Copyright © 16 Jun 2016 by Planar Systems, Inc. All rights reserved. Contents of this publication may not be reproduced in any form without permission of Planar Systems, Inc.

Trademark Credits
Windows™ is a trademark of Microsoft Corp. All other companies are trademarks or registered trademarks of their respective companies.

Disclaimer
The information contained in this document is subject to change without notice. Planar Systems, Inc. makes no warranty of any kind with regard to this material. While every precaution has been taken in the preparation of this manual, the Company shall not be liable for errors or omissions contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Warranty and Service Plans
Planar warranty and service plans will help you maximize your investment by providing great support, display uptime, and performance optimization. From post-sale technical support to a full suite of depot services, our services are performed by trained Planar employees. When you purchase a Planar product, you get more than a display, you get the service and support you need to maximize your investment. To find the latest warranty and service information regarding your Planar product, please visit http://www.planar.com/support

RoHS Compliance Statement
The Planar UltraRes Series is fully RoHS compliant.

Part Number: 020-1301-00C
# Contents

**Introduction** .................................................................................................................. 1
  - Safety Information ........................................................................................................ 2
  - Safety Precautions ........................................................................................................ 2
  - Recommended Usage ...................................................................................................... 4
  - Mounting with a VESA Mount ...................................................................................... 6
  - Cleaning the Display .................................................................................................... 7

**Unpacking and Checking Accessories** ............................................................................ 8
  - Package Contents .......................................................................................................... 8
  - Accessory Kit ................................................................................................................ 9
  - Planar UltraRes Series - Standard Inputs .................................................................... 10

**Installing the Displays** .................................................................................................. 11
  - Installing the Planar Profile Mounting System ........................................................... 12
  - Installing OPS Expansion (Optional) ........................................................................... 25
  - Supported Graphics Cards ......................................................................................... 26

**Operating the Display** ................................................................................................... 27
  - OSD Keypad .................................................................................................................. 27
  - Remote Control Receiver ............................................................................................. 28
  - LED Indicators ............................................................................................................. 29
  - Using the Display in Portrait Mode (UR8451-MX and UR9851 Only) ....................... 29
  - Using the Display in Flat or Tilted Orientation ............................................................ 29
  - Using the Remote Control ........................................................................................... 30
  - IR Command Protocol ................................................................................................. 31
  - Turning the Display On ................................................................................................. 34
# Table of Contents

Turning the Display Off ................................................................. 34
Adjusting the Volume ................................................................. 34
Selecting Layouts and Input Sources ............................................. 35
Navigating Through the Menus ..................................................... 36
Using the Touch Screen ............................................................... 69
Touchscreen MultiTouch Driver Installation .................................... 69
Touchscreen (PQLabs) MultiTouch Platform Content ......................... 69
Uninstalling the MultiTouch Driver ............................................... 70

**Planar UltraRes Remote Monitoring Software** .................................. 71
Remote Monitoring Home .............................................................. 71
Remote Monitoring System Information ........................................... 71
Remote Monitoring Inputs and Views .............................................. 72
Remote Monitoring Audio .............................................................. 73
Remote Monitoring Presets ............................................................ 74
Remote Monitoring Panel Brightness and Power .............................. 75
Remote Monitoring Notifications ................................................... 76
Remote Monitoring System Settings .............................................. 77
Remote Monitoring Access Control .............................................. 78

**External Control** ........................................................................ 79

**Signal Compatibility** .................................................................... 80

**Color Subsampling Support** .......................................................... 83

**Specifications** ............................................................................ 84

**Dimensions** ................................................................................ 87
UR7551 ......................................................................................... 87
UR7551 Touch .................................................................................. 88
Introduction

The Planar® UltraRes™ Series displays raise the bar for commercial 4K. Offered in 75”, 84”, and 98”, these Ultra HD displays produce resolution and picture quality never before seen in large format LCD displays. Designed specifically for resolution-rich commercial applications, Planar UltraRes Series displays offer the image quality, connectivity, industrial design and configuration options required in high profile offices, leading control rooms, collaboration rooms and digital branding installations.

Features of the Planar UltraRes Series displays include:

- Best-in-class image and color quality for native and upscaled content
- Cutting edge video performance supporting up to 4K @ 60Hz with DisplayPort 1.2 and HDMI 2.0
- Planar® MediaPlex™ Plus Processing for advanced multi-source viewing and image adjustment control
- Next generation 4K compatibility
- Advanced design for function and style
- Fully integrated multi-touch models available
- Fanless, whisper-quiet
Safety Information

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

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.
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.
Recommended Usage

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

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.

Caution: For optimal performance, we suggest turning off the power on the 84” MX and 98” for 4 hours per day and 12 hours per day on the 75” and 84” LX models.
Disposal of old Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collection programs)

This symbol found on your product or its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources.

This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

Waste Electrical and Electronic Equipment (WEEE) Directive

In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling. EEE complies with Directive ‘Regulation on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment’

Waste Electrical and Electronic Equipment (WEEE) Directive

This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.
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 displays to experience high operating temperatures. For all displays, do not block fans or ventilation openings. If the LCD display will be installed in a recessed area with an LCD surround or enclosure, ensure adequate openings are applied for proper air flow and ventilation.

It is up to the installer to ensure that display placement is changed, thermal shielding is provided and/or additional ventilation is provided to keep the display within its nominal operating parameters. Maximum ambient operating temperatures for the Planar UltraRes Series are:

- 75” Planar UltraRes models: 0-40°C at up to 1500 meters and 0-35°C at up to 3000 meters
- 84” and 98” Planar UltraRes models: 0-35°C at up to 1500 meters and 0-30°C at up to 3000 meters

Cooling Requirements

For optimal performance, active cooling by the installer should be planned for when the ambient temperature anywhere in the wall is predicted to be above the specified ambient temperature for the display.

Mounting with a VESA Mount

The Planar UltraRes Series can be mounted with the Planar Profile Mounting System (see page 12) or with a VESA mount, available from Planar or other manufacturers.

If you purchased a VESA mount, you should have 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.

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.
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.
# Unpacking and Checking Accessories

## Package Contents

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Number</th>
<th>Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD display</td>
<td>One per box.</td>
<td>1</td>
<td><img src="image" alt="LCD Display" /></td>
</tr>
<tr>
<td>LCD mounts (optional)</td>
<td>If ordered, this will be inside a separate box inside the LCD box.</td>
<td>1</td>
<td><img src="image" alt="LCD Mounts" /></td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If you do not use Planar’s mounts, you need to ensure the mounts that you purchase can adequately support the display.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting template</td>
<td>Used to line up where the wall mounts will be installed. This is included with Planar’s optional LCD mounts.</td>
<td>2</td>
<td><img src="image" alt="Mounting Template" /></td>
</tr>
</tbody>
</table>
## Accessory Kit

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Number Included</th>
<th>Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC power cord</td>
<td>Power cord.</td>
<td>1</td>
<td><img src="image1.png" alt="AC power cord" /></td>
</tr>
<tr>
<td>IR sensor</td>
<td>Used to receive signals from the remote control.</td>
<td>1</td>
<td><img src="image2.png" alt="IR sensor" /></td>
</tr>
<tr>
<td>USB drive</td>
<td>Contains the User Manual, touch drivers and USB-to-serial driver.</td>
<td>1</td>
<td><img src="image3.png" alt="USB drive" /></td>
</tr>
<tr>
<td>USB cable</td>
<td>Connects to a PC for touch functionality (touch models only) and serial commands (all models).</td>
<td>1</td>
<td><img src="image4.png" alt="USB cable" /></td>
</tr>
<tr>
<td>Remote control</td>
<td>Used to control the display. 2 AA batteries are included but not installed.</td>
<td>1</td>
<td><img src="image5.png" alt="Remote control" /></td>
</tr>
<tr>
<td>Carrying Strap</td>
<td>For lifting and carrying the display using three people</td>
<td>2</td>
<td><img src="image6.png" alt="Carrying Strap" /></td>
</tr>
<tr>
<td>Planar® TouchMark™</td>
<td>Annotation and whiteboarding software (touch models only)</td>
<td>1</td>
<td><img src="image7.png" alt="Planar® TouchMark™" /></td>
</tr>
</tbody>
</table>

---

**Accessory Kit**
Planar UltraRes Series - Standard Inputs

OPS USB 3.0
OPS USB 2.0
OPS USB 2.0

HDMI 1: HDMI, 4K/60Hz, HDCP 2.2
HDMI 2: HDMI, 4K/60Hz, HDCP 2.2
HDMI 3: HDMI, 4K/30Hz
HDMI 4: HDMI, 4K/30Hz
DP IN: DisplayPort In, 4K/60 Hz
DP OUT: DisplayPort Out

OPS: 4K/60Hz

Note: Only one HDCP 2.2 source can be displayed at a time. If HDMI 1 and HDMI 2 are both being shown on the display at the same time, only HDMI 1 will support HDCP 2.2 content.
Installing the Displays

Before installation, keep the following points in mind:

• These displays are heavy. Make sure that you have adequate studs to support the weight of each display if installing on a wall.
• The Planar UltraRes display must be installed on a flat surface.
• If you ordered the optional wall mounts, use the supplied UltraRes mounting template for the center point of the display, as well as for top and bottom bracket installation.
• The wall mounts for a landscape and portrait installation look very similar. The process to install them is almost exactly the same. The only difference is the way in which you use the wall mount template. This will be pointed out in the relevant step.
Installing the Planar Profile Mounting System

**Caution:** For whatever structure is used to mount the display, be sure that it is sufficiently engineered to handle the weight of the display. Also be sure to purchase the correct hardware needed to support the display mounted to that structure.

**Caution:** If the unit being installed is fitted with a touch input device, it is important that the touch frame is not used to lift the unit. Also, the unit should never be placed on the touch frame to support the unit.

