DISPLAX™
MULTITOUCHTECHNOLOGIES

TECHNOLOGY FOR THE MULTITOUCH GENERATION

SKIN MULTITOUCH

User Guide

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01

SAFETY INSTRUCTIONS

The product contains electronics, which are electrically sensitive. Please take necessary precautions when using such devices. Users are encouraged to follow common guidelines to DO NOT TOUCH THE UPPER OR LOWER FACES OF THE TOUCH CONTROLLER BOARD (PCB) – FINGERS AND TOOLS CONTAIN STATIC ELECTRICITY, WHICH MAY DAMAGE THE TOUCH CONTROLLER. HOLD BY THE OUTER EDGES AWAY FROM ANY ELECTRONIC COMPONENTS.

SAFETY & PRECAUTIONS

- Select a suitable work space
- Avoid carpets in cool, dry areas.
- When you work on a carpet where static electricity is likely to be generated, make sure take anti-static measures beforehand.
- Do not wear a wool or synthetic cloth to work with the controller.
- Wear anti-static shoes to work with the controller.
- Take off any jewels (a ring, bracelet, or wrist watch) before working with the controller.
- Keep any component in an anti-static bag until you actually install it to the computer.
- Hold any component by its edge to avoid touching any terminals or parts.
- To store or carry any component, place it in an anti-static bag.
- Do not disassemble parts other than those specified in the procedure.
- Label any cable connectors before disconnecting. Note where the connector goes and in what position it was installed.
- Take care when connecting or disconnecting cables. A damaged cable can cause a short in the electrical circuit.

- When installing a cable, route the cable so it is not pinched by other components and is out of the path of the system unit cover.

- Prevent damage to the connectors by aligning connector pins before you connect the cable. Misaligned connector pins can cause damage to system components at power-on.

- When disconnecting a cable, always pull on the cable connector or strain-relief loop, not on the cable itself.

02

SKIN MULTITOUCH

This User Guide contains information valid for products DISPLAX Skin Multitouch, which detects 20 touch points simultaneously, and DISPLAX Skin Dualtouch, which detects 2 touches.

Throughout the User Guide all the screenshots will refer to the multitouch version of the product. However, all the information applies in the same way for the Dualtouch version.

To know the version of your product (number of touches detected), open the Control Panel and click on the “About” tab. There, you will see the number of touch points available.

03

PACKING LIST

This DISPLAX™ SKIN MULTITOUCH package contains the following parts:

- On Inner Carton Tube
- Projected Capacitive Touch Sensor Film

Inside Inner Carton Tube

- Touch Controller
- USB 2.0 Cable - 2m
- Adhesive Film on white paper, in the case of removable fixing

04

OPERATING SYSTEMS

Skin Multitouch works with Microsoft Windows 7 and Windows 8 Operating System with multitouch support. The Windows 7 Home Premium, Professional, Enterprise and Ultimate versions have multitouch support, but this information is subject to change by Microsoft.

Skin Multitouch works with some Linux distributions, namely Ubuntu 14.04 or above and Fedora version 21. Ubuntu works out of the box using the Ubuntu driver. To run Skin Multitouch on a Fedora based PC, refer to the Application Note 003.

Skin Multitouch works with Mac OS X versions Yosemite, Mavericks and Lion.

Driver and Control Panel installers are available for download at the following link where you can choose the ones that best fit your requirement:

