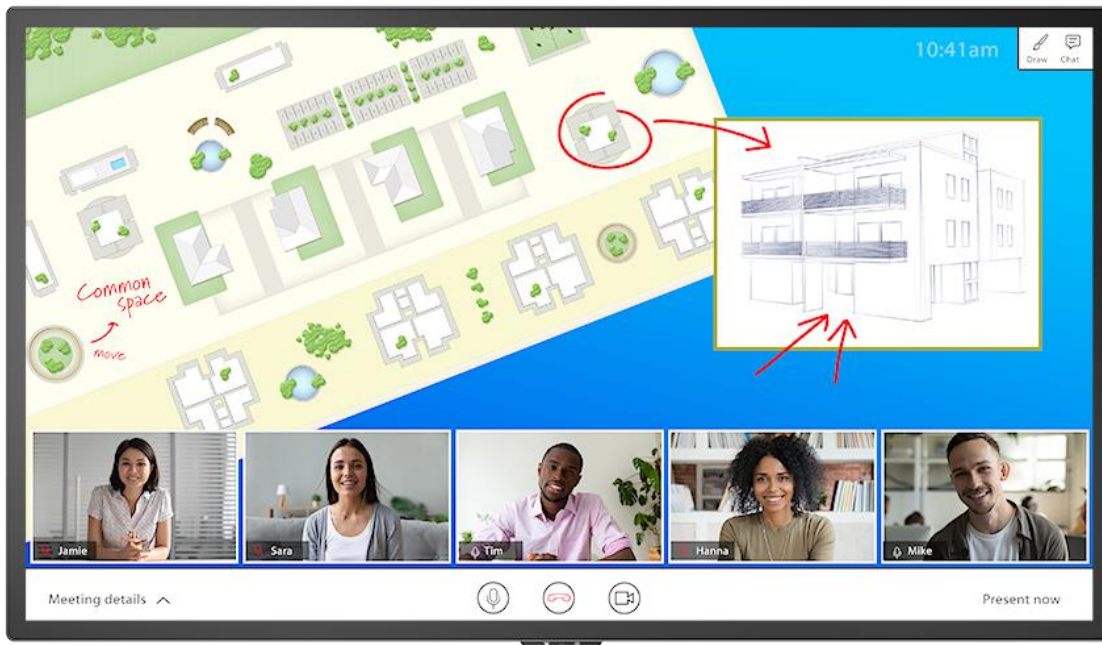


Planar® HB Series Huddle Board



HB75
HB86

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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 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 HB Series is fully RoHS compliant.

Part Number: 020-1392-00B

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Introduction

Planar® HB Series Huddle Board 75" and 86" displays are 4K resolution, 350-nit LCD touch screens with embedded tools tailored to in-room and remote unified communication. The huddle boards enable one-stop collaboration ideal for conference rooms, study group spaces and design centers, or the executive home office.

Planar HB Series Huddle Board displays feature a built-in Android® module complete with pre-loaded popular collaboration applications. The digital whiteboard enables image importing for easy annotation over maps, web pages screen shots, reports and more. Pinpoint-accurate 20-point touch delivers effective interactive experiences while using finger, active or passive stylus.

For added flexibility, all Planar HB Series displays come standard with expansion slots that support Intel's Open Pluggable Specification (OPS), making them compatible with a variety of OPS devices. The displays also have a variety of inputs that are easily paired to third-party peripherals such as webcam, audio system and/or microphone.

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

1. Safety Information

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

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

2. Safety Precautions

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

WARNING! Wall mounts must be secure.

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

Caution: The screen could be damaged by heavy pressure.

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

2.1 Important Safety Instructions:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use the display near water.
6. Clean the LCD screens with an LCD screen cleaner or LCD wipes.
7. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for the replacement of the obsolete outlet.
9. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles and the point where they exit from any Planar large format LCD display.
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. In instances where a power surge has occurred and a display no longer has an image, the display power will need to be reset.
13. You must follow all National Electrical Code regulations. In addition, be aware of local codes and ordinances when installing your system.
14. Refer all servicing to qualified service personnel. Servicing is required when any of the displays have been damaged in any way, such as the AC power cord or plug is damaged, liquid has been spilled or objects have fallen into a product, the products have been exposed to rain or moisture, do not operate normally or have been dropped.
15. Keep the packing material in case the equipment should ever need to be shipped.
16. Wall mounts must be secure. The wall must be strong enough to hold displays brackets, cables and accessories. Seismic engineers should be consulted in areas prone to earthquakes.
17. **Caution:** There is a risk of explosion if the battery is replaced with incorrect type. Dispose of used batteries according to local regulations.

3. Recommended Usage

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

3.1 Burn-In Versus Temporary Image Retention

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

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

What is Temporary Image Retention?

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

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

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

3.2 Warranty Coverage

The following models are warranted for **18 x 7** usage:

- 75": HB75
- 86": HB86

Planar recommends turning off the power for **8 hours per day** for optimal performance.

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

3.3 Important Waste Disposal Information

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

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



3.4 Normal Usage Guidelines

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

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

Cooling Requirements

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

4. VESA Mounts, General Description

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

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

Caution: Shorter screws will result in insufficient mounting strength and longer screws could puncture parts inside the display. The device may fall, causing serious personal injury or death. To prevent injury, this device must be securely attached to the wall in accordance with the installation instructions supplied with the mount. The mount must be secured to the Planar HB Series Huddle Board display using the four M8-1.25 VESA mounting locations, and 10mm - 15mm thread engagement is required for secure mounting. Select the correct screw/spacer combination for the mount.

- 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.
- Refer to the Planar Display Cleaning Guidelines for more information.

5. Cleaning the Display

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



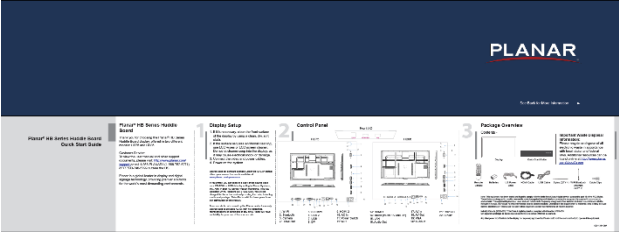
Remove the power plug before cleaning. Failure to do so may result in electrical shock or damage.

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

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

Package Contents

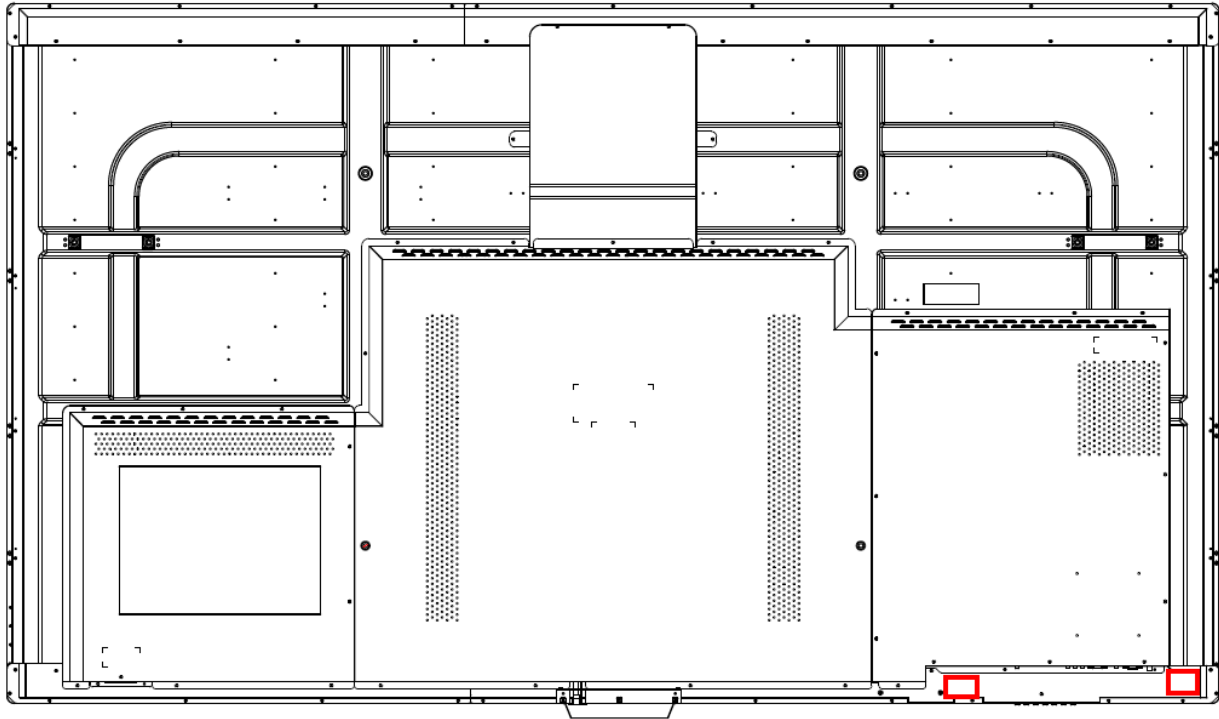
Part	Description	Number	Picture
LCD Display	One per box.	1	
HDMI Cable	HDMI cable.	1	
AC Power Cord (US)	Power cord (US)	1	
USB Cable	Connects to a PC for touch functionality.	1	
Remote Control	Used to control the display (AAA batteries included)	1	
Cable Clips	Used to clamp and organize the cables.	3	

Part	Description	Number	Picture
Wi-Fi Antenna	Dipole Antenna	3	
Stylus	2 active and 2 passive styluses.	4	
Quick Start Guide	Quick start guide.	1	

6. Installing the Cable Clips

Use the cable clips included in the Accessory Kit to assist with cable management. These clips adhere into place using adhesive backing as shown in the image below.

Attach clips near the HDMI and AC power cables to assist with cable routing and to release cable strain.

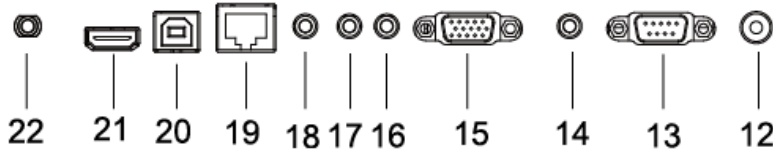
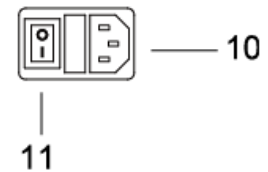
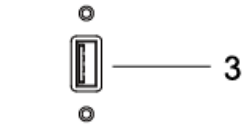
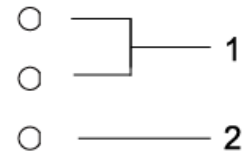
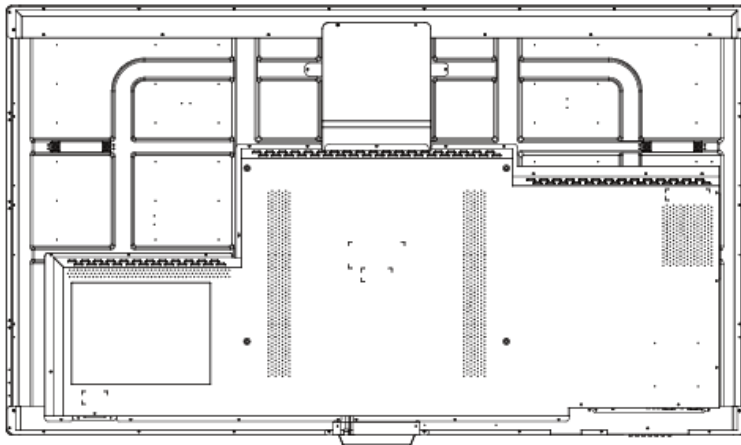


7. Standard Inputs

HB75



Front I/O

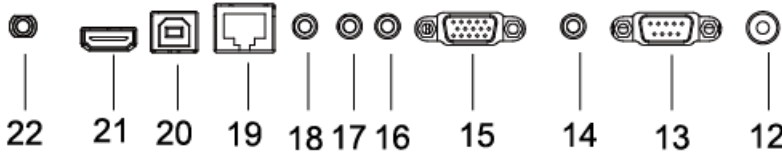
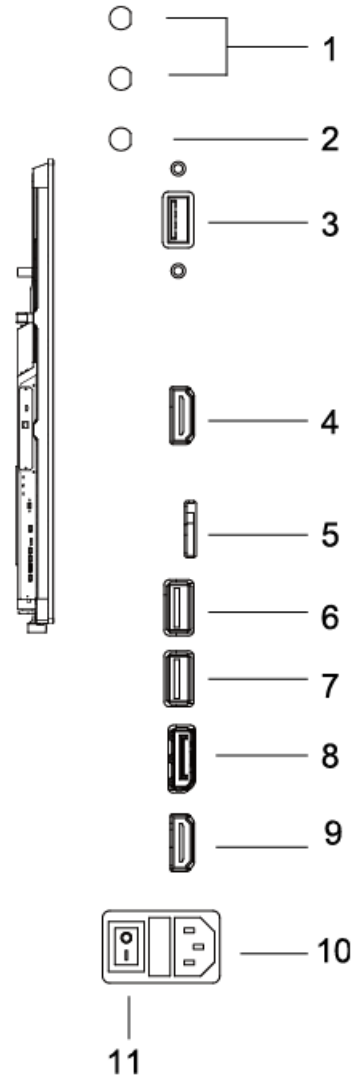
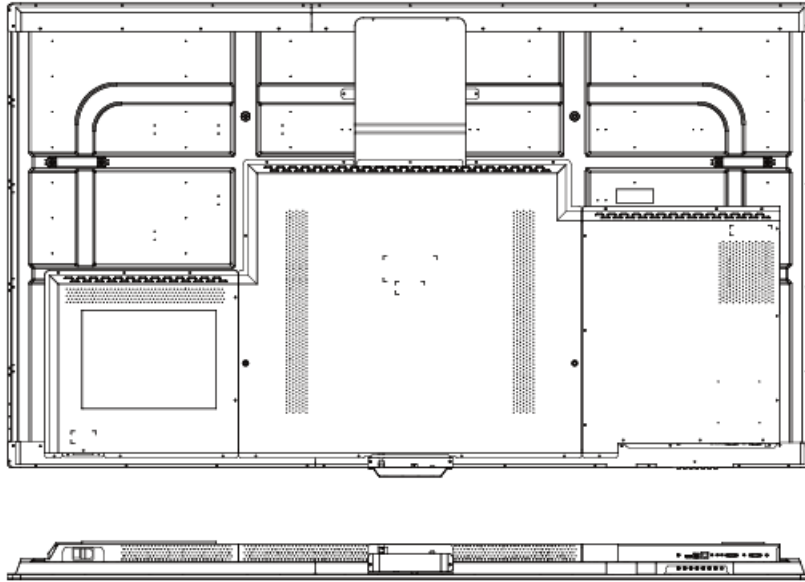


- | | | | |
|--------------|------------------|---------------|-----------------------------|
| 1: Wi-Fi | 7: USB-1 | 13: RS232C | 19: LAN |
| 2: Bluetooth | 8: DP | 14: Audio In | 20: Touch (HDMI 1/2 and DP) |
| 3: Camera | 9: HDMI 2 | 15: VGA | 21: HDMI 1 |
| 4: HDMI Out | 10: AC In | 16: AV Out | 22: MIC |
| 5: SD Card | 11: Power Switch | 17: AV In | |
| 6: USB-2 | 12: SPDIF | 18: Audio Out | |

HB86



Front I/O



- | | | | |
|--------------|------------------|---------------|-----------------------------|
| 1: Wi-Fi | 7: USB-1 | 13: RS232C | 19: LAN |
| 2: Bluetooth | 8: DP | 14: Audio In | 20: Touch (HDMI 1/2 and DP) |
| 3: Camera | 9: HDMI 2 | 15: VGA | 21: HDMI 1 |
| 4: HDMI Out | 10: AC In | 16: AV Out | 22: MIC |
| 5: SD Card | 11: Power Switch | 17: AV In | |
| 6: USB-2 | 12: SPDIF | 18: Audio Out | |

Installing the Display

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

8. Before You Begin

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

8.1 Tools/Equipment List

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

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

8.2 Other Things You May Need

- LCD screen cleaner or LCD wipes - available at most electronics stores
- At least two very strong people to help lift unit into place

8.3 Plan Your Installation

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

- Power maximums reference below by display size:
 - HB75: 4 units max per 20A circuit for 115V operation
 - HB86: 3 units max per 20A circuit for 115V operation
- Cable runs
- Ventilation and cooling requirements
- If hanging display on a wall, location of studs in the wall

8.4 Prepare Your Installation Location

Prepare the area where you will install the unit. If custom enclosures are part of the installation, they must be fully designed to accommodate the installation of the displays, the installed units, and ventilation and cooling requirements.

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

8.5 Cable Length Recommendations

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

HDMI

- 4K @ 50/60Hz: 5m (15 ft) maximum
- 4K @ 24/25/30Hz: 15m (50 ft) maximum
- 1080p @ 60Hz and lower resolutions: 20m (65 ft) maximum

DisplayPort

- 8m (25 ft) maximum

Installing OPS Expansion (Optional)

Planar HB Series Huddle Board displays are equipped with an expansion slot that supports the Intel® Open-Pluggable Specification (OPS). The slot supports OPS devices including PCs, SDI modules, etc.

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



HB OPS

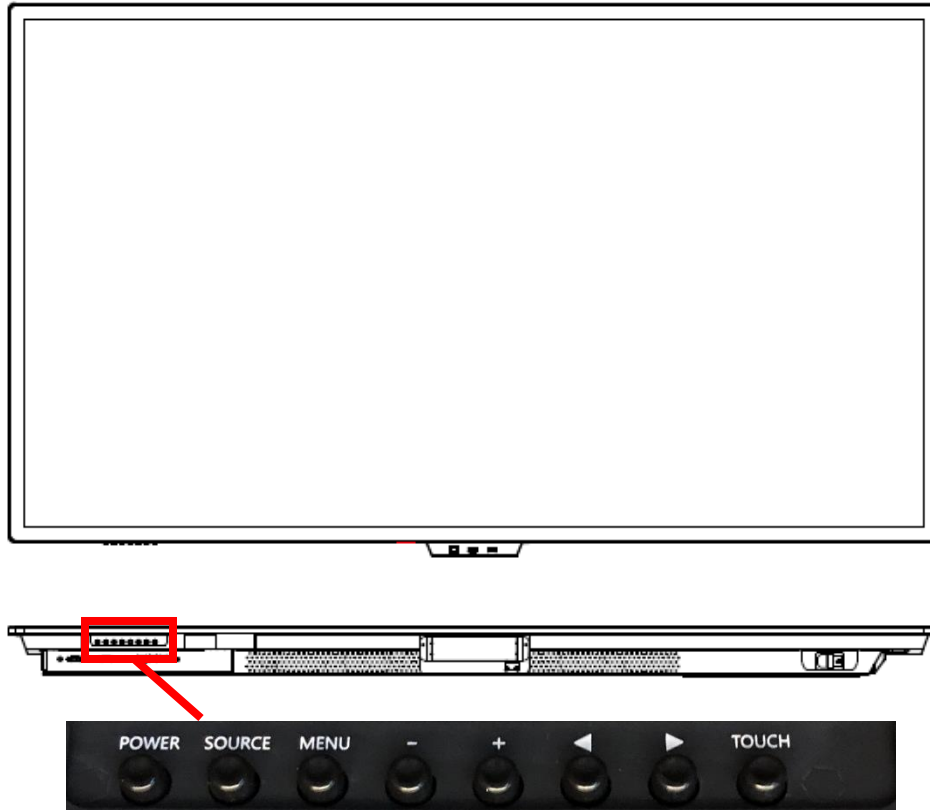


HB OPS (no cover)

Operating the Display

9. OSD Keypad

The OSD keypad is located on the bottom left edge of the display.

