for any devices that are connected to the same network segment (maximum of 254 devices) as your PC. Any devices found will be listed in the Device Info table.



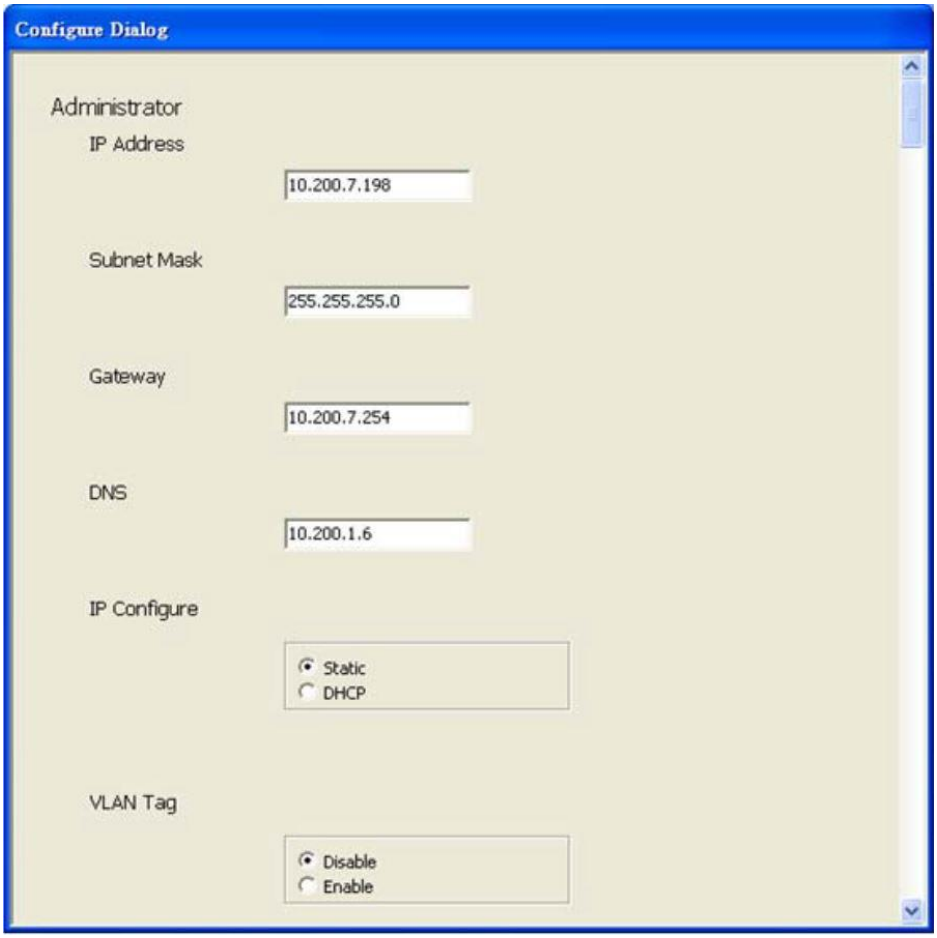
29.2 Search By IP

On the Device Info page, click the Search by IP icon. This function searches for any devices in the given IP address range. Any devices found will be listed in the Device Info table.



29.3 Configure IP Address

This function allows you to configure the network settings of the selected device. We recommend using the on-screen menus or the web interface described in the User Guide instead of this function.



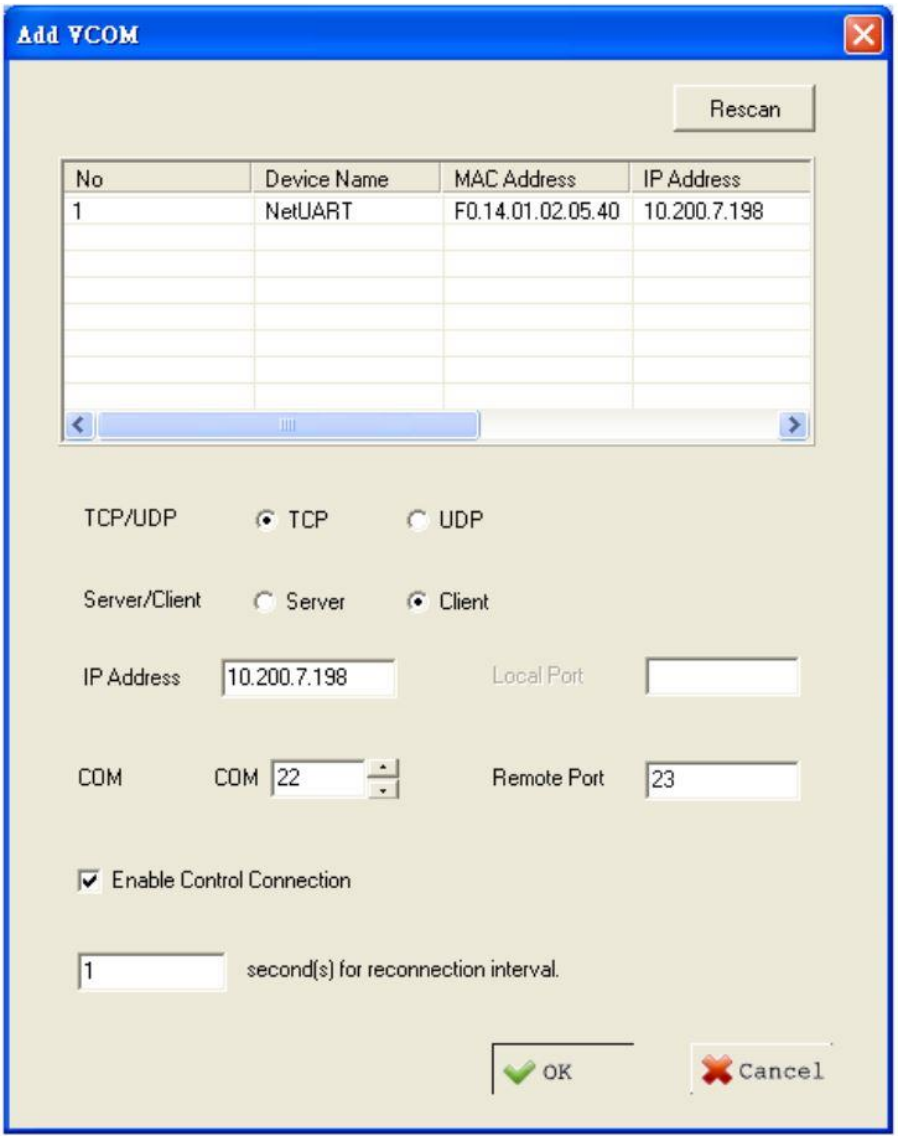
Note: To cancel this function, scroll to the bottom and click the Cancel button.

29.4 Web

Click the Web icon to launch your default browser and link it to the display's web service.

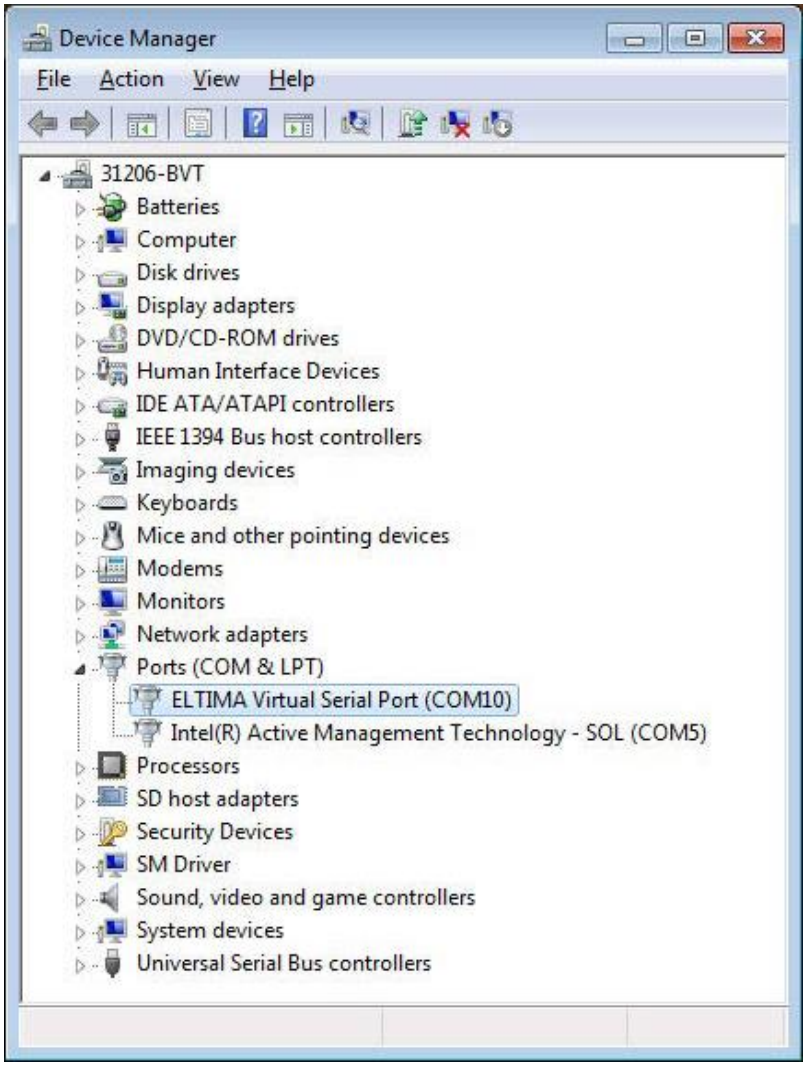
29.5 Adding a Virtual COM Port

To add a virtual COM port, click the Add icon on the COM Mapping page to open the following dialog window.



