

Matrix MultiTouch User Guide

Copyright © 4 Oct 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.planarcontrolroom.com/support>

RoHS Compliance Statement

The Matrix MultiTouch display is fully RoHS compliant.

Part Number: 020-1209-00E

Table of Contents

Matrix MultiTouch User Guide.....	i
Introduction.....	5
The ERO Advantage	5
Modular Protective Touch Surface	6
Ultra-Slim Profile	6
Easy Installation and Configuration	6
Tools/Equipment List	7
Unpacking and Checking Sheet Metal Contents	7
Unpacking and Checking Sensor Contents	9
Accessory Box.....	10
Assembling the Sensor Frame.....	11
Installing the Assembly Inspection Tool	15
Assembling the Sheet Metal Frame.....	17
Testing the Sensor Frame Assembly	28
Troubleshooting Issues With the Assembly Inspect Tool Software.....	30
Installing the MultiTouch Driver Software.....	32
For Windows.....	32
For MAC	36

Cleaning the ERO Matrix Wall	39
Required Materials	39
Silicone Removal.....	39
Cleaning the Glass	40
Specifications	41
Sensor Assembly Drawing	42
Contact Information.....	43

Introduction

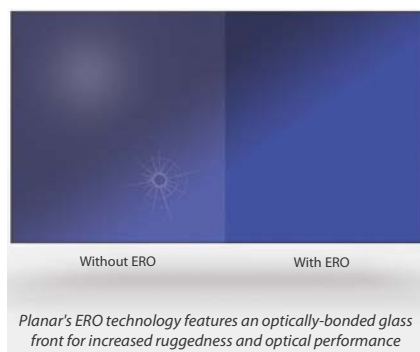
For customers looking for a large, interactive display in public spaces or collaboration environments, Planar's Clarity™ Matrix MultiTouch Video Wall System provides an ultra-slim profile, high-impact interactive video wall. Planar's Clarity Matrix MultiTouch utilizes a touch sensor frame around the edge of the video wall allowing multiple users to touch and use gestures to interact with content on the video wall. Clarity Matrix MultiTouch utilizes Planar's ERO™ (Extended Ruggedness and Optics™) technology to provide a modular, nearly seamless touch surface that protects the LCD screens.

Clarity Matrix MultiTouch incorporates the latest touch technology to enable up to 32 touch points simultaneously across the video wall. This allows multiple touches or common gesture recognition by a single user but allows for multiple people to interact with the video wall and not affect other users, making it the premier solution for customers looking to expand their collaboration capabilities in visualization or conference room applications.

Not only does the Clarity Matrix MultiTouch provide simultaneous touches but it provides a better touch experience with pinpoint accuracy, prevents false touch points, and is capable of creating large video wall sizes up to a 300" diagonal.

Caution: Windows 7 does **not** support **more than one touch monitor**. If you are planning to drive the Matrix displays at native resolution with multiple outputs, you will want to select a graphics card that can treat the desktop as one monitor on the Windows Operating System. The touch screen will only be able to interface and work with the primary monitor. Professional cards such as Nvidia Quadro, AMD Firepro and Datapath are examples of cards that support the capability of having multiple outputs but that treat the entire desktop as one.

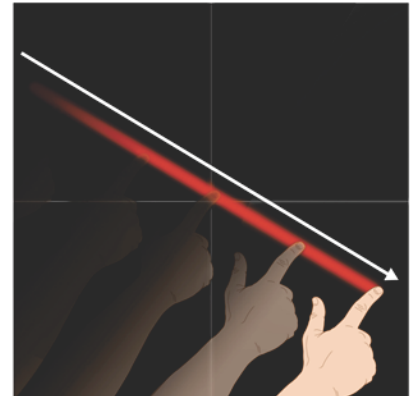
The ERO Advantage



Clarity Matrix with ERO features a glass front to provide increased ruggedness and optical performance for applications in public spaces or interactive touch. The glass surface is optically bonded to the front of the LCD with a proprietary construction and assembly technique to maintain the narrow bezel spacing and creating a continuous surface when tiled together in a video wall. Clarity Matrix with ERO also provides improved optical performance by providing additional ambient light rejection and increased contrast.

Modular Protective Touch Surface

Other implementations of touch systems for LCD video walls have required a large piece of glass in front of the LCD to protect and provide a touchable surface. This glass can be cumbersome for installation, transport, and servicing of large video walls. The modular design of the Clarity Matrix with ERO provides a near seamless touch surface while ensuring ease of installation and serviceability, less parallax error, and superior optical properties.



Modular design created continuous touch surface

Ultra-Slim Profile

Clarity Matrix MultiTouch features an ultra-slim profile with Planar's EasyAxis™ Mounting System. The EasyAxis Mounting System also enables fine adjustments to achieve perfect panel-to-panel alignment, creating a continuous touch surface.

Easy Installation and Configuration

Clarity Matrix MultiTouch is available in 2 x 2 and 3 x 3 standard video wall configurations. Custom configurations up to 300" diagonal are available as a special order item. Both standard and custom configurations are available in six or 32 touch point options. This modular system is easy to install and includes everything needed to add multi-touch capabilities to the video wall and is installed and calibrated during the installation.




Tools/Equipment List









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

- At least two people to hang the assembled sensor frame pieces
- 3mm Hex screwdriver
- #1 Phillips screwdriver

Unpacking and Checking Sheet Metal Contents



The following items are included in the sheet metal box.

Part	Description	Quantity	Picture
Short Mount Bars*	For each LCD in the left and right outer column of the video wall. Note that the mount is the same for each side.	2 x 2 wall: 4 3 x 3 wall: 6	
Long Mount Bars		2 x 2 wall: 4 3 x 3 wall: 6	
Mount Bracket		2 x 2 wall: 20 3 X 3 wall: 30	

Part	Description	Quantity	Picture
Short Side covers	For each LCD in the left and right outer column of the video wall.	2 x 2 wall: 4 3 x 3 wall: 6	
Long covers	For each LCD in the top and bottom rows of the video wall.	2 x 2 wall: 4 3 x 3 wall: 6	
Corner covers	For each LCD in the top and bottom corners of the video wall.	4	
Touch sensor mount clips		2 x 2 wall: 18 3 x 3 wall: 30	
M4 pan head screws	Pan head Phillips screws used to secure mounts.	Two-four per mount bar, depending on panel size And. 2 per touch sensor mount clip.	
M4 flat head screws	Used on covers	3 per long cover 2 per short cover	
M4 wing nuts	Attach brackets to mount bars	2 per bracket	
Reinforcing bracket	Only for 55" HDU and HDS walls	2 x 2 wall: 2 3 x 3 wall: 4	





Unpacking and Checking Sensor Contents

The following items are included in the shipping box.

Part	Description	Quantity	Picture
Side pieces Right (RE Y1, RE Y2)		2 x 2 wall: 4 3 x 3 wall: 6	
Left (RE Y1, RE Y2)			
m3 x 10mm panhead Phillips screws		per side piece: 3 per top piece: 5 per bottom piece: 5	
Top pieces (EM X1, EM X2)		2 x 2 wall: 4 3 x 3 wall: 6	
Bottom pieces (EM X1, EM X2)			

Accessory Box

The following items are included in the accessory box.

Part	Description	Number	Picture
Ribbon cable/Sensor connector	Cable attached to sensor. Extras are included in the box.	Depends on configuration	
Power cable		1	
Power adapter		1	
USB cable	Used to connect to the computer which has the Assembly Inspection Tool software installed, which is used to test the sensors.	1	

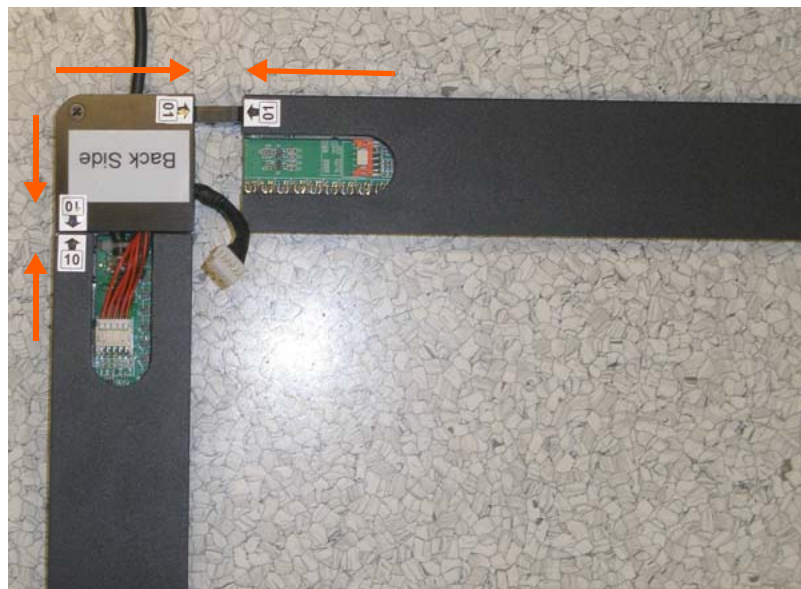
Note: If you need an extender for the USB cable, we recommend the part numbers listed below. We have found that some USB extender cables do not work well.