1. Find the center point of the display on the wall where you intend to install it.

2. Draw a short (about 1") horizontal line and then a vertical line to just below the top edge of the display.
3 Use the provided template to determine the center points of the wall mounts. The “V” notches are labeled “Short Center” and “Long Center”. Use the “Short Center” hole for a landscape display and the “Long Center” hole for a portrait display. Use the appropriate “V” notch to align with the horizontal line drawn in the previous step.
4 In the hole marked “Top” on the template, mark the center of the hole on the wall. Be sure the vertical line runs through the center of the hole and that the template is plumb. You may wish to screw the template in place to make the next steps easier.

Note: If you are installing a landscape display and the template is too long, you can break the template at the notch below the “L BTM” hole.

5 Let the template hang vertically so it is plumb, as the bottom hole in the template determines where the bottom mount will be installed.

6 Mark the center of the hole at the bottom of the template that corresponds with your display orientation.
7 If you have screwed the template in place, remove each screw and the template.

8 Turn the template horizontally and line the appropriate center hole up with the bottom hole you marked on the wall. This time, use the “LONG CENTER” for a landscape panel and the “SHORT CENTER” for a portrait panel. Ensure that the template is flat against the wall and level.

9 Mark hole locations for the bottom mounts. One side should use the next hole in from the “TOP” labeled hole and the other should use the next inward hole from “P BTM” for landscape or “L BTM” for portrait (ignoring the centering holes).
10 Line up the middle hole of the top wall mount with the screw hole drilled from the template.

Note: This picture shows mounts for a landscape installation.

11 Tighten the screw into the mount.

12 Use a level to make sure the mount is level.

13 Then install additional screws as needed.

Note: Screws installed near the mount hooks provide the best support.
14 Install the bottom mount brackets such that the holes marked earlier line up with the inner bottom hole on the bottom mount bracket. Ensure the bottom mounts are level and install at least one additional screw in each bottom mount.
Using three physically capable people, carefully hang the back of the display onto the top wall mount bracket using the square brackets on the back of the display.
**Caution:** Be sure these are securely hung, as the top of the wall mount will hold all of the weight of the display.

As an alternative, you can use the optional lift blocks along with a lift assist mechanism to lift the panel into place. For details, refer to "Using the Lift Blocks" on page 20.

16 On the bottom wall mounts, there is locking hardware on the bottom of each mount. Push the hardware up and finger tighten the captive screws on the bottom to secure the display to the wall.
Using the Lift Blocks

1. Attach the lift blocks to the back of the panel using the provided M8 x 35 pan head screws.

2. Securely attach your lift mechanism to the eyehooks:
   a. Spreader bar attachment: A spreader bar allows for a small lift profile and less stress on the panel and eyehooks than a single point attachment. This is the preferred method.
b Single point attachment: The angle between the top of the panel and the support lines should not be less than 45 degrees.

3 Lift the panel into place.

4 Detach the upper half of the lift block from the lower half by removing the two vertical screws. This leaves the bottom half attached to the panel but hidden.
Using the Kickstand Bracket

The kickstand bracket is used for service mode, without having to remove the display from the wall. Use the following instructions to put the display in service mode.

1. Loosen the captive locking screws on both sides of the bottom mount, and let the brackets hang down freely.
2 Pull the display out and then swing the kickstands down to hold it in place. The kickstands will nest into the bottom mount brackets. Make sure to use both kickstands as using only one can cause stresses in the panel that could cause damage.
Cable Length Recommendations

Cable length performance may vary between different cables and sources. The recommended maximum DisplayPort length is 3m for DisplayPort 1.2 and 5m for DisplayPort 1.1. HDMI cable length is recommended as follows:

• 4K @ 50/60Hz: 5m maximum
• 4K @ 24/25/30Hz: 15m maximum
• 1080p @ 60Hz and lower resolutions: 30m maximum
Installing OPS Expansion (Optional)

Planar UltraRes 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, HDBaseT receivers, 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 side I/O panel below the OPS slot. When an OPS device is installed, these USB ports can be used for a keyboard, webcam, USB drive, or other peripherals.
Supported Graphics Cards

Planar UltraRes Series displays support a variety of graphics cards from leading manufacturers, such as NVIDIA and AMD. In general, you should be looking for graphics cards that have the following features:

- Can output 3840 x 2160 at 24 Hz or 30 Hz over a single DisplayPort or HDMI connection.
- Four-output graphics cards that can output synchronized (genlocked) 1920 x 1080 outputs at up to 60 Hz.
- Cards that support Planar’s support timings, as listed in the following section "Signal Compatibility" on page 80.

**Caution:** Before you purchase a graphics card for your source, contact your Sales Representative to get the most current information on Planar’s compatibility with leading graphics cards.
Operating the Display

OSD Keypad

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

OSD Keypad Buttons

<table>
<thead>
<tr>
<th>Key</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Power on/Power off</td>
</tr>
<tr>
<td></td>
<td>Menu Left/Decrease value</td>
</tr>
<tr>
<td></td>
<td>Menu Right/Increase value</td>
</tr>
<tr>
<td></td>
<td>Menu Up/Increase volume</td>
</tr>
<tr>
<td></td>
<td>Menu Down/Decrease volume</td>
</tr>
<tr>
<td>Menu</td>
<td>Menu/Exit</td>
</tr>
<tr>
<td>SRC</td>
<td>Source selection (toggle)</td>
</tr>
</tbody>
</table>
Remote Control Receiver

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.
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.

<table>
<thead>
<tr>
<th>LED On</th>
<th>Power Status</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Standby mode</td>
<td></td>
</tr>
<tr>
<td>Amber</td>
<td>Full power mode</td>
<td></td>
</tr>
<tr>
<td>Green Flashing (1 Hz)</td>
<td>AC power on</td>
<td></td>
</tr>
<tr>
<td>Green Flashing (0.5 Hz)</td>
<td>Powering on from standby</td>
<td></td>
</tr>
<tr>
<td>Green Flashing (5 Hz)</td>
<td>Firmware updating</td>
<td></td>
</tr>
<tr>
<td>Amber Flashing (5 Hz)</td>
<td>Power supply failure</td>
<td></td>
</tr>
<tr>
<td>Green and Amber</td>
<td>Firmware update failure</td>
<td></td>
</tr>
</tbody>
</table>

Using the Display in Portrait Mode (UR8451-MX and UR9851 Only)

When using the display in the portrait position, the display 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 > ADVANCED SETTINGS > MENUS AND MESSAGES > OSD ROTATION).

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

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.
Using the Remote Control

Below is a picture of the remote control. See the following page for button descriptions and Hex codes.
IR Command Protocol

The Planar UltraRes displays accept commands in the form of IR signals that conform to the NEC protocol. Each Planar UltraRes remote control has an NEC control code associated with it. You can use these codes to program a third-party “universal” remote control to work with the Planar UltraRes displays. These third-party products usually come with a computer software application for this purpose. For more information, consult the documentation provided with the remote control.

The IR control codes have the following characteristics:

- Each code consists of the following:
  - A leader pulse (a modulated pulse of 9 ms followed by a non-modulated pulse of 4.5 ms)
  - 16 address bits. The default address is 1785 (0x06F9, binary 00000110 11111001)
  - 16 data bits: eight (8) bits for the command followed by the logical inverse of the command
  - An end pulse (a modulated pulse of 0.56 ms, similar to the modulated pulse in the ‘0’ and ‘1’ bits). The end of the modulated pulse constitutes the end of the data transmission.
  - The carrier frequency is 38 kHz, with the modulated pulses having a 33% duty cycle.
  - Commands are sent at a maximum rate of 9 Hz.

For example, below is the NEC control code for the ON button of the Planar UltraRes remote control (assuming the default address is used).

<table>
<thead>
<tr>
<th>Hex</th>
<th>06</th>
<th>F9</th>
<th>01</th>
<th>FE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binary</td>
<td>00000110</td>
<td>11111001</td>
<td>00000001</td>
<td>11111110</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Address Byte 1</th>
<th>Address Byte 2</th>
<th>Command</th>
<th>Command (Logical Inverse)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 0 0 0 0 1</td>
<td>1 1 1 1 1 0</td>
<td>0 0 0 0 0 0 1</td>
<td>1 1 1 1 1 1 1 0</td>
</tr>
</tbody>
</table>