Select the display you want to control from the table and accept defaults, as shown. Make a note of the COM number assigned to the new VCOM port. Click OK to create the new port. The new port appears in the COM Mapping table.

You can view details for the virtual COM port device using Device Manager, shown below.



29.6 Removing a COM Port

On the COM Mapping page, select the COM port you want to delete and click the REMOVE button.

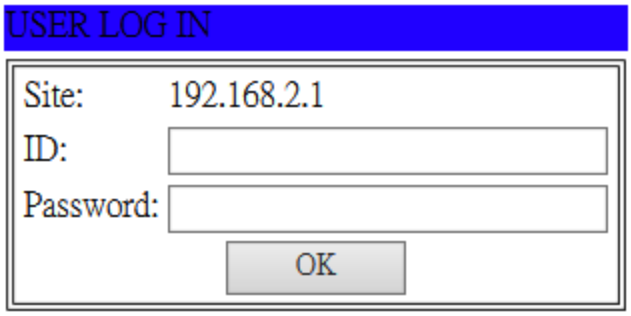
Setting Up Email Alerts

The web service allows you to configure the settings required to send email alerts. If you are not using email alerts, you do not need to use the web service and can skip this section.

Note: Depending on the unit's hardware configuration, the web server may look different than the pictures shown in the following sections. However, the functionality is identical.

30. Login

When you direct your browser to the network IP address of the display, you are prompted to login as shown here.



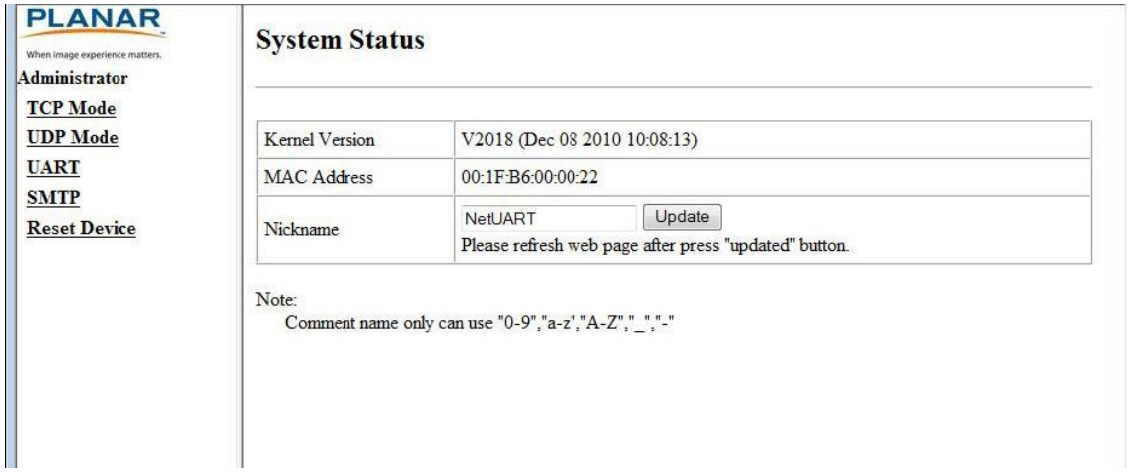
The default ID is **admin**. The default password depends on the firmware version of your display. The Information menu (see section 24 on page 56) lists all of the display's firmware versions.

- If the NetUart version is v2040 or later, the default password is the display's serial number. This can also be obtained from the Information menu.
- If the NetUart version is v2039 or earlier, the default password is **system**.

Note: Cookies and JavaScript must be enabled in your browser.

Note: If your session times out or if you enter an incorrect ID or password, you will see the following message.

When you first login, you will see the System Status page, as shown here.

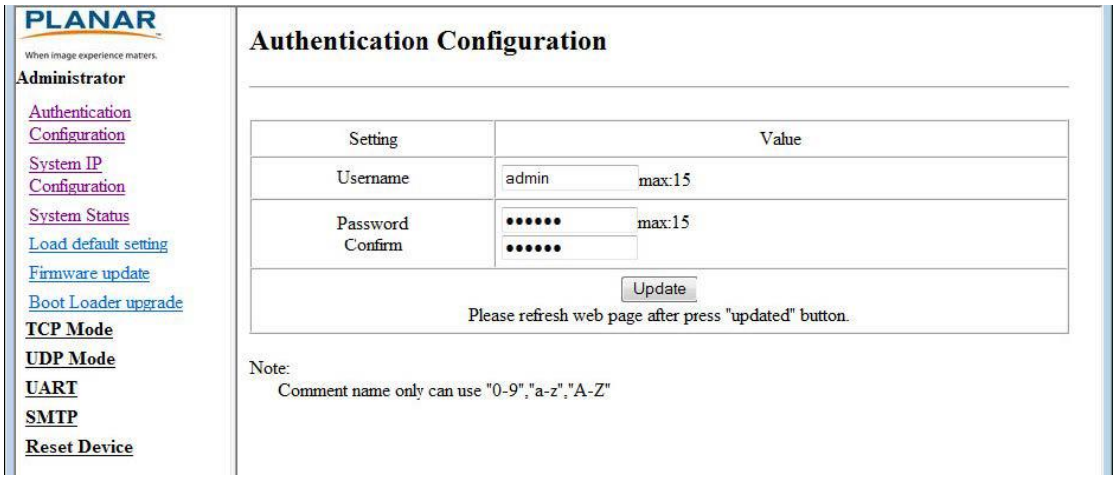


31. Administrator

Click on the word Administrator under the Planar logo to show/hide these menu items.

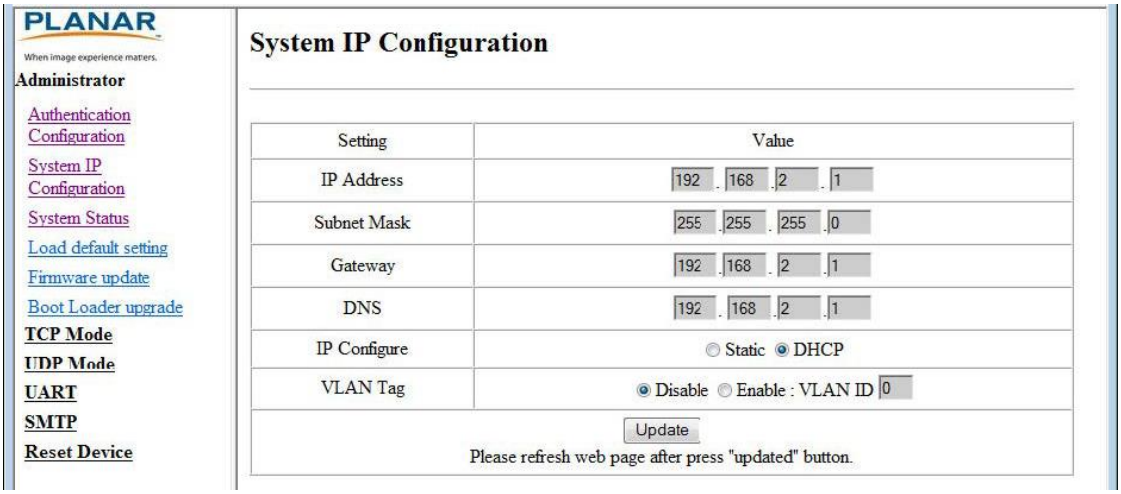
31.1 Authentication Configuration

Set user ID and password for login to the web service.



