

# Perceptive Pixel by Microsoft

55" Touch Device user guide

Perceptive Pixel by Microsoft

# Notice

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The Perceptive Pixel by Microsoft 55" Touch Device is assembled in the USA.

## FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if it is not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Caution: LED inside. Class 1M laser (LEDs) radiation can be emitted if the LCD display module is disassembled and operated. The display should never be opened by the user.

Low power, Radio LAN type devices (radio frequency (RF) wireless communication devices), operating in the 2.4 GHz Band, may be present (embedded) in your display system. This section is only applicable if these devices are present. Refer to the system label to verify the presence of wireless devices. Wireless devices that may be in your system are only qualified for use in the United States of America if an FCC ID number is on the system label.

The power output of the wireless device (or devices), which may be embedded in your display, is well below the RF exposure limits as set by the FCC.

Changes or modifications not expressly approved by Microsoft may void authority to operate the equipment under these FCC regulations.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

This device complies with IEC 60950-1 2nd Ed. EN 60950-1:2006/A11:2009/A1:2010/A12:2011, and UL Standard CSA C22.2 NO. 60950-1-07 INFORMATION TEC.



# Contents

Introduction	5
System requirements	6
List of materials	7
Installation	8
Using the PPI Touch Device	17
Troubleshooting	18
Specifications	26
Safety and handling information	27
Maintenance	27

# Introduction

## The PPI by Microsoft 55" Touch Device

The Perceptive Pixel (PPI) by Microsoft 55" Touch Device is a touch-sensitive computer monitor capable of detecting and processing a virtually unlimited number of simultaneous on-screen touches. It has 1920 x 1080 resolution, adjustable brightness of up to 400 nits, a contrast ratio of up to 1000:1, and a display area of 47.6 x 26.8 inches. An advanced sensor distinguishes true touch from proximal motions of palms and arms, eliminating mistriggering and false starts. With optical bonding, the PPI by Microsoft 55" Touch Device virtually eliminates parallax issues and exhibits superior brightness and contrast. And it has built-in color temperature settings to accommodate various environments and user preference



Figure 1. PPI by Microsoft 55" Touch Devices.

# System requirements

Use the following guidance when configuring the computer that will power the PPI 55" Touch Device.

## Minimum System Requirements

- Windows 8 for best experience
  - Windows 7 is supported but with reduced OS touch features
- 1GHz dual-core processor or better
- 2GB system RAM
- Display resolution supporting 1920x1080 (55" & 82") or 2560x1440 (27")
  - 120Hz refresh rate recommended for best performance (55" only)
- Digital video output to connect to DVI input (55", 82") or DisplayPort input (27")
  - Dedicated DirectX 11-capable video adapter recommended for best performance
- Dedicated USB 2.0 or greater port (not a shared port via USB hub)
  - Dedicated USB 3.0 port recommended for best performance

See <http://support.microsoft.com/kb/2819660> for the most up-to-date system requirements information.

# List of materials

The following items ship with the PPI 55" Touch Device:

- 604-0021: Dial-link DVI cable 10 ft. (1) - see figure 2
- 604-0046: USB cable 3 m. (Type-A, Type-B connectors) -see figure 2
- 604-0045: Power cable (IEC) 10 ft. - see figure 2. A localized power kit is available for regions outside North America. Contact PPI technical support for details.



Figure 2. Device cables, clockwise from lower left: USB, power, dual-link DVI

- 101-0135: Device cleaner (80ml) with microfiber cloth
- 101-0189: Wall mount kit
- Perceptive Pixel by Microsoft 55" Touch Device user guide

# Installation

## Parts

In addition to the PPI 55" Touch Device, you will need the following parts to perform this procedure:

- 201-0186: Wall bracket - see figure 3
- Screws and washers may be needed depending on wall construction (not shipped)