The following example shows the pulse train for this command.
<table>
<thead>
<tr>
<th>Remote Control Button Name</th>
<th>Address</th>
<th>Data</th>
<th>NEC Data From Remote (Hex Code)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>1785</td>
<td>1</td>
<td>0x06F901FE</td>
<td>Power on</td>
</tr>
<tr>
<td>OFF</td>
<td>1785</td>
<td>9</td>
<td>0x06F909F6</td>
<td>Power off</td>
</tr>
<tr>
<td></td>
<td>1785</td>
<td>2</td>
<td>0x06F902FD</td>
<td>Not used</td>
</tr>
<tr>
<td></td>
<td>1785</td>
<td>3</td>
<td>0x06F903FC</td>
<td>Not used</td>
</tr>
<tr>
<td></td>
<td>1785</td>
<td>6</td>
<td>0x06F906F9</td>
<td>Not used</td>
</tr>
<tr>
<td>PRESETS</td>
<td>1785</td>
<td>4</td>
<td>0x06F904FB</td>
<td>Opens the Presets menu</td>
</tr>
<tr>
<td>PRESET 1</td>
<td>1785</td>
<td>5</td>
<td>0x06F905FA</td>
<td>Applies Preset 1</td>
</tr>
<tr>
<td>PRESET 2</td>
<td>1785</td>
<td>7</td>
<td>0x06F907F8</td>
<td>Applies Preset 2</td>
</tr>
<tr>
<td>PRESET 3</td>
<td>1785</td>
<td>8</td>
<td>0x06F908F7</td>
<td>Applies Preset 3</td>
</tr>
<tr>
<td>PRESET 4</td>
<td>1785</td>
<td>10</td>
<td>0x06F90AF5</td>
<td>Applies Preset 4</td>
</tr>
<tr>
<td>1</td>
<td>1785</td>
<td>12</td>
<td>0x06F90CF3</td>
<td>Number button 1</td>
</tr>
<tr>
<td>2</td>
<td>1785</td>
<td>13</td>
<td>0x06F90DF2</td>
<td>Number button 2</td>
</tr>
<tr>
<td>3</td>
<td>1785</td>
<td>14</td>
<td>0x06F90EF1</td>
<td>Number button 3</td>
</tr>
<tr>
<td>4</td>
<td>1785</td>
<td>15</td>
<td>0x06F90FF0</td>
<td>Number button 4</td>
</tr>
<tr>
<td>5</td>
<td>1785</td>
<td>16</td>
<td>0x06F910EF</td>
<td>Number button 5</td>
</tr>
<tr>
<td>6</td>
<td>1785</td>
<td>17</td>
<td>0x06F911EE</td>
<td>Number button 6</td>
</tr>
<tr>
<td>7</td>
<td>1785</td>
<td>20</td>
<td>0x06F914EB</td>
<td>Number button 7</td>
</tr>
<tr>
<td>8</td>
<td>1785</td>
<td>25</td>
<td>0x06F919E6</td>
<td>Number button 8</td>
</tr>
<tr>
<td>9</td>
<td>1785</td>
<td>27</td>
<td>0x06F91BE4</td>
<td>Number button 9</td>
</tr>
<tr>
<td>0</td>
<td>1785</td>
<td>18</td>
<td>0x06F912ED</td>
<td>Number button 0</td>
</tr>
<tr>
<td>VOL +</td>
<td>1785</td>
<td>28</td>
<td>0x06F91CE3</td>
<td>Volume increase</td>
</tr>
<tr>
<td>VOL -</td>
<td>1785</td>
<td>33</td>
<td>0x06F921DE</td>
<td>Volume decrease</td>
</tr>
<tr>
<td>MUTE</td>
<td>1785</td>
<td>32</td>
<td>0x06F920DF</td>
<td>Audio mute</td>
</tr>
<tr>
<td>COLOR</td>
<td>1785</td>
<td>19</td>
<td>0x06F913EC</td>
<td>Not used</td>
</tr>
<tr>
<td>VIDEO WALL</td>
<td>1785</td>
<td>34</td>
<td>0x06F922DD</td>
<td>Opens the Tiling menu</td>
</tr>
<tr>
<td>MISC</td>
<td>1785</td>
<td>11</td>
<td>0x06F90BF4</td>
<td>Opens the Image Information menu</td>
</tr>
<tr>
<td>MENU</td>
<td>1785</td>
<td>21</td>
<td>0x06F915EA</td>
<td>Opens the menu</td>
</tr>
<tr>
<td>PREV</td>
<td>1785</td>
<td>22</td>
<td>0x06F916E9</td>
<td>Returns to the previous menu</td>
</tr>
<tr>
<td>ENTER</td>
<td>1785</td>
<td>23</td>
<td>0x06F917E8</td>
<td>Selects the current menu item</td>
</tr>
<tr>
<td>UP</td>
<td>1785</td>
<td>26</td>
<td>0x06F91AE5</td>
<td>Navigate up</td>
</tr>
<tr>
<td>DOWN</td>
<td>1785</td>
<td>29</td>
<td>0x06F91DE2</td>
<td>Navigate left</td>
</tr>
<tr>
<td>LEFT</td>
<td>1785</td>
<td>31</td>
<td>0x06F91FE0</td>
<td>Navigate right</td>
</tr>
<tr>
<td>RIGHT</td>
<td>1785</td>
<td>24</td>
<td>0x06F918E7</td>
<td>Navigate down</td>
</tr>
</tbody>
</table>
Locking the Keypad and IR Remote

You can lock the keypad and IR remote functionality on the display. To lock the keypad, go to Main Menu -> Advanced Settings -> System Settings and select Keypad Lock. To lock the IR remote, go to Main Menu -> Advanced Settings -> System Settings and select IR Remote Lock.

Unlocking the Keypad and IR Remote

To unlock the keypad, press the following keys on the keypad in the order listed: UP, UP, RIGHT, LEFT, DOWN. If the IR remote is unlocked, you can also unlock the keypad by using the IR remote to go to Main Menu -> Advanced Settings -> System Settings and uncheck Keypad Lock.

To unlock the IR remote, press the following keys on the IR remote in the order listed: UP, UP, RIGHT, LEFT, DOWN. If the keypad is unlocked, you can also unlock the IR remote by using the keypad to go to Main Menu -> Advanced Settings -> System Settings and uncheck IR Remote Lock.

Changing the IR Remote Code Set

The IR remote code set transmitted by the remote and accepted by the display can be configured. This is useful if there are multiple Planar displays and you would like each remote to work only with one of the displays. It can also be used if IR interference with another device, such as a DVD player, is occurring.
To change the IR code on the remote, use the following procedure:

1. Press and hold the CODE button on the remote control until the LED on the remote lights solid red (approximately five seconds).
2. Enter a new five-digit code between 00000 and 65535. Include leading zeros for codes with four or fewer digits; for example, enter 255 as 00255.
3. The LED turns off to confirm the code change. If you enter an invalid code, the LED flashes for three or four seconds. Try again, entering a valid code.

**Note:** The code must match the IR Remote ID Code setting. See page 65.

**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 ON button on the remote or the power button on the keypad.

**Turning the Display Off**

With the power on, press the OFF button on the remote or the power button on the keypad 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:** The display may automatically turn off the backlight or enter standby mode if no signal is present for a certain period of time. See the description of the Power Saving Mode setting on page 47 for more information.

**Adjusting the Volume**

1. Using the remote, press the VOL + or VOL - to increase or decrease the volume. You can also use the Up and Down keys on the remote and keypad 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.
Selecting Layouts and Input Sources

With Planar MediaPlex Plus Processing, you can show one source at a time or multiple sources simultaneously. Multiple layout options are available and can be selected from the Inputs and Views Menu (see page 37). Once a layout has been designated, you can assign sources to each of the zones in the layout. The selection of sources must be made one at a time by assigning a current zone. To select the current zone, you can navigate through the on-screen menu (see page 37). Alternatively, you can use the remote or keypad as described next.

Remote

Press the Zone 1, Zone 2, Zone 3, or Zone 4 buttons on the remote. After selecting the desired zone, you can press the source button (DP, HDMI 1, HDMI 2, HDMI 3, HDMI 4, or OPS). This action will also select the active audio source.

For example, to change Zone 3 to OPS, press the Zone 3 button and then press the OPS button.

Keypad

Press the SRC button. The input source will be toggled in the following order: HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP, OPS).

Note: Sources will toggle through the current zone, or last zone to be modified. Current zones can only be re-assigned in the on-screen menu.
Navigating Through the Menus

1. With the power on, press MENU. The MAIN menu appears.

2. Within the menu, use ▲, ▼, ◀, ▶ and ENTER to navigate through the menus and adjust options.

3. Press PREV on the remote control, or MENU on the keypad, to return to the previous menu. To exit the menu system, press MENU on the remote control, or continue to press MENU on the keypad until the main menu is reached.
Inputs and Views Menu

This menu shows how the sources will be laid out on the screen based on the current Multi-Source View and Advanced Layouts selections.

Multi-Source View

Select the Multi-Source View mode
**Options:** Single, Dual, Triple, Quad, PIP; **Default:** Single

**Note:** For the Advanced Layouts submenu, refer to page 38.
**Note:** You can only use 4K/60Hz in Single mode.

Zone 1

Select the source displayed in Zone 1
**Options:** HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP, OPS; **Default:** HDMI 1

**Note:** If HDMI1 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI1 cannot be selected.

Zone 2

Select the source displayed in Zone 2
**Options:** HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP, OPS; **Default:** HDMI 2

**Note:** If HDMI1 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI1 cannot be selected.
Inputs and Views Menu

Zone 3

Select the source displayed in Zone 3
**Options:** HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP, OPS; **Default:** HDMI 3

**Note:** If HDMI1 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI1 cannot be selected.

Zone 4

Select the source displayed in Zone 4
**Options:** HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP, OPS; **Default:** HDMI 4

**Note:** If HDMI1 was selected as another source, OPS cannot be selected. If OPS was selected as another source, HDMI1 cannot be selected.

Auto Scan Sources

Select whether the display will automatically scan for a valid source on any zone that currently does not have a source
**Options:** On, Off; **Default:** Off

Advanced Layouts Submenu

This submenu defines the layouts for each multi-source view type.

![Advanced Layouts Diagram](image)

**Dual**

Select from two dual source layout options. The layout in orange will be the active layout displayed when the Multi-Source View is set to Dual.

**Triple**

Select from five triple source layout options. The layout in orange will be the active layout displayed when the Multi-Source View is set to Triple.
## PIP

Select from four PiP (Picture-in-Picture) layouts. The layout in orange will be the active layout displayed when the Multi-Source View is set to PiP.

## PIP Size

Select the size of the PiP (Picture-in-Picture) window.
**Image Adjust Menu**

This menu is used for making common image adjustments for the current zone.

---

**Current Zone**

The zone that is currently being adjusted. All of the settings in this menu are saved per input. The zone’s corresponding input source is shown in the title bar, and the graphic beneath that shows which zone is being adjusted in the current Multi-Source View mode and Advanced Layout setting (if applicable).

The current zone can be changed via the menu or by using the ZONE 1-4 keys on the remote control.

**Note:** Changing the Current Zone setting via the ZONE 1-4 keys also changes the Audio Select setting.
### Image Adjust Menu

**Brightness**

Adjust the brightness value of the image

**Range:** 0–100; **Default:** 50

**Contrast**

Adjust the contrast of the image

**Range:** 0–100; **Default:** 50

**Color**

Adjust the saturation of the image

**Range:** 0–100; **Default:** 50

**Tint**

Adjust the hue of the image

**Range:** 0–100; **Default:** 50

**Sharpness**

Adjust the sharpness of the image. Higher numbers are sharper

**Range:** 0–10; **Default:** 5

**Noise Reduction**

Turn on noise reduction processing

**Options:** Off, Low, Medium, High; **Default:** Off

**Diagnostic Color**

Set the image to monochrome. This setting is for use in adjustments to a test pattern and is not stored.