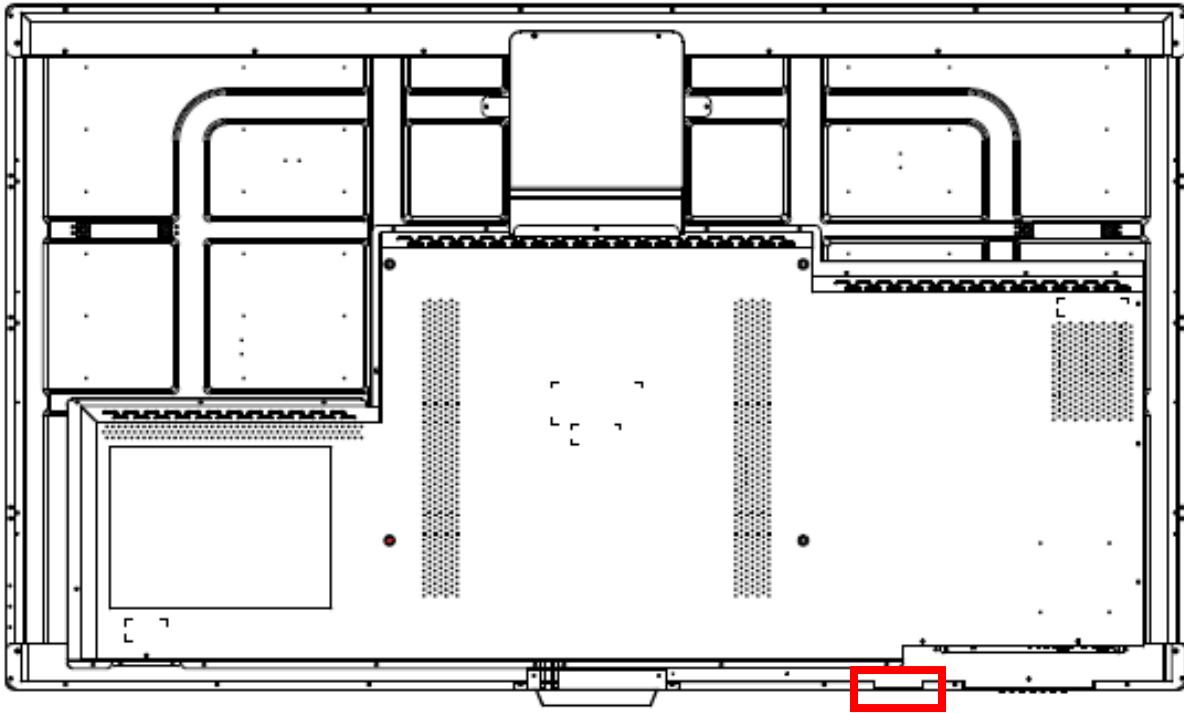


OSD Keypad Buttons

Key	Descriptions
POWER	Power on / Power off
SOURCE	Source Selection
MENU	Menu Open / Close
-	Menu Left / Decrease value / Volume -
+	Menu Right / Increase value / Volume +
▲	Menu Down
▼	Menu Up
TOUCH	Enable / disable touch functionality

10. Remote Control Receiver

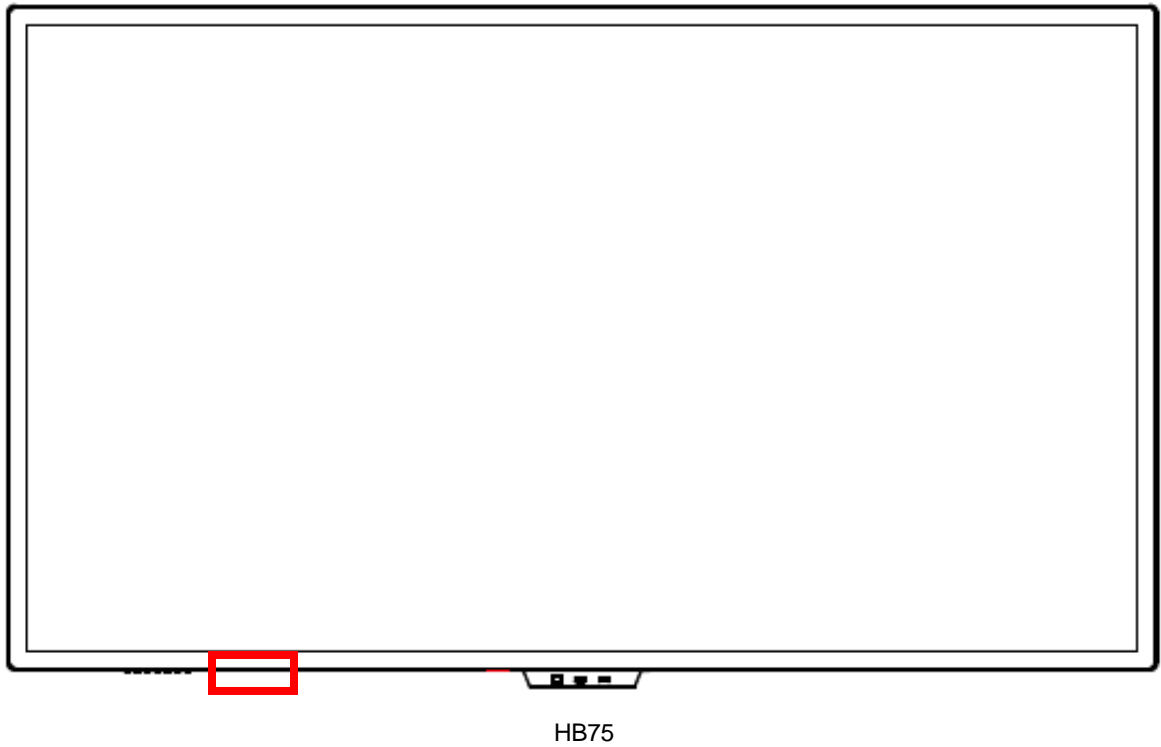
The remote control receiver is located on the front side of the display near the status LED. See the drawing below for reference.



HB75

11. LED Indicators

The LED indicator light is located at the bottom left side of the display. The following table explains what the different colors and blink patterns mean.



Power Status	Condition
Red	Standby
Blue	On
Blinking red and blue	Powering up
Off	AC off

12. 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, and a shortened life span. Installations where the display is tilted downward or upward at an angle may also be prone to these issues and are not recommended.

Note: Failure to follow these instructions will void the warranty.

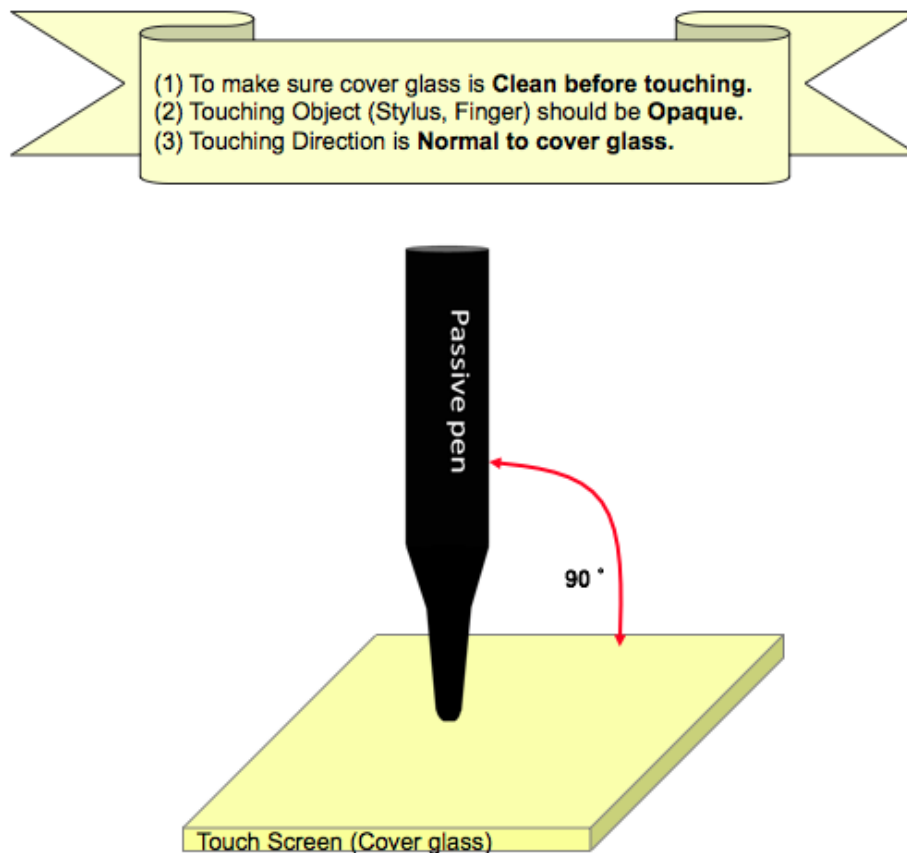
13. Using the Touch Screen

You can use the touch screen to control your Windows or Linux operating system, in addition to the display's internal Android operating system. The Planar HB Series Huddle Board is HID compliant, delivering up to 20 points of touch on both Windows and Linux without a driver.

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

Note: The touch screen can support both an active stylus and a capacitive (passive) stylus. Non-capacitive passive pens, such as those made entirely of plastic, are not supported.





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



14. Using the Remote Control

Below is a picture of the remote control and its corresponding Hex codes.



IR Remote Key Codes				
Key Name	Address	Data	NEC Data From Remote	Description
[Mute]	30600	95	0x77885FA0	Audio mute
[Power]	30600	128	0x7788807F	Power toggle
[Source]	30600	172	0x7788AC53	Displays the source selection menu
FREEZE	30600	1	0x778801FE	Freezes the current input source
HDMI	30600	98	0x7788629D	Selects one of the HDMI inputs
DP	30600	43	0x77882BD4	Selects the DP input
ECO	30600	39	0x778827D8	Opens the ECO menu
OPS	30600	99	0x7788639C	Selects the OPS input
VGA	30600	97	0x7788619E	Selects the VGA input
DICOM	30600	102	0x77886699	Enables DICOM presets
MIRROR	30600	101	0x7788659A	Selects the Eshare app
EYE	30600	37	0x778825DA	Eye protection enable
MENU	30600	149	0x7788956A	Opens the menu
EXIT	30600	150	0x77889669	Exits the menu
INFO	30600	60	0x77883CC3	Shows the current source and timing
PSM	30600	32	0x778820DF	Opens the PSM menu
SSM	30600	33	0x778821DE	Opens the SSM menu
VOL +	30600	144	0x7788906F	Volume increase
VOL -	30600	143	0x77888F70	Volume decrease
UP	30600	141	0x77888D72	Navigate up
LEFT	30600	34	0x778822DD	Navigate left
ENTER	30600	140	0x77888C73	Selects the current menu item
RIGHT	30600	35	0x778823DC	Navigate right
DOWN	30600	142	0x77888E71	Navigate down
	30600	13	0x77880DF2	Opens the menu
	30600	12	0x77880CF3	Exits the menu
	30600	103	0x77886798	Volume increase
	30600	104	0x77886897	Volume decrease
[Red]	30600	38	0x778826D9	Aspect ratio toggle
[Green]	30600	100	0x7788649B	Returns to the home screen
[Yellow]	30600	15	0x77880FF0	Touch support enable
ON	30600	129	0x7788817E	Power on
OFF	30600	130	0x7788827D	Power off
HDMI 1	30600	106	0x77886A95	Selects the HDMI 1 input
HDMI 2	30600	107	0x77886B94	Selects the HDMI 2 input
Front HDMI	30600	108	0x77886C93	Selects the front HDMI input

14.1 Locking/Unlocking the OSD Menus

You can lock or unlock the use of remote control and keypad control by pressing a series of key commands on the remote control. The lock and unlock sequences are shown in the table below.

Action	Remote Control Key Sequence
Keypad Lock	PSM, left, left, left, left
Keypad Unlock	PSM, right, right, right, right
Remote Control Lock	SSM, left, left, left, left
Remote Control Unlock	SSM, right, right, right, right

The touch screen can also be locked and unlocked via the Screen Lock function in the OSD and the yellow touch enable button on the remote control. See section 20.2 on page 56 for more information on the Screen Lock function.

15. Basic Remote Functions

15.1 Turning the Display On

1. Insert the power cord into the display and into the power outlet.
2. Ensure the AC switch is set to “—”.
3. Press the power button on the remote or keypad.

15.2 Turning the Display Off

With the power on, press the power button on the remote or 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: If there is no signal for a certain period of time, the LCD panel will automatically go into standby mode.

15.3 Adjusting the Volume

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

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

15.4 Selecting the Input Source

Press the  button on the remote or press the Source button on the keypad. Use the arrow buttons (▲▼) to select one of the following input sources: VGA, AV, DP, Front HDMI, HDMI 1, HDMI 2, OPS and press ENTER:

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

15.5 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 MENU to return to the previous menu. To exit the menu system, press EXIT.

16. Android OS OSD

The Planar HB Series displays ship with a few pre-installed Android apps. Each app's features and settings are controlled by their respective developer. Please visit the respective app's web page for more information.

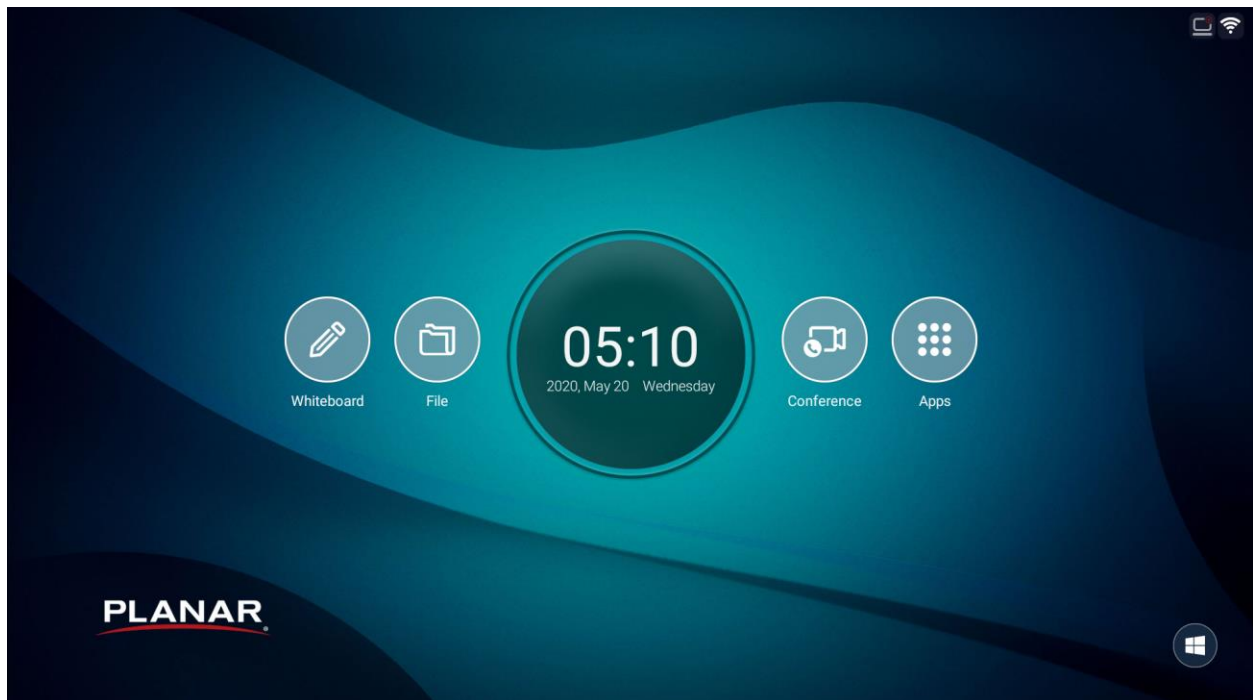
Note: The Planar HB Series runs on Android 8.0. As a result, an APK must be compatible with Android 8.0; otherwise, the user may experience issues. For questions or support regarding third-party apps, please contact the app vendor.

16.1 Home Screen

The Home screen is the default screen when Planar HB Series Huddle Board is powered on.

Note: This can be changed in **Settings > More Features > power input**.

From this screen you can access the most commonly used features of Planar HB Series Huddle Board by pressing the icons.



16.2 Whiteboard

The Whiteboard feature is a simple and intuitive way to begin annotating over a canvas.



The primary drawing tools are located at the bottom center of the screen.

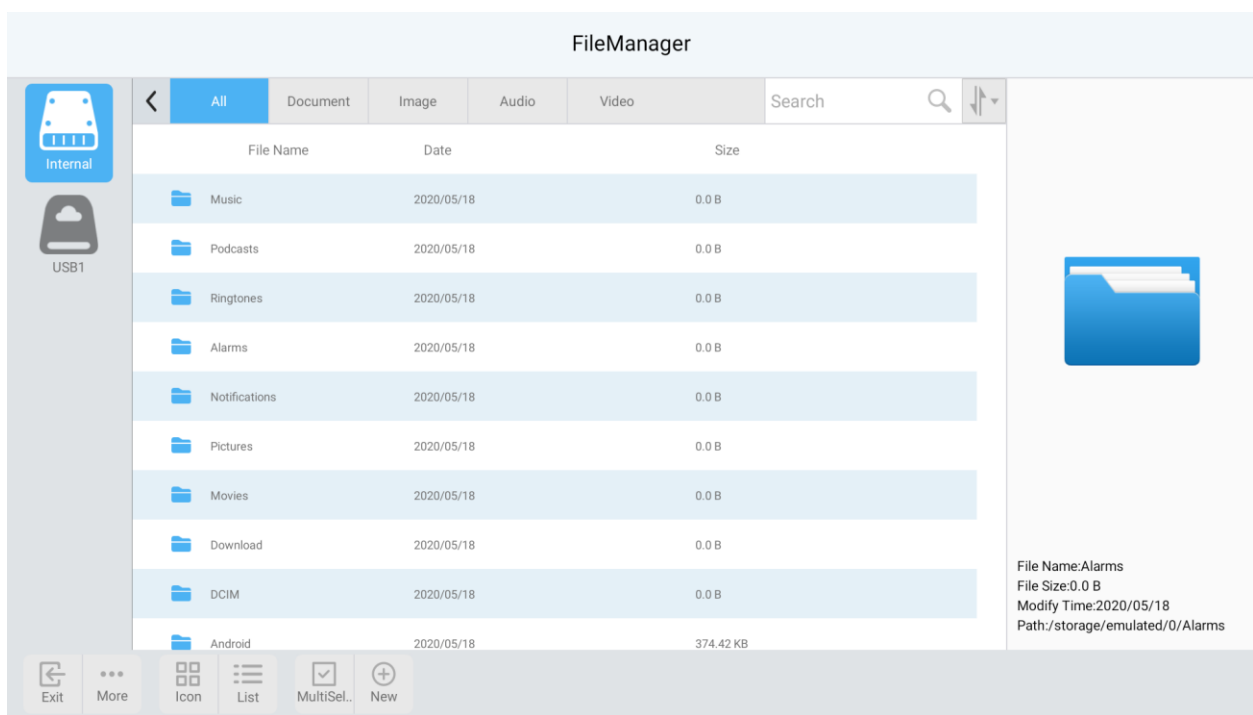
- Pen: Opens the pen selection tool.
- Eraser: Opens the eraser tool.
- Undo: Undoes the most recently performed action. Press repeatedly to undo previous consecutive actions.
- Redo: Restores undone action in consecutive order.
- Scaling: Moves the canvas to a new area. Use two fingers to perform a zoom gesture to adjust the scale of the canvas.
- Clear: Erases the entire canvas.
- Menu: Opens the Whiteboard menu.