175-1026-00	USB 2.0, A to A Passive Cable, 5 Meter
933-1295-00	USB Extender over Cat5 for the Multi Touch System

Assembling the Sensor Frame

Caution: It is important that the video wall is flat and square so the LCD is not blocking the sensors from “seeing” across the surface of the video wall. We recommend that you spend extra time and attention to detail related to the alignment and squareness of the video wall prior to installing the touch sensors.

For ease of installation, we suggest that you assemble all of the sensor frame pieces **before** installing it on the wall. The process is fairly simple. Each frame piece that matches will have a corresponding number at one end. For example, two pieces will show 01 at the end of a piece. These two pieces both showing 01 should be connected.



Caution: Windows 7 does not support more than one touch monitor. If you are planning to drive the Matrix displays at native resolution with multiple outputs, you will want to select a graphics card that can treat the desktop as one monitor on the Windows Operating System. The touch screen will only be able to interface and work with the primary monitor. Professional cards such as Nvidia Quadro, AMD Firepro and Datapath are examples of cards that support the capability of having multiple outputs but that treat the entire desktop as one.

- 1 Once you unpack all of the sensor pieces, find the pieces that have a corner connection bar. Each piece will only have one side with this metal connection bar.
- 2 Place the corner pieces on the floor in the general layout of your wall. For example, if you have a 1 x 3 Portrait installation, line up the corner pieces as they would fit on the LCD wall.

- 3 Then find the corresponding pieces that attach to each corner piece. In the previous example, the corner piece is on the left side, labeled with 01. The top piece shown in the picture is also labeled 01. This is the corresponding piece. The example below shows two corner pieces that need to be connected.



- 4 Connect all corner pieces with the corresponding pieces.
- 5 Secure the pieces that have been connected by screwing in two m3 x 10mm screws.
- 6 Where there are gaps in the sensor assembly, look for the remaining pieces that correspond to each other. Again, match 02 with 02, 03 with 03, etc.



- 7 Secure the pieces that have been connected by screwing in three m3 x 10mm screws.



- 8 Once all side pieces are connected, then connect the ribbon cables between the pieces.



-
- 9 Once all pieces are secured with screws, and the ribbon cables connected, the sensor assembly should have the same shape and size as the LCD video wall onto which it will be mounted. Below is an example of an assembled sensor frame for a 1 x 3 Portrait video wall.

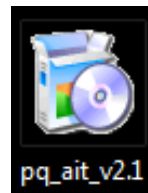


Installing the Assembly Inspection Tool

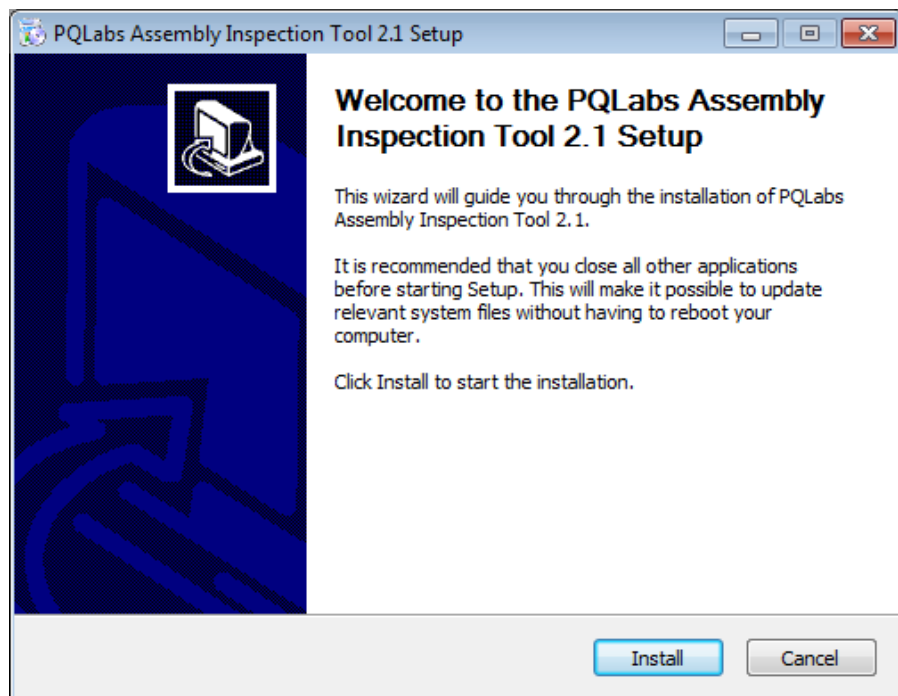
In order to test the functionality of the sensor assembly, you first need to install the Multi touch Platform software (found on the enclosed USB Drive) and then the Assembly Inspection Tool software (found on the enclosed USB drive).

Note: If you are using Windows 8, you may need the latest drive. This can be found at http://pqlabs.com/download=mt_driver_kit.exe

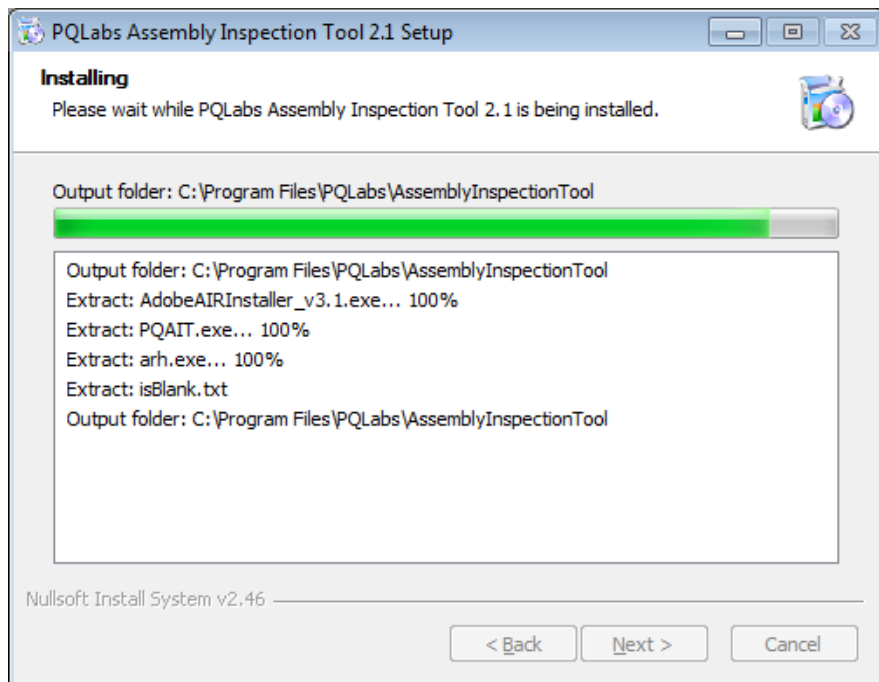
- 1 Double click the pq_ait icon to install the software.
Note that the version contained on the USB drive may be a later version than shown here.