31.2 System IP Configuration

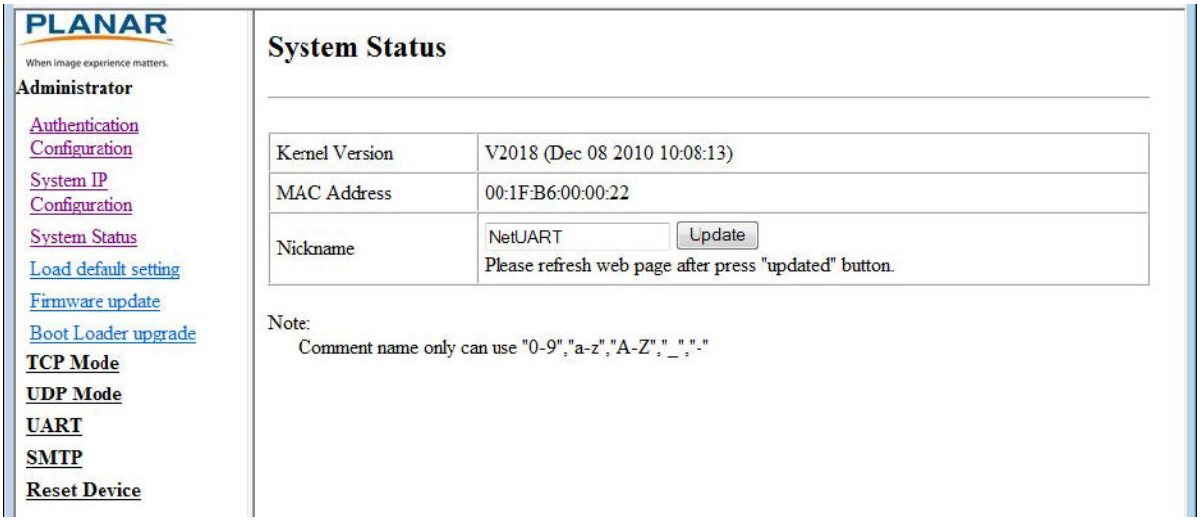
You can view and/or change the network settings here. However, for best results, we recommend that you use the on-screen display menus.



If your network requires a VLAN tag, your network administrator will give you a number from 1 to 4094 to enter here.

31.3 System Status

- Kernel version - Shows the firmware version for the network interface.
- MAC Address - Shows the unique address assigned to the network interface.
- Nickname - Enter a device tag, up to 12 characters. This tag will appear in email alerts, which help you identify the source of the alert.



31.4 Load Default Setting

1. Click the LOAD button to return the network interface to default settings.

2. After a few seconds, you will see a green box with the message “Setting Saved RESET.” Click the RESET button to restart the network interface.

3. Make sure the IP address in your browser is correct and then click OK.

4. When the process is complete, you should see the login page again.

31.5 Firmware Update and Boot Loader Upgrade

In most cases, you will not need to update firmware for the network interface. If you do, contact Planar's Technical Support Department. See Accessing Planar's Technical Support Website on page 88 for more information.

WARNING! Do not use the controls in these two sections unless you have received a specific procedure and firmware from Planar. Following improper procedures can disable the network interface and require factory repair service

32. TCP Mode, UDP Mode and UART

For normal operation, you will not need to change any settings on these pages. If you do need to change information, Planar's Technical Support Department will provide you with more information.

33. SMTP

Enable SMTP	☐ Enable, Port: 25
SMTP server address	smtp.xxx.yyy
SMTP Login Information	☐ Enable Username: username, Password: ••••••••
Mail to	xxx@yyy.zzz max: 200
Mail from	xxx@yyy.zzz

Your network administrator must provide information for the following fields:

- Enable SMTP - Make sure this checkbox is checked. Port 25 is the default.
- SMTP Server Address - Name or IP address of the mail server.
- SMTP Login Information - If required, check the ENABLE box and enter a username and password.
- Mail to - Enter the destination email addresses. Separate multiple addresses with a semi-colon.

Mail from - Enter the email address from which you want to send alerts.

SMTP 01 Warning	
Subject	Power Status Change Alert
Message Body	SMTP 01 bcdy max: 100

SMTP 02 Warning	
Subject	Source Change Alert
Message Body	SMTP 02 bcdy max: 100

SMTP 03 Warning	
Subject	Signal Lost Alert
Message Body	SMTP 03 bcdy max: 100

You can edit the subject and body of the email warnings, which are sent when there is a power status change, source change and signal lost. The SMTP 04 and 05 warnings are not used.

34. Reset Device

Click the RESET button to reboot the network interface. **Note** that the current settings are not changed.

Signal Compatibility

Compatible Video Sources									
Signal Type	**Resolution**	**Frame Rate (Hz)**	**Line Rate (kHz)**	**Pixel Rate (MHz)**	**HDMI 3-4 & OPS**	**HDMI 1-2**	**DP1-2**	**VGA**	**References**
PC	640x480	59.940	31.469	25.175	x	x	x	x	VESA DMT, CEA-861-F Format 1
	640x480	72.809	37.861	31.500	x	x	x	x	VESA DMT
	640x480	75.000	37.500	31.500	x	x	x	x	VESA DMT
	640x480	85.008	43.269	36.000	x	x	x	x	VESA DMT
	800x600	60.317	37.879	40.000	x	x	x	x	VESA DMT
	800x600	72.188	48.077	50.000	x	x	x	x	VESA DMT
	800x600	75.000	46.875	49.500	x	x	x	x	VESA DMT
	800x600	85.061	53.674	56.250	x	x	x	x	VESA DMT
	848x480	59.659	29.830	31.500	x	x	x	x	VESA CVT
	848x480	74.769	37.684	41.000	x	x	x	x	VESA CVT
	848x480	84.751	42.969	46.750	x	x	x	x	VESA CVT
	1024x768	60.004	48.363	65.000	x	x	x	x	VESA DMT
	1024x768	70.069	56.476	75.000	x	x	x	x	VESA DMT
	1024x768	75.029	60.023	78.750	x	x	x	x	VESA DMT
	1024x768	84.997	68.677	94.500	x	x	x	x	VESA DMT
	1152x864	70.012	63.851	94.500	x	x	x	x	VESA DMT
	1152x864	75.000	67.500	108.000	x	x	x	x	VESA DMT
	1152x864	84.999	77.094	121.500	x	x	x	x	VESA DMT
	1280x768	49.929	39.593	65.250	x	x	x	x	VESA CVT
	1280x768	59.995	47.396	68.250	x	x	x	x	VESA CVT-R
	1280x768	59.870	47.776	79.500	x	x	x	x	VESA CVT
	1280x768	74.893	60.289	102.250	x	x	x	x	VESA CVT
	1280x768	84.837	68.633	117.500	x	x	x	x	VESA CVT
	1280x960	60.000	60.000	108.000	x	x	x	x	VESA DMT
	1280x960	75	75.000	126.000	x	x	x	x	VESA DMT
	1280x960	85.002	85.938	148.500	x	x	x	x	VESA DMT
	1280x1024	60.020	63.981	108.000	x	x	x	x	VESA DMT
	1280x1024	75.025	79.976	135.000	x	x	x	x	VESA DMT
	1280x1024	85.024	91.146	157.500	x	x	x	x	VESA DMT
	1366x768	59.790	47.712	85.500	x	x	x	x	VESA DMT

Compatible Video Sources									
Signal Type	**Resolution**	**Frame rate (Hz)**	**Line Rate (kHz)**	**Pixel Rate (MHz)**	**HDMI 3-4 & OPS**	**HDMI 1-2**	**DP1-2**	**VGA**	**References**
PC	1400x1050	49.965	54.113	100.000	x	x	x	x	VESA CVT
	1400x1050	59.948	64.744	101.000	x	x	x	x	VESA CVT-R
	1400x1050	59.978	65.317	121.750	x	x	x	x	VESA CVT
	1400x1050	74.867	82.278	156.000	x	x	x	x	VESA CVT
	1600x1200	60.000	75.000	162.000	x	x	x	x	VESA DMT
	1920x1080	49.929	55.621	141.500	x	x	x	x	VESA CVT
	1920x1080	59.963	67.158	173.000	x	x	x	x	VESA CVT
	1920x1080	59.950	66.587	138.500	x	x	x	x	VESA CVT-R
	1920x1200	49.932	61.816	158.250	x	x	x	x	VESA CVT
	1920x1200	59.950	74.038	154.000	x	x	x	x	VESA CVT-R
	1680x1050	49.974	54.121	119.500	x	x	x	x	VESA CVT
	1680x1050	59.954	65.290	146.250	x	x	x	x	VESA CVT
	1920x2160	60.000	135.000	297.000	x	x	x		CEA-861-F, VIC 16, with vertical parameters doubled
	1920x2160	59.988	133.293	277.250	x	x	x		VESA CVT-R
	2560x1440	59.951	88.787	241.500	x	x	x		VESA CVT-R
	2560x1600	59.972	98.713	268.500	x	x	x		VESA CVT-R
	3840x2160	23.999	52.438	209.750	x	x	x		VESA CVT-R
	3840x2160	29.981	65.688	262.750	x	x	x		VESA CVT-R
	3840x2160	49.977	110.500	442.000	x		x		VESA CVT-R
	3840x2160	59.997	133.313	533.250	x		x		VESA CVT-R
Apple Mac	640x480	66.59			x	x	x	x	
	832x624	75.087	49.107	55.000	x	x	x	x	
	1024x768	59.278	48.193	64.000	x	x	x	x	
	1024x768	74.927	60.241	80.000	x	x	x	x	
	1152x870	75.062	68.681	100.000	x	x	x	x	