**Options:** Off, Red, Green, Blue; **Default:** Off

**Color Space**

Set the color space of the image

**Options:** REC601, REC709, RGB, RGB Video, Auto; **Default:** Auto

**Color Temperature**

Set the color temperature of the image

**Options:** 3200K, 5500K, 6500K, 7500K, 9300K, Native; **Default:** Native

**Red Gain**

Adjust the red gain of the image

**Range:** 0–200; **Default:** 100

**Green Gain**

Adjust the green gain of the image

**Range:** 0–200; **Default:** 100
<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
<th>Range</th>
<th>Default</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Blue Gain</strong></td>
<td>Adjust the blue gain of the image</td>
<td>0~200</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td><strong>Red Offset</strong></td>
<td>Adjust the red offset of the image</td>
<td>0~100</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td><strong>Green Offset</strong></td>
<td>Adjust the green offset of the image</td>
<td>0~100</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td><strong>Blue Offset</strong></td>
<td>Adjust the blue offset of the image</td>
<td>0~100</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td><strong>Gamma</strong></td>
<td>Set the gamma of the image</td>
<td>1.5, 1.55, 1.6, 1.65, 1.7, 1.75, 1.8, 1.85, 1.9, 1.95, 2.0, 2.05, 2.1, 2.15, 2.2, 2.25, 2.3, 2.35, 2.4, 2.45, 2.5, 2.55, 2.6, 2.65, 2.7, 2.75, 2.8</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td><strong>Content Rotation</strong></td>
<td>Rotate the image on the display</td>
<td>None, 90, 180, 270</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td><strong>Aspect Ratio</strong></td>
<td>Set how the source is treated when the aspect ratio of the input is different than the aspect ratio of the zone it is in. If the image does not fill the zone completely, the extra margins are black.</td>
<td>Auto, 16:9, 4:3, Fill Screen, Native, Letterbox</td>
<td>Auto</td>
<td></td>
</tr>
<tr>
<td><strong>Overscan</strong></td>
<td>Set the percentage of the image to remove from each edge</td>
<td>0~20</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Image Position</strong></td>
<td>Move the image horizontally or vertically. The amount to move is measured in input pixels.</td>
<td>-1000~1000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Revert to Defaults</strong></td>
<td>Reset all settings in the Image Adjust menu to their factory defaults for the current zone only</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Audio Menu

This menu enables you to make audio adjustments to the selected zone.

**Note:** Volume, Bass, Treble and Balance do not apply to the S/PDIF output.

---

**Audio Select**

The zone that is currently being adjusted and whose audio is being played. The zone’s corresponding input source is shown in the title bar.

**Options:** Zone 1, Zone 2, Zone 3, Zone 4; **Default:** Zone 1

**Note:** Changing the Audio Select setting via the ZONE 1-4 keys also changes the Current Zone setting.

---

**Volume**

Set the volume of the audio

**Range:** 0~100; **Default:** 50

---

**Bass**

Set the bass level

**Range:** 0~100; **Default:** 50

**Note:** This setting applies only to the internal speakers, and cannot be adjusted for the Line Out connector.

---

**Treble**

Set the treble level

**Range:** 0~100; **Default:** 50

**Note:** This setting applies only to the internal speakers, and cannot be adjusted for the Line Out connector.
Audio Menu

<table>
<thead>
<tr>
<th>Balance</th>
<th>Set the audio balance</th>
<th>Range: 0~100; Default: 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Internal Speakers</td>
<td>Disable or enable the built-in speakers</td>
<td>Options: On, Off; Default: On</td>
</tr>
<tr>
<td>Mute</td>
<td>Mute or unmute the audio</td>
<td>Options: On or Off; Default: Off</td>
</tr>
</tbody>
</table>
Presets Menu

This menu enables you to save Inputs and Views settings, Image Adjust settings, Audio settings, the Backlight Intensity setting, the Local Dimming setting, and Tiling settings. You can save up to 10 presets using this menu (more can be saved via the serial command interface). If a preset is saved, it will appear as “Preset 1”, “Preset 2”, and so on. If it is not saved, it will appear as “<Empty>”.

Recall

Apply the setup from the selected preset
Range: Preset 1~Preset 10

Save

Save the current setup for later recall
Range: Preset 1~Preset 10

Delete

Delete the selected preset
Range: Preset 1~Preset 10
Advanced Settings Menu

Panel Brightness Submenu

**Intensity**
Set the intensity of the LCD backlight
*Range: 0~100; Default: 75*

**Local Dimming**
Turn on or off the local dimming function, if supported by the display
*Options: On, Off; Default: On*

*Note: This setting is not supported on the 75".*
Power Submenu

Auto Power On

Set whether the system will automatically leave standby mode after AC power is applied
Options: On, Off; Default: Off

Power Saving Mode

Set the action to take if there is no signal detected after the period of time selected by the Power Saving Delay setting:
- **Disabled**: The display will remain on even if no signal is present.
- **Low Power**: The display will enter standby mode if no signal is detected after the specified period of time.
- **Wake on Signal**: The display will enter a reduced power mode if no signal is detected after the specified period of time. When in this state, the display will turn on when a signal is detected or when any key is pressed on the keypad or IR remote.

Power Saving Delay

Set the number of minutes to delay before initiating the power saving mode action (if any)
Options: 1 Minute, 5 Minutes, 15 Minutes, 30 Minutes, 60 Minutes; Default: 5 minutes

Power On Delay

Select the amount of time to delay before turning on the display. Depending on the electrical capabilities at the installation site, it can be necessary to adjust the power on sequence of the displays if there are multiple displays in the installation. Use this control to ensure that each display will power on at a different time, avoiding such problems.
Options: 0–10 seconds, in 0.1 second increments; Default: 0 seconds

OPS Power Down Check

When this is enabled, the system will wait for a signal from the OPS module indicating it has finished its power down sequence before going into standby
Options: Disable, Enable; Default: Enable
Network Submenu

The default static IP values are:

- IP Address: 192.168.12.12
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.12.1

The static IP settings that you program will be used if a DHCP server cannot be found.

<table>
<thead>
<tr>
<th>MAC Address</th>
<th>The MAC address of the system</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>The current network address. You can use the number keys on the remote to enter this information.</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>The current subnet mask. You can use the number keys on the remote to enter this information.</td>
</tr>
<tr>
<td>Default Gateway</td>
<td>The current default gateway. You can use the number keys on the remote to enter this information.</td>
</tr>
<tr>
<td>DNS Server</td>
<td>The current DNS server. You can use the number keys on the remote to enter this information.</td>
</tr>
</tbody>
</table>

**Note:** The specified DNS server is used when Use Network Time is checked for the Set Date and Time setting.

**DHCP**

- Turn DHCP on or off
  - **Options:** On, Off; **Default:** On
### Menus and Messages Submenu

**Menu Position**

Move the OSD menu to a different location on the screen.  
**Options:** Center, Upper Left, Upper Right, Lower Left, Lower Right;  
**Default:** Center

**OSD Transparency**

Set the transparency of the OSD so that the image behind it can be seen. Higher values mean greater transparency.  
**Range:** 0–5;  
**Default:** 0

**OSD Timeout**

Set the amount of time in seconds since the last keypress before the OSD menu automatically closes. If set to Off, the menu never automatically closes.  
**Options:** Off, 10 Seconds, 30 Seconds, 60 Seconds, 120 Seconds, 240 Seconds;  
**Default:** 60 Seconds

**Allow Pop Up Messages**

Suppress messages that pop up automatically. When set to No, the source status message and the volume slider bar will not be displayed.  
**Options:** Yes or No;  
**Default:** Yes

**Allow Splash Screen**

Enable or disable the splash screen during startup.  
**Options:** Enable or Disable;  
**Default:** Enable

**OSD Rotation**

Rotate the OSD menu so that it is readable if the display is mounted in portrait orientation.  
**Options:** Landscape or Portrait;  
**Default:** Landscape
Blank Screen Color

Select the color to display when there is no signal in a zone
**Options:** Black, White, Gray, Red, Green, Blue, Cyan, Magenta, Yellow
**Default:** Black

Schedule Submenu
Set Date and Time

Set the internal system clock. If **Use Network Time** is unchecked, you can set the following settings individually: Time Zone, Year, Month, Day, Date, Hour, and Minute.

**Note:** If Use Network Time is checked and DHCP is unchecked, the display will be unable to obtain the network time unless a DNS server is programmed. This is done via the DNS Server setting in the Network menu or the serial command interface.

Set Event 1~Event 20

**Event Enabled:** Turns on the event. If disabled, the settings are saved so that the event can be re-enabled.

**Frequency:** The frequency of the event. Options are Daily, Weekly, Weekdays, Weekends.

**Action:** The action to take for the event. Options are Turn On, Turn Off, Recall, Panel Brightness.

**Data:** The preset to recall when the Action is set to Recall, or the backlight setting when the Action is set to Panel Brightness.
EDID Submenu

This menu specifies the EDID format and preferred timing for the selected connector.

Selected Connector

Set which connector is used

**Options:** HDMI 1, HDMI 2, HDMI 3, HDMI 4, DP, OPS, All

Program EDID

Program the EDID information for the selected connector based on the selections in the EDID submenu

EDID Type

Set the EDID type to determine the base EDID used for the current connector:

- 4K60 selects an EDID format compliant with HDMI 2.0 and DP 1.2
- 4K30 selects an EDID format compliant with HDMI 1.4b and DP 1.1
- 1080P selects an EDID format compliant with HDMI 1.3 and DP 1.1

**Options:** 4K60, 4K30, 1080P

Horizontal Active

The number of active pixels in a line

**Range:** 0~4095
| **Vertical Active** | The number of active lines in a field  
**Range:** 0~4095 |
|--------------------|--------------------------------------------------|
| **Vertical Refresh Rate** | The number of fields per second rounded to the nearest Hz  
**Range:** 0~120 |
| **Fully Specified** | Determine how the final detailed timing is calculated. If disabled, it is calculated based on Horizontal Active, Vertical Active, and Vertical Refresh Rate values. If enabled, it is calculated based on all of the EDID values except for Vertical Refresh Rate.  
**Options:** Disabled, Enabled  
**Note:** This setting should only be enabled by advanced users. |
| **Pixel Clock** | The value of the pixel clock, in megahertz  
**Range:** 0~600.00, in 0.01 increments |
| **Horizontal Blanking** | The number of non-active pixel clocks in a line  
**Range:** 0~1023 |
| **Horizontal Front Porch** | The number of pixel clocks in the horizontal front porch  
**Range:** 0~1023 |
| **Horizontal Sync Width** | The number of pixel clocks in the horizontal sync pulse  
**Range:** 0~255 |
| **Vertical Blanking** | The number of non-active lines in a field  
**Range:** 0~255 |
| **Vertical Front Porch** | The number of line times in the vertical front porch  
**Range:** 0~255 |
| **Vertical Sync Width** | The number of line times in the vertical sync  
**Range:** 0~255 |
Advanced Settings Menu

**Revert to Factory**

Reset the EDID type and timings to the default values for the selected connector.