Menu Item	Description
File	Opens and imports a file from internal memory or USB.
Save	Saves the whiteboard canvas as a .dzd file.
QRCode	Provides a QR code for retrieving the current whiteboard image using a smartphone.
Export	Exports canvas as a .jpg file.
Insert	Inserts a .jpg file from the internal memory or USB.
Change BG	Change the background canvas to pre-loaded or user imported images.
Email	Exports the whiteboard as an email (requires email login).
Setting	Customizes the pen settings, colors, and writing modes.

Menu Item	Description
About	Provides the software name and version number of the whiteboard app.
Exit	Exits the whiteboard app. Users will be prompted to save whiteboard or exit.

- QR Code: Provides a QR code for retrieving the current whiteboard image via a smartphone.
- Switch: Swaps the position of the lower left and lower right tool bars.
- Add: Adds a new whiteboard canvas.
- Pages: Cycles through existing whiteboard canvases.

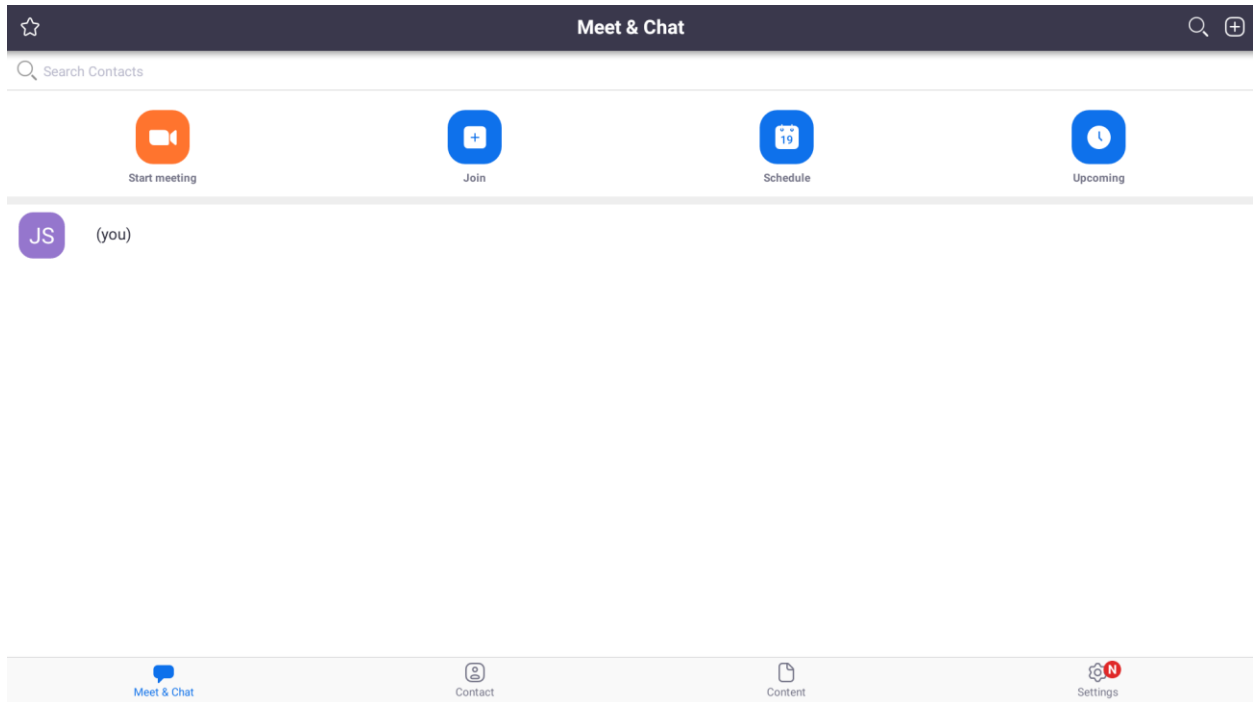
16.3 File



Within the file app, you can add, delete, move, and edit files in Planar HB Series internal memory and hard drives connected via the USB ports.

Note: The File app can also be accessed from the Apps page on the home screen.

16.4 Conference

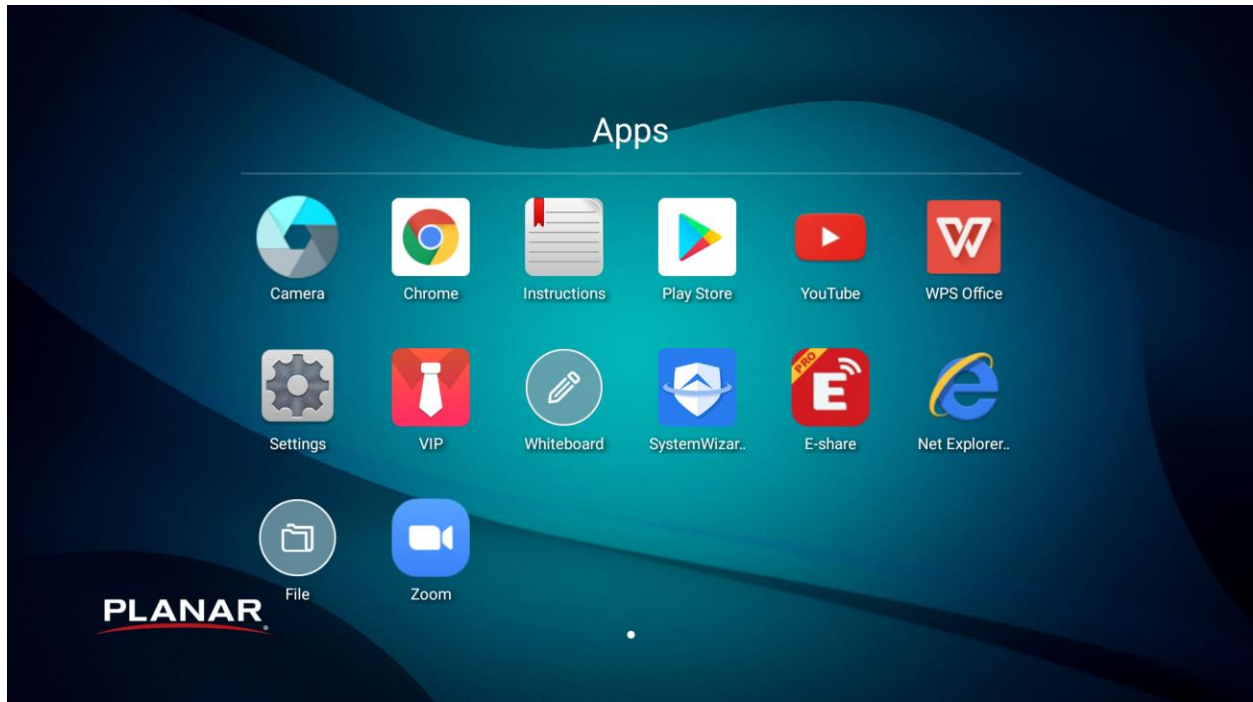


Conference opens Zoom's mobile Android App.

Notes:

- The use of Zoom requires a Zoom account.
- The specific behaviors and functions of Zoom will be similar to the Zoom app used on most mobile devices. Visit the Zoom website for more details.
- The use of Zoom requires a USB-connected microphone and camera for optimal performance.

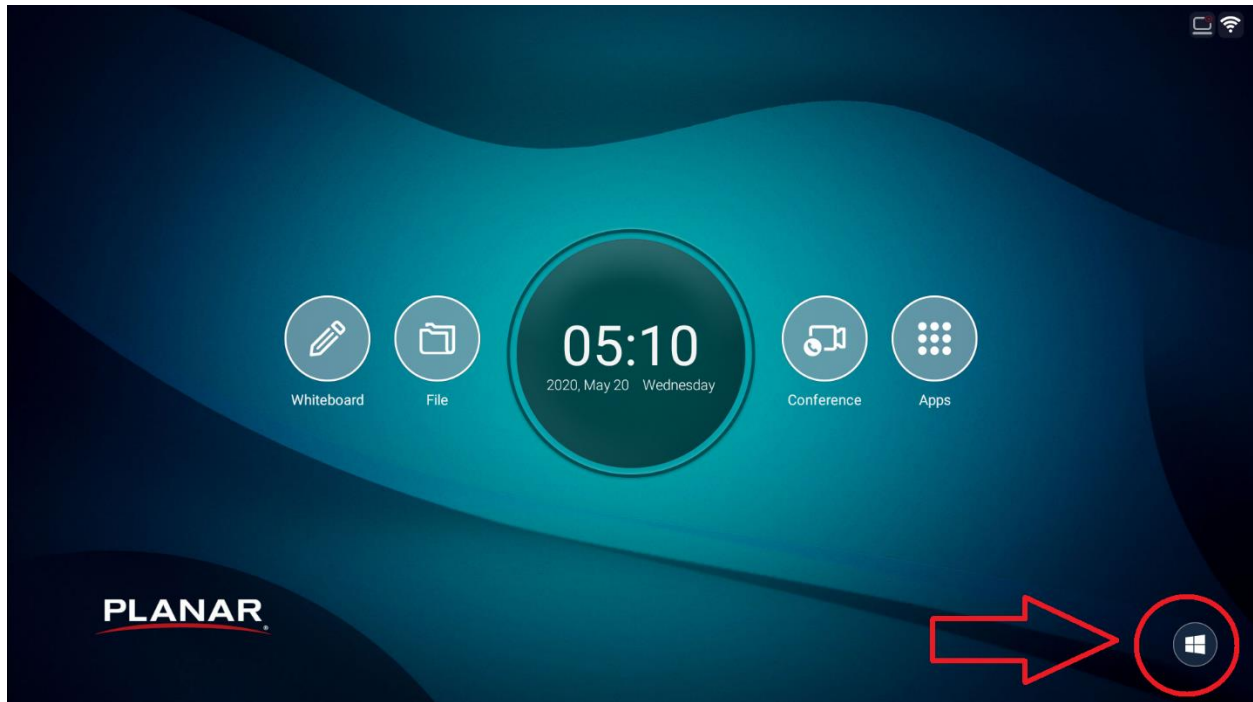
16.5 Apps



The Apps page is where icons for the preinstalled apps, customer-installed apps, instructions, settings, and File app reside.

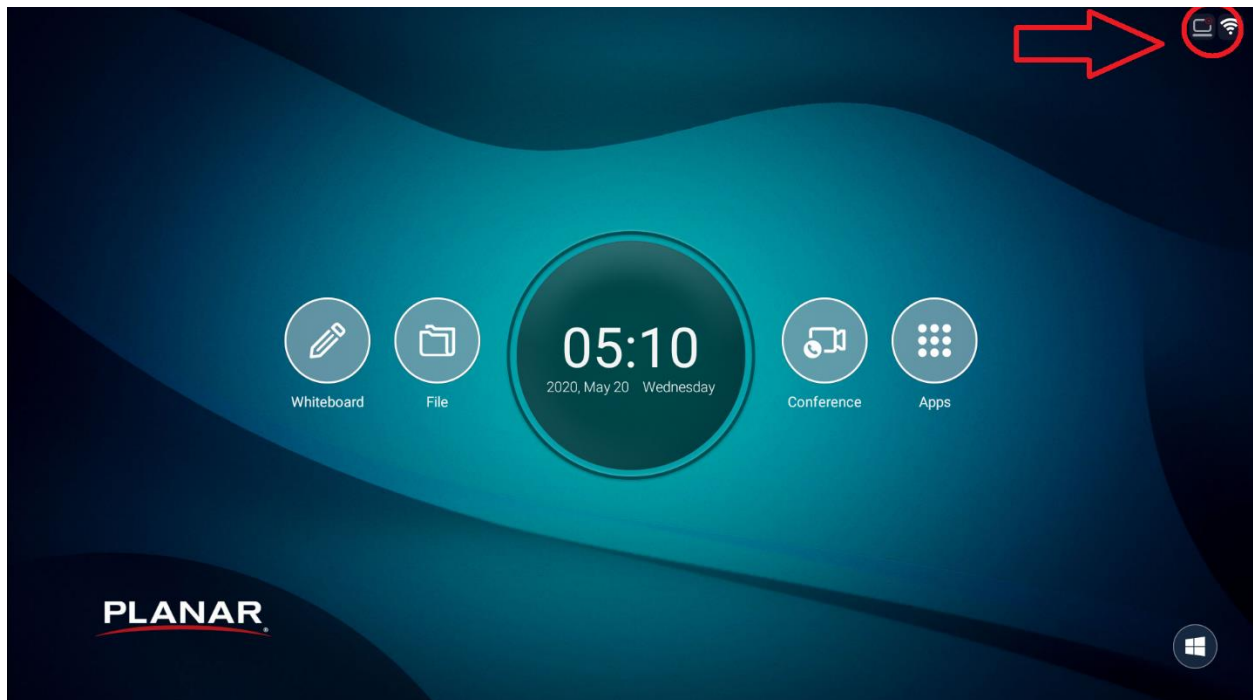
Note: Customer-installed apps can be deleted by pressing and holding any app icon until they begin to wiggle. Press the red X to delete the app.

16.6 Windows Logo



Pressing the Windows Logo will select the OPS input.

16.7 Network Connection



The network connection icons on the home screen show the current status of your wired and Wi-Fi network connection. Pressing one will take you directly to the Network Setting Page (see “Network Settings” on page 47).

16.8 Side Bar / Bottom Bar

Side Bar

The side bar icon is located on the extreme left and right of the display. Pressing it will reveal the side bar menu.



Note: The side bar icon can be enabled/disabled in **Settings > More Management**.

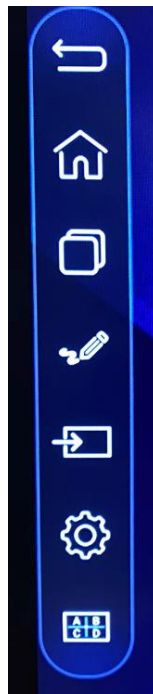
Bottom Bar

The bottom bar can be revealed by performing a swipe gesture up, from anywhere on the bottom bezel, onto the screen.



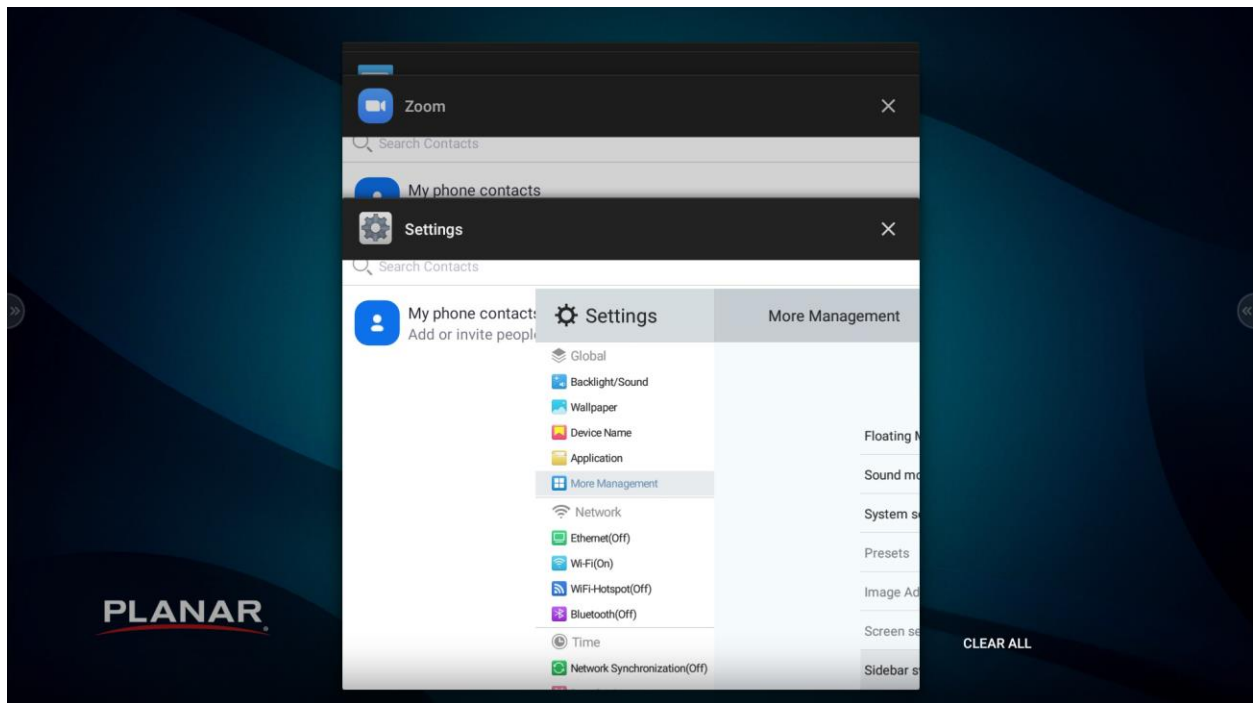
Note: The bottom bar has the same options as the side bar. The bar will auto hide after a few seconds of inactivity, by touching elsewhere on the display, or after a selection has been made.

Side Bar / Bottom Bar Icons



Side Bar Icons

- Undo icon: Undoes the most recently used command within the Android system, such as an input change.
- Home icon: Returns to the Home Screen.
- App toggle icon: Displays all currently open apps and allows you to switch to other open apps.

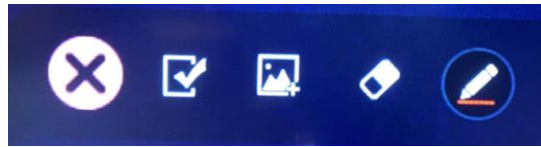


- Pen icon: Opens the annotation tool.
- Input icon: Displays a list of all available inputs.
- Settings icon: Shortcut to the app launcher (see “App Launcher” on page 40).
- Multi-source view: Opens the multi-source selection.

Note: The side bar will auto hide after a selection is made, or by touching elsewhere on the display.

16.9 Annotation Tool

Selecting the Annotation Tool from the side bar or bottom bar will reveal the annotation tools in the lower left and right of the display



Annotation Icons

- X icon: Exits annotation mode.
- Checkbox icon: Saves the snapshot of your annotation to the internal memory of Planar HB Series.
- Picture+ icon: Imports images from local or USB sources.
- Eraser icon: Opens the eraser tool.
- Pen icon: Reveals the pen color and thickness selector. Touch anywhere on the screen to begin annotating.

16.10 Other Android Elements

Floating Menu

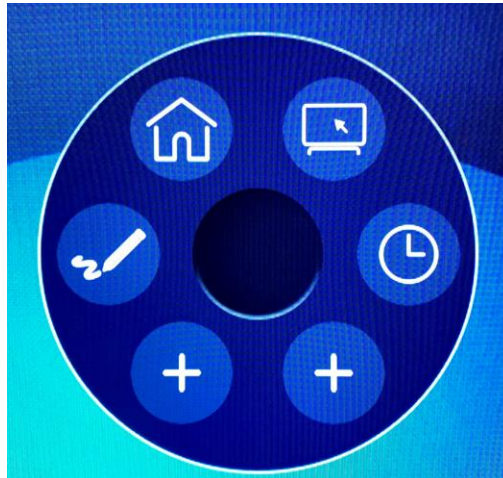
The floating menu provides easy-access shortcuts to your most used apps, inputs, and features.

Note: The floating menu can be enabled or disabled in **Settings > More Management > Floating menu**.