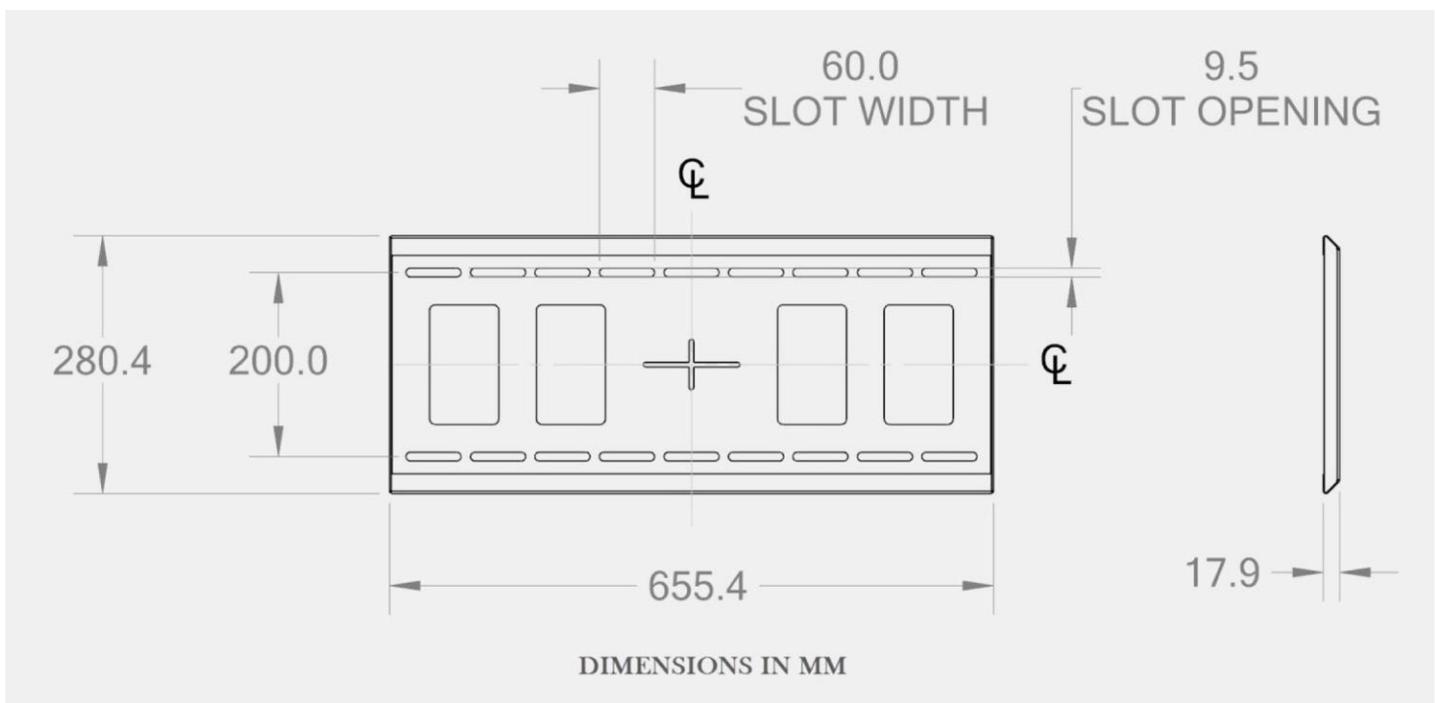


Figure 3. Wall bracket

# Tools

## Optional

These tools are likely to be necessary depending on prior accommodations for the wall bracket:

- Pencil
- Level
- Drill
- Screwdriver
- Socket set

## Required

The following tool is needed for tightening the brackets on the wall mount:

- 4mm hex Allen wrench tool (ideally of the T-handle variety to apply the necessary torque)

# Preparation for mounting the PPI 55" Touch Device

Each installation is unique and it is the responsibility of the installer to ensure that the wall bracket location and wall construction are adequate for mounting the device. Microsoft is not responsible for any personal injury or physical damage due to the wall not supporting the installation.

Use the following guidelines to attach the wall bracket to a wall:

1. Determine if the wall is sturdy enough to support the device. The device plus mounting hardware will weigh up to 90 lbs. Due to the number of different wall construction methods, the PPI 55" Touch Device does not have specific mounting procedures to attach the wall bracket. Therefore the wall bracket must be installed with sufficiently robust hardware (5/16" or 8 mm diameter bolts are generally sufficient, depending on length) and make optimum use of wall studs or equivalent.
2. It is recommended that the center of the bracket be 55" from the floor; measure and mark this dimension. Note that the center of the bracket (the "cross hair" as seen in figure 4) aligns with the vertical center of the device. Also ensure that the wall bracket is level before hanging the device.