Compatible Video Sources									
Signal Type	**Resolution**	**Frame rate (Hz)**	**Line Rate (kHz)**	**Pixel Rate (MHz)**	**HDMI 3-4 & OPS**	**HDMI 1-2**	**DP1-2**	**VGA**	**References**
SDTV	480i	60			x	x			SMPTE 125M, CEA-861-F Formats 6 & 7
	576i	50			x	x			ITU-R BT.601, CEA-861-F Formats 21 & 22
EDTV	480p	60	31.469	27.000	x	x	x	x	ITU-R BT.1358, CEA-861-F Format 17 & 18
	576p	50	31.250	27.000	x	x	x	x	SMPTE 125M, CEA-861-F Format 6 & 7
HDTV	1080i	50	28.125	74.500	x	x	x	x	SMPTE 274M, CEA-861-F Format 20
	1080i	60	33.750	74.250	x	x	x	x	SMPTE 274M, CEA-861-F Format 5
	720p	50	37.500	74.250	x	x	x	x	SMPTE 296M, CEA-861-F Format 19
	720p	60	45.000	74.250	x	x	x	x	SMPTE 296M, CEA-861-F Format 4
	1080p	24	27.000	74.250	x	x	x	x	SMPTE 274M, CEA-861-F Format 32
	1080p	25	28.125	74.250	x	x	x	x	SMPTE 274M, CEA-861-F Format 33
	1080p	30	33.750	74.250	x	x	x	x	SMPTE 274M, CEA-861-F Format 34
	1080p	50	56.250	148.500	x	x	x	x	SMPTE 274M, CEA-861-F Format 31
	1080p	60	67.500	148.500	x	x	x	x	SMPTE 274M, CEA-861-F Format 16

Compatible Video Sources									
Signal Type	**Resolution**	**Frame rate (Hz)**	**Line Rate (kHz)**	**Pixel Rate (MHz)**	**HDMI 3-4 & OPS**	**HDMI 1-2**	**DP1-2**	**VGA**	**References**
UHDTV	3840x2160	24	54.000	297.000	x	x	x		CEA-861-F Format 93, HDMI 1.4b VIC 1
	3840x2160	25	56.250	297.000	x	x	x		CEA-861-F Format 94, HDMI 1.4b VIC 2
	3840x2160	30	67.500	297.000	x	x	x		CEA-861-F Format 95, HDMI 1.4b VIC 3
	3840x2160	50	67.500	297.000	x				CEA-861-F Format 96, 4:2:0 sub-sampling
	3840x2160	50	135.000	594.000	x		x		CEA-861-F Format 96
	3840x2160	60	67.500	297.000	x				CEA-861-F Format 97, 4:2:0 sub-sampling
	3840x2160	60	135.000	594.000	x		x		CEA-861-F Format 97
	4096x2160	24	54.000	297.000	x	x	x		CEA-861-F Format 98
	4096x2160	25	56.250	297.000	x	x	x		CEA-861-F Format 99
	4096x2160	30	67.500	297.000	x	x	x		CEA-861-F Format 100

Color Subsampling Support

Video Timing	Input	RGB 4:4:4 Supported	YUV 4:4:4 Supported	YUV 4:2:2 Supported	YUV 4:2:0 Supported
4K @ 50/60 Hz	DP	x	x	x	
4K @ 50/60 Hz	HDMI 1-2				
4K @ 50/60 Hz	HDMI 3-4, OPS	x	x	x	x
All Other Supported Timings	Any	x	x	x	

Specifications

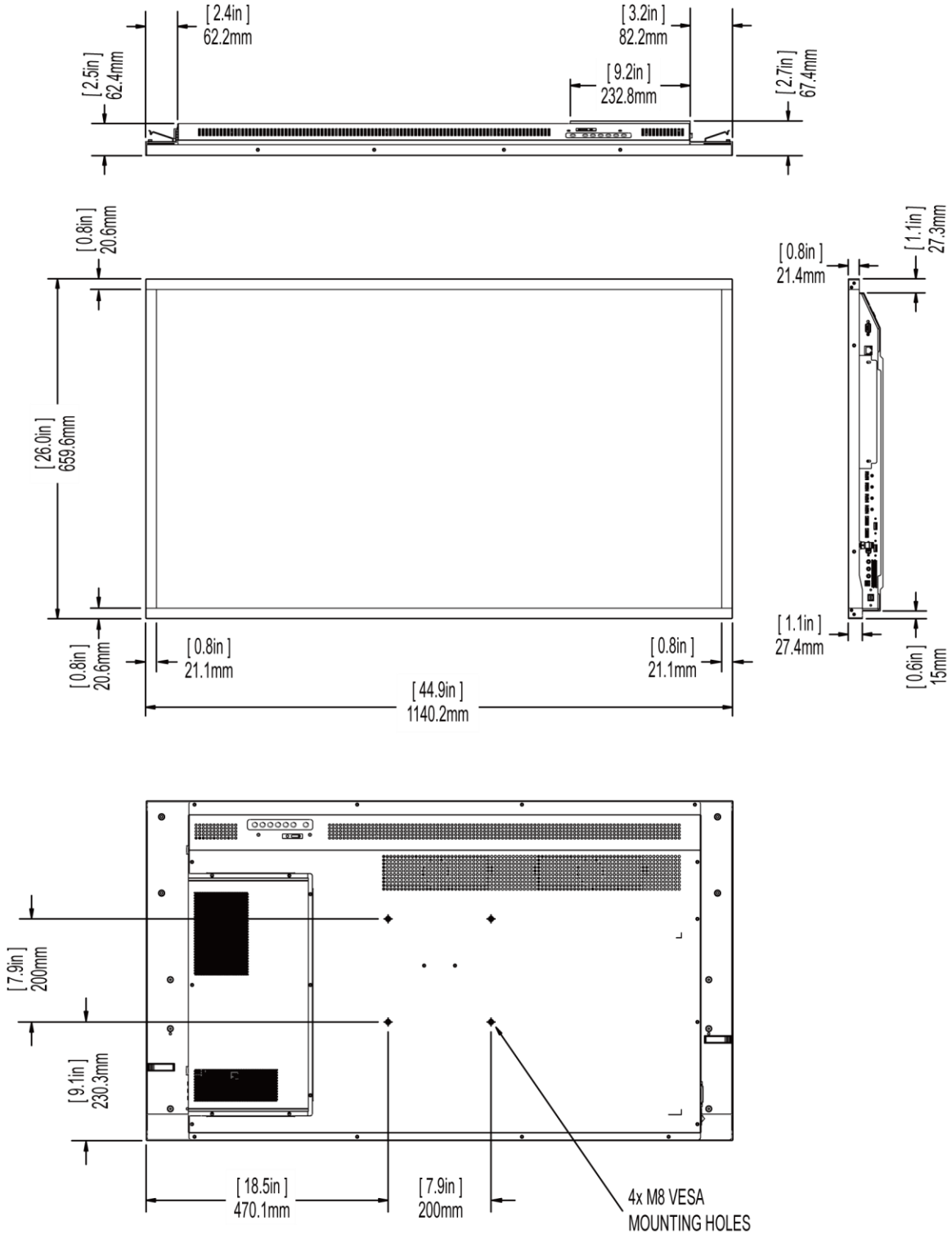
Item	EP5024K EP5024K-T	EP5824K EP5824K-T	EP6524K EP6524K-T	EPX100 EPX100-T
LCD Panel				
Resolution	3840 x 2160			
Aspect Ratio	16 : 9			
Screen Size	50"	58"	65"	100"
Orientation	Landscape / Portrait			
Brightness (Typ.)	500 cd/m²			700 cd/m²
Contrast Ratio	4000 : 1	5000 : 1	4000 : 1	3000 : 1
Viewing Angle (Typ.)	178°			
Response Time (Typ.)	9.5 ms		8 ms	6.5 ms
Color Gamut	88% NTSC		72% NTSC	98% NTSC
Display Color	1.07 Billion			
Connectivity				
Standard Inputs	DisplayPort 1.2 x 2, HDMI 2.0 x 2, HDMI 1.4b x 2, VGA, OPS			
HDCP 2.2	Yes (HDMI 2.0, HDMI 1.4b)			
Audio Output	Line out, S/PDIF out			
Control and Monitoring	LAN RJ45, RS232 In, IR, Keypad			