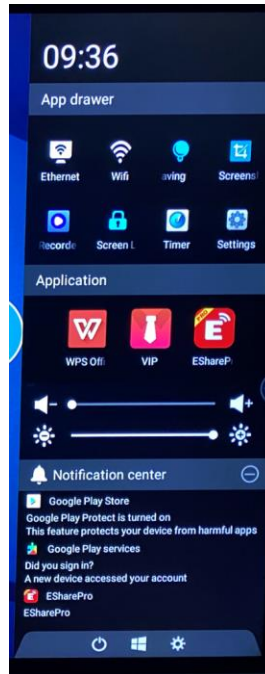
When enabled, the floating menu appears as a translucent orb floating in the image. It can be moved by dragging it anywhere on the screen.



Pressing the floating menu will reveal the shortcuts. By default, there are 6 shortcuts on the floating orb. Each shortcut can be customized by pressing and holding to reveal the selection menu.



App Launcher



App Drawer

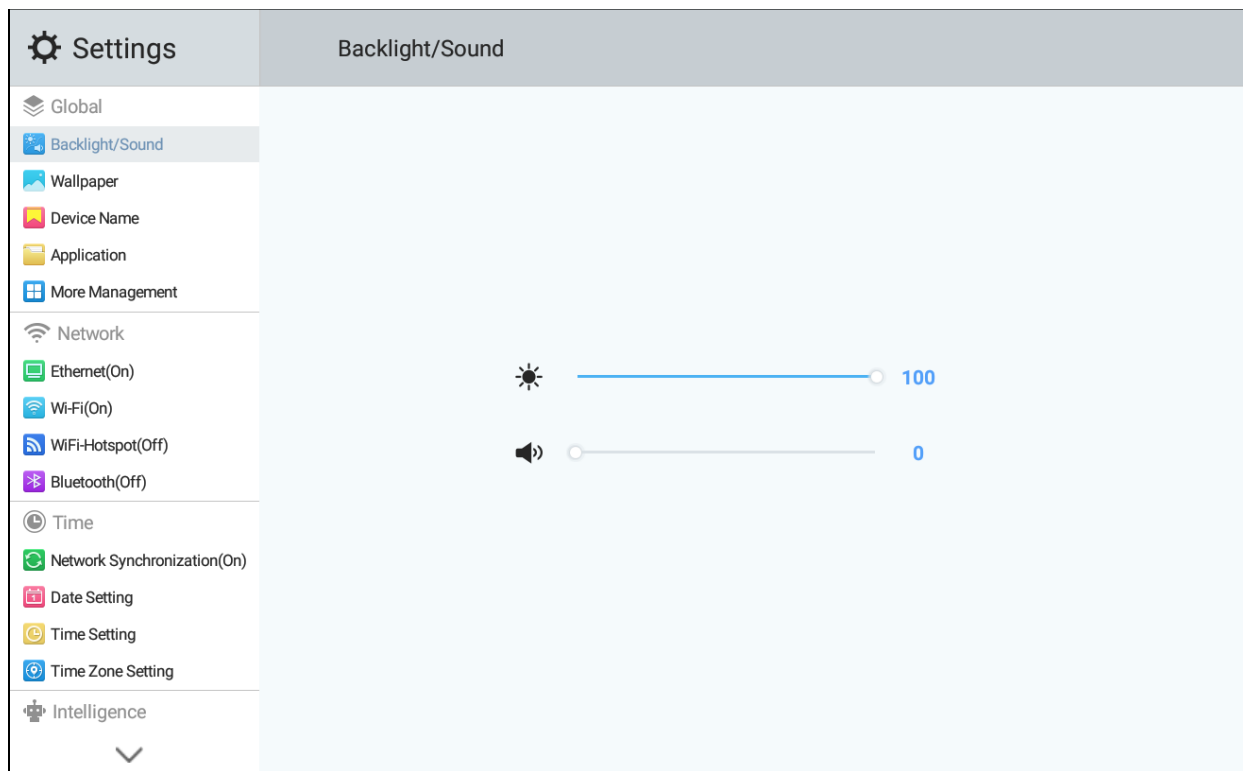
The app drawer is accessed by pressing the gear icon in the side bar or bottom bar. The app drawer contains shortcuts to some key settings and apps, volume and backlight controls, and notifications.

The bottom of the app drawer contains:

- Power button: Puts the display to sleep.
Note: Pressing anywhere on the screen will wake the display.
- Windows icon: Selects the OPS source.
- Gear icon: Opens the settings app.

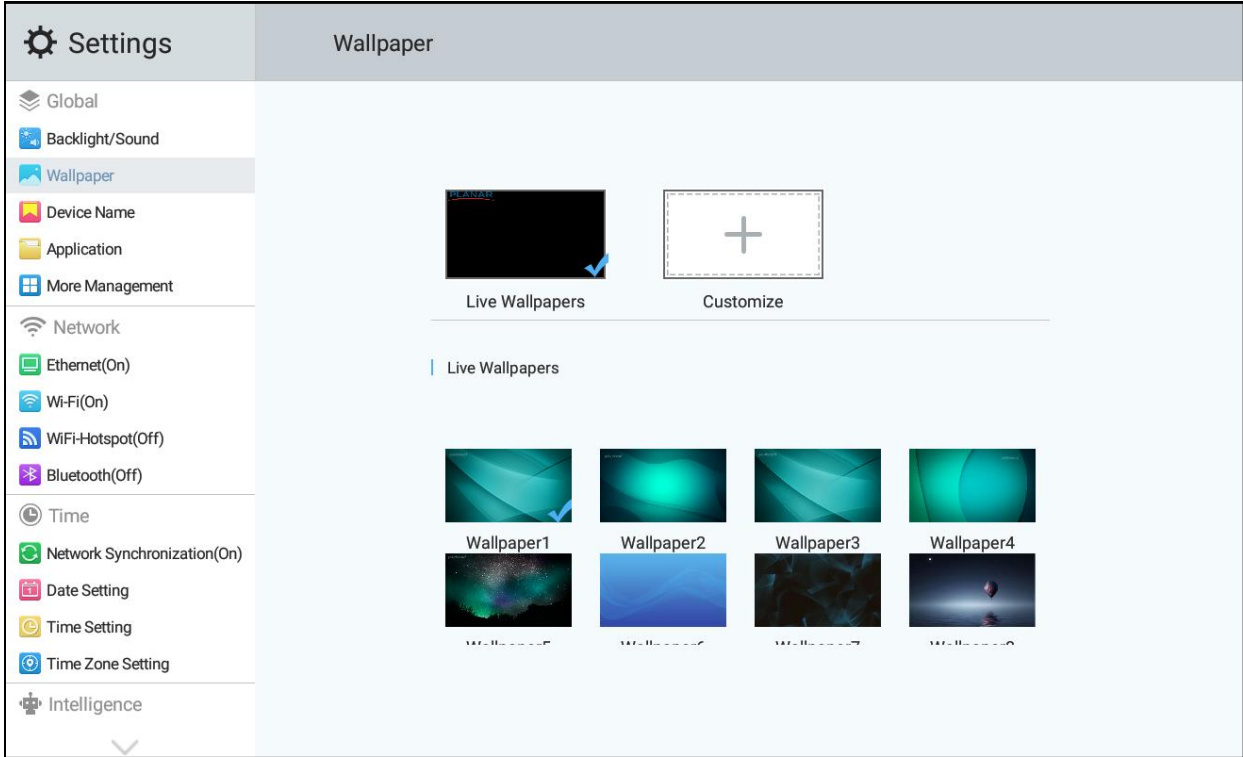
17. Global Settings

17.1 Brightness/Sound



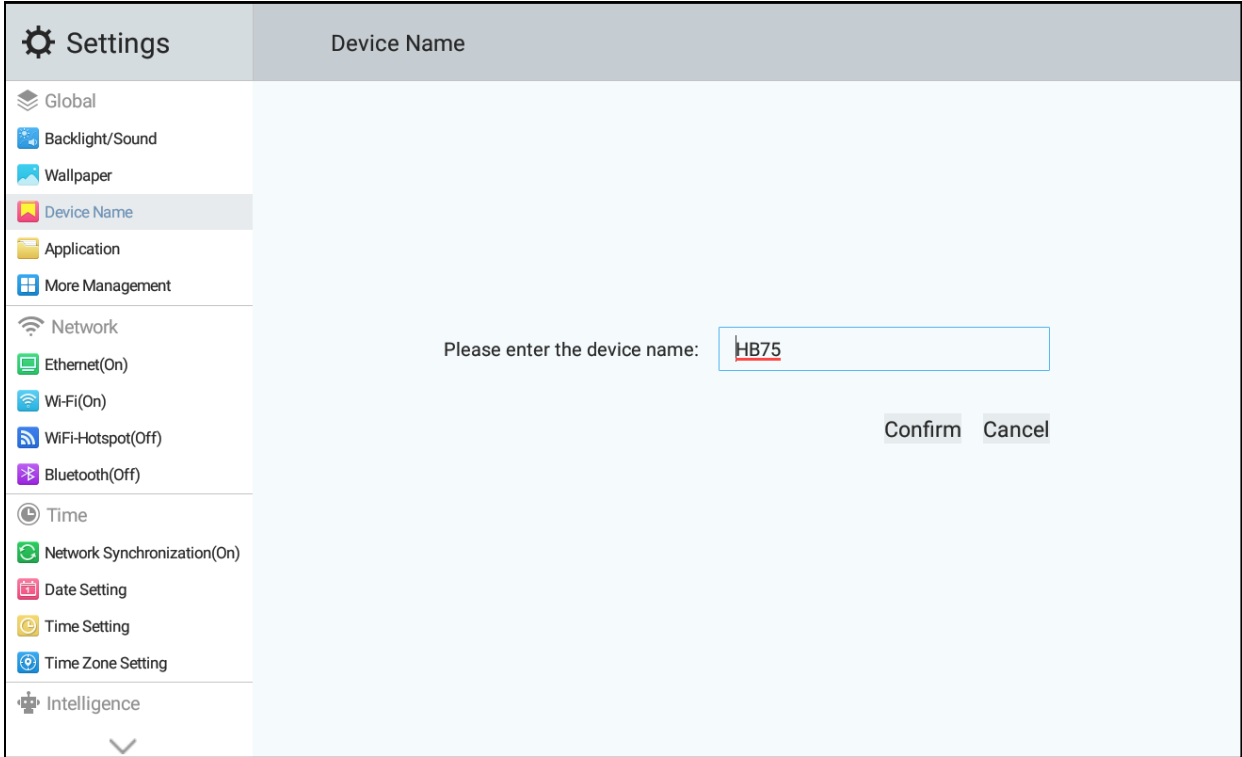
- **Brightness:** Adjusts the backlight intensity.
- **Volume:** Adjusts the volume output of the internal speakers and the line level audio output.

17.2 Wallpaper



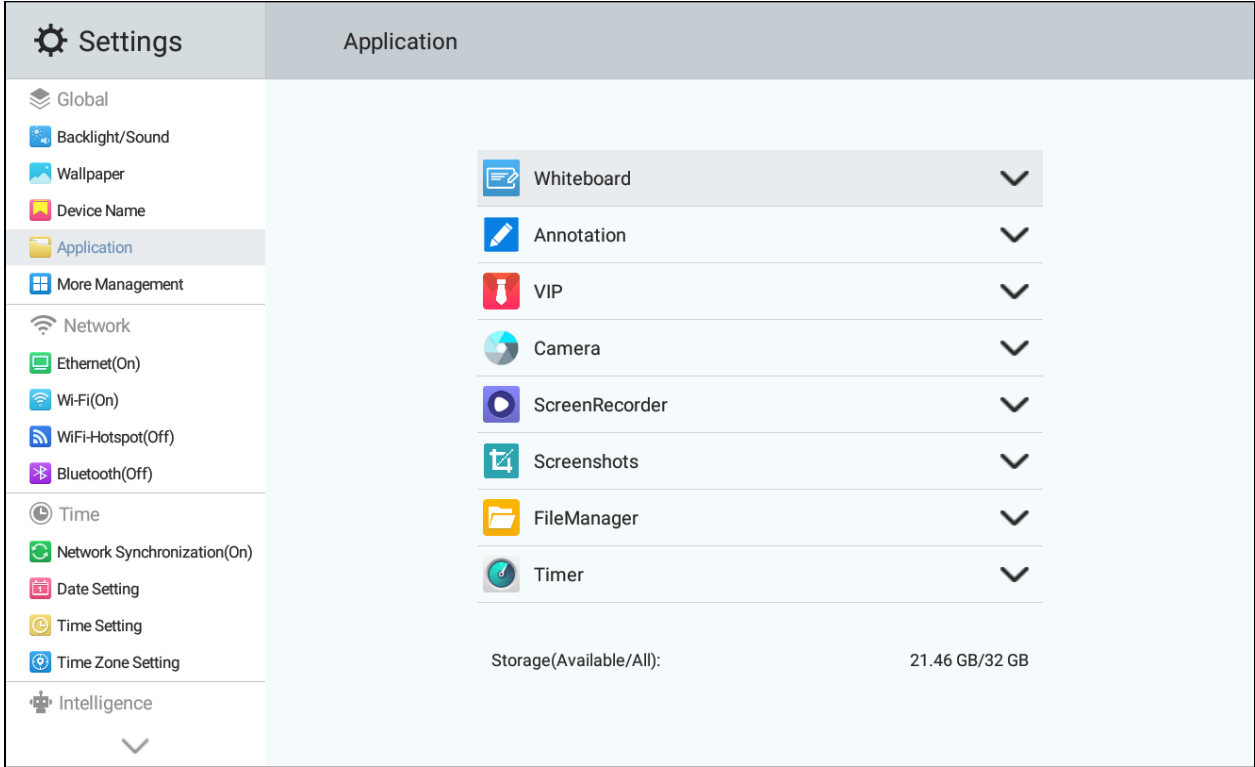
Choose from pre-loaded wallpapers, or choose your own image from the internal memory or USB port.

17.3 Device Name



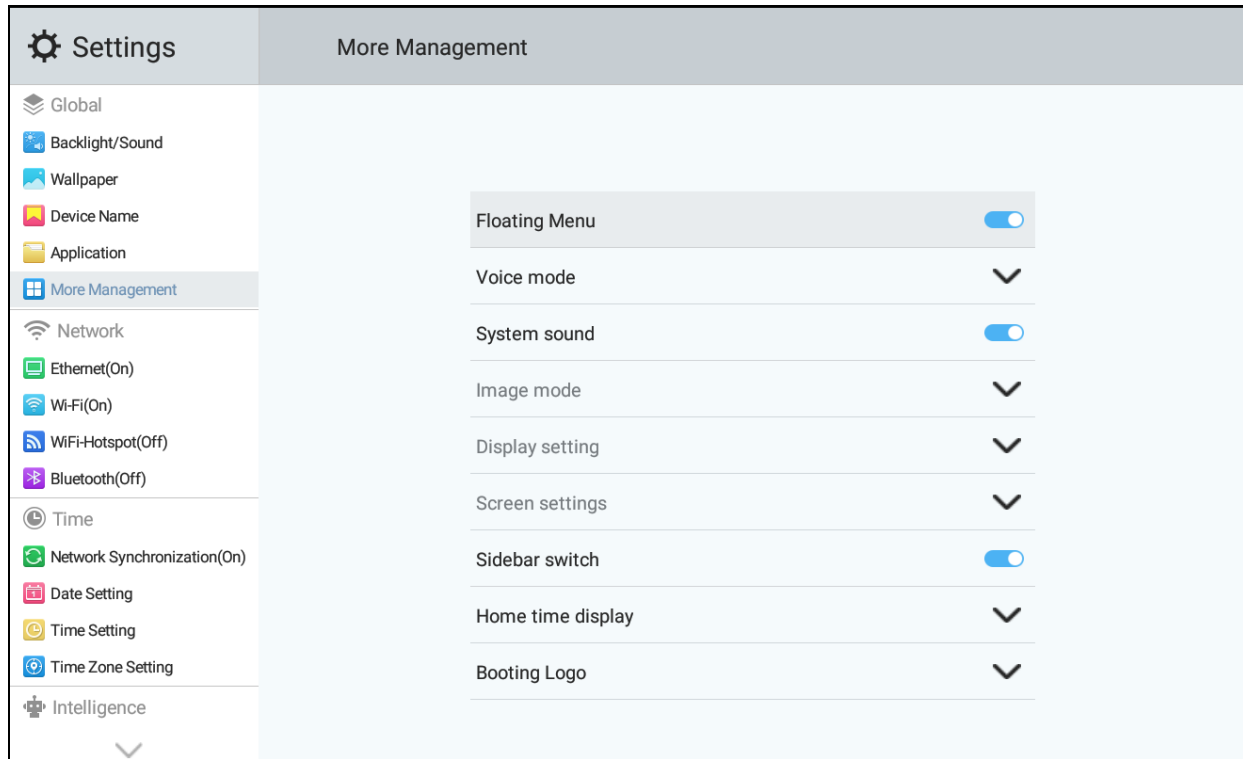
Read or rename your display's device name.

17.4 Application



Adjust the individual settings of installed apps.

17.5 More Management



- Floating Menu: Toggles the presence of the floating menu (see Floating menu section in manual for more information).
- Sound mode: Choose from predefined sound EQ settings (standard, music, news) or user, which allows for user-customizable EQ settings.
- System sound: Toggles built-in android OS sounds.
- Presets: Choose from predefined image settings (standard, vivid, soft) or user, which allows for user-customized image settings.
- Image Adjust: This drop-down contains the various adjustments for the image settings, which are saved by source.
- Source: Select the source you want to make image adjustments to.
- Color Temperature: Choose from predefined color temperatures (3200K, 5500K, 6500K, 7500K, 9300K).
- Gamma: Choose from predefined gamma settings (2.0, 2.1, 2.2, 2.3, 2.4, 2.5).
- Brightness: Adjusts the black level of the image.
- Contrast: Adjusts the white level of the image.
- Saturation: Adjusts the amount saturation of colors in the image.
- Sharpness: Adjusts the level of enhancement to fine edges in the image.
- Hue: Adjusts the hue of colors in the image.

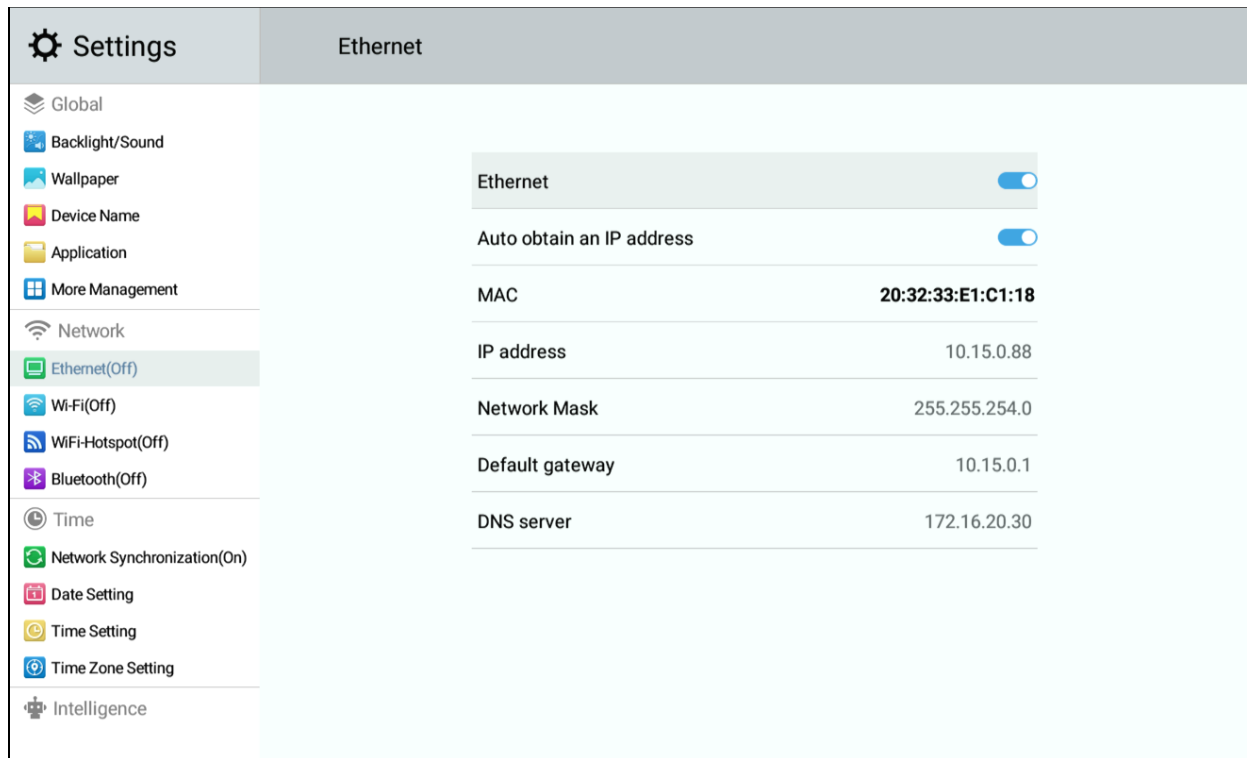
- Color Space: Choose from predefined color space settings (RGB 0-255, RGB 16-235, YUV, Auto).
- RGB Gains: Allows for precise adjustments of the RGB gains and offsets when specific targets are desired (R Gain, G gain, B Gain, R offset, G offset, B offset).
- HDMI Setting: Adjusts the HDMI version number (Auto, EDID 1.4, EDID 2.0). **Note:** An HDMI source must be selected.