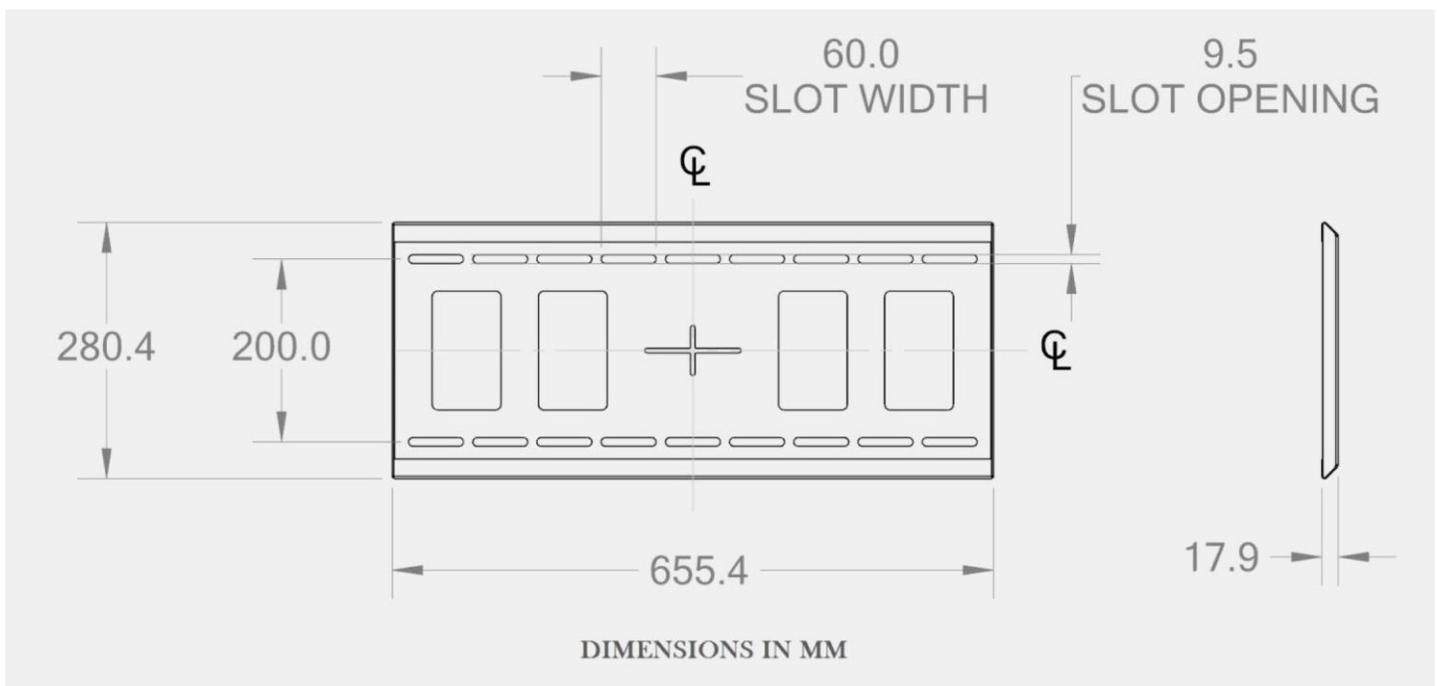


Figure 4. Wall bracket dimensions

# Hanging the PPI 55" Touch Device

1. With two able-bodied people, lift the device just up and over the wall bracket. The device can be tilted slightly to hook the device-mounted vertical brackets onto the wall bracket.
2. Rotate the device to its vertical position. The device's weight will naturally facilitate this. Take care not to pinch fingers.



Figure 5. Hooking the top of the device brackets to the wall bracket (side view)

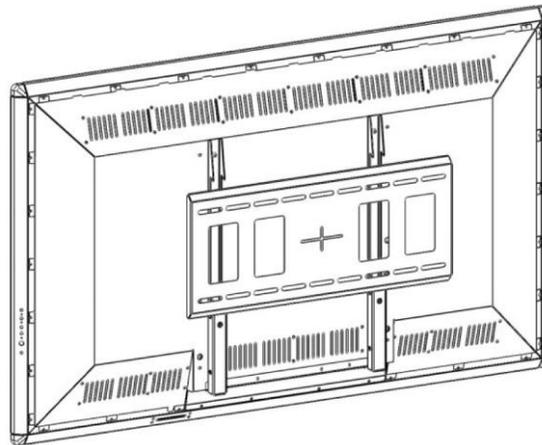


Figure 6. Device rotated down so it hangs on wall bracket (quarter view from rear)

3. Slowly lower the device to allow the brackets to hold the weight of the device, and hold in place for several seconds.
4. If desired, you may move the device left or right approximately 3 inches. You will need to lift the device slightly to do this.

5. For safety, it is recommended that two people continue to hold the device. From below, use the 4mm Allen wrench to drive the vertical locking brackets upward to fully engage the wall bracket. Note there is about 1 ¼" of travel for the vertical locking brackets.

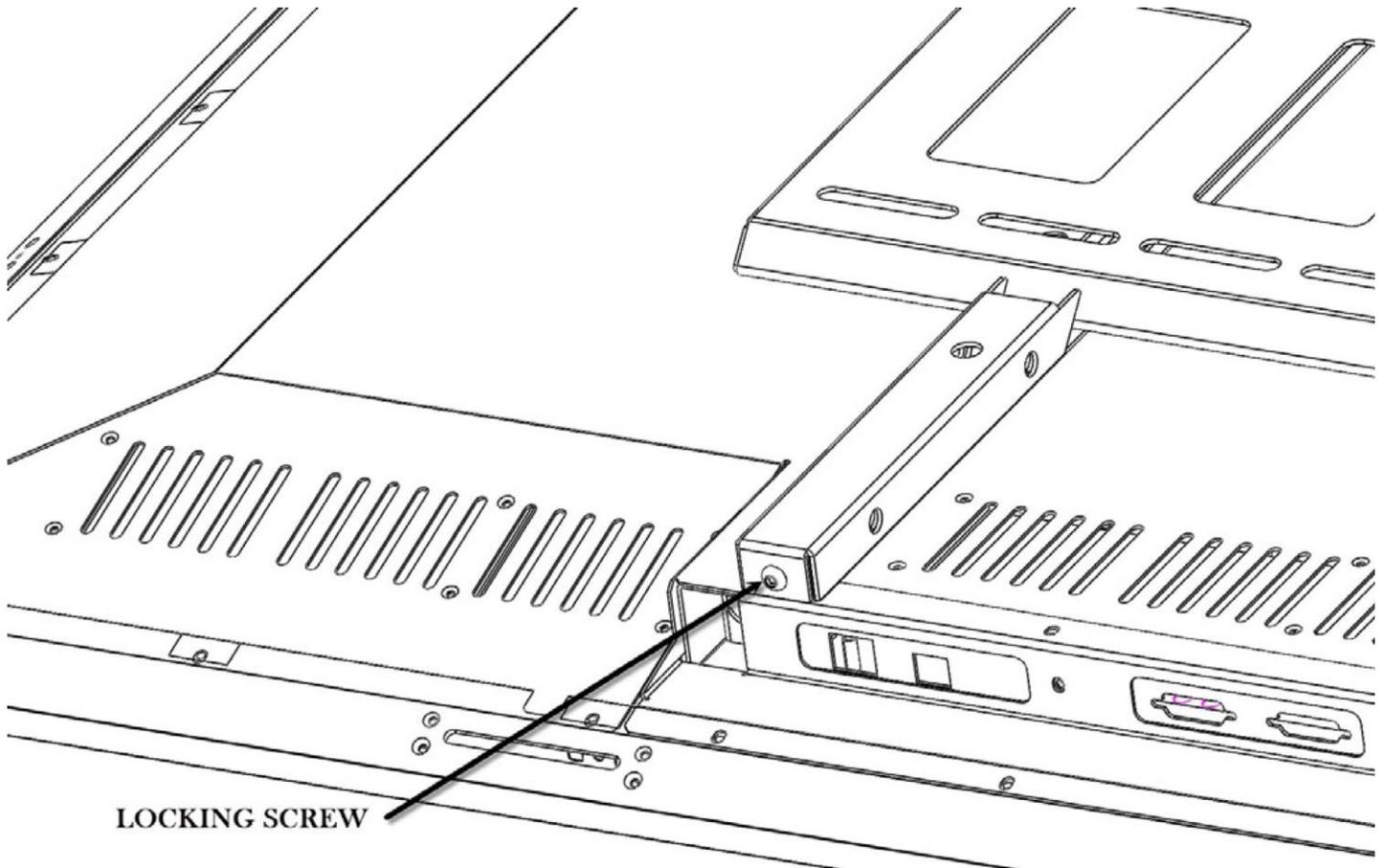


Figure 7. Locking screw uses 4mm hex tool (virtual bottom view of mounted device)