**Advanced Color Submenu**

This menu adjusts the color coordinates of the current zone. These controls are used by advanced installers to achieve exact color point targets on the display. In some cases, the target color coordinates may not be achievable. In this case, an asterisk (*) will appear next to the color coordinate value.

**Note:** The white color point should be adjusted before adjusting the other color points.
Current Zone

The zone that is currently being adjusted. All of the settings in this menu are saved per zone, and all color coordinate values are also saved per Color Gamut setting. The zone’s corresponding input source is shown in the title bar, and the graphic beneath that shows which zone is being adjusted in the current Multi-Source View mode and Advanced Layout setting (if applicable).

The current zone can be changed via the menu or by using the ZONE 1-4 keys on the remote control.

Note: Changing the Current Zone setting via the ZONE 1-4 keys also changes the Audio Select setting.

White x

Adjust the x coordinate of the white color point
Range: 0.000-0.800

White y

Adjust the y coordinate of the white color point
Range: 0.000-0.800

Red x

Adjust the x coordinate of the red color point
Range: 0.000-0.800

Red y

Adjust the y coordinate of the red color point
Range: 0.000-0.800

Green x

Adjust the x coordinate of the green color point
Range: 0.000-0.800

Green y

Adjust the y coordinate of the green color point
Range: 0.000-0.800

Blue x

Adjust the x coordinate of the blue color point
Range: 0.000-0.800

Blue y

Adjust the y coordinate of the blue color point
Range: 0.000-0.800
Advanced Settings Menu

**Cyan x**

Adjust the x coordinate of the cyan color point

*Range:* 0.000-0.800

**Cyan y**

Adjust the y coordinate of the cyan color point

*Range:* 0.000-0.800

**Magenta x**

Adjust the x coordinate of the magenta color point

*Range:* 0.000-0.800

**Magenta y**

Adjust the y coordinate of the magenta color point

*Range:* 0.000-0.800

**Yellow x**

Adjust the x coordinate of the yellow color point

*Range:* 0.000-0.800

**Yellow y**

Adjust the y coordinate of the yellow color point

*Range:* 0.000-0.800

**Copy to All Zones**

Copy the color coordinate settings for the current zone and the current Color Gamut setting to all other zones

**Revert to Defaults**

Reset the color coordinate settings for the current zone and the current Color Gamut setting to their default values
Tiling Submenu

This menu contains controls for using multiple UltraRes displays in a tiled configuration. This is useful when trying to display one image across multiple displays. In addition to setting up the width and height of the tiled wall, each display must have its position within the tiled wall properly selected. Refer to the diagrams below for example setting values in a 3 x 4 tiled wall.

**Note:** When using the Content Rotation feature, the Tiling settings must be adjusted differently in order to display the image properly. Refer to the examples below.

**Example 1:** 0 Degree Rotation, Wall Width = 3, Wall Height = 4

<table>
<thead>
<tr>
<th>Unit Row 1</th>
<th>Unit Row 1</th>
<th>Unit Row 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Column 1</td>
<td>Unit Column 2</td>
<td>Unit Column 3</td>
</tr>
<tr>
<td>Unit Row 2</td>
<td>Unit Row 2</td>
<td>Unit Row 2</td>
</tr>
<tr>
<td>Unit Column 1</td>
<td>Unit Column 2</td>
<td>Unit Column 3</td>
</tr>
<tr>
<td>Unit Row 3</td>
<td>Unit Row 3</td>
<td>Unit Row 3</td>
</tr>
<tr>
<td>Unit Column 1</td>
<td>Unit Column 2</td>
<td>Unit Column 3</td>
</tr>
<tr>
<td>Unit Row 4</td>
<td>Unit Row 4</td>
<td>Unit Row 4</td>
</tr>
<tr>
<td>Unit Column 1</td>
<td>Unit Column 2</td>
<td>Unit Column 3</td>
</tr>
</tbody>
</table>
**Example 2:** 180 Degree Rotation, Wall Width = 3, Wall Height = 4

<table>
<thead>
<tr>
<th>Unit Row 4</th>
<th>Unit Column 3</th>
<th>Unit Row 4</th>
<th>Unit Column 2</th>
<th>Unit Row 4</th>
<th>Unit Column 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Row 3</td>
<td>Unit Column 3</td>
<td>Unit Row 3</td>
<td>Unit Column 2</td>
<td>Unit Row 3</td>
<td>Unit Column 1</td>
</tr>
<tr>
<td>Unit Row 2</td>
<td>Unit Column 3</td>
<td>Unit Row 2</td>
<td>Unit Column 2</td>
<td>Unit Row 2</td>
<td>Unit Column 1</td>
</tr>
<tr>
<td>Unit Row 1</td>
<td>Unit Column 3</td>
<td>Unit Row 1</td>
<td>Unit Column 2</td>
<td>Unit Row 1</td>
<td>Unit Column 1</td>
</tr>
</tbody>
</table>
**Example 3:** 90 Degree Rotation, Wall Width = 4, Wall Height = 3

<table>
<thead>
<tr>
<th>Unit Row 3 Unit Column 1</th>
<th>Unit Row 2 Unit Column 1</th>
<th>Unit Row 1 Unit Column 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Row 3 Unit Column 2</td>
<td>Unit Row 2 Unit Column 2</td>
<td>Unit Row 1 Unit Column 2</td>
</tr>
<tr>
<td>Unit Row 3 Unit Column 3</td>
<td>Unit Row 2 Unit Column 3</td>
<td>Unit Row 1 Unit Column 3</td>
</tr>
<tr>
<td>Unit Row 3 Unit Column 4</td>
<td>Unit Row 2 Unit Column 4</td>
<td>Unit Row 1 Unit Column 4</td>
</tr>
</tbody>
</table>
**Example 4:** 270 Degree Rotation, Wall Width = 4, Wall Height = 3

<table>
<thead>
<tr>
<th>Unit Row 1</th>
<th>Unit Row 2</th>
<th>Unit Row 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Column 4</td>
<td>Unit Column 4</td>
<td>Unit Column 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Row 1</th>
<th>Unit Row 2</th>
<th>Unit Row 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Column 3</td>
<td>Unit Column 3</td>
<td>Unit Column 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Row 1</th>
<th>Unit Row 2</th>
<th>Unit Row 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Column 2</td>
<td>Unit Column 2</td>
<td>Unit Column 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit Row 1</th>
<th>Unit Row 2</th>
<th>Unit Row 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Column 1</td>
<td>Unit Column 1</td>
<td>Unit Column 1</td>
</tr>
</tbody>
</table>
# Advanced Settings Menu

## Tiling

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tiling Enabled</td>
<td></td>
</tr>
<tr>
<td>Wall Width</td>
<td>1</td>
</tr>
<tr>
<td>Wall Height</td>
<td>1</td>
</tr>
<tr>
<td>Unit Column</td>
<td>1</td>
</tr>
<tr>
<td>Unit Row</td>
<td>1</td>
</tr>
<tr>
<td>Frame Compensation</td>
<td></td>
</tr>
<tr>
<td>Frame Width</td>
<td>10</td>
</tr>
<tr>
<td>Frame Height</td>
<td>10</td>
</tr>
</tbody>
</table>

### Tiling Enabled

When enabled, the tiling parameters in the menu are used

**Options:** Disable, Enable; **Default:** Disable

### Wall Width, Wall Height

Select the width and height of the tiled wall

**Default:** Width=1, Height=1

### Unit Column, Unit Row

Selects the location of the current display within the tiled wall

**Default:** Column=1, Row=1

### Frame Compensation

When enabled, the image is scaled to compensate for the width of the display's bezel, using the Frame Width and Frame Height parameters. See "Frame Compensation Examples" on page 62.

**Options:** Disable, Enable; **Default:** Disable

### Frame Width, Frame Height

Selects how many lines/pixels are removed from the image to compensate for the display's bezel
**Frame Compensation Examples**

Below are examples with the Frame Compensation feature enabled (left) and disabled (right). Note that the eagle’s eye is noticeably different when Frame Compensation is disabled.
Test Patterns Submenu

This menu selects a test pattern to show on the display for diagnostic purposes.

Test Patterns

Options: Black, Gray, White, Red, Green, Blue, Magenta, Yellow, Cyan, Gray Ramp, Red Ramp, Blue Ramp, Color Bar, Checkerboard
System Settings Submenu

Touch Control

Set where the USB commands from the touch panel is routed:
- OPS routes the touch USB commands to the OPS module
- External routes the touch USB command to the USB-B connector
- Auto routes the touch USB commands to the OPS module if the OPS source is selected; otherwise, they are connected to the USB-B connector

Enable Status LED

When enabled, the status LEDs on the back of the display behave as indicated on page 29. When disabled, the status LEDs are always turned off.
Options: Disable, Enable; Default: Enable

Pixel Orbit

Create slight frame motion to help avoid image retention
Options: Enable, Disable; Default: Disable

MEMC

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

DisplayPort Type

Set the version of DisplayPort that is used by the system
Options: 1.1, 1.2; Default: 1.2
### Keypad Lock
Lock or unlock the keypad. When it is enabled, all keypad presses will be ignored.
**Options:** Enable, Disable; **Default:** Disable

### IR Remote Lock
Lock or unlock the remote control. When it is enabled, all remote control presses will be ignored.
**Options:** Enable, Disable; **Default:** Disable

### IR Remote ID Code
Selects the IR remote code set accepted by the display
**Options:** 00000-65535; **Default:** 01785

### Save All Settings to USB
Save all settings in the display to a USB flash drive. The saved file will be named *Planar-settings.bin* and will be saved in the root folder of the USB flash drive.
**Note:** A USB flash drive must be inserted into the USB-A connector prior to using this feature. The USB flash drive must be formatted as FAT32. This feature will not work with the NTFS file system.