Screen Settings

- Aspect ratio: Adjusts the image scaling proportions of the source (16:9, 4:3, Automatic, Native).
- Geometric Adjustment: Allows for more specific adjustment of the image proportions (Horizontal position, Vertical Position, Clock, Phase, Auto Adjust).
- Sidebar switch: Toggles the presence of the side bar (see the sidebar section in manual for more information).
- Home Time Display: Allows the user to adjust how the date and time are represented on the home screen (YY/MM/DD, MM,DD,YY, DD,MM,YY).
- Splash Screen: Enables or disables the Planar Logo from being displayed at startup (Disable, Enable).
- Power LED: Enables or disables the Blue LED status light on the lower left of the bezel.

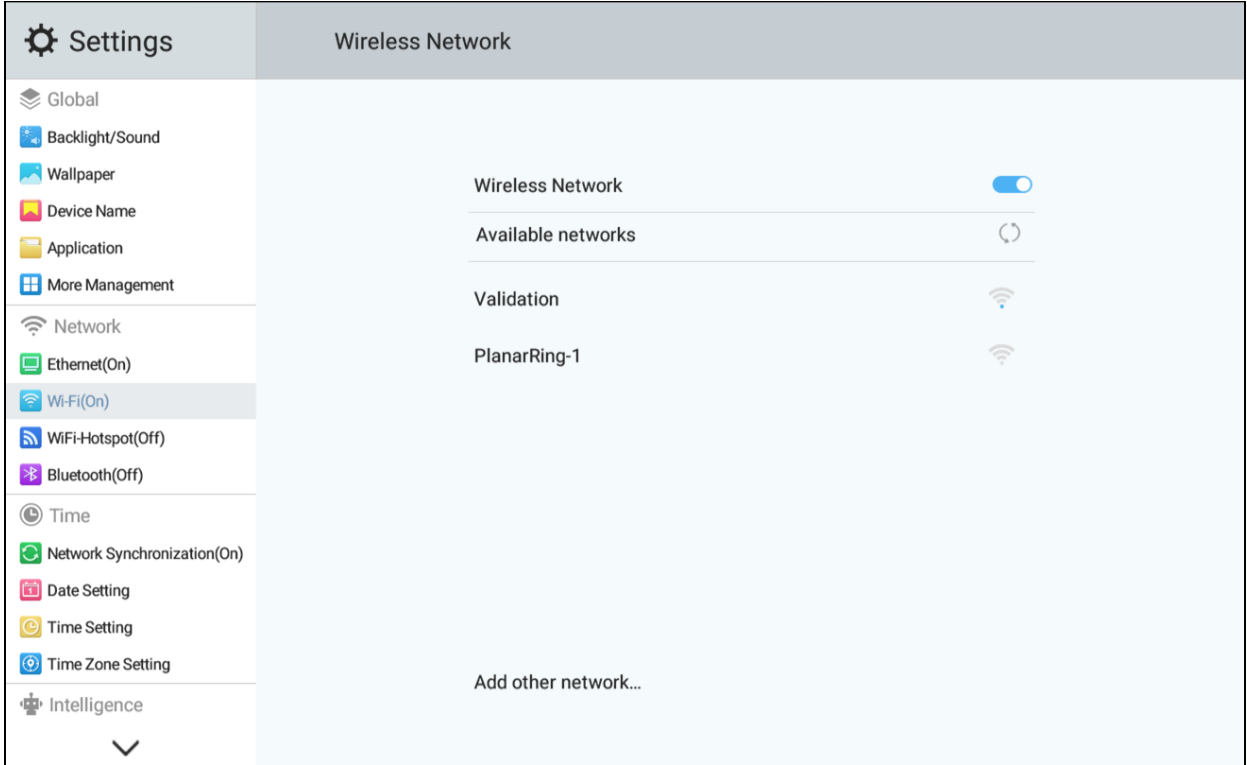
18. Network Settings

18.1 Ethernet



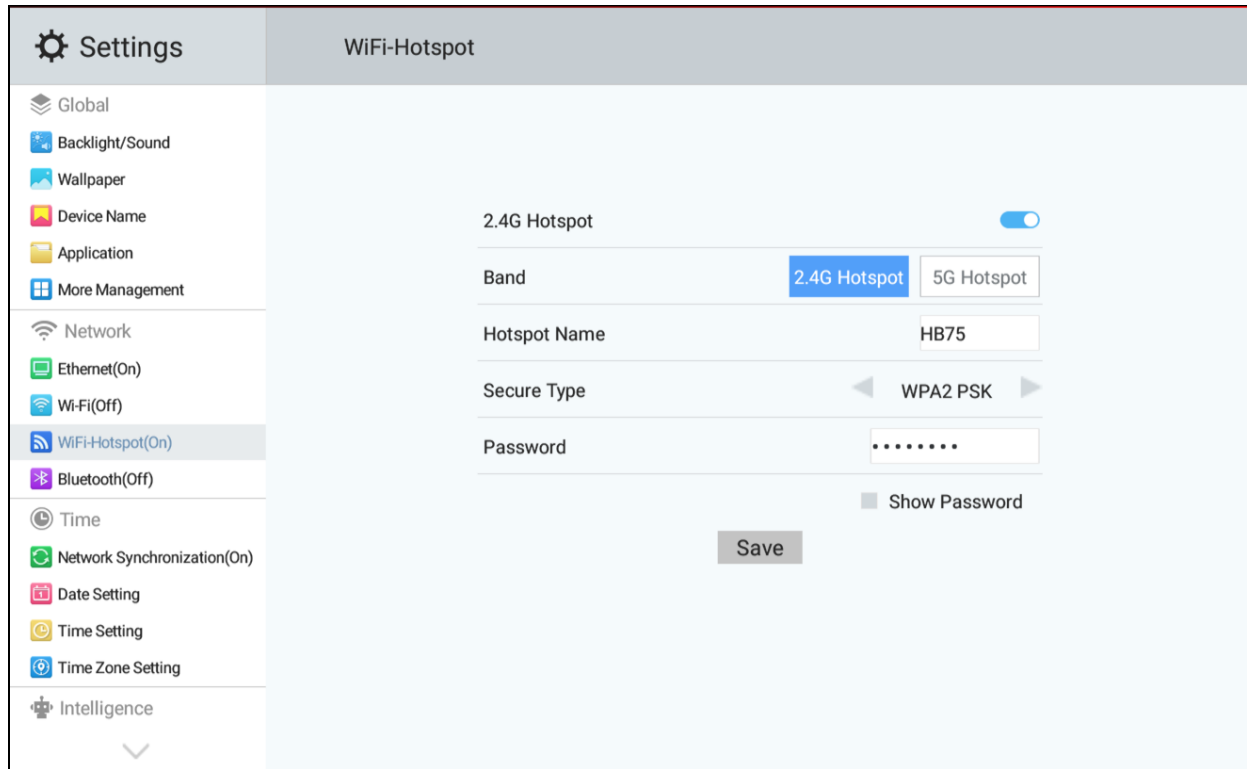
- Ethernet: Toggles the Ethernet port's LAN functions.

18.2 Wi-Fi



- **Wireless Network:** Toggles the Wi-Fi.
When Wi-Fi is enabled, currently connected and available networks will be shown.

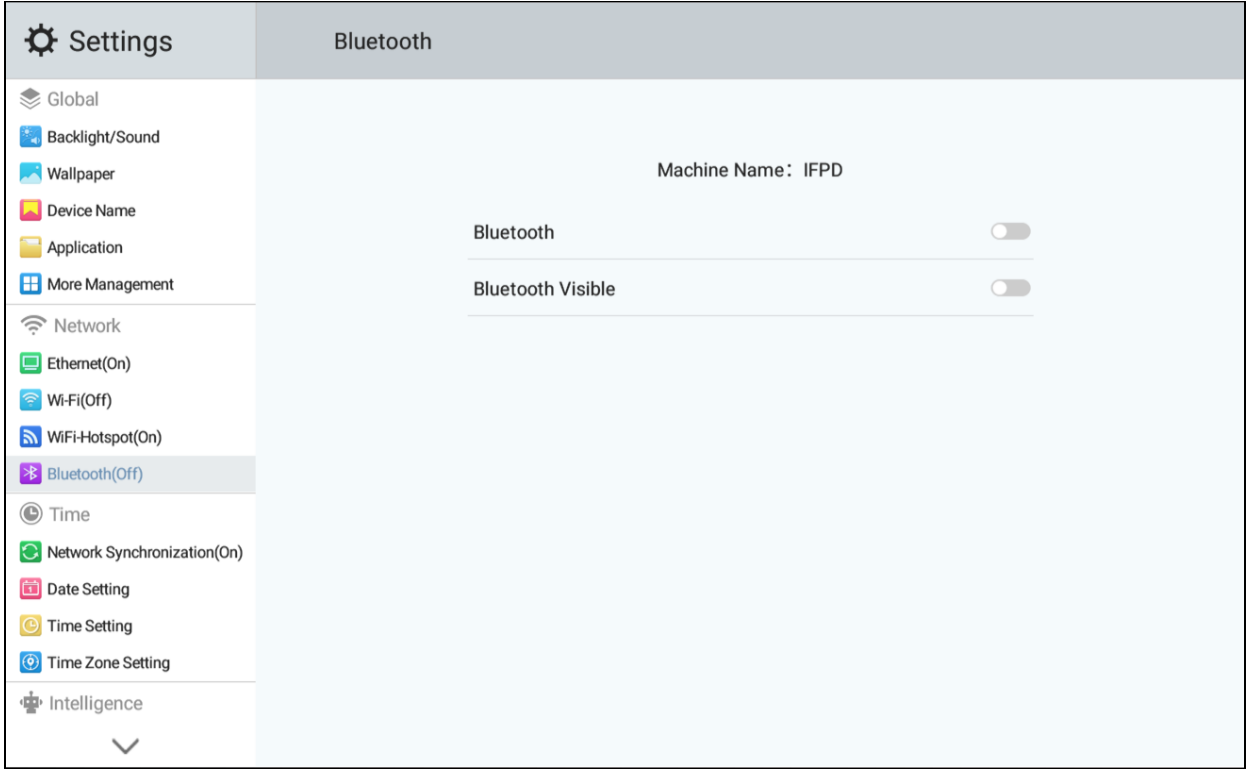
18.3 Wi-Fi Hotspot



Allows for the creation of a Wi-Fi hotspot. This requires that the display first be connected to your local network.

- 2.4G Hotspot / 5G Hotspot: Toggles hotspot on or off.
- Band: Chooses the hotspot band (2.4G or 5G).
- Hotspot Name: Renames the hotspot.
- Secure Type: 2.4G: (WPA2 PSK, none); 5G: (WPA2 PSK).
- Channel: Selects Wi-Fi channel (only available on 5G).
- Password: Creates a Wi-Fi hotspot password.

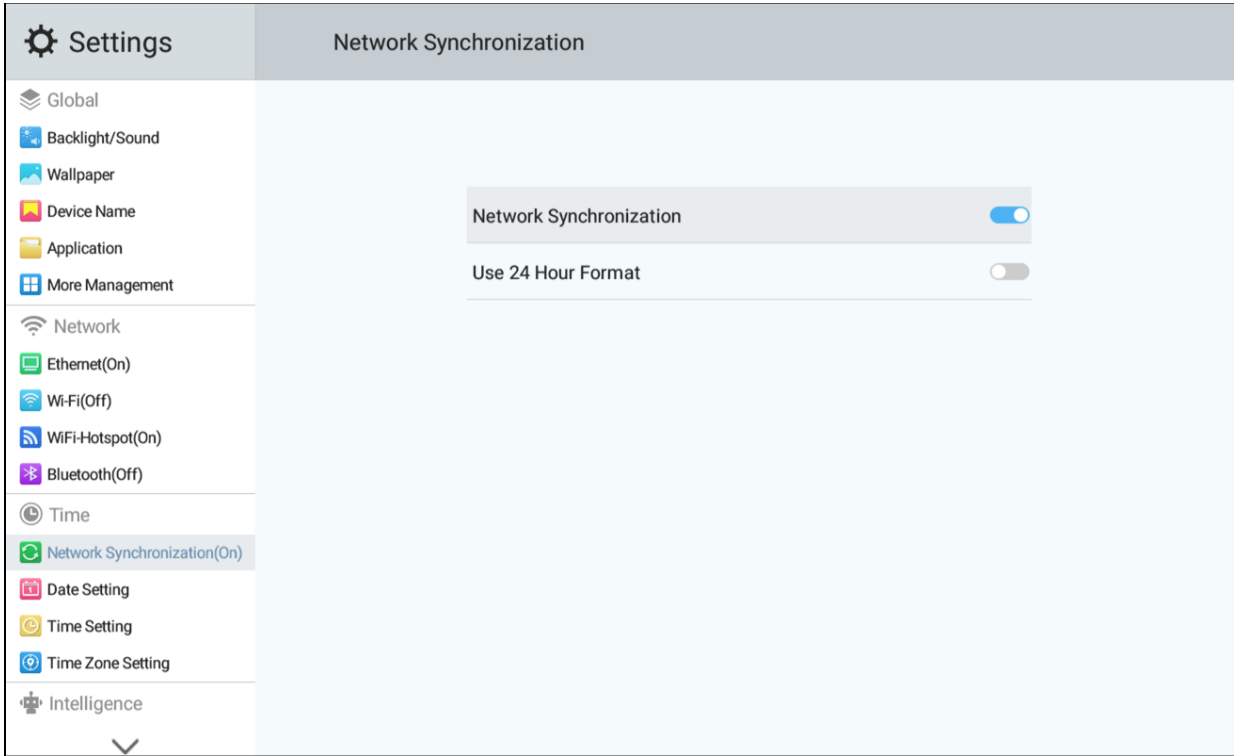
18.4 Bluetooth



- Bluetooth: Toggles the Bluetooth setting.
- Bluetooth Visible: Allows other devices to detect the display over Bluetooth.

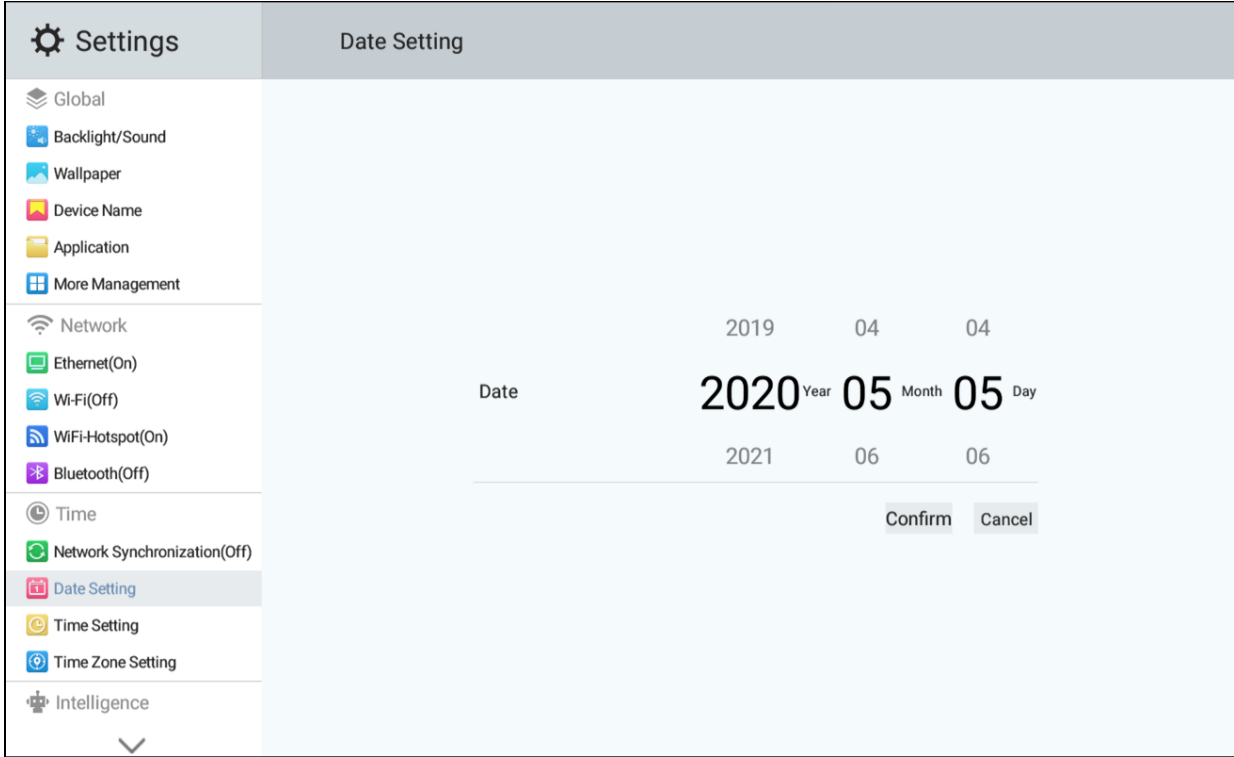
19. Time Settings

19.1 Network Synchronization



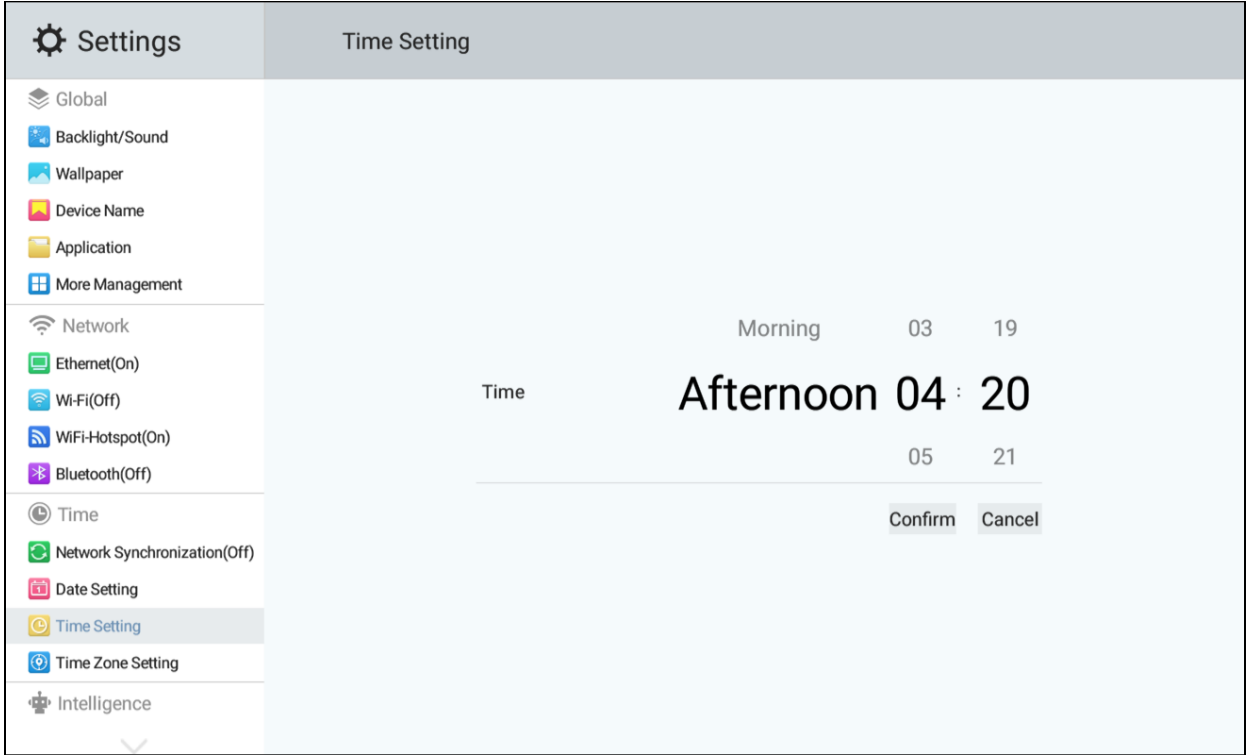
Network Synchronization: Toggles the display’s ability to obtain date and time from the LAN.