# Connecting the cables to the device

You will need the following parts for this procedure:

- USB cable as shipped
- DVI cable as shipped
- Power cable as shipped
- Ethernet cable (optional; customer supplied)

After mounting the device, connect the cables to the device's center rear underside as follows:

1. Insert the dual-link DVI cable(s) into the matching connectors on the device and tighten the thumbscrews. (Although not required, you may want to use a #1 flat head screwdriver to tighten the thumbscrews.)
2. Insert the Type-B (square) end of the USB cable into the square Type-B USB connector on the device, located to the left of the DVI connectors, with the beveled side of the cable connector facing the back of the device.
3. Insert the Ethernet cable into the Ethernet port to the left of the Type-B USB connector if you wish to control the device over Ethernet.
4. Insert the female end of the power cable into the power connector, located to the right of the DVI connectors.
5. Ignore the four Type-A USB connectors for now. These connectors provide battery charging for the optional PPI by Microsoft Active Stylus. The connectors may also be used by other USB devices. See the Perceptive Pixel by Microsoft Active Stylus quick guide.
6. Connect the male end of the power cable to the power source. It is recommended that you use a surge protector for the power cable.



Figure 8. Connection ports from left to right: Ethernet (network), USB connection to computer, DVI (2), USB hub ports for stylus charging and accessories, and AC power

# Connecting the device and peripherals to the computer

You will need the following parts for this procedure:

- Computer meeting system requirements
- PPI 55" Touch Device with USB and DVI cables connected

Connect the cables to the computer as follows:

1. Connect the free end of the DVI cable into the dual-link DVI connection and tighten the thumbscrews.
2. Connect the free end of the USB cable from the device into any of the USB ports on the computer.

## Powering on the system

Use the following procedures to apply power to the system.

1. If not already on, turn on your surge protector.
2. Turn the power switch next to the power connector (rear underside) to the 1 position. An amber light just above the keypad power button should illuminate.



Figure 9. Power switch indicated

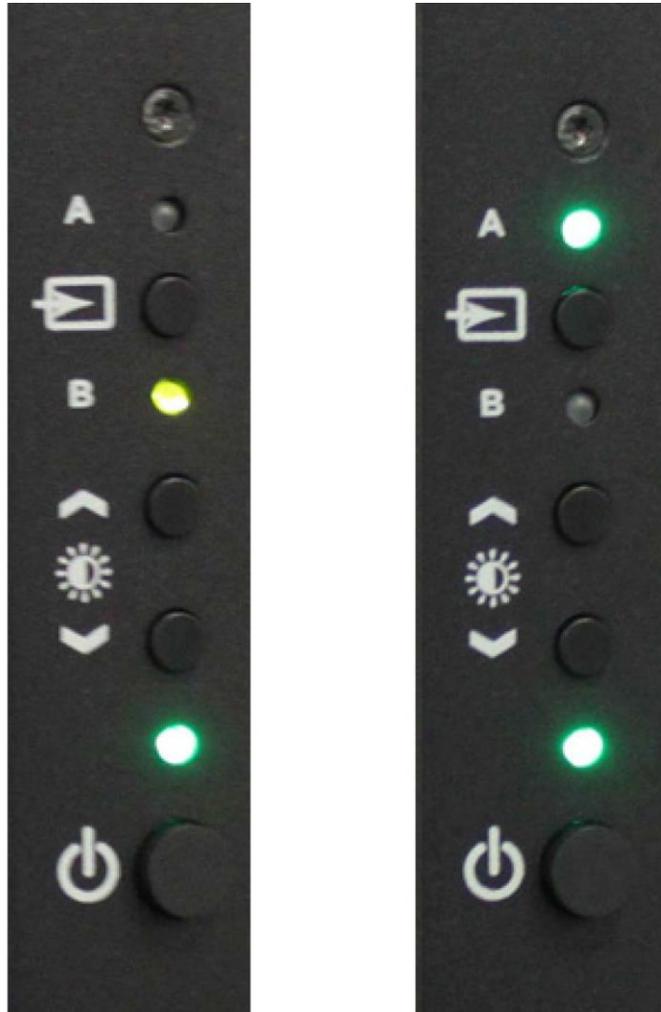


Figure 10. Left: The device has power, but no signal is coming from selected source B, which has an amber light. Right: The device has power and is getting a signal from selected source, as both the power and source 'A' LEDs are green.

## Installing drivers and software

The latest Perceptive Pixel Touch Driver can be downloaded from <http://support.microsoft.com/gp/perceptive-pixel>.

# Using the PPI Touch Device

## Windows 8 Touch conventions

Touching the device screen will tell you if the Perceptive Pixel Touch Service is running. This service allows certified applications to interact with touches detected on the screen. If the service does not appear to be running, verify installation of the PPI Touch Driver, then contact technical support at <http://support.microsoft.com/gp/perceptive-pixel> or by calling 1 (800) 642-7676.