Mechanical				
Display Dimensions	Standard: 44.9” x 26” x 2.65” (1140.2mm x 659.6mm x 67.4mm) Touch: 44.9” x 26” x 3.34” (1140.2mm x 659.6mm x 84.9mm)	Standard: 51.2” x 29.6” x 3.14” (1300.8mm x 752.2mm x 79.8mm) Touch: 51.9” x 30.4” x 3.84” (1318.8mm x 772.2mm x 97.6mm)	Standard: 57.7” x 33.1” x 3.37” (1465.7mm x 841.3mm x 85.5mm) Touch: 58.4” x 33.8” x 4.06” (1483.5mm x 858.5mm x 103.2mm)	Standard: 89.3” x 50.7” x 4.46” (2267.4mm x 1288.7mm x 113.3mm) Touch: 91.5” x 53.5” x 5.14” (2323.8mm x 1359.9mm x 130.7mm)
Bezel Width	Standard: 0.83” (21.1 mm) Touch: 0.7” (17.7 mm)	Standard: 0.55” (14 mm) Touch: 0.87” (22 mm)	Standard: 0.66” (16.8 mm) Touch: 0.91” (23 mm)	Standard: 1.25” (31.8 mm) Touch: 0.92” (23.5 mm)
Display Weight	Standard: 62 lbs (28 kg) Touch: 78 lbs (35 kg)	Standard: 89 lbs (41 kg) Touch: 118 lbs (53 kg)	Standard: 86 lbs (39 kg) Touch: 119 lbs (54 kg)	Standard: 260 lbs (118 kg) Touch: 348 lbs (158 kg)
Mounting	VESA 200 mm x 200 mm	VESA 200 mm x 400 mm	VESA 400 mm x 400 mm	VESA 600 mm x 400 mm / 600 mm x 600 mm
Fanless	Yes			
Speakers	10W x 2 built-in			
Usage				
Recommended Usage	24 x 7			
Backlight	E-LED		D-LED	
Backlight Life	30,000 hours min			50,000 hours min
Power Source				
Power Consumption (Typ.)	115 W	135 W	170 W	425 W
BTU/hr (Typ.)	115W x 3.42 BTU = 393 BTU/hr	135W x 3.42 BTU = 462 BTU/hr	170W x 3.42 BTU = 581 BTU/hr	425W x 3.42 BTU= 1453.5 BTU/hr
Standby Power Consumption	< 0.5W			
Input Voltage / Frequency	AC 100-240V 50-60 Hz			
AC Inlet Type	C14			
OPS Power	12V / 8A			

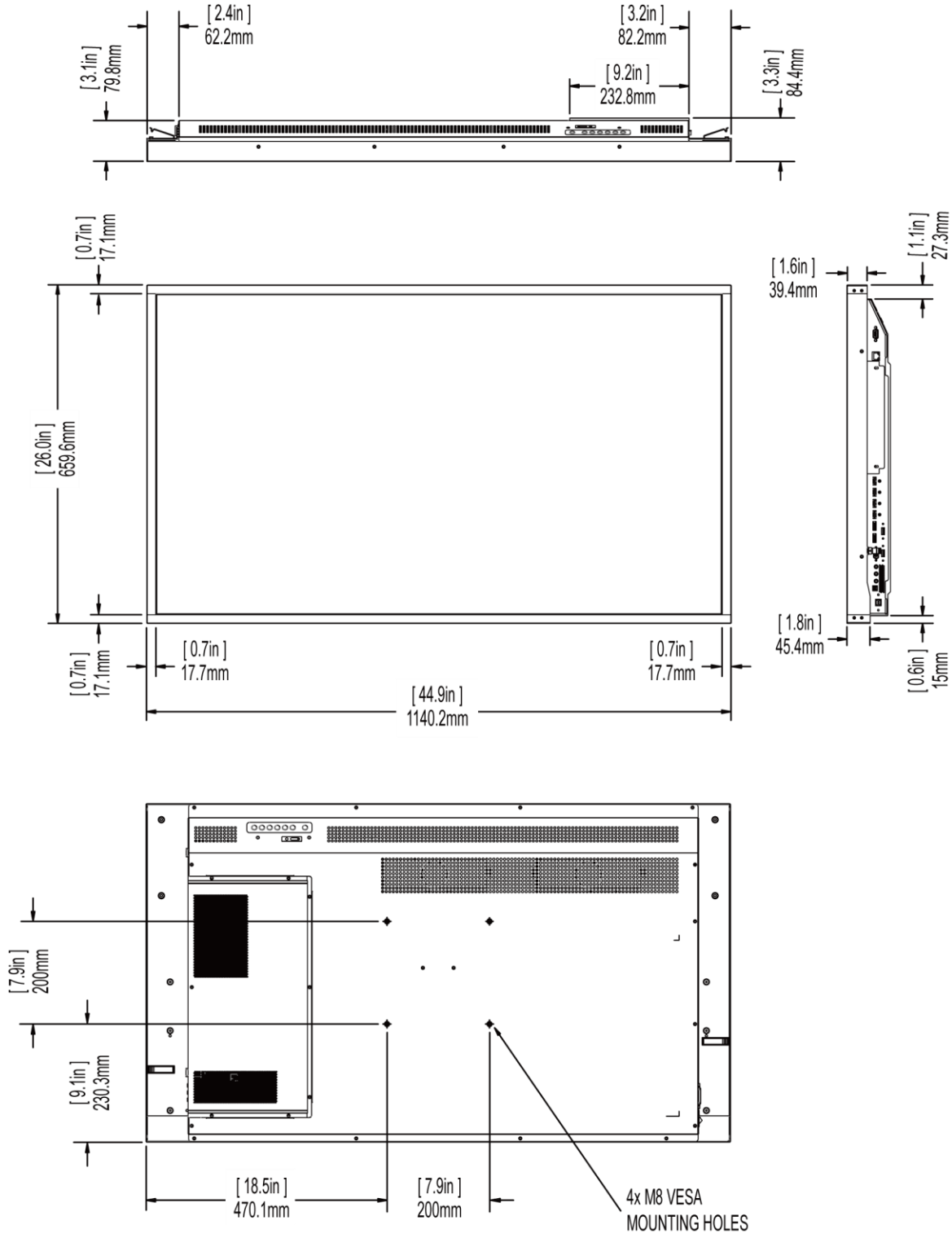
Environment	
Storage Temperature	Min -4°F ~ Max 140°F (-20°C ~ 60°C)
Operating Temperature	Min 32°F ~ Max 104°F (0-40°C) at up to 3000 m
Humidity	20-85% RH
Approvals	FCC Class A, cTUVus, CE