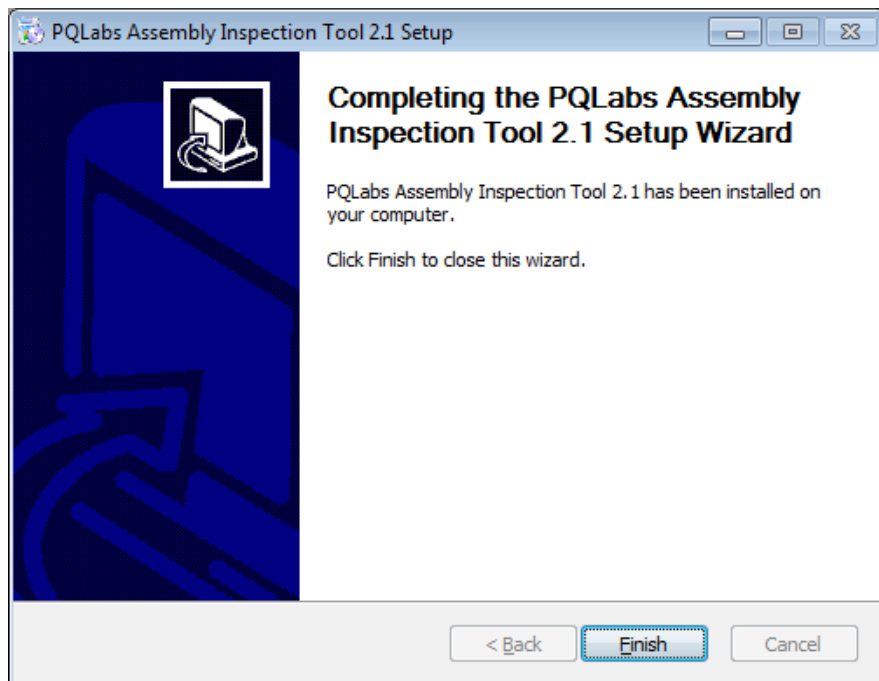
- 2 Click **Install** on the first window to continue.



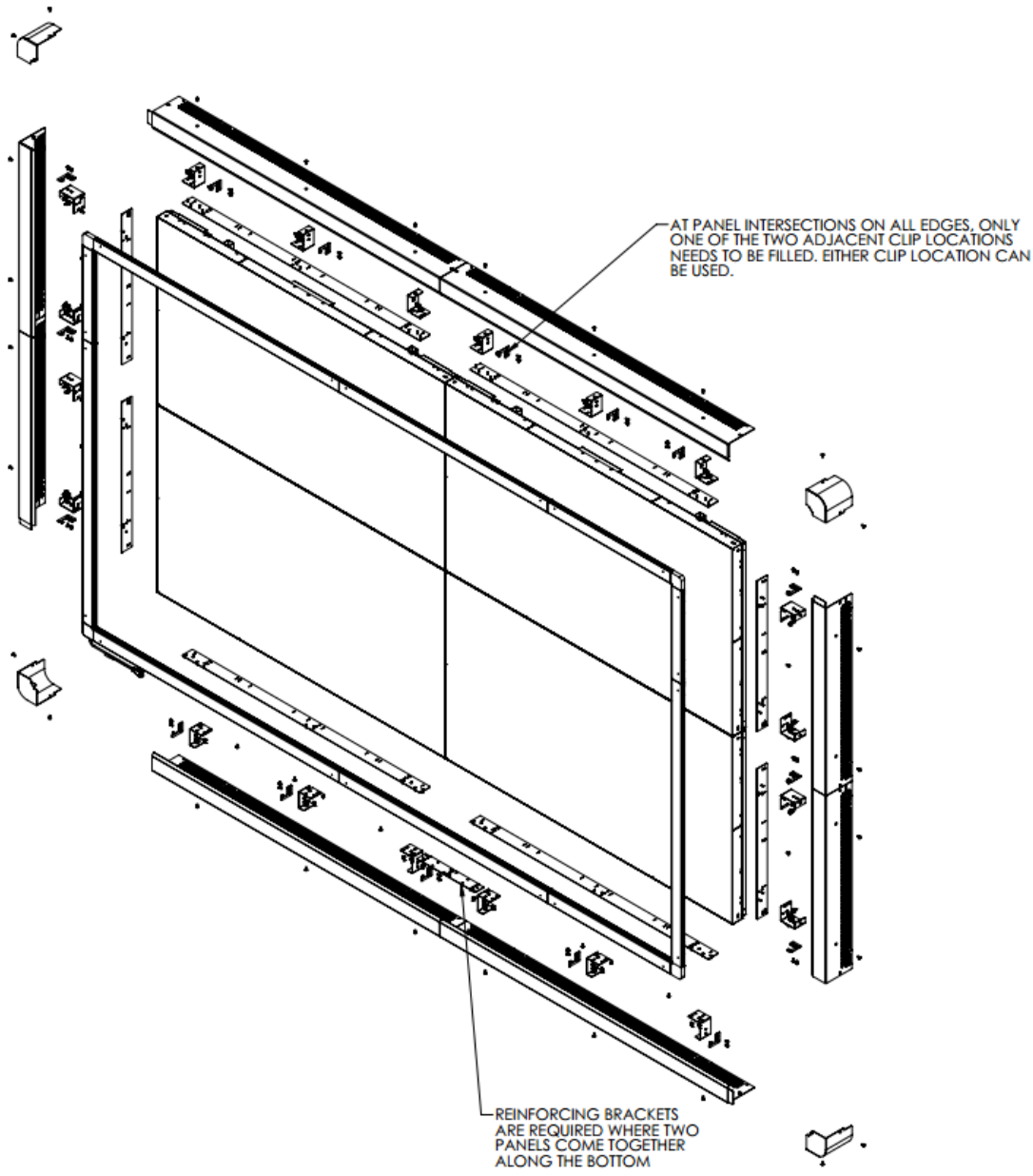
- 3 The following window appears as the installation is in process.



- 4 When the installation is finished, click the **Next** button to continue.
- 5 Click **Finish** on the final window to close the installation.

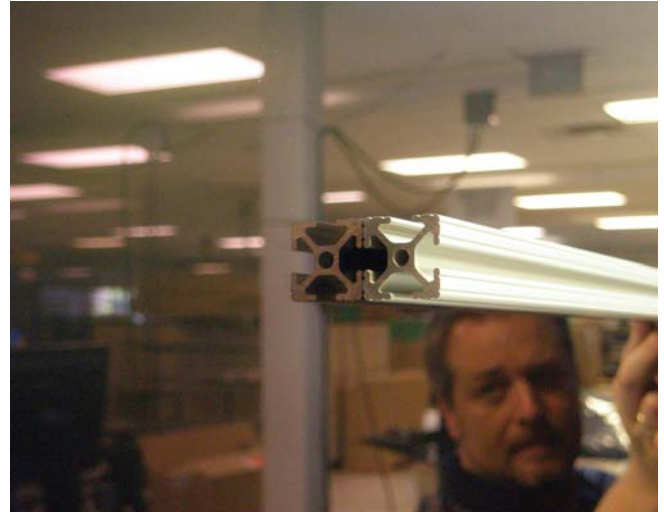


Assembling the Sheet Metal Frame



Exploded View (MX55 HDU 2x2 Shown)

- 1 Make sure that the wall is adjusted to be as flat as possible in both the x and y directions. Use a long straight edge to check alignment between by placing it across the panel junction. Adjust as necessary until the panels are all flat relative to each other. The image below on the left shows before the adjustment (the straight edge is lifted, showing misalignment of the front planes). The image below on the right shows after the adjustment (the straight edge lies flat).



- 2 Attach mount brackets to the mount bars, 3 per long side, 2 per short side. Use two (2) M4 wing nuts per bracket. For LX46HDS and LX55HDS panels, use the slots that offset the bracket forward toward the front of the display. Otherwise, center the mount bracket on the mount bar.

Brackets at the end of a bar should open toward the center of the panel except on the top bars of a 55 HDU wall. Center brackets should open to the left.



Mount bracket placement on a short bar



Mount bracket placement on a long bar








Mount bracket placement on a long bar for the top of a 55 HDU



Mount bracket offset forward for use with LX46HDS, LX55HDS, and MX55HDX panels

- 3 Attach short side mount bars to each LCD using M4 screws. For a MX/LX 55 HDS wall, the right side mounts should be installed towards the bottom edge of each display. The left side mounts should be installed towards the top edge of each display. Use cutouts on bars to determine which holes to use.

Note: Because 46" LCD sides are shorter, the side mounts will cover the entire side.

Panels	Hole shapes
MX/LX55 HDS	
MX/LX46 HDS	
MX/LX55 HDU	
MX46 HDU	
MX55 HDX	

- 4 Attach long side mount bars to each LCD using M4 screws.



Short mount bar



Long mount bar

- 5 For 55" HDU and HDS panels, add two (2) reinforcing brackets at each intersection point along the bottom edge using M4 wing nuts and M4 screws.



- 6 Using at least two people, carefully lift up the assembled sensor frame and align it with the LCD panels.



- 7 As two people continue to hold the frame, have another person attach the sensor to the mount using the mount clips and the same M4 hardware used to attach the mount bars.