### Restore All Settings from USB
Restores all settings in the display from a USB flash drive. The settings file must be named *Planar-settings.bin* and must be located in the root folder of the USB flash drive.
**Note:** A USB flash drive must be inserted into the USB-A connector prior to using this feature. The USB flash drive must be formatted as FAT32. This feature will not work with the NTFS file system.

### Save Diagnostics to USB
Save a diagnostic report to a USB flash drive to help Planar Technical Support troubleshoot any issues. The saved file will be named *Planar-diagnostics.bin* and will be saved in the root folder of the USB flash drive.
**Note:** A USB flash drive must be inserted into the USB-A connector prior to using this feature. The USB flash drive must be formatted as FAT32. This feature will not work with the NTFS file system.

### Factory Reset
Return the saved settings in a system to their factory defaults

### Firmware Update
Update the firmware for the display. Refer to the instructions on the firmware release package for more information.
Information Menu

System Information Submenu

This menu displays version information for all programmable parts in the system. It also contains the model and serial number.
Image Information Submenu

This menu displays image details for the current zone. If more than one zone is available, you can change zones by setting the **Current Zone** option.
**Error Log Submenu**

This menu displays a chronological list of system errors that have occurred. For a list of possible errors, see "Error Codes" on page 93.
Using the Touch Screen

You can use the touch screen to control your Windows, Mac, or Linux operating system. The Planar UltraRes Series is HID compliant, delivering up to 12 points of touch on both Windows and Linux without a driver. To achieve greater than 12 points of touch on a Planar UltraRes Touch display, a driver will need to be installed on the operating system. Drivers for Windows and Linux can be found on [http://www.planar.com/support](http://www.planar.com/support) and on the USB flash drive included with the display. Single touch only is supported for Mac operating systems. There is no driver required to enable Mac support.

**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 setting.

**Touchscreen MultiTouch Driver Installation**

1. With the PC on, plug in the USB memory stick to the USB port on your PC.
2. Locate and open the USB drive.
3. Double-click on the “mt_driver_kit [xxxxxx].exe” to install the driver.
4. Follow installation prompts until driver installation is complete. Once driver installation is complete, the touchscreen is ready for use.

**Touchscreen (PQLabs) MultiTouch Platform Content**

The PQLabs Software is used for troubleshooting and calibration. The different menus are described below.

1. On the PC, select the **Start** menu, **All Programs** and then **PQLabs Software**.
2. Click on “MultiTouch Platform” to open the PQLabs MultiTouch Platform window.

**Touchscreen Information**

- **Serial Number**: Displays the serial number of the connected touchscreen.
- **Firmware Version**: Displays the firmware version of the touchscreen selected under the “Serial Number” dropdown menu.
- **Touch Points**: Displays the number of touch points for which the touchscreen is capable.
- **Status**: Displays the current status of the touchscreen.
Calibration

- Calibration: Starts a 4-point calibration of the touchscreen. Perform the programmed touchscreen calibration process. At the conclusion of the calibration routine your touchscreen device is ready to use and will perform with accurately positioned touch points.
- Reset Calibration: Resets calibration to factory default settings.

Utility

- Diagnose: Starts the “MultiTouchDoctor” program. This can be used to troubleshoot issues with the touchscreen.

Options

- Default settings on options have the following programs enabled: Tuio Support, Flash Tuio Support, Handwriting Optimization, Enable Windows Native Touch, Enable Mouse/Keyboard Simulation, and Launch When Windows Starts Up.
- Flexible Scan Rate is at a default setting.

Uninstalling the MultiTouch Driver

1. On the PC, select the Start menu, All Programs and the PQLabs Software.
2. Click on the MultiTouch Driver.
3. Select the Uninstall option.
Planar UltraRes Remote Monitoring Software

Planar UltraRes Remote Monitoring is a software tool that displays information about the display via a web browser. It is used primarily to access the settings in the OSD as well as provides some additional features.

Remote Monitoring Home

Launch a web browser. Enter the IP address shown in the Network menu (see page 48). If successful, you should see the Remote Monitoring System Information page.

Remote Monitoring System Information

This page displays version information for all programmable parts in the system. It also contains the model and serial number.

For the OSD equivalent, refer to “System Settings Submenu” on page 64.
Remote Monitoring Inputs and Views

This page shows how the sources will be laid out on the screen based on the current Multi-Source View and Advanced Layouts selections.

For the OSD equivalent, refer to "Inputs and Views Menu" on page 37.
Remote Monitoring Audio

This page enables you to make audio adjustments to the selected zone.

**Note:** Volume, Bass, Treble and Balance do not apply to the S/PDIF output.

For the OSD equivalent, refer to "Audio Menu" on page 43.
Remote Monitoring Presets

This page enables you to save Inputs and Views settings, Image Adjust settings, Audio settings, the Backlight Intensity setting, the Local Dimming setting, and Tiling settings. You can save up to 64 presets using this page (more can be saved via the serial command interface). Only presets that contain saved data are shown in the table, with buttons to recall or delete the corresponding preset.

The controls below the table enable you to save a new preset, or overwrite an existing preset with the current display settings. To save or overwrite a preset, enter the preset number to save or overwrite, optionally enter a custom name for the preset, and then click the **Save** button.

For the OSD equivalent, refer to "Presets Menu" on page 45.

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preset 1</td>
<td>Recall</td>
</tr>
<tr>
<td>3</td>
<td>Video Conference</td>
<td>Recall</td>
</tr>
<tr>
<td>4</td>
<td>Guest PC</td>
<td>Recall</td>
</tr>
<tr>
<td>6</td>
<td>New Preset Name</td>
<td></td>
</tr>
</tbody>
</table>

Planar UltraRes

![Planar UltraRes User Manual](image)
Remote Monitoring Panel Brightness and Power

This page enables you to make adjustments to the brightness and power settings. For the OSD equivalents, refer to "Panel Brightness Submenu" on page 46 and "Power Submenu" on page 47.
Remote Monitoring Notifications

This page enables you to send email notifications on certain events.

<table>
<thead>
<tr>
<th>Event</th>
<th>Recipient(s)</th>
<th>Additional Note</th>
<th>Enabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power On/Off</td>
<td><a href="mailto:marques.granet@planar.com">marques.granet@planar.com</a></td>
<td>Testing 12345678</td>
<td></td>
</tr>
<tr>
<td>System Error</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Obtain this information from your ISP or network administrator.

The options under **Email Account Settings** are:

- **SMTP Server:** The name of the outgoing SMTP server. Obtain this information from your ISP.
- **Connection Encryption:** Selects the appropriate encryption method required by the SMTP server.
- **Port:** Selects the port that the SMTP server uses.
- **Authentication:** Use Auto unless directed by your ISP or network administrator.
- **User Name:** Login username for the SMTP server.
- **Password:** Login password for the SMTP server.
- **Email From Address:** The email address that will be shown in the “From:” field of the notification emails.
The options under **Notification Events** are:

- **Power On/Off**: Occurs when standby mode is entered and when the display is powered on.
- **System Error**: Occurs when the display has detected an error within the system.
- **Source Detect**: Occurs when the display detects and displays a new input signal.
- **Source Lost**: Occurs when the current input signal is no longer detected.
- **Source Selected**: Occurs when a different input source is selected for any of the zones.

**Note**: Each event can be sent to one or more recipients. To add multiple email addresses, separate them by a space.

- **Test Email**: Sends a test of the selected email notification. This is useful for verifying that your email account settings are setup correctly. If the test email fails, you can use the **View Last 10 Log Messages** button to get more detailed information about the failure.

### Remote Monitoring System Settings

This page enables you to make adjustments to a variety of system settings.

For the OSD equivalent, refer to "System Settings Submenu" on page 64.

![Planar UltraRes System Settings](image)
Remote Monitoring Access Control

This page enables you to limit the ability to access certain features in the web server by password protecting them.

All functions other than the following require Admin level access:
- Power On/Off
- System Information
- Inputs and Views
  - Multi-Source View
  - Zone inputs
- Presets
- Recall
- Audio
  - Volume
  - Mute
- Panel Brightness and Power
- Panel Brightness

With the exception of System Information, all functions listed above require User level access.

If no password is set for either access level, all functions can be accessed. By default, there are no passwords for either access level.
External Control

In addition to using the Planar UltraRes remote control and display, there are other methods of controlling the Planar UltraRes display externally:

- Using a serial link to send ASCII commands and to receive responses to those commands. The same set of commands can be sent over RS-232, USB, TCP or UDP. See the Planar UltraRes Series RS232 User Manual for more information.
- Using discrete infrared (IR) codes to program a third-party remote control. See "IR Command Protocol" on page 31.
- Using the Planar UltraRes Remote Monitoring software to access the settings in the OSD as well as some additional features via a web browser. See "Planar UltraRes Remote Monitoring Software" on page 71.
## Signal Compatibility