Windows command	Corresponding touch action
To left-click a file	Tap it with one finger.
To right-click a file	Touch it with one finger and tap the screen with a second. Alternately, press and hold with one finger.
To double-click a file	Double-tap it with one finger.
To scroll through a file	Drag one finger up to scroll down or drag one finger down to scroll up.
To position a window (left mouse drag)	Touch one finger on the title bar and drag the window.
To resize a window	Touch one finger on the edge of the window and drag the edge.
To zoom in	Place two fingers on the screen and pull them apart. Alternately, tap the screen with two fingers.
To zoom out	Place two fingers on the screen and pull them together.
To minimize all but active window (shake)	Touch the window title bar and run your finger back and forth. Some windows, such as dialog boxes, cannot be minimized with shake.
To preview open windows (peek)	Touch the program icon on the Windows Task Bar. Drag one finger to scroll through different windows open in that program.
To right-click a task bar icon to see the context menu	Touch and hold the program icon on the Windows Task Bar.
To view Windows 8 charms and menus	Swipe inward from device edge.

# Troubleshooting

This section contains troubleshooting procedures to solve the following issues:

- The device screen is blank.
- All or part of the device screen is unresponsive to touch.
- The computer is not working.
- Gaining remote access to the device for diagnostic purposes.

For troubleshooting assistance, or to resolve issues not covered in this guide, contact PPI support online at <http://support.microsoft.com/gp/perceptive-pixel> or by calling 1 (800) 642-7676.

## Symptom

The device screen is blank.

## Suggested actions

1. Check device power and connections. Also note that the device power button, source button, and brightness arrow buttons will remember their previous states after the device powers off.
2. Verify the system AC power switch (located at the power cord entry point) is set to the 1 (on) position. Verify the power indicator is illuminated. If it is amber, press the keypad power button and verify it turns green. Verify that the video source LED (A or B) indicates the DVI connector is actually connected to the computer.
3. Verify that your graphics card is set to output 1920 x 1080 video. The device requires this resolution.
4. If the device screen is still blank check the computer power.

## Symptom

The device screen shows image, but the entire device is unresponsive to touch.

## Suggested actions

1. Check device USB connection. If the device is still unresponsive, go to the Start screen to search for and open the Touch Control Panel.
2. In the Sensors tab make sure the system has detected and placed the following entry in the Sensor Devices field: PPI by Microsoft 55" Touch Device

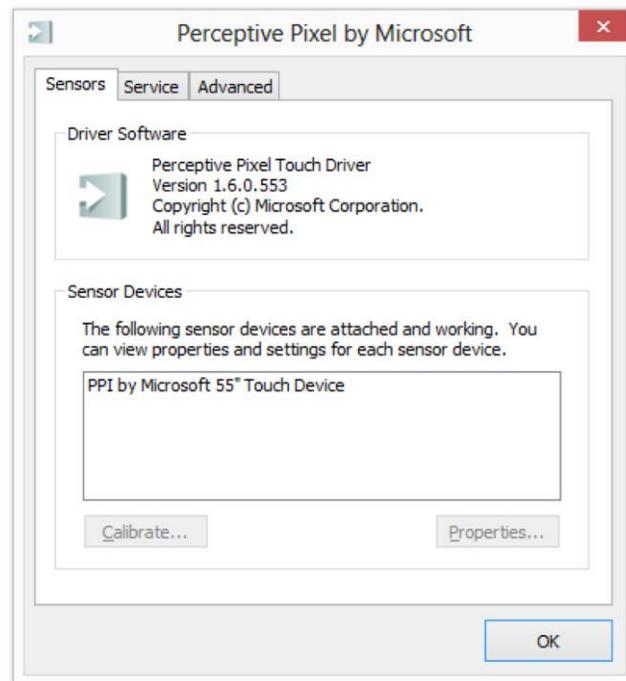


Figure 11. PPI 55" Touch Device detected

3. If the **Sensors** tab lists your PPI Touch Device, select the **PPI by Microsoft 55" Touch Device** entry and click the **Properties...** button. If not listed, contact technical support.
4. In the **Sensor Properties** dialog, make sure the following values are present in the **Input mapping** section
  - Map touches to: 1: PPI 55" LCD
  - Enable as a Windows Touch device: **selected**
5. Click **OK**.
6. If the device is still unresponsive, select the **Service** tab.
7. If the PPI Touch Service is not running, click **Start** and check if the device is responsive once the service has started. If the device is now responsive, click **OK** to close the **Touch Control Panel**.

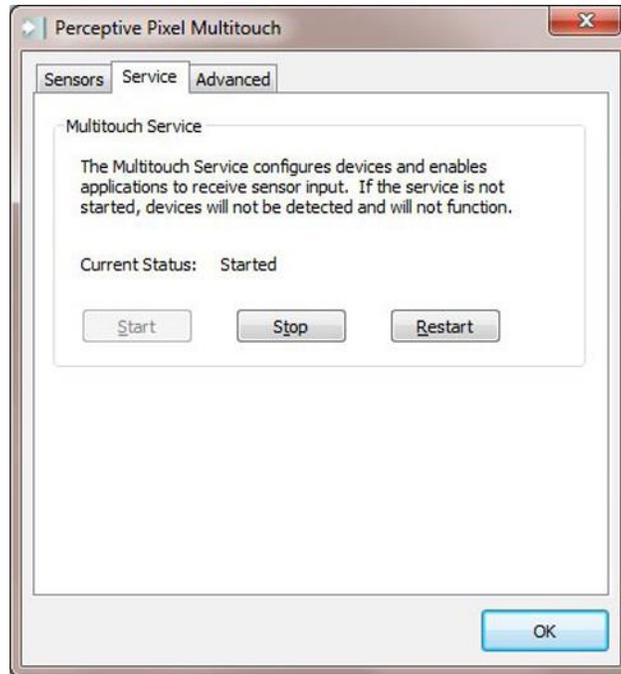


Figure 12. Service tab showing that the PPI Touch Service is running

## Symptom

The device screen shows image, but a portion of the device screen is unresponsive to touch.