Alternative method for steps 6-7: Assemble the sensor frame on the wall, first hanging the top edge, then attaching each side, and then finally attaching the bottom edge. The image below shows the top edge hung alone.



- 8 Use the following pictures as a guide to insert a clip. Place the bottom of the clip on the outside edge, turning it towards the center until the top of the clip can be placed in the clip channel. Then rotate the clip perpendicular to the channel. The images below show this progression.





- 9 Slide the clip up to the bracket. Holding the clip with one hand, use your other hand to secure the clip loosely to the bracket using two (2) M4 screws.

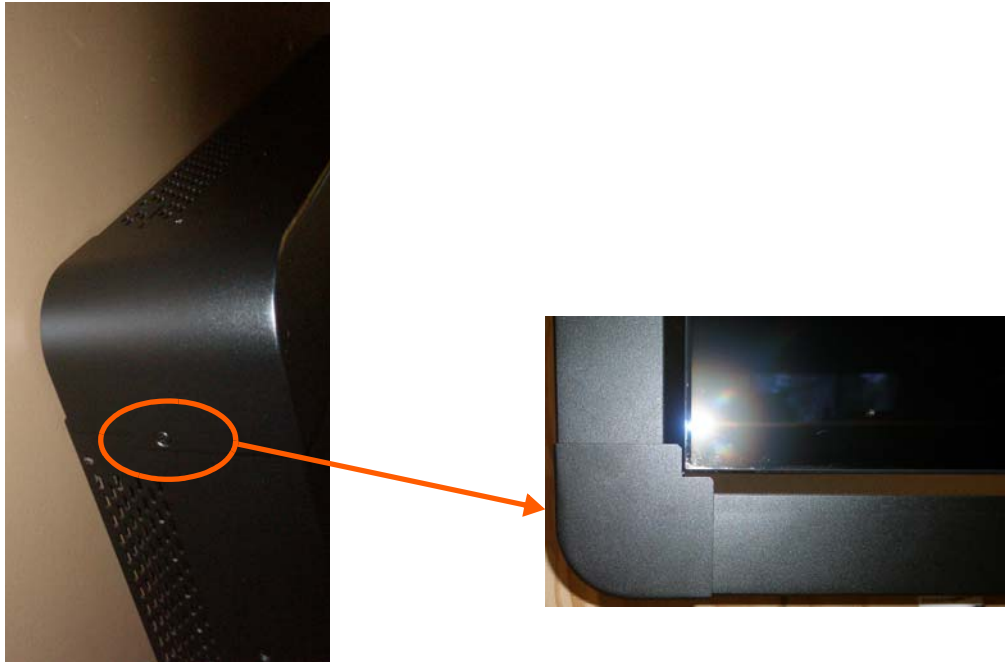


- 10 Every clip location should be filled, except near intersections between panels where only one of the nearby brackets needs a clip, whichever is easiest. Occasionally, depending on the wall size, the sensor connections prevent a clip location from being used. This is OK.

- 11** When all of the clips are in place, verify the alignment of the sensor frame to the LCD panels. Adjust as necessary by loosening the clip screws and sliding the frame up/down, left/right, depending on the need. The brackets can also be adjusted in the z-axis as necessary by loosening the wing nuts.
 - a** First, adjust the sensor vertically. Insert temporary shims between the panel and the bottom of the top stretch of the sensor until the gaps at the top and bottom of the display are about the same. Then push each clip on the top up as high as it will go and tighten down the screws. You may now remove the shims. Go along the bottom and push each clip up as necessary to keep the bottom edge flat and tighten those down as well.
 - b** Slide the touch frame left and right until the gaps on the sides are the same, and then tighten down the clips. Make sure that the clips are all pushed inward on both sides to hold the frame firmly in place.
 - c** Turn on the touch frame and test to see if there is any interference from the panels. As necessary, loosen the wing nuts holding the mount brackets and slide them in the z-axis to adjust the sensor position. The sensor should be positioned as close to the front surface of the panels as possible. If the video wall is not flat enough, you may need to remove the sensor and redo step 1.
- 12** Attach the covers to the mounts using the M4 flat head screws. Slide the tab from each cover into the slot on the adjacent cover.



13 Using M4 flat head screws, attach the four corner covers.



Caution: Don't attach the corners until all of the sides, top and bottom covers are installed.

Testing the Sensor Frame Assembly

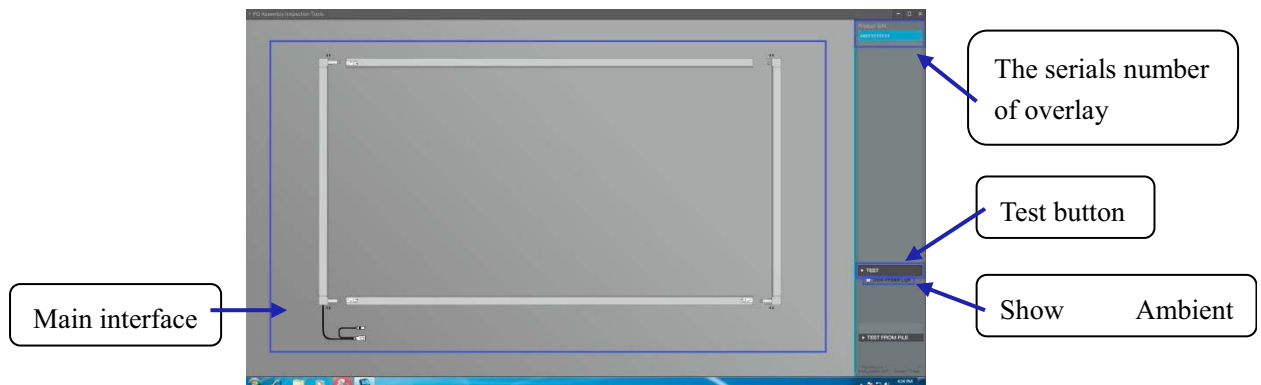
The Assembly Inspect Tool software allows you to test the sensor assembly to make sure all of the sensors are working.

Caution: We highly suggest testing the sensor frame **before** you install it on wall because it will be easier to troubleshoot and fix issues.

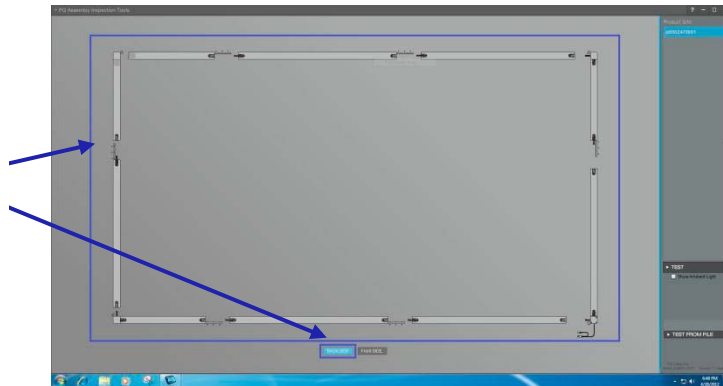
- 1 Double click on the Assembly Inspection Tool icon to open the program.



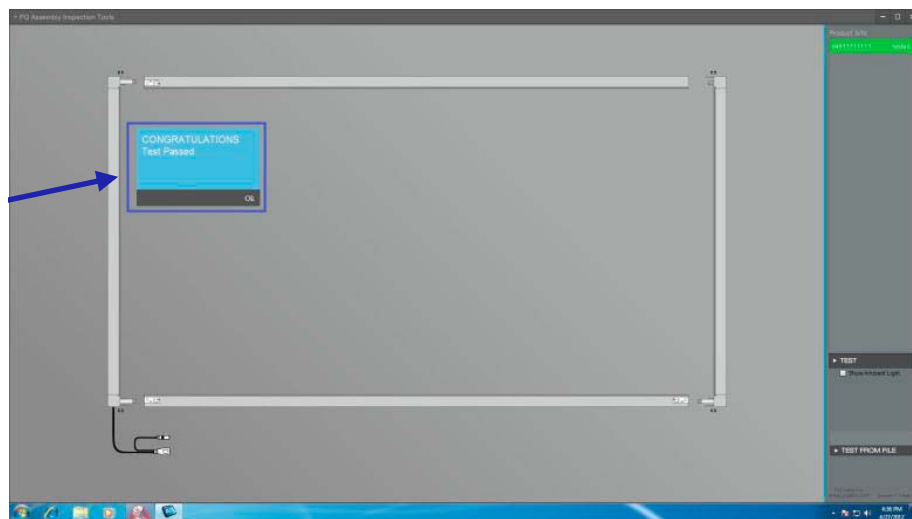
- 2 If your computer is connected to the sensor assembly correctly, you will see a window similar to the following.