<table>
<thead>
<tr>
<th>Signal Type</th>
<th>Resolution</th>
<th>Frame Rate (Hz)</th>
<th>Line Rate (kHz)</th>
<th>Pixel Rate (MHz)</th>
<th>HDMI 1-2, OPS</th>
<th>HDMI 3-4</th>
<th>DisplayPort</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td>640x480</td>
<td>59.94</td>
<td>31.469</td>
<td>25.175</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT, CEA-861-F Format 1</td>
</tr>
<tr>
<td></td>
<td>640x480</td>
<td>72</td>
<td>37.861</td>
<td>31.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>640x480</td>
<td>74.99</td>
<td>37.500</td>
<td>31.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>640x480</td>
<td>85</td>
<td>43.269</td>
<td>36.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>800x600</td>
<td>60.32</td>
<td>37.890</td>
<td>40.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>800x600</td>
<td>72</td>
<td>48.077</td>
<td>50.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>800x600</td>
<td>75</td>
<td>46.875</td>
<td>49.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>800x600</td>
<td>85.06</td>
<td>53.674</td>
<td>56.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>848x480</td>
<td>59.659</td>
<td>29.830</td>
<td>31.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>848x480</td>
<td>74.769</td>
<td>37.684</td>
<td>41.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>848x480</td>
<td>84.751</td>
<td>42.969</td>
<td>46.750</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>1024x768</td>
<td>60</td>
<td>48.363</td>
<td>65.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1024x768</td>
<td>70</td>
<td>56.476</td>
<td>75.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1024x768</td>
<td>75.03</td>
<td>60.023</td>
<td>78.750</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1024x768</td>
<td>85.03</td>
<td>68.677</td>
<td>94.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1152x864</td>
<td>70.012</td>
<td>63.851</td>
<td>94.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1152x864</td>
<td>75</td>
<td>67.500</td>
<td>108.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1152x864</td>
<td>84.999</td>
<td>77.094</td>
<td>121.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1280x768</td>
<td>49.929</td>
<td>39.593</td>
<td>65.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>1280x768</td>
<td>59.995</td>
<td>47.396</td>
<td>68.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td></td>
<td>1280x768</td>
<td>60</td>
<td>47.776</td>
<td>79.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>1280x768</td>
<td>74.893</td>
<td>60.289</td>
<td>102.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>1280x768</td>
<td>84.837</td>
<td>68.633</td>
<td>117.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td></td>
<td>1280x960</td>
<td>60</td>
<td>60.000</td>
<td>108.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1280x960</td>
<td>75</td>
<td>75.000</td>
<td>126.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1280x960</td>
<td>85.002</td>
<td>85.938</td>
<td>148.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1280x1024</td>
<td>60.02</td>
<td>63.981</td>
<td>108.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1280x1024</td>
<td>75.02</td>
<td>79.976</td>
<td>135.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1280x1024</td>
<td>85.02</td>
<td>91.146</td>
<td>157.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td></td>
<td>1360x768</td>
<td>60</td>
<td>47.712</td>
<td>85.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td>Signal Type</td>
<td>Resolution</td>
<td>Frame rate (Hz)</td>
<td>Line Rate (kHz)</td>
<td>Pixel Rate (MHz)</td>
<td>HDMI 1-2, OPS</td>
<td>HDMI 3-4</td>
<td>DisplayPort</td>
<td>References</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>---------------</td>
<td>----------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>PC</td>
<td>1400x1050</td>
<td>49.965</td>
<td>54.113</td>
<td>100.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1400x1050</td>
<td>60</td>
<td>64.7</td>
<td>101.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>1400x1050</td>
<td>60</td>
<td>65.317</td>
<td>121.750</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1400x1050</td>
<td>74.867</td>
<td>82.278</td>
<td>156.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1600x1200</td>
<td>60</td>
<td>75.000</td>
<td>162.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA DMT</td>
</tr>
<tr>
<td>PC</td>
<td>1920x1080</td>
<td>49.929</td>
<td>55.621</td>
<td>141.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1920x1080</td>
<td>59.963</td>
<td>67.158</td>
<td>173.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1920x1080</td>
<td>59.950</td>
<td>66.587</td>
<td>138.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>1920x1200</td>
<td>49.932</td>
<td>61.816</td>
<td>158.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1920x1200</td>
<td>59.950</td>
<td>74.038</td>
<td>154.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>1680x1050</td>
<td>49.974</td>
<td>54.121</td>
<td>119.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1680x1050</td>
<td>59.954</td>
<td>65.290</td>
<td>146.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT</td>
</tr>
<tr>
<td>PC</td>
<td>1920x2160</td>
<td>60</td>
<td>135.000</td>
<td>297.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F, VIC 16, with vertical parameters doubled</td>
</tr>
<tr>
<td>PC</td>
<td>2560x1440</td>
<td>59.951</td>
<td>88.787</td>
<td>241.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>2560x1600</td>
<td>59.972</td>
<td>98.713</td>
<td>268.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>3840x2160</td>
<td>24</td>
<td>52.438</td>
<td>209.750</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>3840x2160</td>
<td>30</td>
<td>65.688</td>
<td>262.750</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>3840x2160</td>
<td>50</td>
<td>110.500</td>
<td>442.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>PC</td>
<td>3840x2160</td>
<td>60</td>
<td>133.313</td>
<td>533.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>VESA CVT-R</td>
</tr>
<tr>
<td>Apple Mac</td>
<td>640x480</td>
<td>66.59</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Apple Mac</td>
<td>832x624</td>
<td>75.087</td>
<td>49.107</td>
<td>55.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Apple Mac</td>
<td>1024x768</td>
<td>59.278</td>
<td>48.193</td>
<td>64.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Apple Mac</td>
<td>1024x768</td>
<td>74.927</td>
<td>60.241</td>
<td>80.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Apple Mac</td>
<td>1152x870</td>
<td>75.062</td>
<td>68.681</td>
<td>100.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>SDTV</td>
<td>480i</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>SDTV</td>
<td>576i</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>EDTV</td>
<td>480p</td>
<td>60</td>
<td>31.469</td>
<td>27.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>ITU-R BT.1358, CEA-861-F Format 17 &amp; 18</td>
</tr>
<tr>
<td>EDTV</td>
<td>576p</td>
<td>50</td>
<td>31.250</td>
<td>27.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 125M, CEA-861-F Format 6 &amp; 7</td>
</tr>
<tr>
<td>Signal Type</td>
<td>Resolution</td>
<td>Frame rate (Hz)</td>
<td>Line Rate (kHz)</td>
<td>Pixel Rate (MHz)</td>
<td>HDMI1-2, OPS</td>
<td>HDMI3-4</td>
<td>DisplayPort</td>
<td>References</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>----------------</td>
<td>----------------</td>
<td>-----------------</td>
<td>-------------</td>
<td>---------</td>
<td>-------------</td>
<td>------------</td>
</tr>
<tr>
<td>HDTV</td>
<td>1080i</td>
<td>50</td>
<td>28.125</td>
<td>74.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 20</td>
</tr>
<tr>
<td></td>
<td>1080i</td>
<td>60</td>
<td>33.750</td>
<td>74.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 5</td>
</tr>
<tr>
<td></td>
<td>720p</td>
<td>50</td>
<td>37.500</td>
<td>74.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 296M, CEA-861-F Format 19</td>
</tr>
<tr>
<td></td>
<td>720p</td>
<td>60</td>
<td>45.000</td>
<td>74.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 296M, CEA-861-F Format 4</td>
</tr>
<tr>
<td></td>
<td>1080p</td>
<td>24</td>
<td>27.000</td>
<td>74.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 32</td>
</tr>
<tr>
<td></td>
<td>1080p</td>
<td>25</td>
<td>28.125</td>
<td>74.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 33</td>
</tr>
<tr>
<td></td>
<td>1080p</td>
<td>30</td>
<td>33.750</td>
<td>74.250</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 34</td>
</tr>
<tr>
<td></td>
<td>1080p</td>
<td>50</td>
<td>56.250</td>
<td>148.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 31</td>
</tr>
<tr>
<td></td>
<td>1080p</td>
<td>60</td>
<td>67.500</td>
<td>148.500</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>SMPTE 274M, CEA-861-F Format 16</td>
</tr>
<tr>
<td>UHDTV</td>
<td>3840x2160</td>
<td>24</td>
<td>54.000</td>
<td>297.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 93, HDMI 1.4b VIC 1</td>
</tr>
<tr>
<td></td>
<td>3840x2160</td>
<td>25</td>
<td>56.250</td>
<td>297.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 94, HDMI 1.4b VIC 2</td>
</tr>
<tr>
<td></td>
<td>3840x2160</td>
<td>30</td>
<td>67.500</td>
<td>297.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 95, HDMI 1.4b VIC 3</td>
</tr>
<tr>
<td></td>
<td>3840x2160</td>
<td>50</td>
<td>67.500</td>
<td>297.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 96, 4:2:0 sub-sampling</td>
</tr>
<tr>
<td></td>
<td>3840x2160</td>
<td>50</td>
<td>135.000</td>
<td>594.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 96</td>
</tr>
<tr>
<td></td>
<td>3840x2160</td>
<td>60</td>
<td>67.500</td>
<td>297.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 97, 4:2:0 sub-sampling</td>
</tr>
<tr>
<td></td>
<td>3840x2160</td>
<td>60</td>
<td>135.000</td>
<td>594.000</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>CEA-861-F Format 97</td>
</tr>
</tbody>
</table>
# Color Subsampling Support