## Suggested actions

1. If a portion of the device screen is unresponsive, go to the Start screen to search for the **Touch Control Panel**.
2. The **Sensors** tab will show whether the system has detected that the device is touch-ready as opposed to merely detecting the device is present.

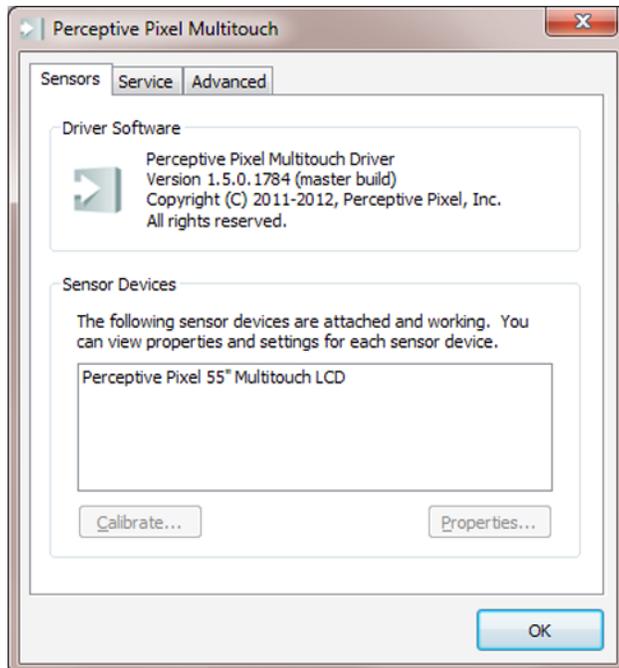


Figure 13. PPI 55" Touch Device detected

3. If the **Sensors** tab lists your PPI Touch Device, select it and click the **Properties...** button. If your PPI Touch Device is not listed, or you have more than one PPI Touch Device connected to your computer, contact technical support.
4. In the **Sensor Properties** dialog, make sure the following values are present in the **Input mapping** section:
  - Map touches to: 1: PPI 55" LCD
  - Enable as a Windows Touch device: **selected**
5. If a portion of the device screen is still unresponsive, click **Calibrate** and follow the directions on screen. Calibration should be done separately for both pen and touch using a PPI by Microsoft Active Stylus and a finger. For best results, touch the center of each box until each box becomes bright green. You may need to shift your fingertip or stylus slightly to get the crosshair to align with the box. Also, you must wait until the crosshair changes size for a second and then changes color, preferably bright green. If a box turns red, brown, or a dull green you should move on to other boxes and then come back to it to make it bright green. You will have calibrated the device properly when all of the boxes are bright green and the feedback text reads 9 points calibrated, with excellent accuracy.

6. If there is still a problem, select the **Advanced** tab.
7. Click the **Sensor View...** button. This launches a diagnostic tool that gives you information about the touches on the screen. If you notice anything unusual such as a grid square that doesn't illuminate when touched, contact technical support.
8. Your support representative may ask you to describe the information displayed next to your finger touches. Press Esc to exit.