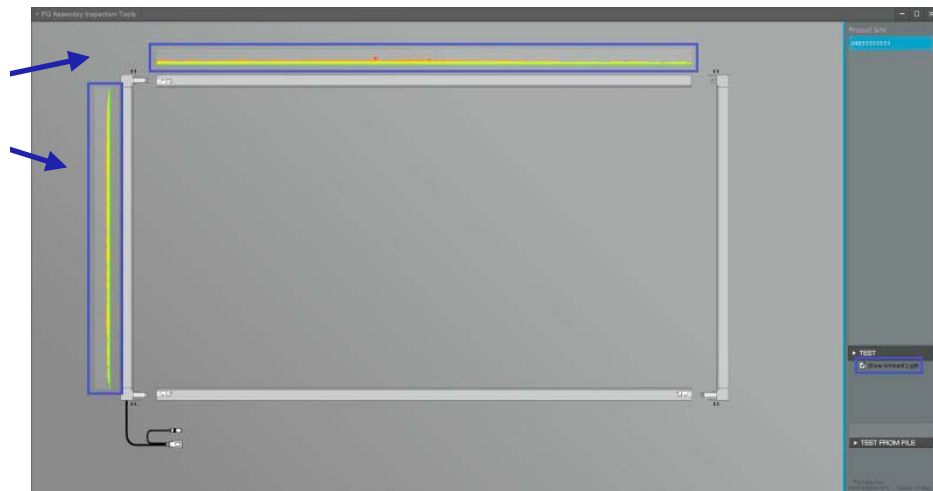
- 3 If you are connected using the G3P, you will see **Back Side** and **Front Side** buttons. You can switch back and forth between the front and back using these buttons.



- 4 After pressing the **Test** button, if your sensor assembly is working correctly, you'll see the following message: "CONGRATULATIONS Test Passed."



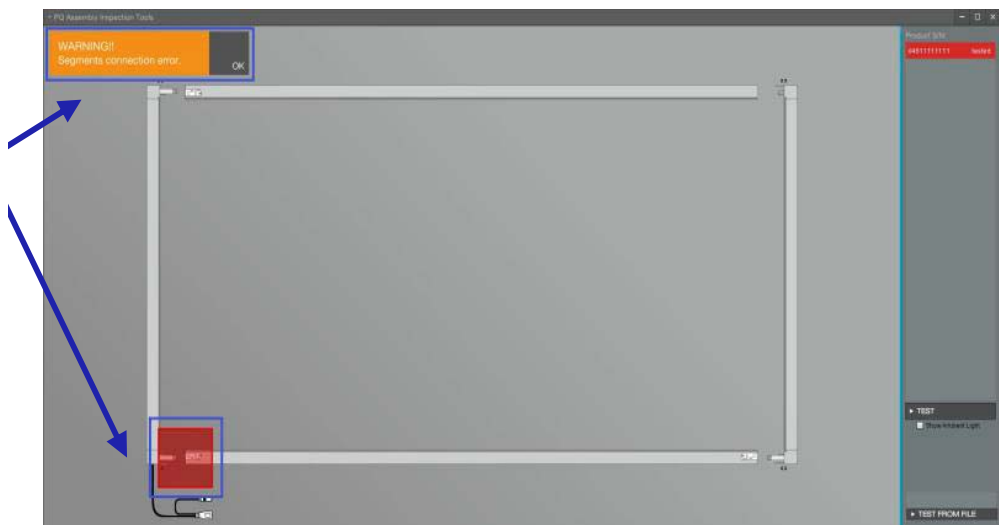
- 5 When you choose "Show Ambient Light," the intensity of the ambient light will be dynamically shown on the main interface.



Troubleshooting Issues With the Assembly Inspect Tool Software

Below are some possible issues that might occur as you are installing and testing your sensor assembly.

Issue: After pressing the **Test** button, a red square appears in the bottom of the left corner and the following message appears in the top left corner: "WARNING! Segments connection error."



Possible Cause: It is possible that the two boards in the bottom left are not connected.

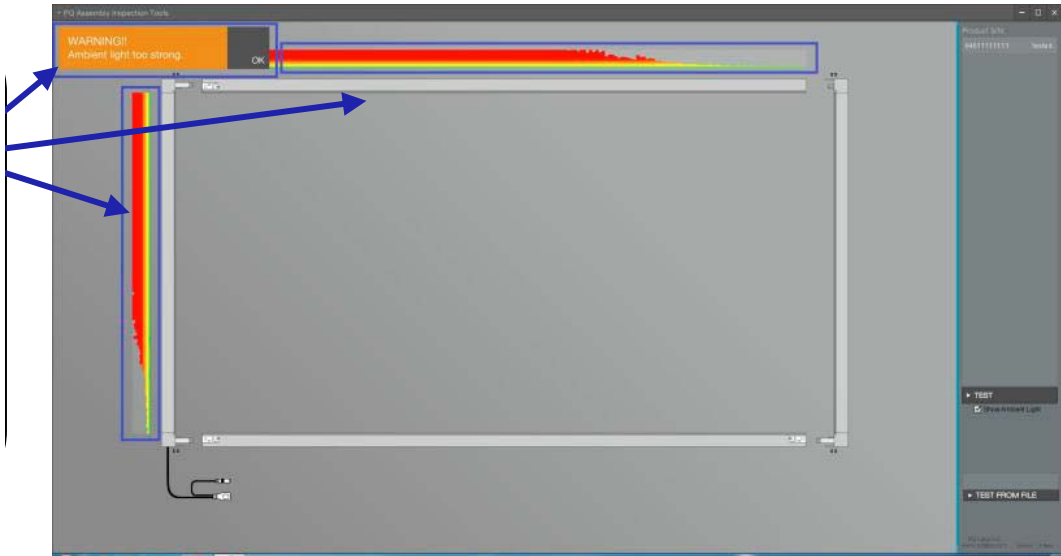
Solution: Check the corner and make sure it is connected to your sensor assembly.

Issue: After pressing the **Test** button, a single board turns red and the following alert message appears: "WARNING! Component not functioning."



Possible Cause: The board might not be working. Contact Planar's Technical Support for more information.

Issue: After pressing the **Test** button, the following alert message appears: "WARNING! Ambient light too strong."








Possible Cause: The ambient light could be too strong.

Solution: Direct sunlight or other indoor light can cause interference with the touch sensor. Try repositioning the lighting around the video wall or block light coming from direct sunlight.

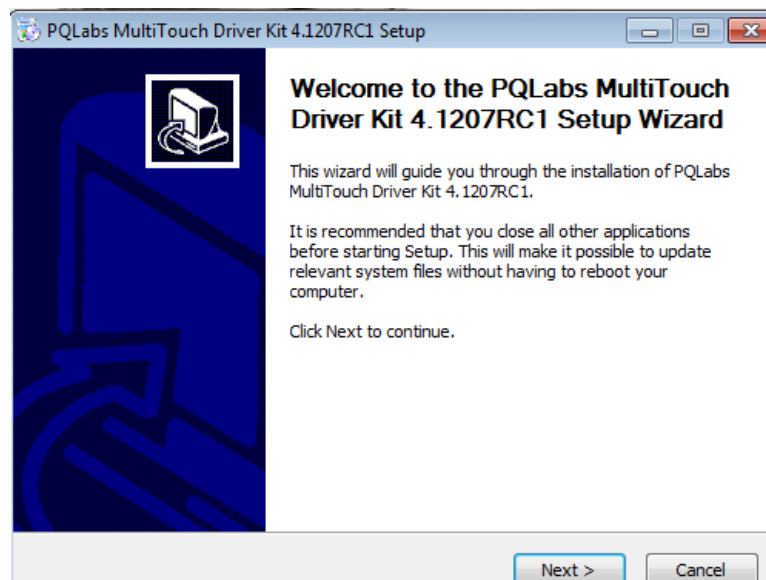
Installing the MultiTouch Driver Software