19.2 Date Setting



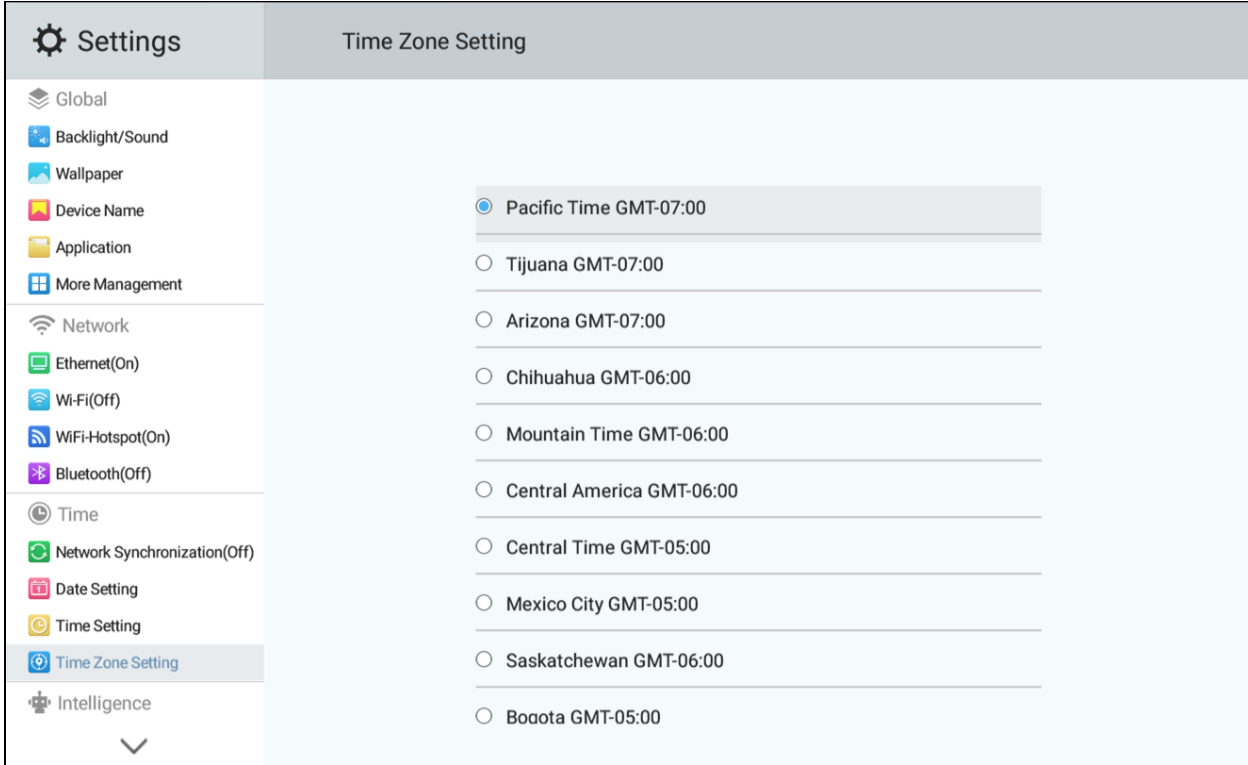
Allows users to set the date manually (requires disabling Network synchronization).

19.3 Time Setting



Allows users to set the time manually (requires disabling Network synchronization).

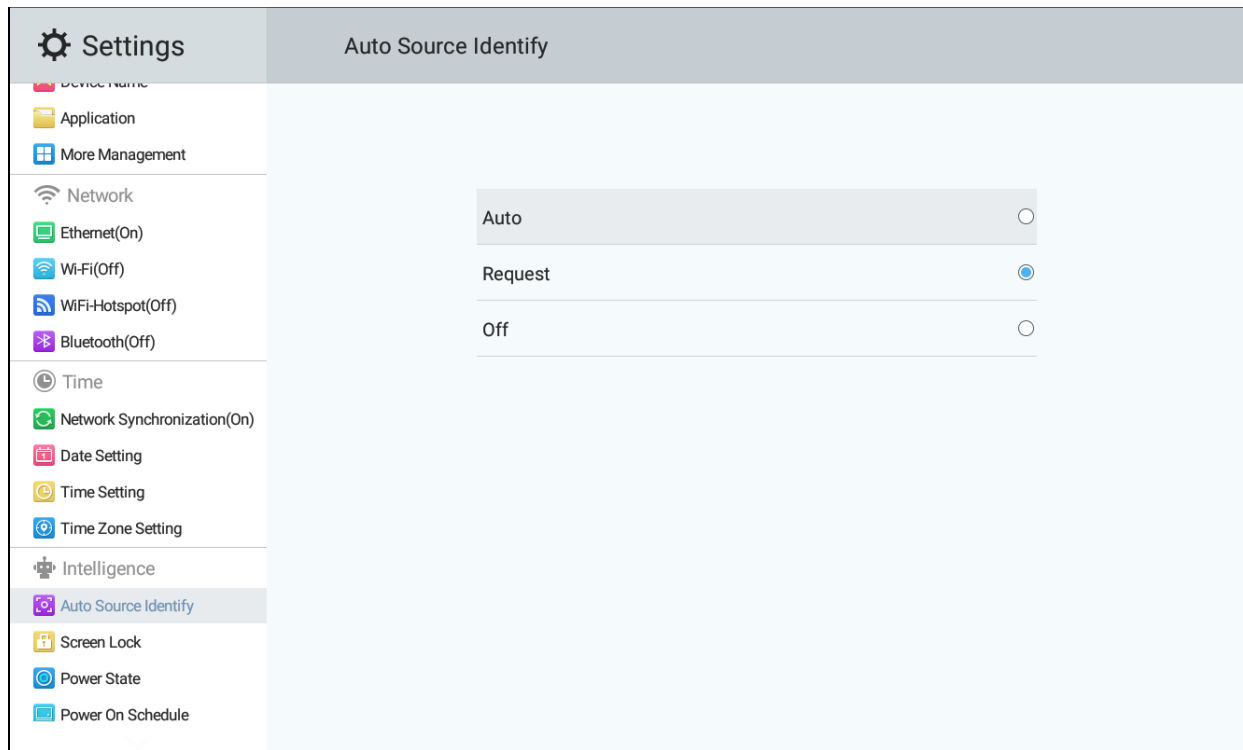
19.4 Time Zone Setting



Allows users to set the zone manually.

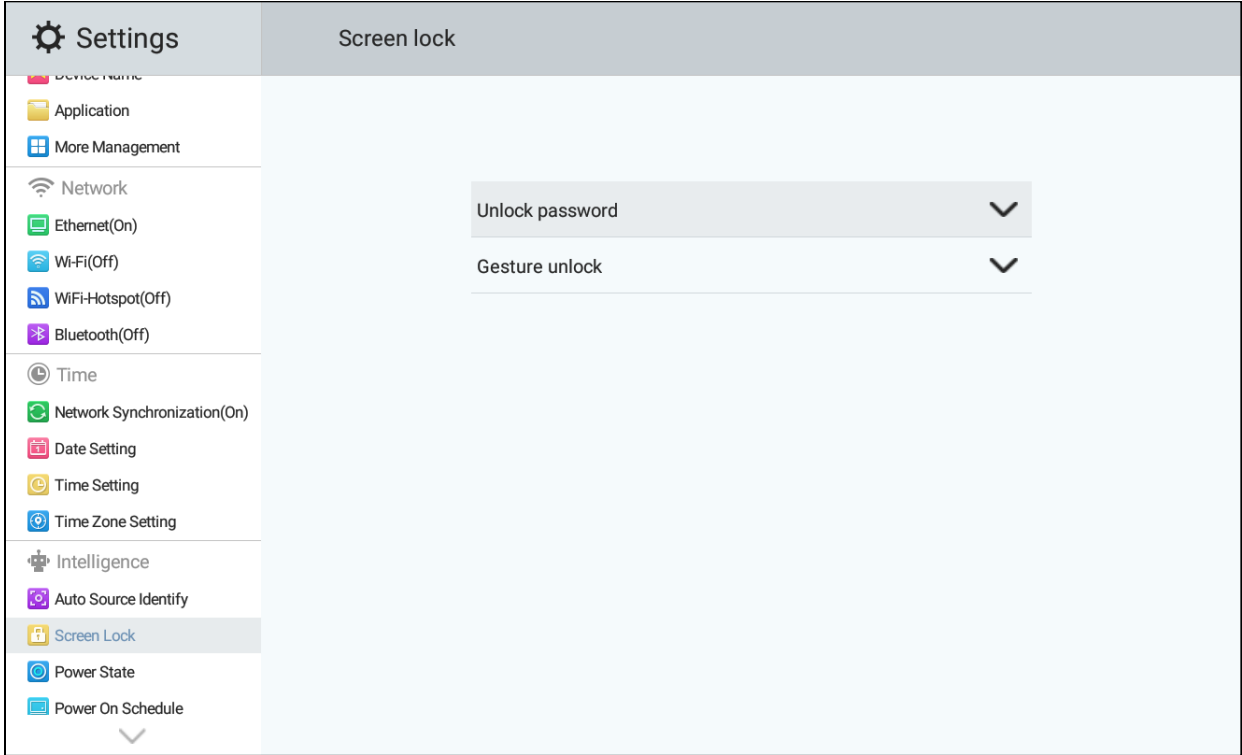
20. Intelligence Settings

20.1 Auto Source Identify



- Auto: The display will automatically switch sources when a source is connected.
- Request: The display will prompt users to permit source change when new source is connected.
- Off: Disables automatic source switching and prompts.

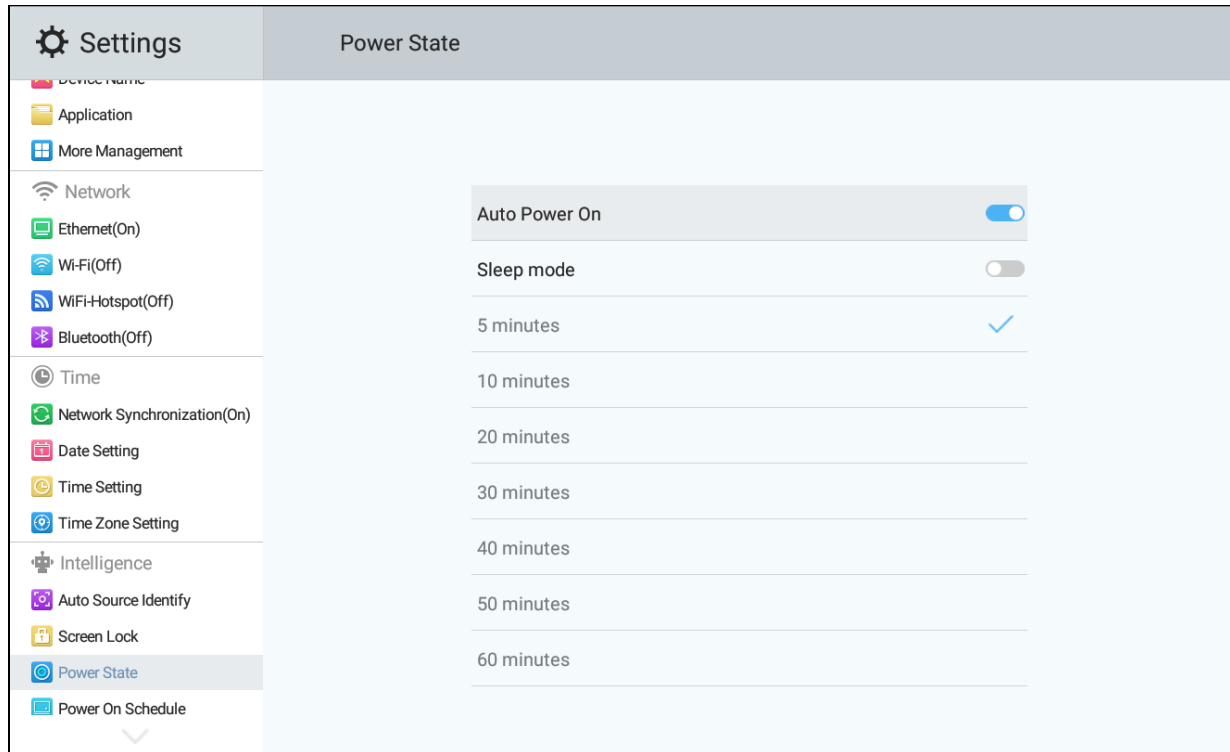
20.2 Screen Lock



Allows users to lock the screen. Unlocking requires a password or gesture to unlock (Unlock password, Gesture unlock).

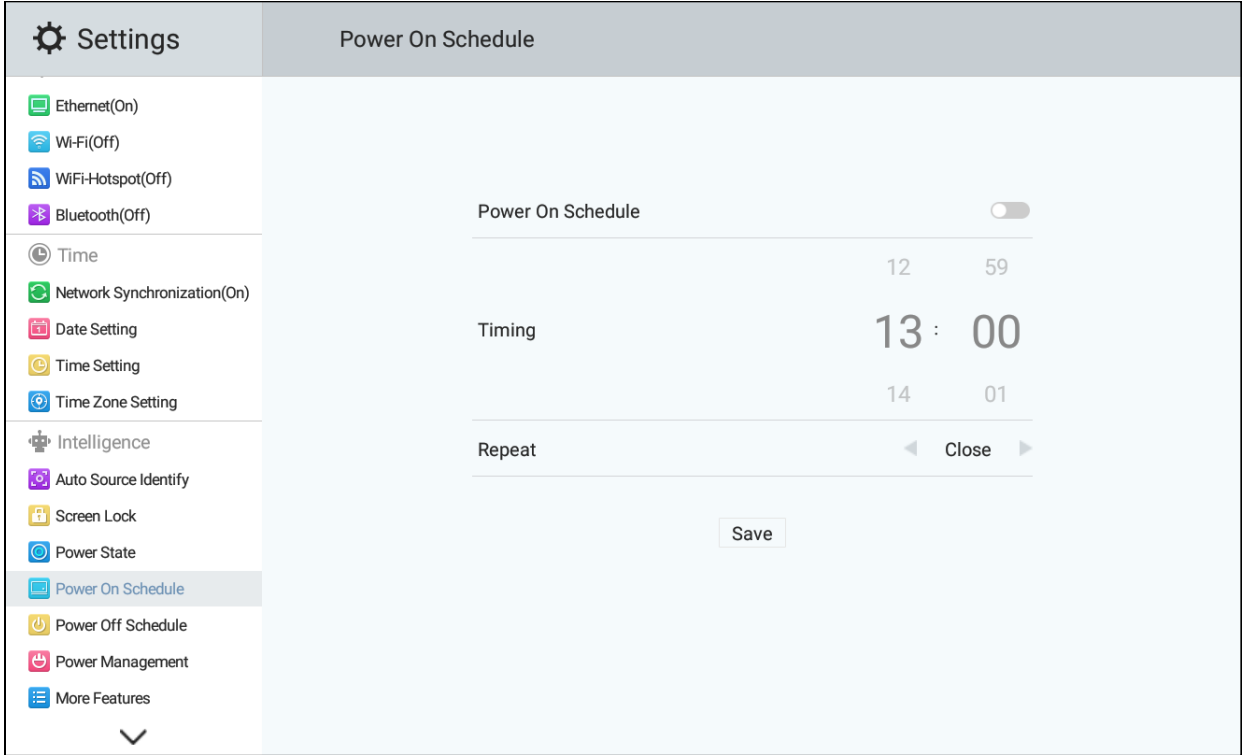
Note: The default screen lock password is “2580”.

20.3 Power State



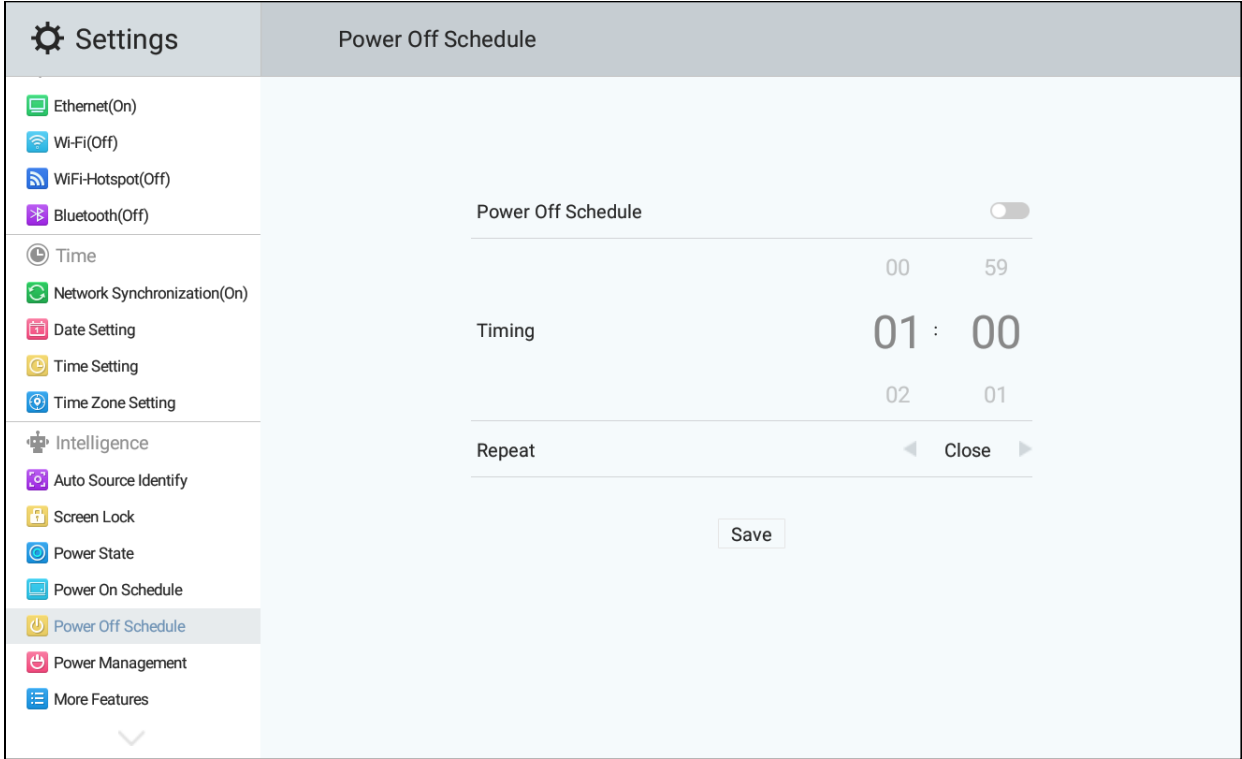
- Auto Power on: Image will be displayed if source is present.
- Sleep mode: The display will go dark if not interacted with for a user-defined period of inactivity (5,10,20,30,40,50, 60 minutes). Interacting with the display will wake it.