http://support.displax.com/downloads.php

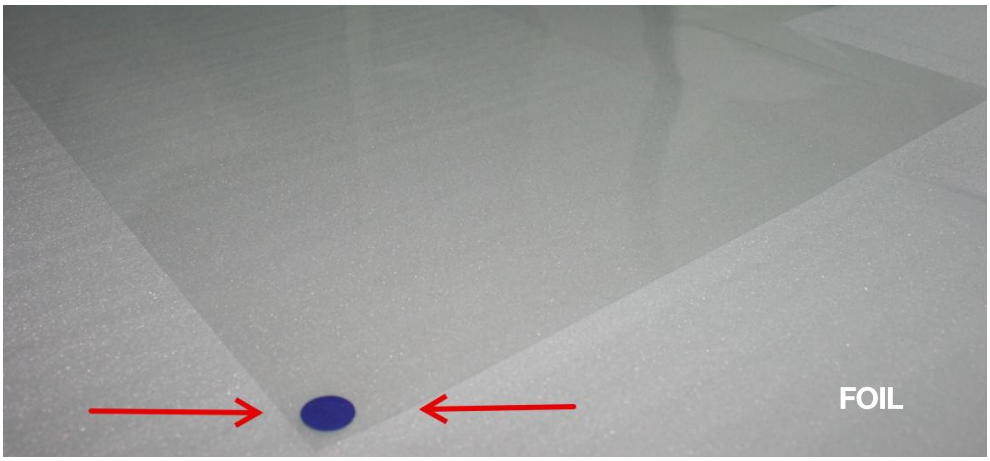
05

SENSOR INSTALLATION

PERMANENT FIXING VERSION

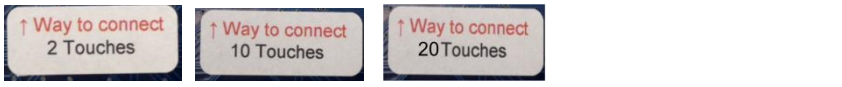
- Before you start the installation of the sensor, make sure you have the following tools available:
    - Solution of 10% good quality detergent in distilled or bottled water
    - Liquid sprayer/atomizer
    - Soft cleaning cloth
    - Squeegee
    - Sticky tape (masking tape)
    - Velcro® or double-sided tape
- The sensor comes with the permanent adhesive applied to one surface (identified with a blue circular mark), which is exposed when the release layer is removed.
- The sensor is applied to the substrate using a solution of 10% detergent in water. It usually takes at least 24 hours for the water used in the installation process to sufficiently evaporate and the adhesive to bond to the substrate. The installation for sizes over 40" requires at least two persons.
- The sensor must be handled carefully to avoid creasing or tearing. Rippling may occur during delivery, but this will disappear during the lamination process.
- Always lay the interactive sensor on a soft scratch free surface.
- A soft cloth should be used if the sensor requires cleaning. Clean from the centre of the sensor out to the edges of the interactive sensor.
- If, for any reason, water enters the electronics board, please allow sufficient time to dry before using it, otherwise, the sensor will not function correctly and may be permanently damaged.
- If water bubbles remain under the sensor, do not be tempted to pierce to the sensor to remove. These bubbles should evaporate over time, and in some situations it can take more than a week depending on environmental conditions.
- It is important to ensure that no particles of dust remain under the adhesive. It is possible to carefully lift the sensor to remove any particles and carefully reapply using water and the squeegee.
- The permanent sensor has a front and a back. Find the blue dot that will ONLY appear IF your touch sensor is a permanent one. This is not the case on the removable version.
- The peeling side to remove is the side where the sticker dot is.

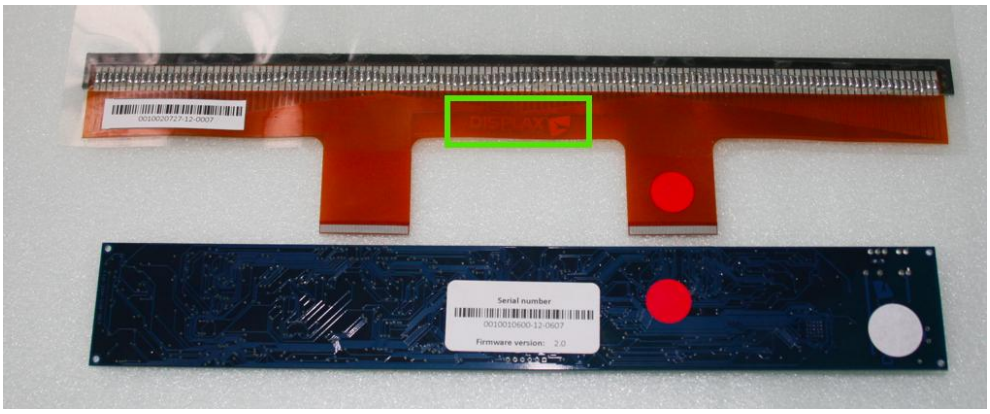
- Peel off the mask before application.