For Windows

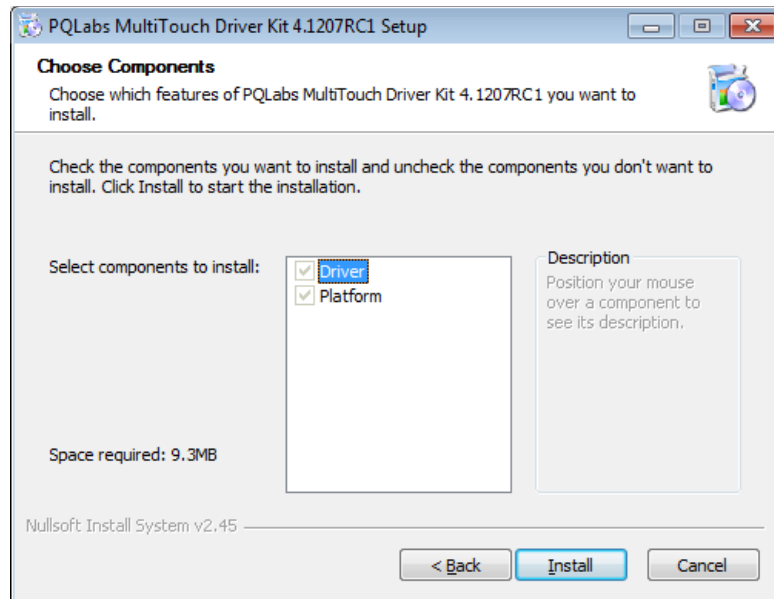
- 1 Insert the driver CD or the USB memory into the computer that will be attached to the sensor assembly.
- 2 Copy the driver software onto the computer's hard drive.
Note that the version contained on the USB drive may be a later version than shown here.

Files Currently on the Disc (5)				
	demo	7/23/2012 7:37 PM	File folder	
	mt_demos	3/13/2011 11:38 PM	Compressed (zipp...	8,591 KB
	mt_driver_kit_v4.1207RC1	7/9/2012 10:14 PM	Application	9,582 KB
	PQ Labs Overlay User Guide	1/19/2012 11:33 PM	Adobe Acrobat D...	1,028 KB
	PQ Touch Screen G3P Installation Guide	4/13/2011 8:24 PM	VLC media file (.flv)	54,411 KB

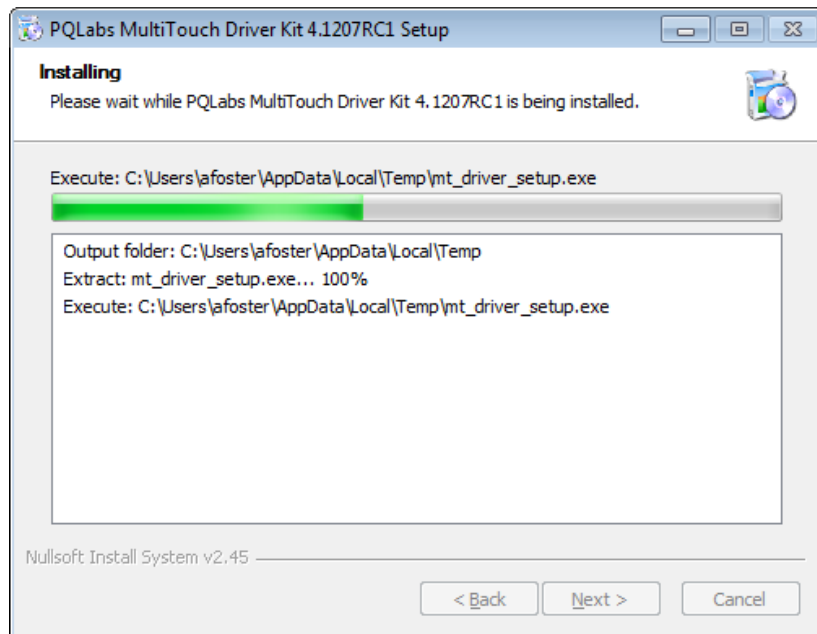
- 3 Then double click on the .exe file to start the software installation.
- 4 The following window appears. Click **Next** to continue.



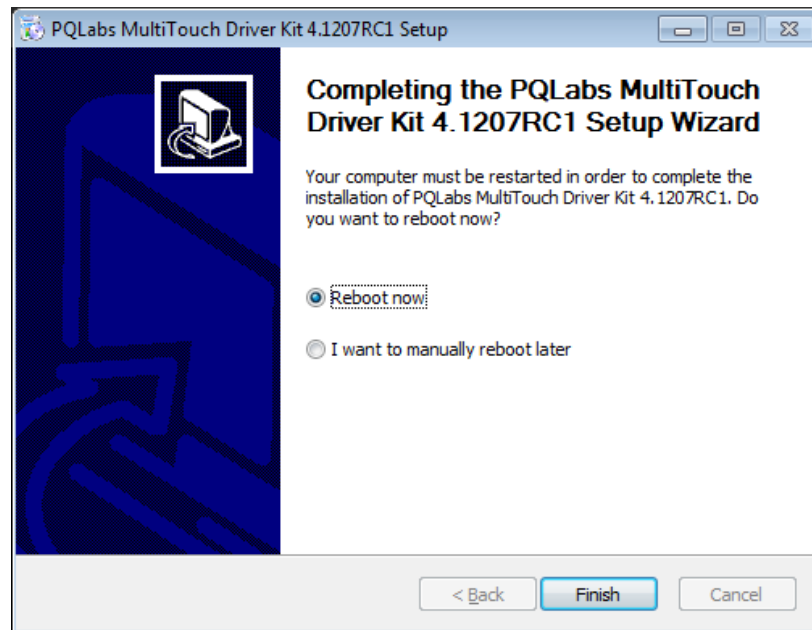
- 5 Click **Install** to start the installation.



- 6 You will see a window similar to the following during installation.

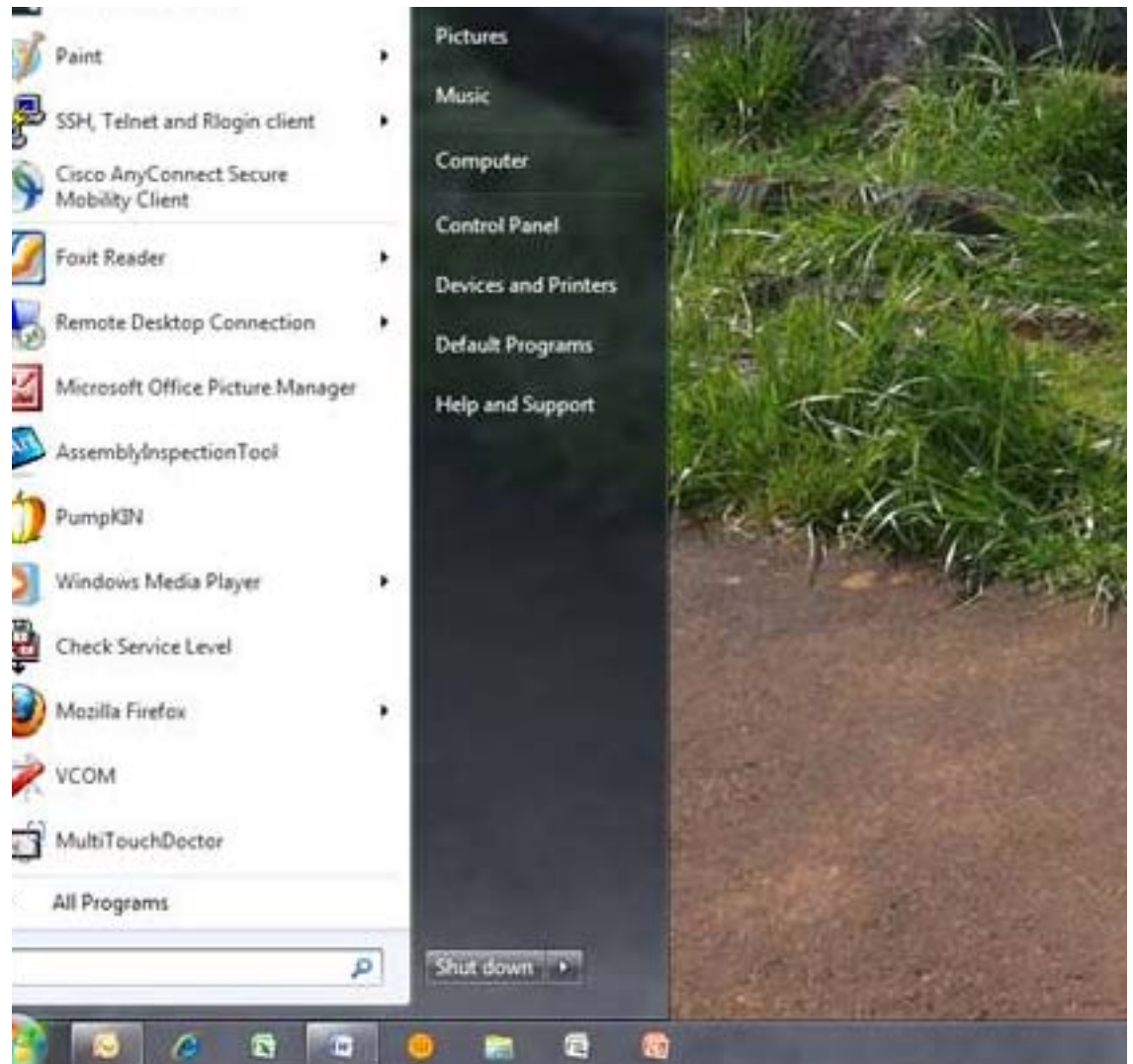


- 7 When the installation is complete, click **Next** to continue.