20.4 Power On Schedule



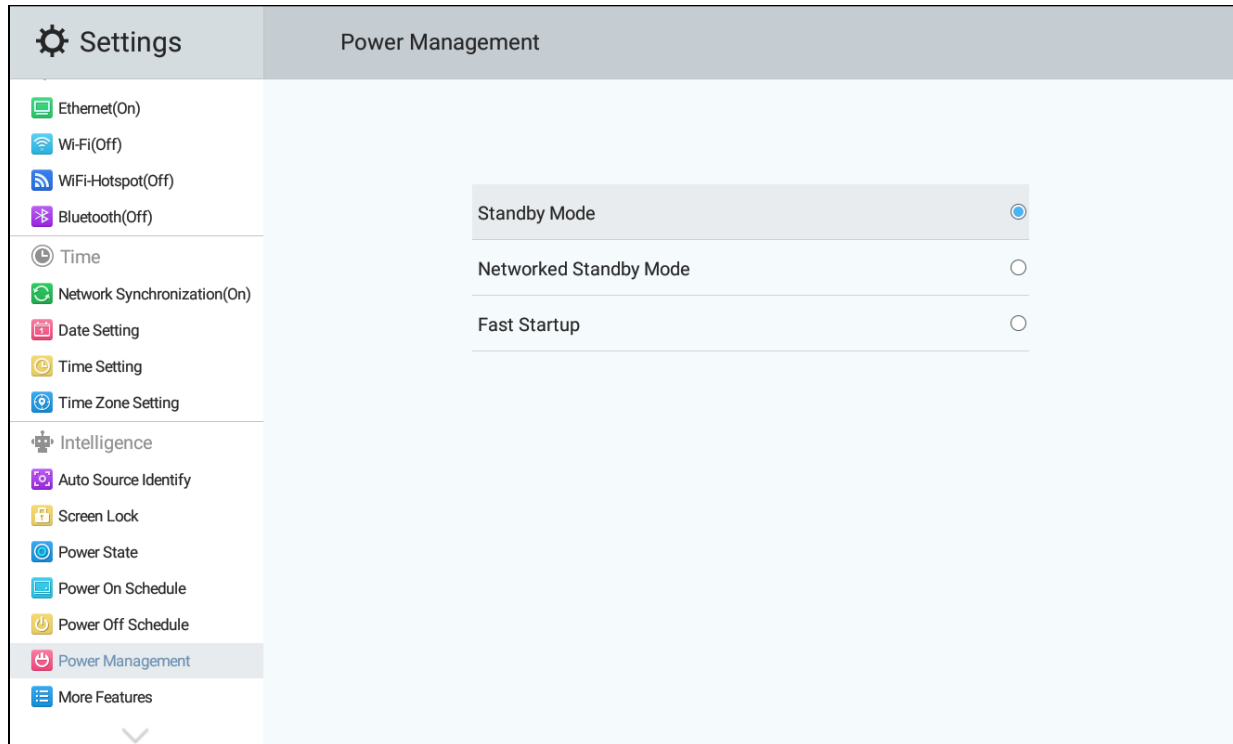
Creates a scheduled time to power on the display, with 1 minute increments and a frequency of once or every day.

20.5 Power Off Schedule



Creates a scheduled time to power off the display, with 1 minute increments and a frequency of once or every day.

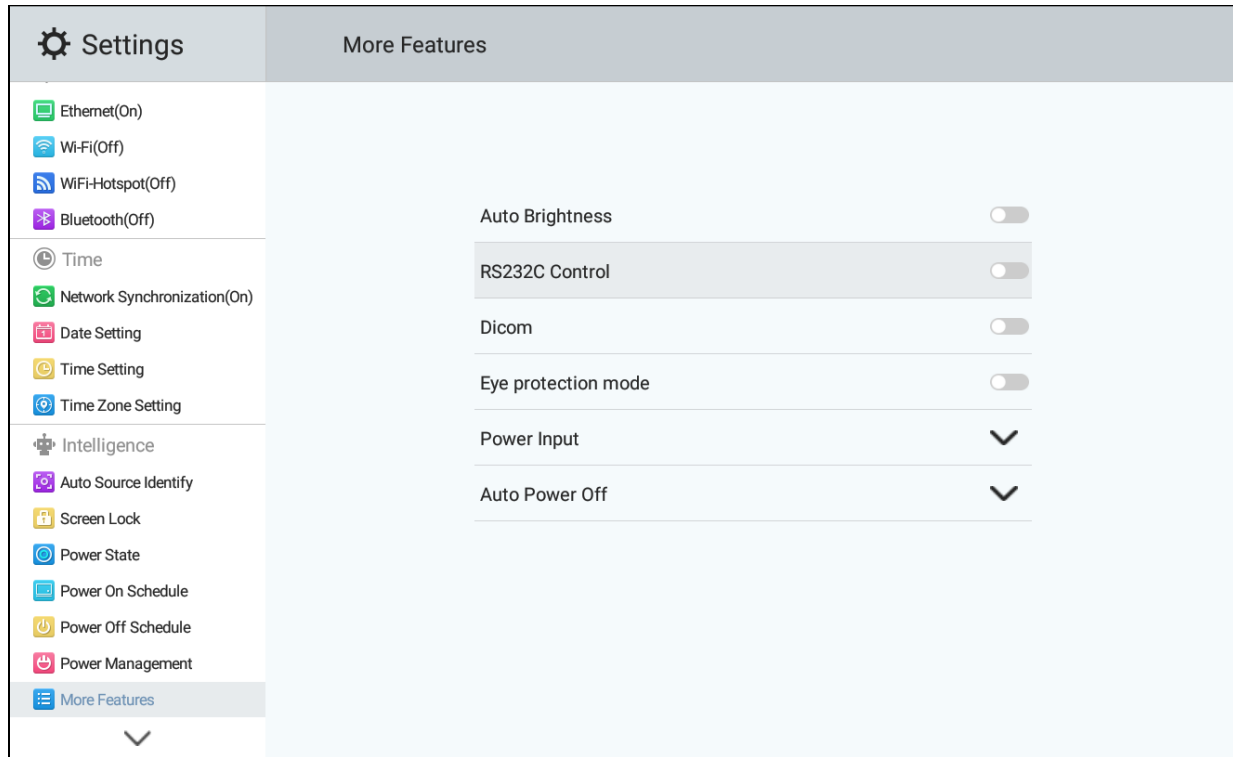
20.6 Power Management



Selects the behavior of the display in standby mode.

- **Standby Mode:** Lowest power standby mode. Allows the display to be awakened via IR, keypad and RS232.
- **Network Standby Mode:** Lowest power standby mode with networking support. Allows the display to be awakened via IR, keypad, RS232 and Wake-on-LAN.
- **Fast Startup:** Quickest startup time. Allows the display to be awakened via IR, keypad, RS232, LAN and touching the screen.

20.7 More Features



- **Auto Brightness:** The display will automatically adjust its backlight to conform to the ambient lighting conditions of the environment. This will override the manual backlight adjustment.
- **RS232C Control:** Toggles the functionality of the RS232 commands from external control systems.
- **Dicom:** Toggles the use of a DICOM preset instead of a standard gamma function.
- **Eye Protection Mode:** Temporarily dims the display while the user is touching it.
- **Power Input:** The default source to be displayed when the display is powered on (Home, Last Input source, VGA, AV, HDMI 1, HDMI 2, OPS, Front HDMI, DP).
- **Auto Power Off:** The display will power down if no signal is detected after the user-defined power of time (5, 10, 15, 30 minutes).

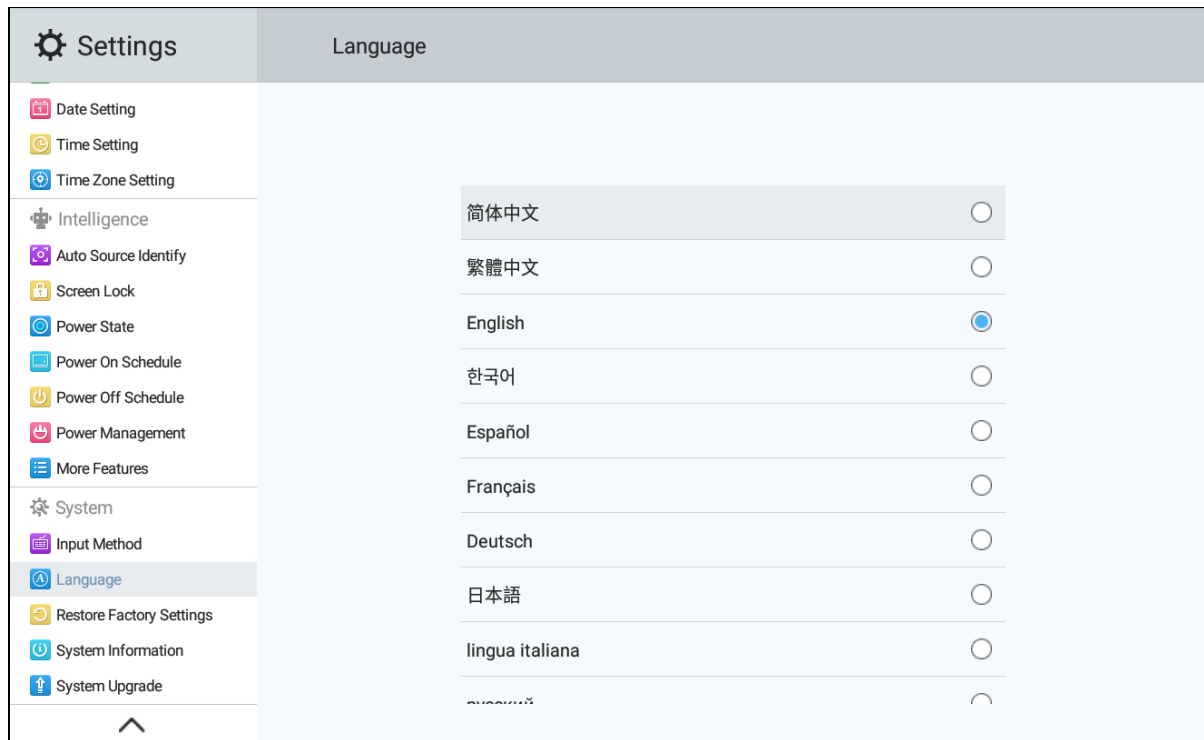
21. System Settings

21.1 Input Method

Selects the keyboard to be used for text input.

- Sogou Keyboard: Supports the Chinese Pinyin input method in addition to English.
- GBoard: Standard Android keyboard.

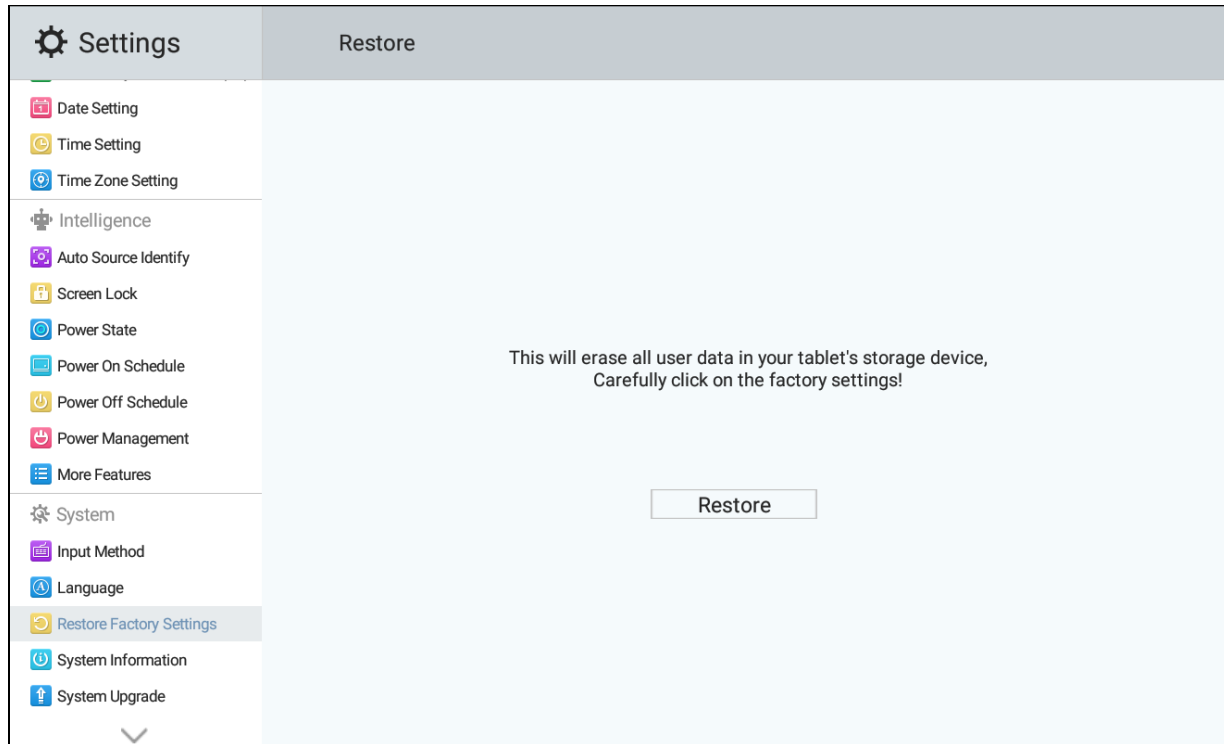
21.2 Language



The user can set the language of the on-screen display:

- Chinese (Simplified)
- Chinese (Traditional)
- English
- Korean
- Spanish
- French
- German
- Japanese
- Italian
- Russian
- Finnish
- Vietnamese
- Swedish
- Thai

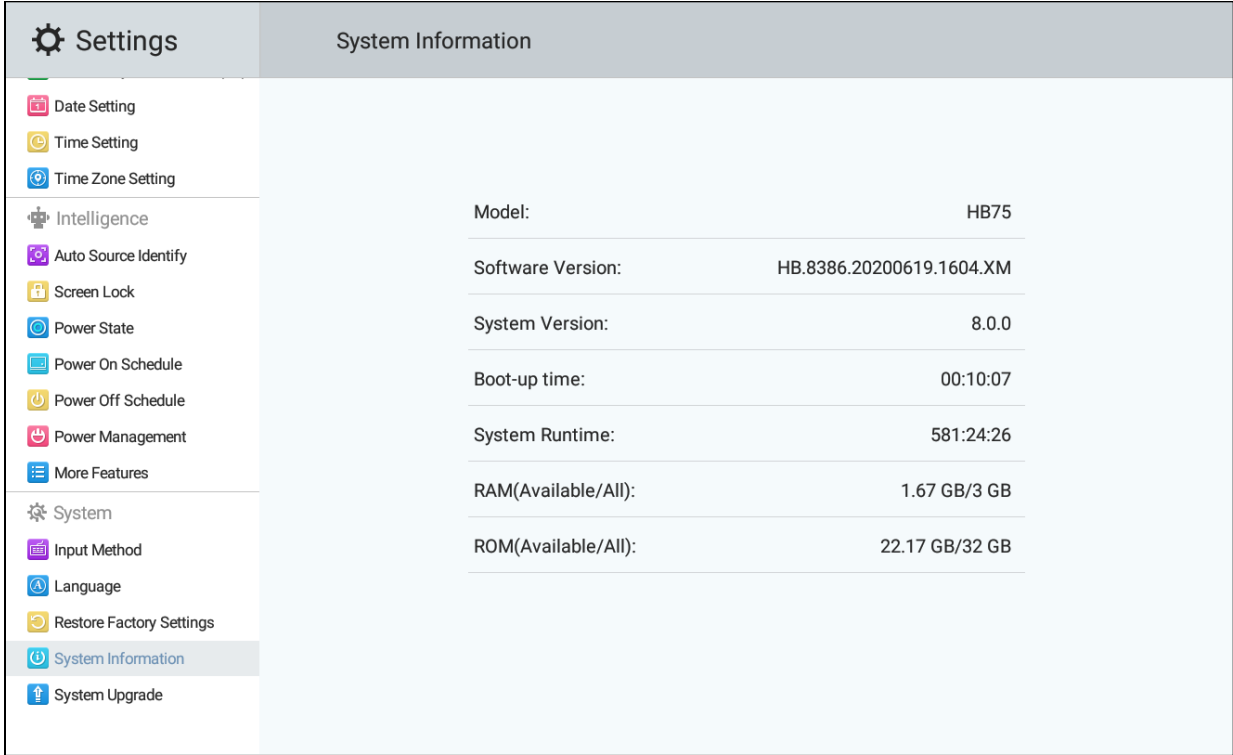
21.3 Restore Factory Settings



Users can initialize the system.

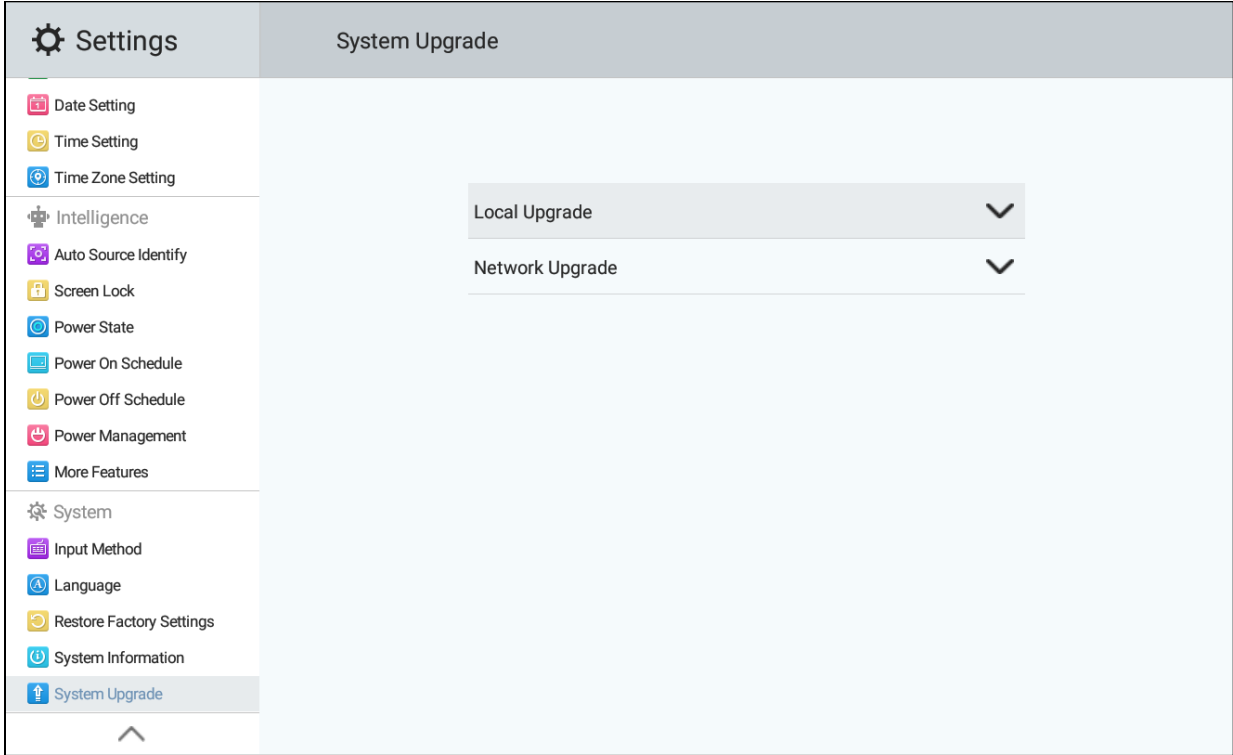
Note: Please back up the data before initialization

21.4 System Information



Users can view the system information of the OS and other devices in this interface.