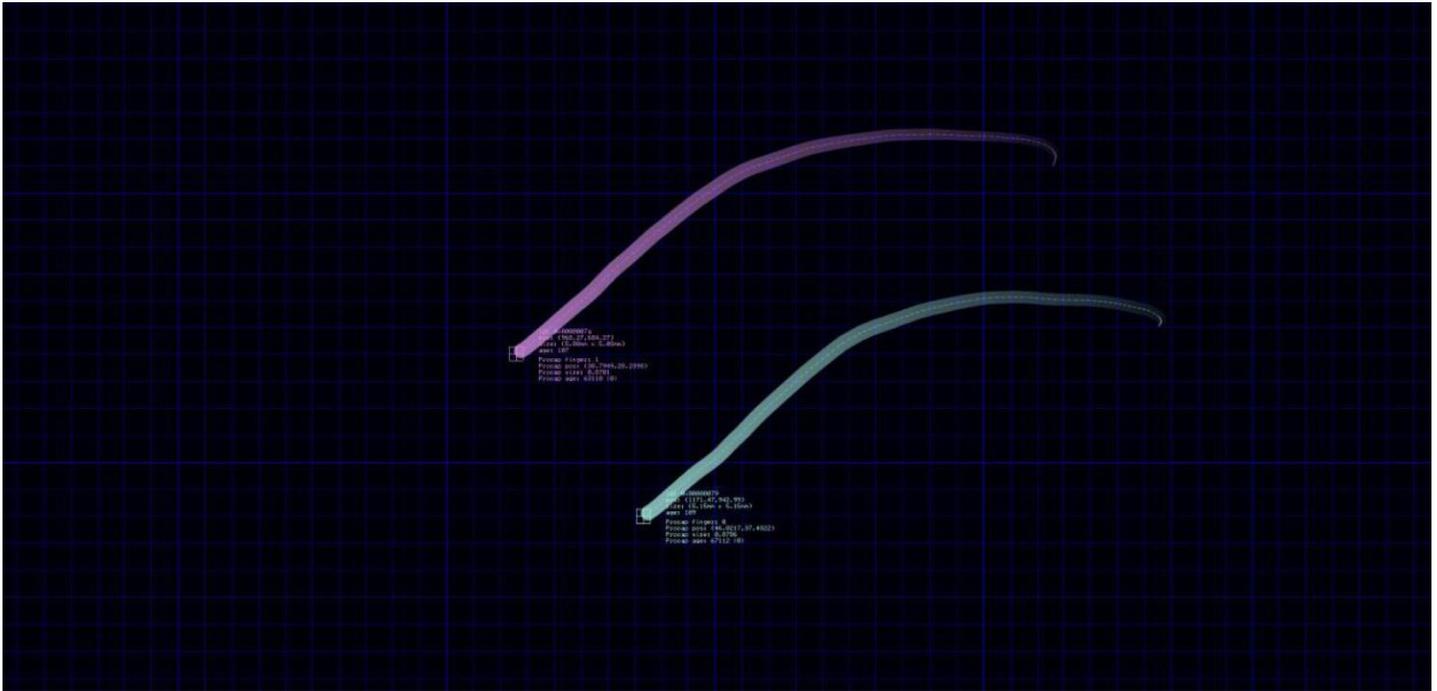


Figure 14. Sensor View tracking a pair of simultaneous finger touches across the device screen

# Gaining remote access to the device

Your support representative may ask you for information about your PPI Touch Device when assisting you with troubleshooting. For instance, they may ask you about the internal temperature of the device. This information and more is available via a remote connection.

From your web browser, you can remotely access status and configuration menus on the device.

Use the following steps to gain remote access:

1. If you have not already done so, plug the Ethernet cable into the Ethernet port on the bottom center of the device and plug the other end into the port on the computer.
2. Open web browser on the computer.
3. Using the last four digits from your device's serial number, type in the following web address: `http://pixel-XXXX`, where the XXXX represents the last four digits. Note that the serial number label is located on the back of the device. For example, for a device with 4713 as the last four digits, the address for the device would be `http://pixel-4713`. Be sure to leave the "www" out of the address.

**Note:** Early versions of the 55" device utilized only the last three digits of the serial number. On these displays the hostname would be `http://pixel-XXX`.

The first page you see will be the Control Panel page (see figure 15).

The other pages that you can select by clicking the menu items on the left side are as follows:

- Network Configuration - figure 16
- Status - figure 17
- Color Temperature - figure 18
- User Color Temperature - figure 19

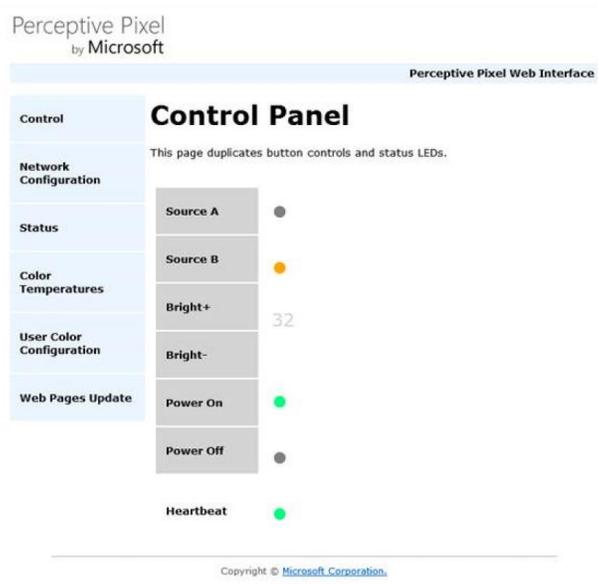


Figure 15. Control Panel web page via remote connection. Use this page to change the video source, adjust the brightness from 1 to 32, or power the device on or off. Click on the menu items on the left to view and edit more settings.

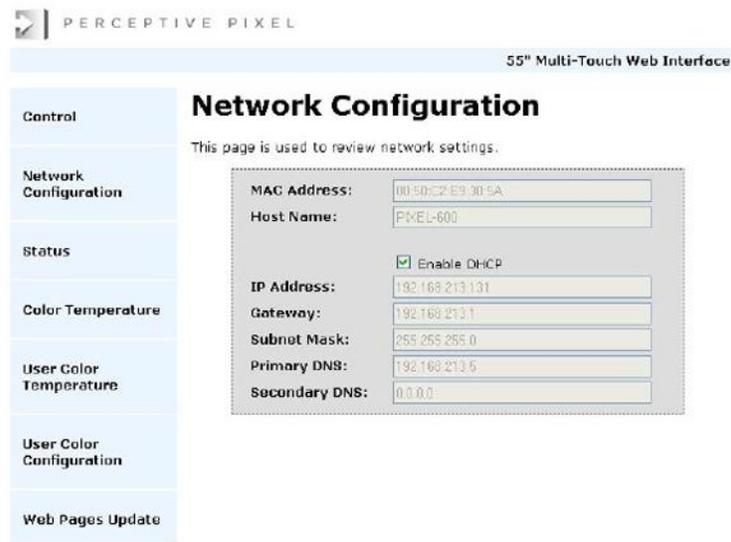


Figure 16. Network Configuration page. Use this page to view network settings. DHCP (Dynamic Host Configuration Protocol), is enabled by default.

Static IP mapping is available by turning off DHCP. For static IP mapping you must have a pre-determined IP address. You must also know the subnet mask and the address for your device.