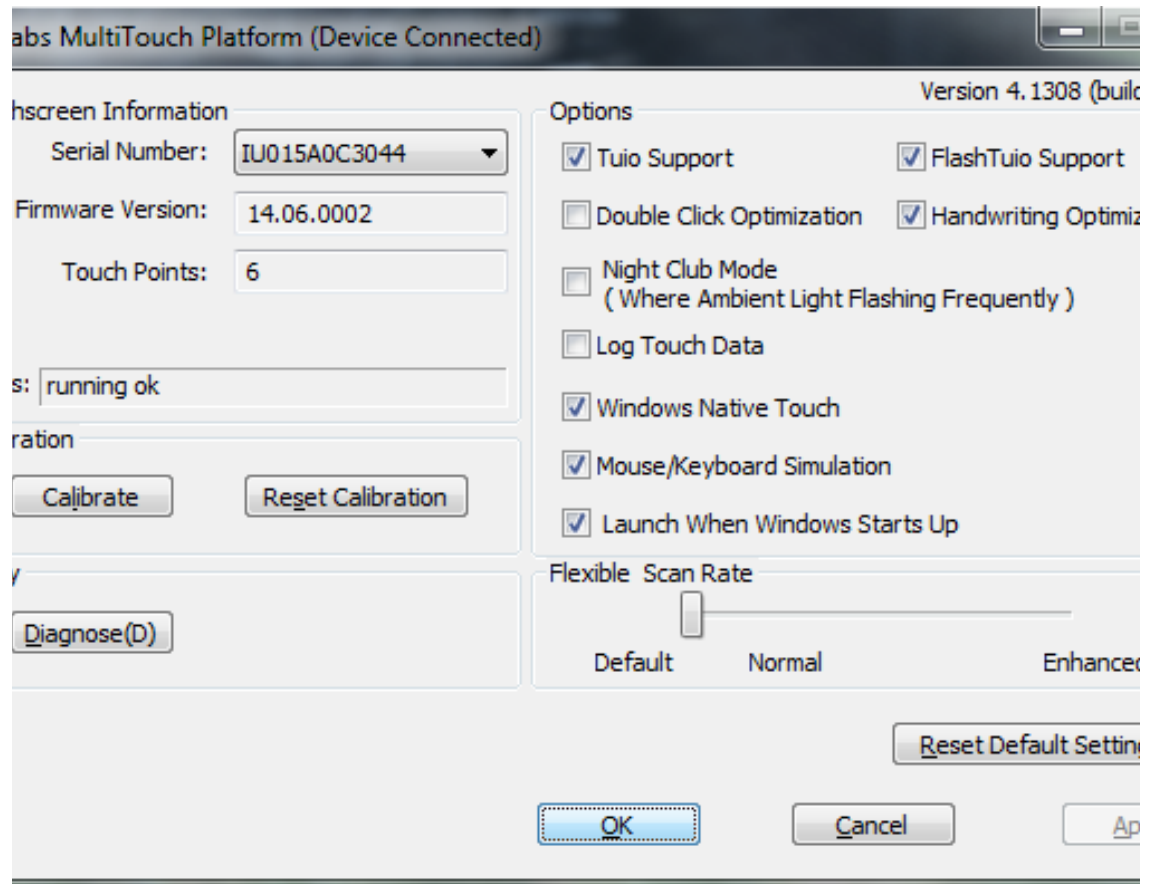


- 8 Select one of the radio buttons shown above and then click **Finish**.

9 Press "Start." Click the MultiTouchDoctor



10 Click Calibrate.

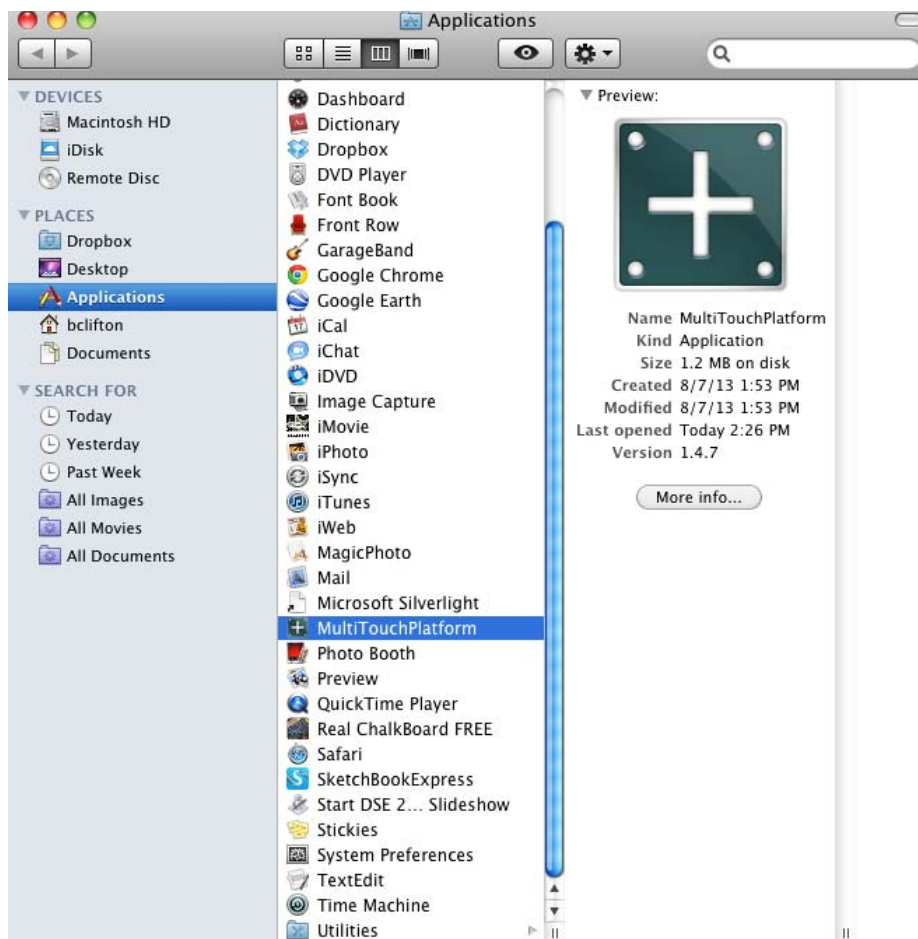


11 Follow the directions given on the computer and touch the red cross. You will do this for four crosses. This calibration tells the software just how large the screen is and how it is situated in its frame.