Dimensions

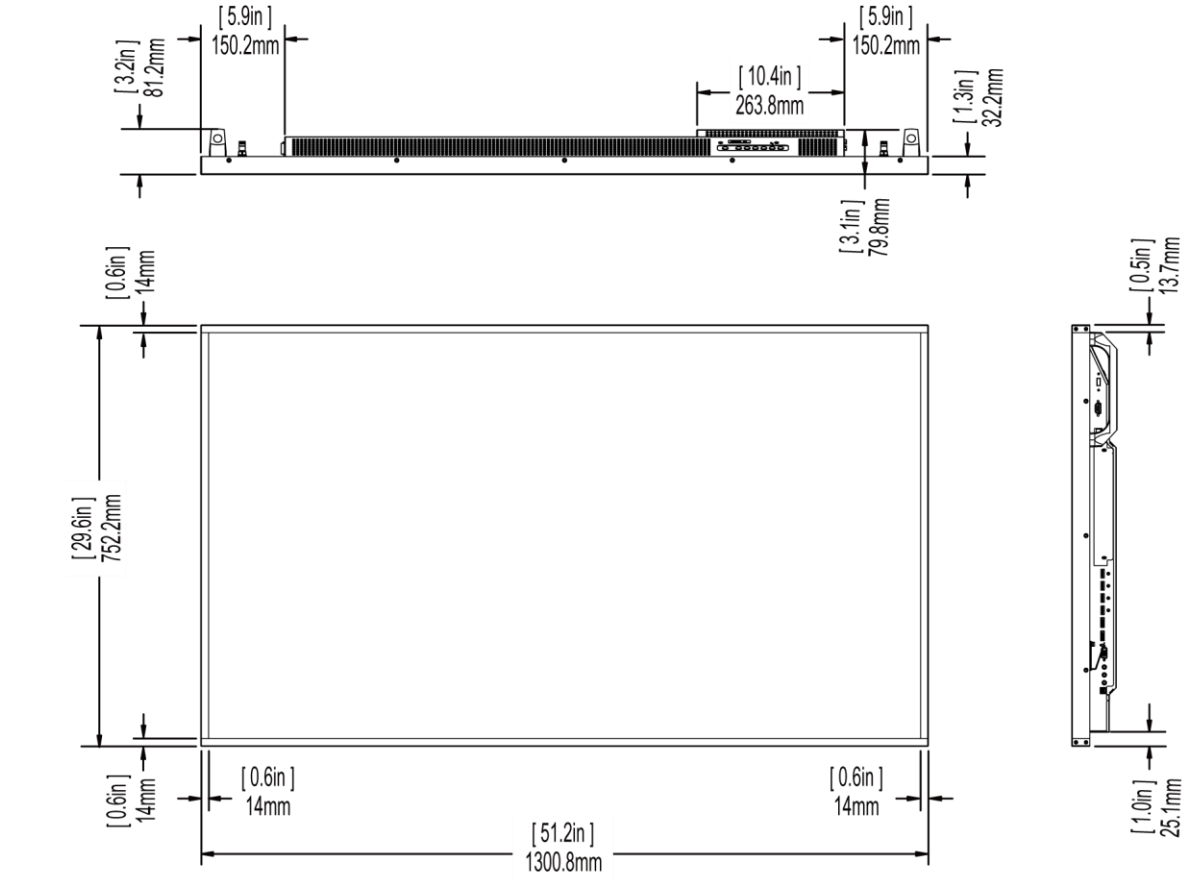
EP5024K

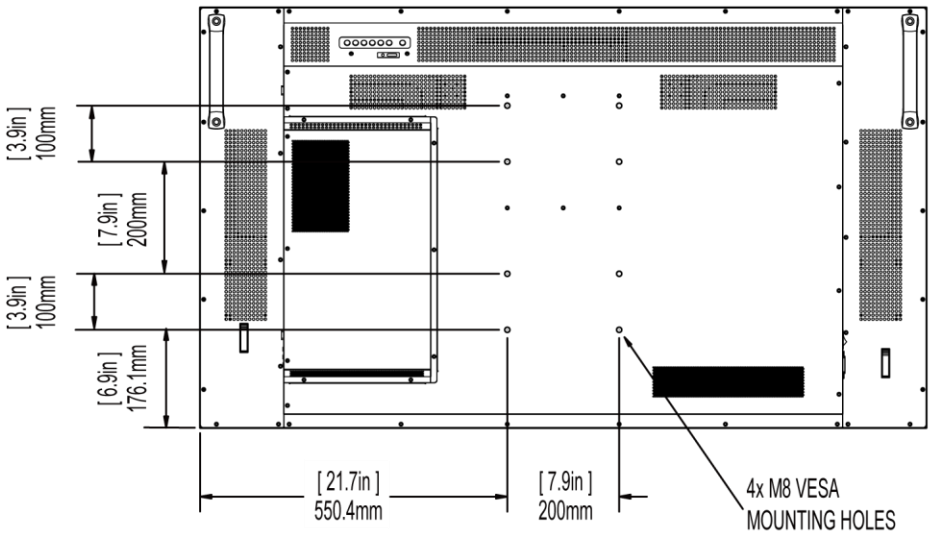


EP5024K-T

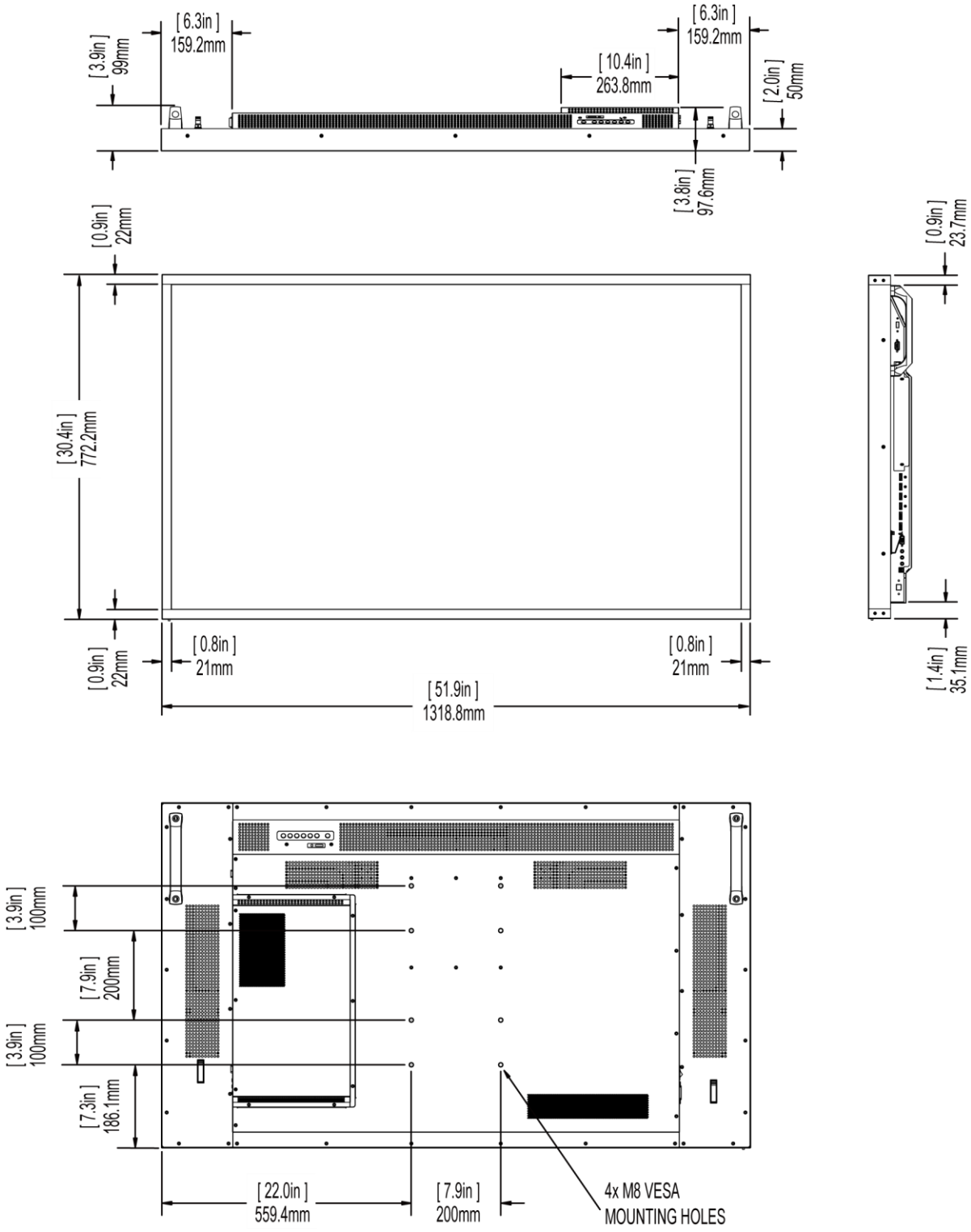

[2.4in]
62.2mm
[3.2in]
82.2mm
[9.2in]
232.8mm
[3.1in]
79.8mm
[3.3in]
84.4mm
[0.7in]
17.1mm
[26.0in]
659.6mm
[0.7in]
17.1mm
[0.7in]
17.7mm
[0.7in]
17.7mm
[44.9in]
1140.2mm
[1.6in]
39.4mm
[1.1in]
27.3mm
[1.8in]
45.4mm
[0.6in]
15mm
[7.9in]
200mm
[9.1in]
230.3mm
[18.5in]
470.1mm
[7.9in]
200mm
4x M8 VESA
MOUNTING HOLES