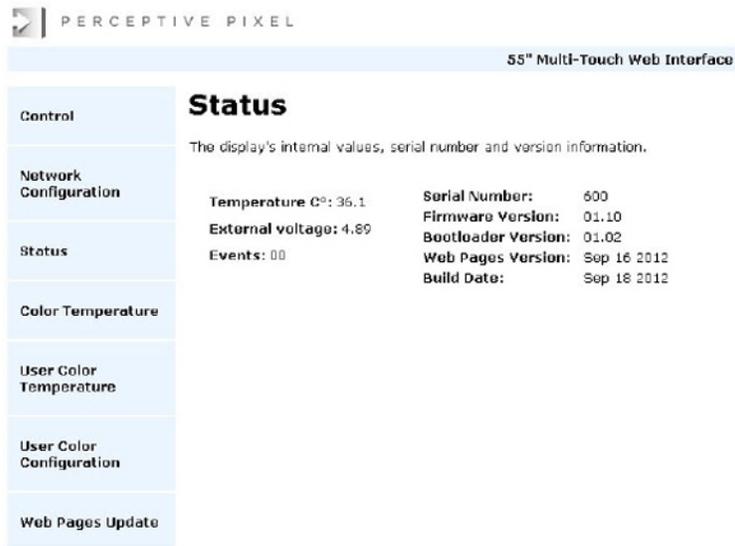


Figure 17. Status page. This page is read-only but may be useful when speaking with a support representative.

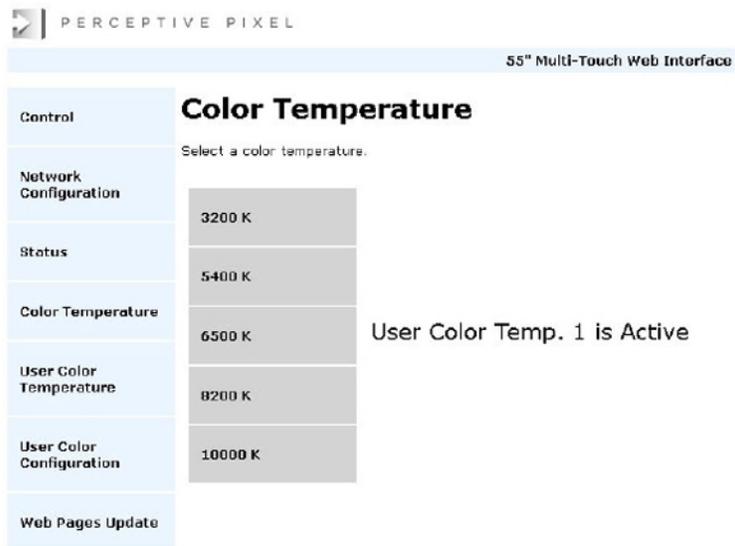


Figure 18. Color Temperature page. Use this page to view and change the color temperature. Color temperature changes the white color balance and may be useful when the device needs to be matched to a video camera. The default setting is 10000k. To select a custom color temperature, go to the User Color Temperature page and select one of the four custom User Color Temperatures.

<b>Control</b>	<h2>User Color Temperature Configuration</h2>
<b>Network Configuration</b>	User specified color settings.
<b>Status</b>	
<b>Color Temperature</b>	
<b>User Color Temperature</b>	<div style="border: 1px solid gray; padding: 5px;"><p>User Color Temp. <input type="text" value="1"/></p><p>Red Gain: <input type="text" value="256"/></p><p>Green Gain: <input type="text" value="256"/></p><p>Blue Gain: <input type="text" value="256"/></p><p><input type="button" value="Save"/></p></div>
<b>User Color Configuration</b>	<ul style="list-style-type: none"><li>- User Color Temperature: 1 to 4</li><li>- Red, Green, Blue Gains: 0 to 511</li></ul>
<b>Web Pages Update</b>	

Figure 19. User Color Temperature Configuration page. Use this page to configure the User Color Temperature that you previously selected in the User Color Temperature page. If you manually type in another number (1-4) in the User Color Temp field, you will not see the previous gain values for that color temperature, but clicking Save will preserve any changes made on this page. If you wish to first see the color gain values for a User Color Temperature, you must first select that User Color Temperature in the User Color Temperature page and return to this one.

# Appendix

## Specifications

Feature	Value
Display resolution	1920 x 1080
Brightness	400 nits (typical)
Active display area	47.6 x 26.8 inches (1210 x 680 mm)
Contrast ratio	1,000:1 (typical)
Touch input	Fingers, active stylus
Touch points	Unlimited
Touch precision	Sub-pixel
Touch response time	<1 ms (typical)
Surface treatment	Chemically strengthened, anti-smudge/glare, cleanable with provided device cleaner
Dimensions (in)	50.2 x 29.5 x 2.5 inches (WxHxD)
Dimensions (mm)	1275 x 750 x 65 (WxHxD)
Power supply	110/220 VAC Universal, 50/60 Hz
Power consumption	250 watts (max.)

# Safety and handling information

## Disconnecting the PPI Touch Device

Disconnect the device by first turning the power switch to the 0 (off) position. Then grasp the female connector and firmly pull the connector from the device. Never disconnect the power cable from the device by pulling the cable.

## Device repairs

Do not open the device enclosure as there are high-voltage components inside. For repair, contact PPI support at <http://support.microsoft.com/gp/perceptive-pixel> or by calling 1 (800) 642-7676.

# Maintenance

## Cleaning the PPI Touch Device

Clean the surface and refresh the smooth feel of the device screen with the PPI device cleaner (shipped) and a microfiber cloth. Spray a small amount of the cleaner on the cloth and gently wipe the screen. Do not spray cleaner directly onto the device screen, as any fluid dripping into the enclosure may damage the electronics. Note: Do NOT use abrasive cleaners as they will scratch the surface.

## Cleaning the exterior

Should it be necessary, clean the external enclosure using the PPI device cleaner the same as you would the touch screen. Take care to prevent the device cleaner from entering the enclosure, as any fluid dripping into the enclosure may damage the electronics.

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