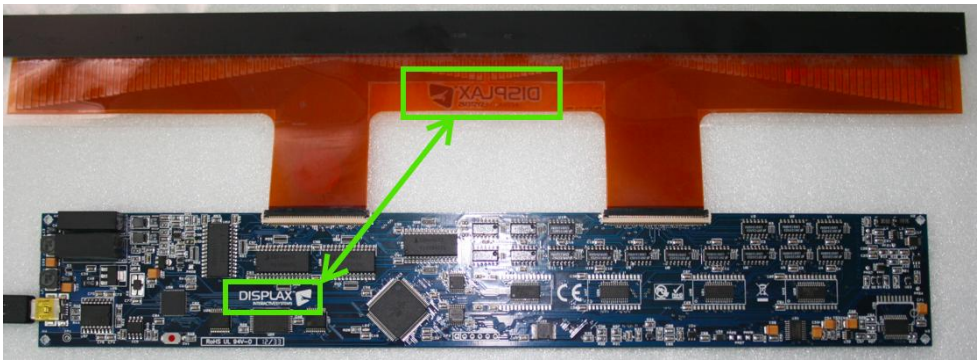
From the installer's side, the controller and sensor should be viewed as shown below.

The number of the touches supported can be found on a sticker on the back of each touch controller, like represented below.





On the operation side, user's side, the sensor should be installed and should look like this, with the controller components in front of the user.



INSTALLATION PROCEDURE

1. Decide on the correct position of the touch screen before starting the lamination process, and place sticky tape to mark the touch screen boundaries.

2. Dirt and other contaminants allow pockets of air that undermine the necessary seal for a good installation. Thoroughly clean the substrate, making sure it is free of dust, oils or grease:

a. use the detergent solution and the squeegee to clean the substrate just before lamination;

b. apply a fine mist of the detergent solution to the substrate using a water sprayer/atomizer.

3. Apply the non adhesive side of the sensor to an adjacent window or other suitable surface. Spray the substrate with water, making sure the sensor is held against the surface.

4. Carefully release the liner from the sensor's adhesive side, by using sticky tape at a top corner.

5. At the same time you remove the liner, spray the adhesive surface with the detergent solution. It is important to pull back the liner close to the sensor and make sure it doesn't lift off the substrate.

6. Wet your fingers before removing and turning around the sensor. If you had to place the sensor in the same place where you will perform the final lamination, clean this area before you perform the lamination of the sensor.

7. Align the sensor at the top of the substrate, and then slowly lower the sensor on to the substrate.

8. Apply the SKIN with adhesive to the substrate, and apply a fine mist of detergent solution. The second person should hold the sensor lightly but sufficiently to stop the sensor moving during the lamination process.

9. Use the squeegee to laminate the adhesive to the substrate, ensuring no particles or dirt is underneath.

If dirt or particles can be seen under the sensor, then the sensor can be carefully lifted and the dirt removed. The sensor should be squeegeed back in position using a fine mist of water.

10. Once the sensor is in place, carefully dry the surface and the area around it and leave to dry for some time.

The electronics should be securely fixed to the substrate once the installation has dried.

CLEANING

- Use a lint free cloth (e.g. Vileda Quickstar Micro).
- Use a good quality household liquid detergent appropriate for surfaces like glass, mirrors, and plastics.
- If there are grease finger marks use ethyl alcohol to degrease the glass or the Touch Sensor (Polyester).
- Make sure there is no dust or debris in the Touch Sensor before using the cloth. An effective way to do so is using compressed air to blow over the Touch Sensor surface. Handling and laminating Skin Multitouch should always be done in environments as clean as possible.
- If dust or grease don't come out at first, repeat the action using alcohol again. Avoid making pressure with the cloth on the Touch Sensor as this may result in damage.