EP5824K

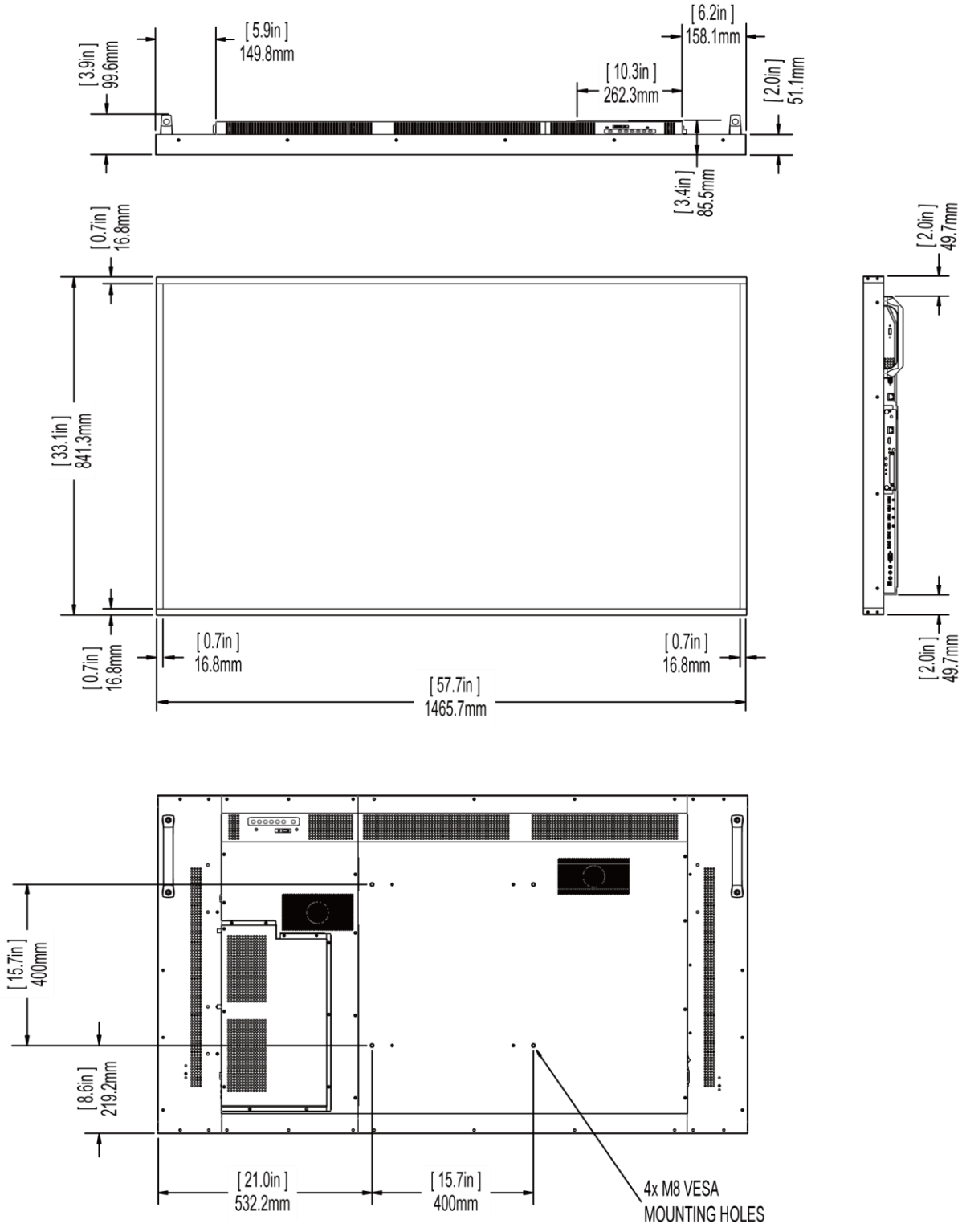

[5.9in]
150.2mm
[5.9in]
150.2mm
[3.2in]
81.2mm
[10.4in]
263.8mm
[1.3in]
32.2mm
[3.1in]
79.8mm
[0.6in]
14mm
[29.6in]
752.2mm
[0.5in]
13.7mm
[0.6in]
14mm
[0.6in]
14mm
[0.6in]
14mm
[51.2in]
1300.8mm
[1.0in]
25.1mm


[3.9in]
100mm
[7.9in]
200mm
[3.9in]
100mm
[6.9in]
176.1mm
[21.7in]
550.4mm
[7.9in]
200mm
4x M8 VESA
MOUNTING HOLES

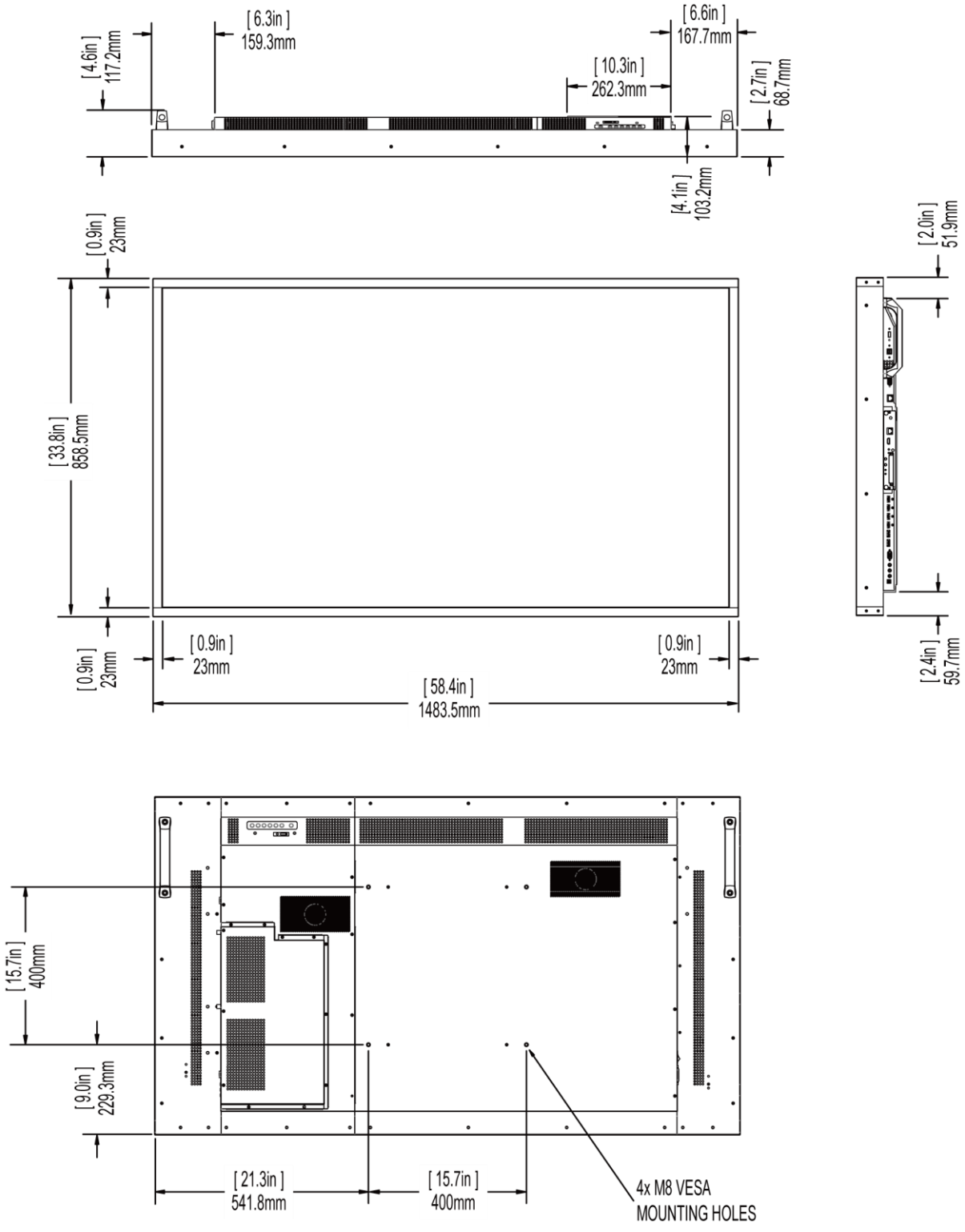
EP5824K-T


[6.3in]
159.2mm
[3.9in]
99mm
[10.4in]
263.8mm
[6.3in]
159.2mm
[2.0in]
50mm
[3.8in]
97.6mm
[0.9in]
22mm
[30.4in]
772.2mm
[0.9in]
22mm
[0.8in]
21mm
[0.8in]
21mm
[51.9in]
1318.8mm
[0.9in]
23.7mm
[1.4in]
35.1mm
[3.9in]
100mm
[7.9in]
200mm
[3.9in]
100mm
[7.3in]
186.1mm
[22.0in]
559.4mm
[7.9in]
200mm
4x M8 VESA
MOUNTING HOLES