21.5 System Upgrade



User choose the method of system upgrade (Local, Network).

External Control

In addition to using the Planar HB Series Huddle Board remote control and display, there are other methods of controlling the Planar HB Series Huddle Board display externally:

- Using a serial link to send binary commands and to receive responses to those commands. The same set of commands can be sent over RS232, TCP or UDP. See the *Planar HB Series Huddle Board RS232 User Manual* for more information.
- Using discrete infrared (IR) codes to program a third-party remote control.

Signal Compatibility

Compatible Video Sources								
Signal Type	Resolution	Frame Rate (Hz)	Line Rate (kHz)	Pixel Rate (MHz)	HDMI 1-2 / Front	DP	VGA	References
PC	640x480	59.940	31.469	25.175	x	x	x	VESA DMT, CEA-861-F Format 1
	640x480	72.809	37.861	31.500	x	x	x	VESA DMT
	640x480	75.000	37.500	31.500	x	x	x	VESA DMT
	640x480	85.008	43.269	36.000	x	x		VESA DMT
	800x600	60.317	37.879	40.000	x	x	x	VESA DMT
	800x600	72.188	48.077	50.000	x	x	x	VESA DMT
	800x600	75.000	46.875	49.500	x	x	x	VESA DMT
	800x600	85.061	53.674	56.250	x	x		VESA DMT
	848x480	59.659	29.830	31.500	x	x	x	VESA CVT
	848x480	74.769	37.684	41.000	x	x	x	VESA CVT
	848x480	84.751	42.969	46.750	x	x		VESA CVT
	1024x768	60.004	48.363	65.000	x	x	x	VESA DMT
	1024x768	70.069	56.476	75.000	x	x	x	VESA DMT
	1024x768	75.029	60.023	78.750	x	x	x	VESA DMT
	1024x768	84.997	68.677	94.500	x	x		VESA DMT
	1152x864	70.012	63.851	94.500	x	x	x	VESA DMT
	1152x864	75.000	67.500	108.000	x	x	x	VESA DMT
	1152x864	84.999	77.094	121.500	x	x		VESA DMT
	1280x768	49.929	39.593	65.250	x	x	x	VESA CVT
	1280x768	59.995	47.396	68.250	x	x	x	VESA CVT-R
	1280x768	59.870	47.776	79.500	x	x	x	VESA CVT
	1280x768	74.893	60.289	102.250	x	x	x	VESA CVT
	1280x768	84.837	68.633	117.500	x	x		VESA CVT
	1280x960	60.000	60.000	108.000	x	x	x	VESA DMT
	1280x960	75	75.000	126.000	x	x	x	VESA DMT
	1280x960	85.002	85.938	148.500	x	x		VESA DMT
	1280x1024	60.020	63.981	108.000	x	x	x	VESA DMT
	1280x1024	75.025	79.976	135.000	x	x	x	VESA DMT
	1280x1024	85.024	91.146	157.500	x	x		VESA DMT
	1366x768	59.790	47.712	85.500	x	x	x	VESA DMT
1400x1050	49.965	54.113	100.000	x	x		VESA CVT	
1400x1050	59.948	64.744	101.000	x	x	x	VESA CVT-R	
1400x1050	59.978	65.317	121.750	x	x	x	VESA CVT	
1400x1050	74.867	82.278	156.000	x	x	x	VESA CVT	

Compatible Video Sources								
Signal Type	Resolution	Frame Rate (Hz)	Line Rate (kHz)	Pixel Rate (MHz)	HDMI 1-2 / Front	DP	VGA	References
PC	1600x1200	60.000	75.000	162.000	x	x	x	VESA DMT
	1920x1080	49.929	55.621	141.500	x	x		VESA CVT
	1920x1080	59.963	67.158	173.000	x	x		VESA CVT
	1920x1080	59.950	66.587	138.500	x	x	x	VESA CVT-R
	1920x1200	49.932	61.816	158.250	x	x	x	VESA CVT
	1920x1200	59.950	74.038	154.000	x	x	x	VESA CVT-R
	1680x1050	49.974	54.121	119.500	x	x		VESA CVT
	1680x1050	59.954	65.290	146.250	x	x	x	VESA CVT
	2560x1440	59.951	88.787	241.500	x	x		VESA CVT-R
	2560x1600	59.972	98.713	268.500	x	x		VESA CVT-R
	3840x2160	23.999	52.438	209.750	x	x		VESA CVT-R
	3840x2160	29.981	65.688	262.750	x	x		VESA CVT-R
	3840x2160	49.977	110.500	442.000	x	x		VESA CVT-R
	3840x2160	59.997	133.313	533.250	x	x		VESA CVT-R
Apple Mac	640x480	66.59			x	x	x	
	832x624	75.087	49.107	55.000	x		x	
	1024x768	59.278	48.193	64.000	x			
	1024x768	74.927	60.241	80.000	x			
	1152x870	75.062	68.681	100.000	x			
SDTV	480i	60			x			SMPTE 125M, CEA-861-F Formats 6 & 7
	576i	50			x			ITU-R BT.601, CEA-861-F Formats 21 & 22
EDTV	480p	60	31.469	27.000	x	x	x	ITU-R BT.1358, CEA-861-F Format 17 & 18
	576p	50	31.250	27.000	x	x	x	SMPTE 125M, CEA-861-F Format 6 & 7
HDTV	1080i	50	28.125	74.500	x			SMPTE 274M, CEA-861-F Format 20
	1080i	60	33.750	74.250	x			SMPTE 274M, CEA-861-F Format 5
	720p	50	37.500	74.250	x	x	x	SMPTE 296M, CEA-861-F Format 19
	720p	60	45.000	74.250	x	x	x	SMPTE 296M, CEA-861-F Format 4
	1080p	24	27.000	74.250	x	x	x	SMPTE 274M, CEA-861-F Format 32
	1080p	25	28.125	74.250	x	x	x	SMPTE 274M, CEA-861-F Format 33
	1080p	30	33.750	74.250	x	x	x	SMPTE 274M, CEA-861-F Format 34
	1080p	50	56.250	148.500	x	x	x	SMPTE 274M, CEA-861-F Format 31
	1080p	60	67.500	148.500	x	x	x	SMPTE 274M, CEA-861-F Format 16
UHDTV	3840x2160	24	54.000	297.000	x	x		CEA-861-F Format 93, HDMI 1.4b VIC 1
	3840x2160	25	56.250	297.000	x	x		CEA-861-F Format 94, HDMI 1.4b VIC 2
	3840x2160	30	67.500	297.000	x	x		CEA-861-F Format 95, HDMI 1.4b VIC 3
	3840x2160	50	56.250	297.000	x			CEA-861-F Format 96, 4:2:0 sub-sampling
	3840x2160	50	112.500	594.000	x	x		CEA-861-F Format 96
	3840x2160	60	67.500	297.000	x			CEA-861-F Format 97, 4:2:0 sub-sampling
	3840x2160	60	135.000	594.000	x	x		CEA-861-F Format 97
	4096x2160	24	54.000	297.000	x	x		CEA-861-F Format 98
	4096x2160	25	56.250	297.000	x			CEA-861-F Format 99
	4096x2160	30	67.500	297.000	x	x		CEA-861-F Format 100

Color Subsampling Support

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

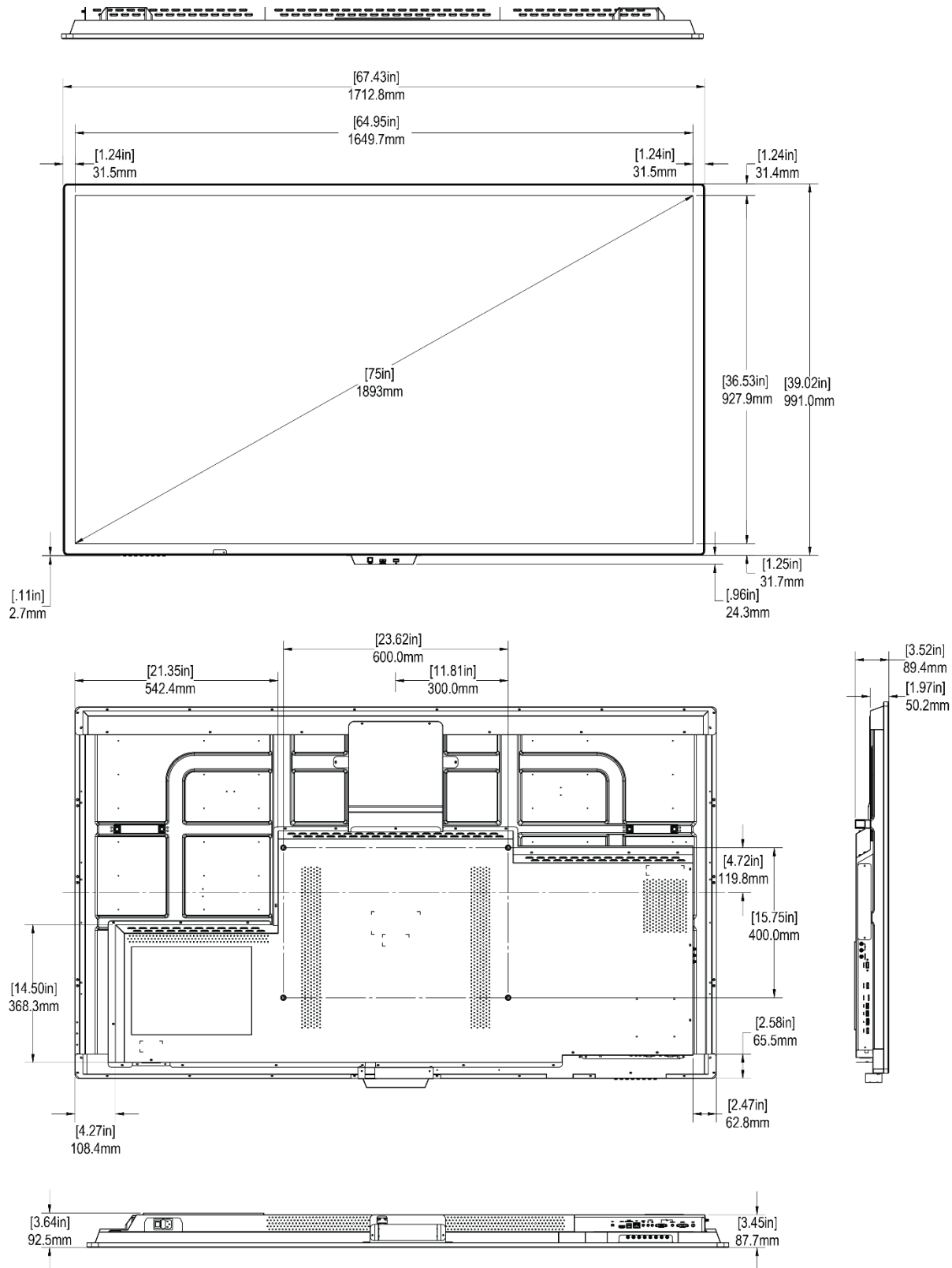
Specifications

Item	HB75	HB86
LCD Panel		
Display Technology	Commercial-Grade IPS LCD	
Resolution	3840x2160	
Aspect Ratio	16:9	
Screen Size	75"	86"
Orientation	Landscape	
Brightness (Typ.)	350 cd/m ²	
Contrast Ratio	1000:1	
Viewing Angle (Typ.)	178 degrees	
Response Time (Typ.)	8ms	
Color Gamut	72% NTSC	
Display Color	1.07 billion (10-bit depth)	
Connectivity		
Standard Inputs	HDMI 2.0 x 3, DisplayPort 1.2, VGA, OPS	
HDCP 2.2	Yes (HDMI)	
Audio Output	Line out, S/PDIF out	
Control and Monitoring	LAN RJ45, WiFi (802.11 b/g/n, 2.4 GHz, 5 GHz), RS232 In, Keypad	
Operating System	Android 8.0	
Video Processing	CPU: ARM A73 (x2) + ARM A53 (x2) Frequency: 1.5 GHz GPU: Mali-G51 RAM: 3GB DDR4 2400MHz Flash: 32GB eMMC	
Mechanical		
Display Dimensions	67.4" x 40.0" x 3.6" (1712.8mm x 1015.3mm x 92.5mm)	77.1" x 45.4" x 3.6" (1958.1mm x 1153.0mm x 92.3mm)
Inactive Area	27.5mm	27.9mm
Bezel Width	4.1mm even	3.7mm even
Display Weight	106 lbs (48 kg)	139 lbs (63 kg)
Mounting	VESA 600 mm x 400 mm	VESA 800 mm x 600 mm
Fanless	Yes	
Speakers	15W x 2 built-in	

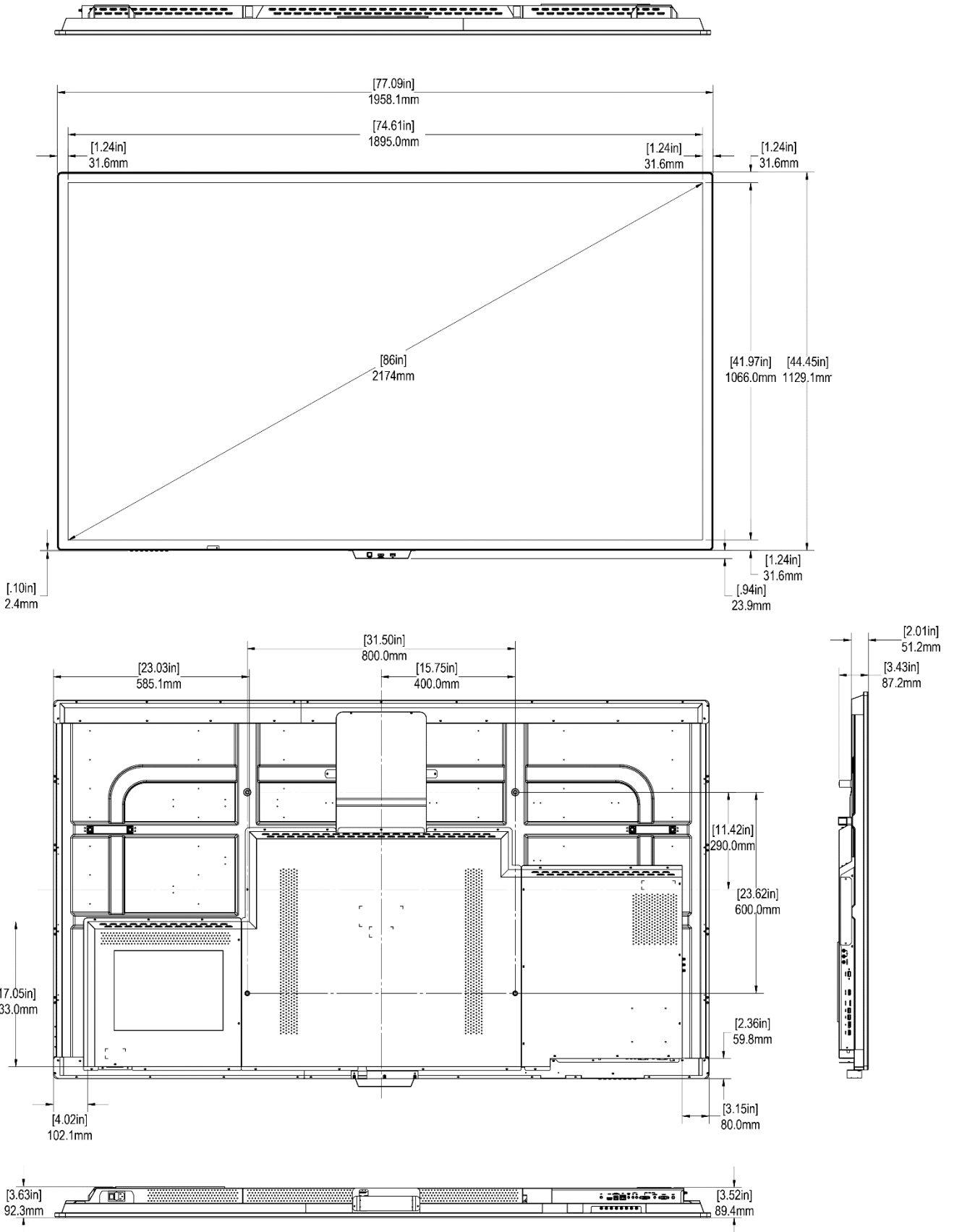
Item	HB75	HB86
Touch Related		
Protective Glass	2mm with AG coating	
Touch Technology	In-Cell Projected Capacitive 20-point	
Touch Interface	USB-B	
Usage		
Recommended Usage	Up to 18x7	
Backlight	D-LED	
Backlight Life	30,000 hours min	
Power Source		
Power Consumption (Typ.)	295W	350W
BTU/hr (Typ.)	295W x 3.42 BTU = 1009 BTU/hr	350W x 3.42 BTU = 1197 BTU/hr
Standby Power Consumption	< 0.5W	
Input Voltage / Frequency	AC 100-240V 50-60 Hz	
AC Inlet Type	C14	
Environment		
Storage Temperature	Min -4°F ~ Max 140°F (-20°C ~ 60°C)	
Operating Temperature	Min 32°F ~ Max 104°F (0-40°C) at up to 3000 m	
Humidity	20-85% RH	
Approvals	FCC Class A, NRTL, CE	

Dimensions

HB75



HB86



Troubleshooting

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

- Perform the adjustments according to "Operating the Display" on [page 18](#).
- If the problem you are experiencing is not described below, or you cannot correct the problem, stop using the display and contact Planar's Technical Support Department. See "Accessing the Planar Technical Support Website" on [page 69](#).

Issue	Check for the following
No image is displayed	Make sure the correct source is selected.
	Make sure the main power switch is ON.
	Check that the source equipment is operating correctly.
	Make sure the input signal is compatible with this display.
The image is not centered	Make sure the input signal is compatible with this display.
The remote control doesn't work	Make sure the batteries are new and installed correctly. Ensure the remote is aimed at the IR sensor.
	Make sure the remote control sensor is plugged in correctly.
	Make sure the remote is aimed towards the back of the display where the sensor is located.
The picture color looks poor	Check the picture settings. Reset the display.
App won't run	Make sure that the display is attached to the Internet, either by LAN or Wi-Fi. If the app is freezing, not loading or crashing: <ul style="list-style-type: none"> • Turn off the Planar HB Series Display using the power switch. • Download the app again.

Accessing the Planar Technical Support Website

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

- User Guide
- RS232 User Manual
- Standard Warranties
- Planar support hotline number and email

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