<table>
<thead>
<tr>
<th>Video Timing</th>
<th>Input</th>
<th>RGB 4:4:4 Supported</th>
<th>YUV 4:4:4 Supported</th>
<th>YUV 4:2:2 Supported</th>
<th>YUV 4:2:0 Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>4K @ 50/60 Hz</td>
<td>DP</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>4K @ 50/60 Hz</td>
<td>HDMI 1-2, OPS</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>4K @ 50/60 Hz</td>
<td>HDMI 3-4</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>All Other Supported Timings</td>
<td>Any</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>
# Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>UR7551</th>
<th>UR7551-ERO</th>
<th>UR8451-LX</th>
<th>UR8451-LX-ERO</th>
<th>UR8451-MX</th>
<th>UR8451-MX-ERO</th>
<th>UR9851</th>
<th>UR9851-ERO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LCD Panel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td>3840 x 2160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspect Ratio</td>
<td>16:9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screen Size</td>
<td>75&quot;</td>
<td>84&quot;</td>
<td>84&quot;</td>
<td>98&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orientation</td>
<td>Landscape</td>
<td>Landscape</td>
<td>Landscape</td>
<td>Portrait</td>
<td>Landscape</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brightness (Typ.)</td>
<td>450 cd/m²</td>
<td>350 cd/m²</td>
<td>500 cd/m²</td>
<td>500 cd/m²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>N/A</td>
<td>20000:1</td>
<td>20000:1</td>
<td>20000:1</td>
<td>20000:1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(local dimming</td>
<td>enabled)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>5000:1</td>
<td>1600:1</td>
<td>1400:1</td>
<td>1300:1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(local dimming</td>
<td>disabled)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>178°</td>
<td>178°</td>
<td>178°</td>
<td>178°</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Typ.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Time</td>
<td>6ms</td>
<td>5ms</td>
<td>5ms</td>
<td>8ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Typ.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color Gamut</td>
<td>72% NTSC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Color</td>
<td>1.07 billion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(10 bit depth)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connectivity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Inputs</td>
<td>DisplayPort 1.2, HDMI 2.0 x 2, HDMI 1.4 x 2, OPS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio Output</td>
<td>Line out, S/PDIF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control and Monitoring</td>
<td>LAN RJ45, RS232 In, IR, Keypad, Planar® UltraRes™ App</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Display Dimensions (Unmounted and Mounted)</td>
<td>Standard/ERO™: 66.6&quot; x 38.1 x 3.6&quot; (1691 mm x 969 mm x 93 mm)</td>
<td>Standard/ERO™: 75.5&quot; x 43.7 x 3.6&quot; (1919 mm x 1111 mm x 93 mm)</td>
<td>Standard/ERO™: 86.7&quot; x 49.5&quot; x 3.6&quot; (2203 mm x 1258 mm x 93 mm)</td>
<td>Touch: 67.7&quot; x 39.2 x 4.1&quot; (1719 mm x 997 mm x 104 mm)</td>
<td>Touch: 76.4&quot; x 44.6&quot; x 4.1&quot; (1941 mm x 1133 mm x 104 mm)</td>
<td>Touch: 87.6&quot; x 50.4&quot; x 4.1&quot; (2225 mm x 1280 mm x 104 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>UR7551</td>
<td>UR7551-ERO</td>
<td>UR8451-LX</td>
<td>UR8451-LX-ERO</td>
<td>UR8451-MX</td>
<td>UR8451-MX-ERO</td>
<td>UR9851</td>
<td>UR9851-ERO</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------</td>
<td>------------</td>
<td>-----------</td>
<td>---------------</td>
<td>-----------</td>
<td>---------------</td>
<td>---------</td>
<td>------------</td>
</tr>
</tbody>
</table>
| Bezel Width          | Standard/ERO: 0.8” (20 mm)  
Touch: 1.4” (34mm) | Standard/ERO: 1.15” (29.1 mm) left/right; 1.26” (32.1 mm) top/bottom  
Touch: 1.58” (40.1 mm) left/right; 1.70” (43.1 mm) top/bottom | Standard/ERO: 0.9” (22 mm)  
Touch: 1.3” (33 mm) |
| Display Weight       | Standard: 165 lbs (75 kg)  
ERO: 185 lbs (84 kg)  
Touch: 205 lbs (93 kg) | Standard: 200 lbs (91 kg)  
ERO: 225 lbs (102 kg)  
Touch: 250 lbs (113 kg) | Standard: 255 lbs (115 kg)  
ERO: 305 lbs (138 kg)  
Touch: 330 lbs (150 kg) |
| Mounting             | Planar Profile Mounting System or VESA 400 x 400 mm | Planar Profile Mounting System or VESA 600 x 400 mm | |
| Wall Mount Weight    | Landscape: 21.4 lbs (9.7 kg)  
Portrait: 17.0 lbs (7.7 kg) | Landscape: 22.5 lbs (10.2 kg)  
Portrait: 17.6 lbs (8.0 kg) | Landscape: 24.7 lbs (11.2 kg)  
Portrait: 19.0 (8.6 kg) |
| Usage                | All-day  
All-day  | 24x7  | 24x7 |
| Backlight            | D-LED  | E-LED  | E-LED  | D-LED |
| Backlight Life       | 35,000 hours min | 30,000 hours min | |
| Power Source         | Power Consumption (Typ.) | 270W  | 360W  | 410W |
| BTUs/hr (Typ.)       | 270W x 3.42 BTU = 923 BTU/hr | 360W x 3.42 BTU = 1231 BTU/hr | 410W x 3.42 BTU = 1402 BTU/hr |
| Standby Power Consumption | <1.2W |
| Environment          | Min -4°F ~ Max 140° F (-20°C ~ 60°C) |
|                      | Min 32°F ~ Max 104°F (0 ~ 40°C) at up to 1500 m;  
Min 32°F ~ Max 95°F (0 ~ 35°C) at up to 3000 m | Min 32°F ~ Max 95°F (0 ~ 35°C) at up to 1500 m;  
Min 32°F ~ Max 86°F (0 ~ 30°C) at up to 3000 m |

### Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Humidity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approvals</td>
<td>FCC Class A, cTUVus, CE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERO (ERO and ERO-T models only)</td>
<td></td>
<td></td>
<td>Anti-glare (AG)</td>
<td>Anti-reflective (AR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass Type</td>
<td>2mm Corning® Gorilla® Glass</td>
<td>3mm soda-lime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Touch (ERO-T models only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Touch Technology</td>
<td>IR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supporting OS</td>
<td>Windows 7, 8, 10, Vista, XP, Mac OSX, and Linux</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dimensions

UR7551
UR8451 Touch


90
Troubleshooting During Installation

This section includes troubleshooting information about different issues you may encounter during the installation process or after your display has been running for some time. If you are not able to solve your issue in this section, please contact Planar’s Technical Support team for assistance.

Error Codes

To see the last 50 errors that have occurred, select the Error Log tab in the OSD (MAIN MENU > INFORMATION > ERROR LOG), as shown below.
Possible error codes include:

- Power supply 1 issue
- Power supply 2 issue
- Power supply 3 issue
- Calibration EEPROM board disconnected

Note the following:

- One power supply failure will limit the backlight intensity to 50% maximum and two power supply failures will shut off the display.
- Power supply 3 issues do not apply to the 75” model.

Symptoms, Possible Causes and Solutions

Below are different symptoms that you might encounter as you install your Planar UltraRes display. First look at the different symptoms to see if you can find your issue. And then look at the possible cause and try the suggested solution(s). If you still are not able to resolve your issue, please contact Planar’s Technical Support Department.

Symptom: Can’t Get PC to Output 4K @ 24/30/60 Hz

Solution

Make sure that your graphics card can support a 4K output. See "Supported Graphics Cards" on page 26 for a list of the current graphics cards that Planar supports for the Planar UltraRes Series displays.

Solution

Confirm that you are using a DisplayPort output. You can’t use a DisplayPort-to-HDMI adapter to output 4K content.

Solution

Make sure you are using a high-speed HDMI cable. Standard HDMI cables might work but are not guaranteed.

Solution

Verify that the selected **EDID Type** setting in the OSD is **4K60** or **4K30**. If you change the EDID setting, you may need to disconnect and reconnect the cable.

Solution

If you are trying to use 4K @ 60 Hz on HDMI, the display must be connected to HDMI 1 or HDMI 2.
Symptom: Can’t Get PC to Output 4K @ 24/30/60 Hz

Solution
If you are trying to display 4K @ 60 Hz on HDMI 1 or HDMI 2, the Multi-Source View setting must be Single.

Symptom: Can’t Get PC to Output 4K @ 24/30/60 Hz

Possible Cause
The connector overmold is too large, which can cause the pins not to contact properly on some cards.

Solution
If using DisplayPort, make sure the connector overmold isn’t too large.

Symptom: Can’t Select OPS or HDMI 1

Solution
The OPS and HDMI sources cannot be viewed at the same time. If your Multi-Source View setting is not Single, and you select OPS in a zone, any zones that are showing HDMI 1 will automatically change to OPS. Conversely, if you select HDMI 1 in a zone, any zones that are currently showing OPS will automatically change to HDMI 1.
Symptom: IR Isn’t Working Properly

Possible Cause
The wired IR module may not be fully connected.

Solution
Make sure the IR is fully connected by pressing hard to ensure it is inserted as far as possible.

Possible Cause
The wired IR module cable is not being used.

Solution
Make sure that the wired IR module cable is being used.
Accessing Planar’s Technical Support Website

Visit http://www.planar.com/support for the following support documents and resources:

- User Manual
- RS232 User Manual
- Touch screen drivers
- Standard warranties
- Planar support hotline number and email
Index

A
adjusting volume, 34
advanced settings menu, 46
audio menu, 43
avoiding temporary image retention, 4

C
cleaning the display, 7
codes, error, 93
color subsampling, 83
connecting
touch screen, 69
control, external, 79

D
dimensions, 87
display
installing, 11

E
error codes, 93
external control, 79

I
image adjust menu, 40
information menu, 66
input source
selecting, 35
inputs and view menu, 37
installation
before you build, 11
of display on a wall, 12
of LCD, 11
OPS expansion slot, 25
safety precautions, 3
introduction, 1

IR codes, using, 31
IR commands
for Planar UltraRes, 31
protocol, 31
IR not working, 96

K
kickstand bracket
using, 22

L
LCD
installation, 11
mounts, 8
LCD display, 8
locking, 33

M
menus
advanced settings, 46
audio, 43
image adjust, 40
information, 66
inputs and views, 37
presets, 45
using, 36
mounting template for LCD mounts, 8

N
navigating menus, 36
normal usage guidelines, 6

O
OPS expansion slot
installation, 25
optional
Index

LCD mounts, 8
mounting template, 8
using the kickstand bracket, 22
osd menus, 33, 36
unlocking, 33

P
package contents, 8
Planar UltraRes display
installing on a wall, 12
troubleshooting via error codes, 93
presets menu, 45

R
recommended usage, 4
remote control
using, 30

S
safety
during installation, 3
information, 2
precautions, 2
precautions during use, 4
selecting input source, 35
service plans, ii
signal compatibility, 80
specifications, 84
subsampling
color, 83
supported timings, 80

temporary image retention
avoiding, 4
definition, 4
timings, 80
TIR see temporary image retention
touchscreen
using the touchscreen, 69
troubleshooting, 93
during installation, 93
error codes in Planar UltraRes, 93

U
using the kickstand bracket, 22
using the remote, 30

V
volume, 34

W
warranty
information, ii