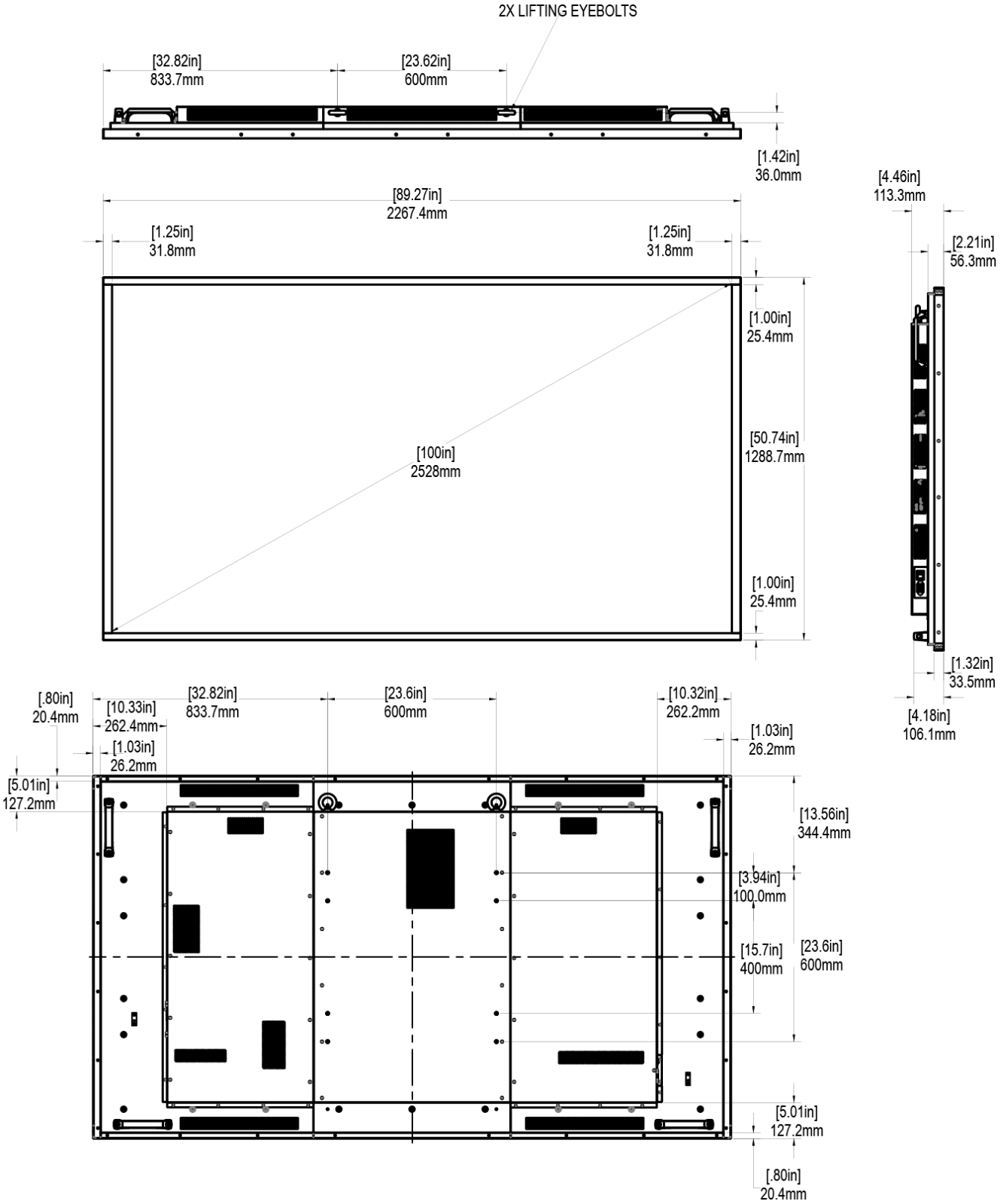
EP6524K


[6.2in]
158.1mm
[5.9in]
149.8mm
[3.9in]
99.6mm
[10.3in]
262.3mm
[2.0in]
51.1mm
[3.4in]
85.5mm
[0.7in]
16.8mm
[33.1in]
841.3mm
[2.0in]
49.7mm
[0.7in]
16.8mm
[0.7in]
16.8mm
[0.7in]
16.8mm
[57.7in]
1465.7mm
[2.0in]
49.7mm
[15.7in]
400mm
[8.6in]
219.2mm
[21.0in]
532.2mm
[15.7in]
400mm
4x M8 VESA
MOUNTING HOLES

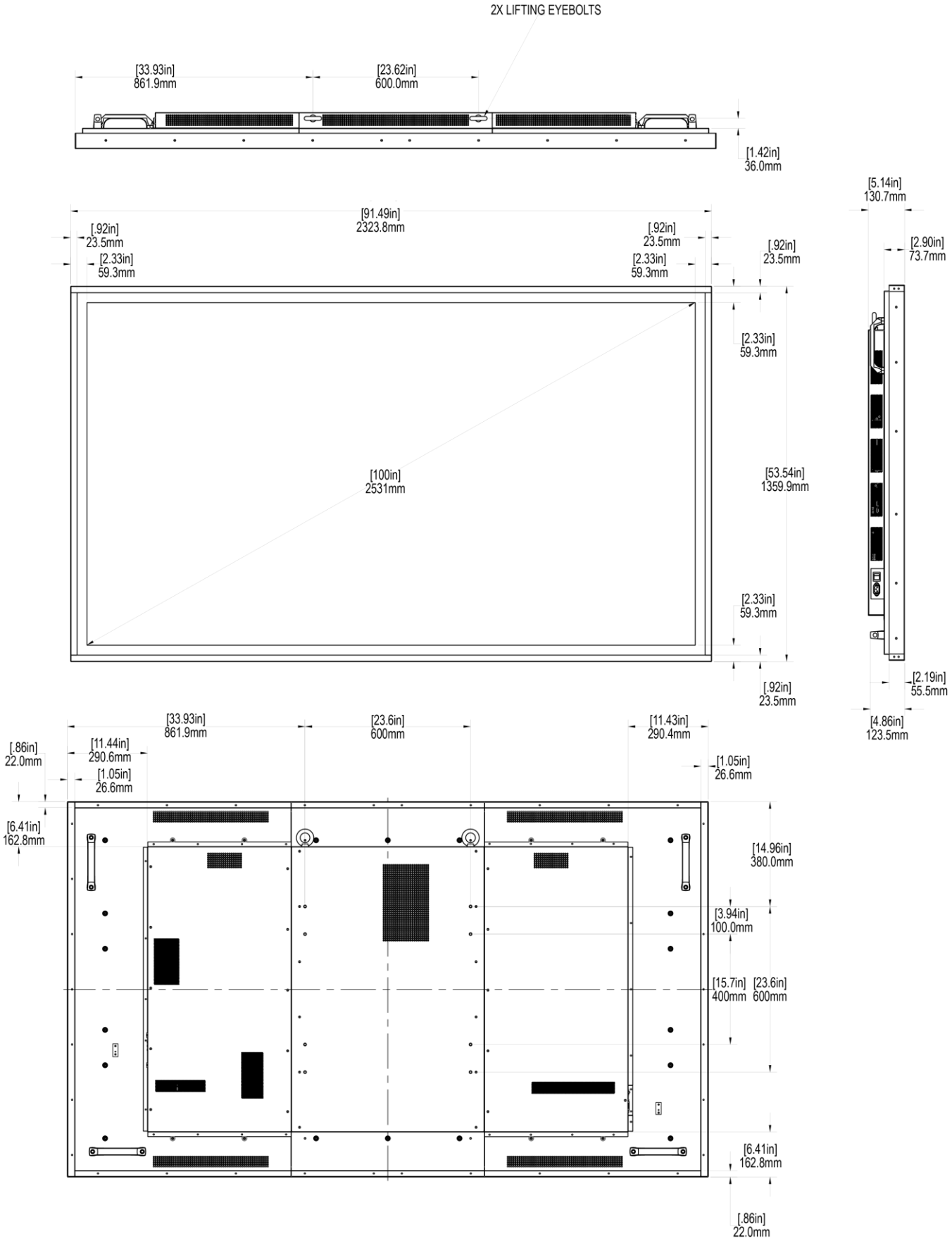
EP6524K-T


[6.3in]
159.3mm
[6.6in]
167.7mm
[4.6in]
117.2mm
[10.3in]
262.3mm
[2.7in]
68.7mm
[4.1in]
103.2mm
[0.9in]
23mm
[33.8in]
858.5mm
[2.0in]
51.9mm
[0.9in]
23mm
[0.9in]
23mm
[0.9in]
23mm
[58.4in]
1483.5mm
[2.4in]
59.7mm
[15.7in]
400mm
[9.0in]
229.3mm
[21.3in]
541.8mm
[15.7in]
400mm
4x M8 VESA
MOUNTING HOLES

EPX100


2X LIFTING EYEBOLTS
[32.82in]
833.7mm
[23.62in]
600mm
[1.42in]
36.0mm
[89.27in]
2267.4mm
[1.25in]
31.8mm
[1.25in]
31.8mm
[1.00in]
25.4mm
[50.74in]
1288.7mm
[100in]
2528mm
[1.00in]
25.4mm
[4.46in]
113.3mm
[2.21in]
56.3mm
[1.32in]
33.5mm
[4.18in]
106.1mm
[.80in]
20.4mm
[10.33in]
262.4mm
[1.03in]
26.2mm
[32.82in]
833.7mm
[23.6in]
600mm
[10.32in]
262.2mm
[1.03in]
26.2mm
[5.01in]
127.2mm
[13.56in]
344.4mm
[3.94in]
100.0mm
[15.7in]
400mm
[23.6in]
600mm
[5.01in]
127.2mm
[.80in]
20.4mm

EPX100-T


2X LIFTING EYEBOLTS
[33.93in]
861.9mm
[23.62in]
600.0mm
[1.42in]
36.0mm
[91.49in]
2323.8mm
[.92in]
23.5mm
[2.33in]
59.3mm
[100in]
2531mm
[53.54in]
1359.9mm
[5.14in]
130.7mm
[2.90in]
73.7mm
[2.19in]
55.5mm
[4.86in]
123.5mm
[33.93in]
861.9mm
[23.6in]
600mm
[11.43in]
290.4mm
[.86in]
22.0mm
[11.44in]
290.6mm
[1.05in]
26.6mm
[6.41in]
162.8mm
[14.96in]
380.0mm
[3.94in]
100.0mm
[15.7in]
400mm
[23.6in]
600mm

Troubleshooting

Before calling service personnel, please check the following table for a possible cause of the problem you are experiencing. Please note the following:

- Perform the adjustments according to Operating the Display on page 21.
- If the problem you have experienced isn't described below or you can't correct the problem, stop using the display and contact Planar's Technical Support Department. (See Accessing Planar's Technical Support Website on page 88).

Issue	Check for the following
No image is displayed	Make sure the correct source is selected.
	Make sure the main power switch is turned ON.
	Check that the source equipment is operating correctly.
	Make sure the input signal is compatible with this display.
The image is not centered	Make sure the input signal is compatible with this display.
The remote control doesn't work	Make sure the batteries are new and are installed correctly. Ensure the remote is aimed at the IR sensor.
	Make sure the remote control sensor is plugged in correctly.
	Make sure the remote is aimed towards the back of the display, where the sensor is located.
The picture color looks poor	Check the picture settings. Reset the display.

Accessing Planar’s Technical Support Website

Go to http://www.planar.com/support/ to locate the following support documents and resources:

- User Guide
- RS232 User Manual
- Touchscreen drivers
- Standard warranties
- Planar support hotline number and email

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