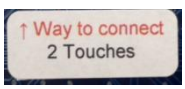
REMOVABLE VERSION

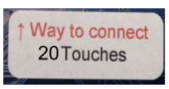
IMPORTANT NOTES - PLEASE READ CAREFULLY

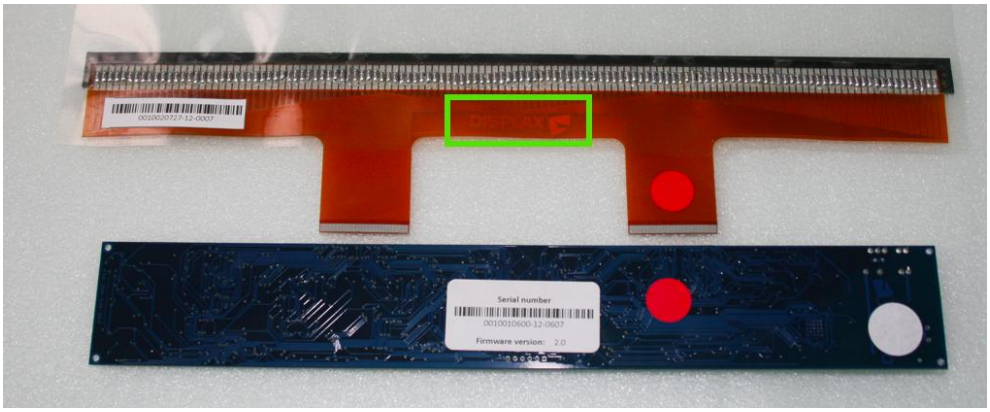
Before you start the installation of the sensor, make sure you have the following tools available:

- Distilled or bottled water
- Liquid sprayer/atomizer
- Soft cleaning cloth
- Squeegee
- Sticky tape (masking tape)
- Velcro or double-sided tape

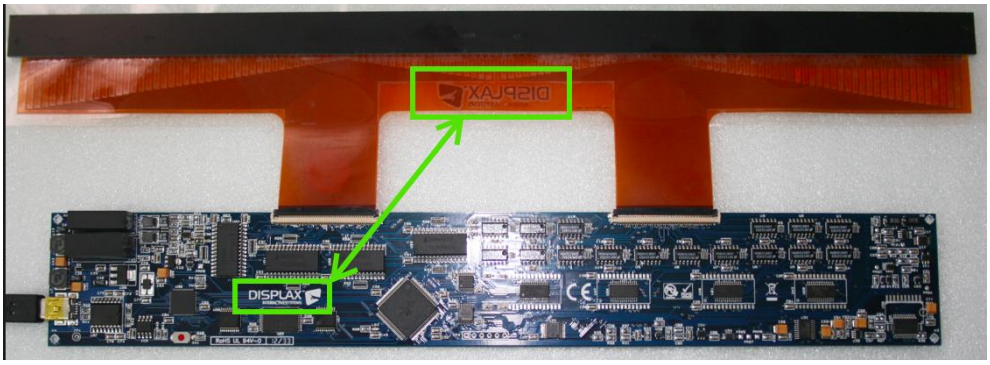
- The sensor must be handled carefully to avoid creasing or tearing. Rippling may occur during delivery, but this will disappear during the lamination process.
- Always lay the interactive sensor on a soft scratch free surface.
- A soft cloth should be used if the sensor requires cleaning. Clean from the centre of the sensor out to the edges of the interactive sensor.
- If, for any reason, water enters the electronics board, please allow sufficient time to dry before using it, otherwise, the sensor will not function correctly and may be permanently damaged.
- If water bubbles remain under the sensor, do not be tempted to pierce to the sensor to remove. These bubbles should evaporate over time, and in some situations it can take more than a week depending on environmental conditions.
- It is important to ensure that no particles of dust remain under the adhesive. It is possible to carefully lift the sensor to remove nay particles and carefully reapply using water and the squeegee.
- In the case of the removable touch sensor the front and back is not mandatory. BUT we recommend to be installed the same way the permanent is; will be good in the case maintenance is required.