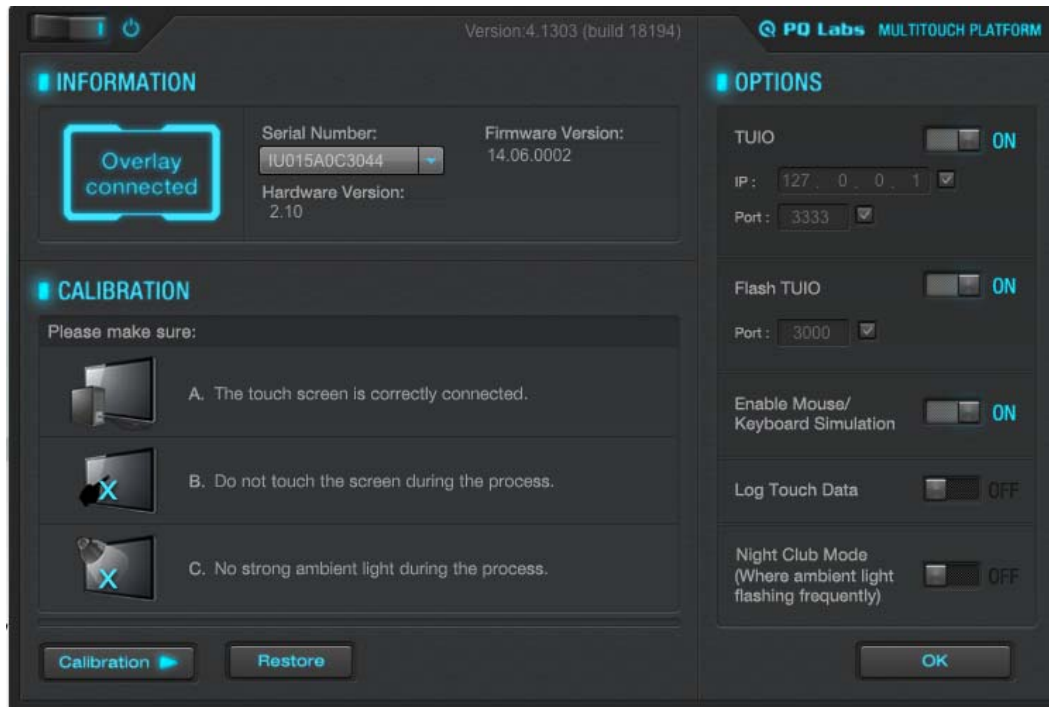
For MAC

- 12** Insert the driver CD or the USB memory into the computer that will be attached to the sensor assembly.
- 13** In MAC's Folders, find and open the CD or USB.
- 14** Click MultiTouchPlatform and drag it to the Applications folder.

15 In the Applications folder, double-click MultiTouchPlatform.



- 16 Click "Calibration" at the lower left corner.



- 17 Follow the directions given on the computer and touch the red cross. You will do this for four crosses. This calibration tells the software just how large the screen is and how it is situated in its frame.

Cleaning the ERO Matrix Wall

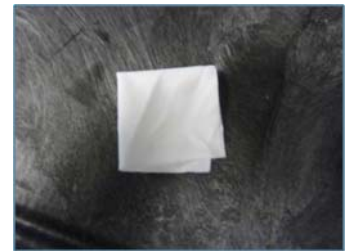
Required Materials

- IPA (Isopropyl Alcohol)
- Filtered Water
- Non-Abrasive cloth (cotton or polyester based)
- Nitrile/Latex Gloves

Silicone Removal

Note: Wear gloves to protect your skin from IPA and to reduce fingerprints.

- 1 Fold a small cloth into a small square as shown.



- 2 Wet the cloth with IPA. *Do not soak* the cloth. Cloth must be dampened, but not have excess IPA running off into the bond area at the edges of the screen.
- 3 *Using one motion in one direction*, wipe along the edge of the display to remove silicone. Do not rub the cloth back and forth; that will smear the silicone.



- 4 Do not exceed two wipes per surface of the cloth. Turn over, fold, or use a new cloth for the next wipes



Caution: Do not wipe the seam between the displays. This can pull material out of the seam and spread it onto the display.

Caution: Be careful not to remove too much material from the seam.

WARNING Abrasive cleaning or too much pressure may cause damage to the glass coating.

WARNING Do not stick anything between the displays. This can pull the mullion away from the display or pull material out of the seam.

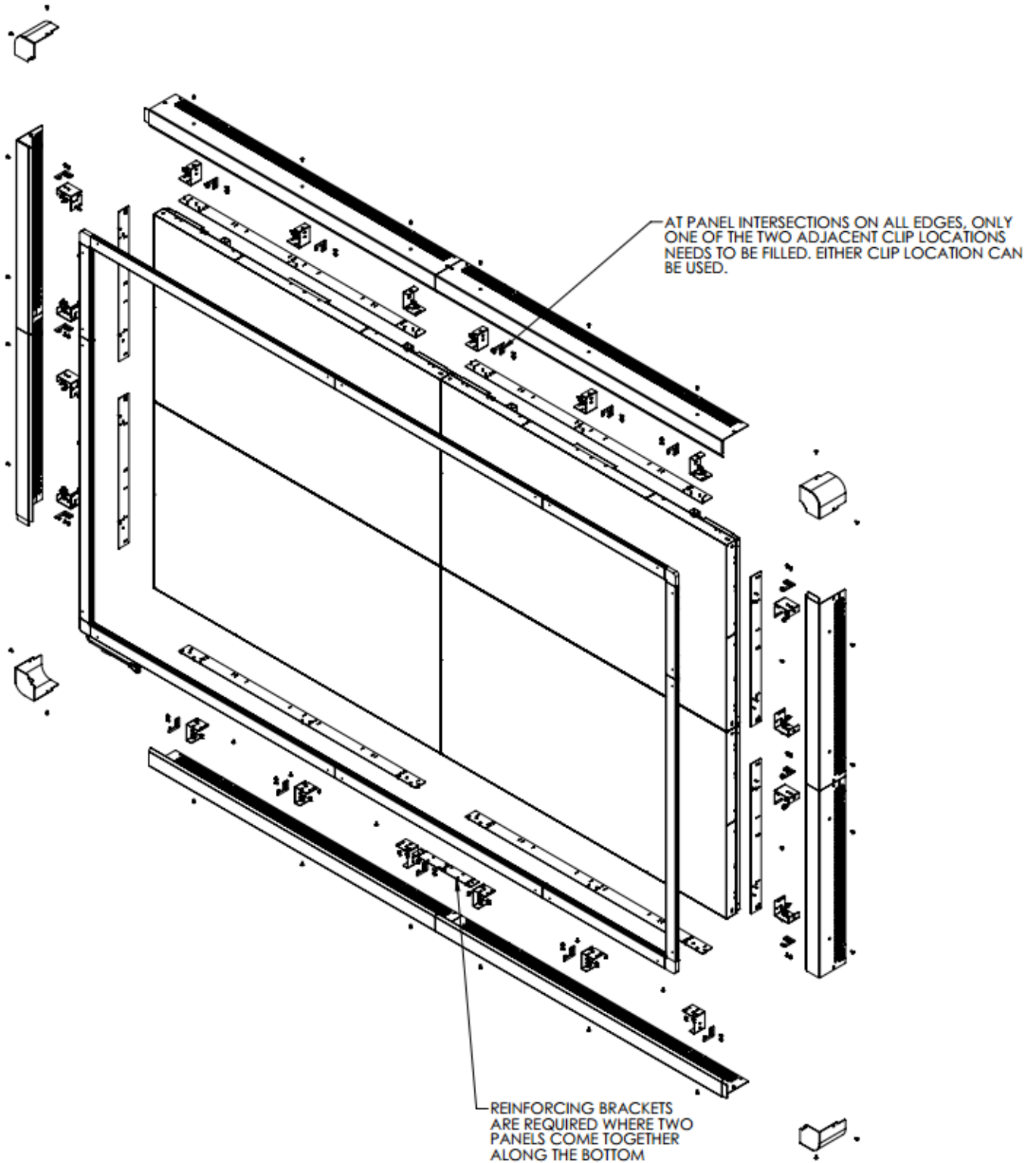
Cleaning the Glass

- To remove difficult water spots or fingerprints, wipe with filtered water followed immediately with IPA.
- Wipe gently and in a uniform motion across the glass to prevent streaking.

Specifications

Touch Options	MT6- 6 Simultaneous Touch Points MT32- 32 Simultaneous Touch Points
Standard Configurations	2 x 2 and 3 x 3 MX46HDS, 2 x 2 and 3 x 3 MX55HDS-L
Custom Configurations	Height < 10 ft. (3 m) Width + Height ≤ 33 ft. (10 m) Portrait or Landscape MX46HDS, LX46HDS, MX55HDS, LX55HDS, MX46HDU, MX55HDU, LX55HDU
Connectivity to Source	USB 2.0
Power for Touch System	100-240V AC, 50-60Hz (110V/220V typical)
Operating Voltage	5.0V typical
Operating Current	1500 mA typical
Peak Current	3000 mA maximum
Power Consumption	24W typical
Response Time	7-12 ms
LED Pitch	5.4 mm
OS Compatibility	Windows 7, Windows 8, Windows XP, Mac OS X

Sensor Assembly Drawing



Contact Information

For more information, contact us at:	Planar Systems 1195 NW Compton Drive Beaverton, OR 97006-1992
via e-mail:	ts@planar.com
via phone:	+1-503-748-5799
via fax:	+1-503-748-5532
To access our website:	http://partners.planarcontrolroom.com