On the operation side, user's side, the sensor should be installed and should look like this, with the controller components in front of the user.



INSTALLATION PROCEDURE

1. Decide on the correct position of the touch screen before starting the lamination process, and place sticky tape to mark the touch screen boundaries.
2. Dirt and other contaminants allow pockets of air that undermine the necessary seal for a good installation. Thoroughly clean the substrate, making sure it is free of dust, oils or grease:
    a. use water and the squeegee to clean the substrate just before lamination;
    b. apply a fine mist of water to the substrate using a water sprayer/atomizer.
3. Carefully remove the paper backing material from the removable adhesive.

4. Apply the removable adhesive to the substrate, and apply a fine mist of water.

5. Use the squeegee to laminate the adhesive to the substrate, ensuring no particles or dirt is underneath.

6. Apply a fine mist of water to the front of the adhesive. Lay the sensor on the adhesive in the correct position. Do this from one side to the other allowing the sensor to wet itself in place as it lays onto the substrate.

Then apply a fine mist of water to the surface of the sensor and squeegee in place. Remove excess water using a squeegee working from the centre to the edges of the sensor. Apply an even pressure.

If dirt or particles can be seen under the sensor, then the sensor can be carefully lifted and the dirt removed. The sensor should be squeegeed back in position using a fine mist of water.

7. Once the sensor is in place, carefully dry the surface and the area around it and leave to dry for some time.

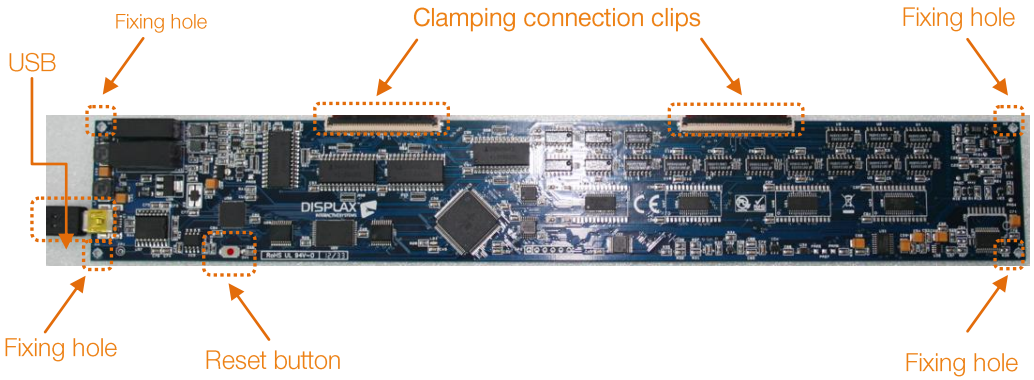
8. The electronics should be securely fixed to the substrate once the installation has dried.

06

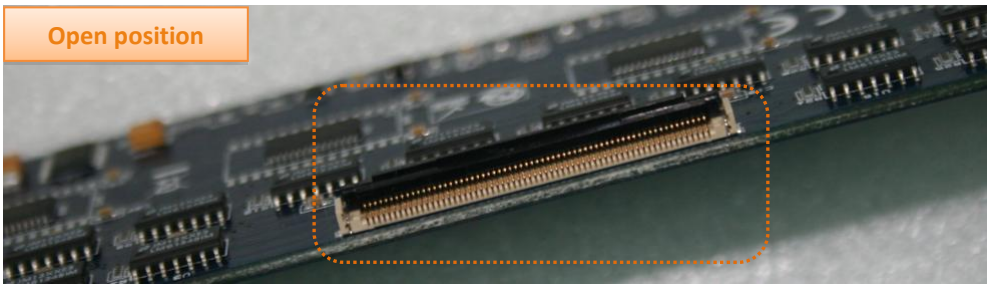
CONTROLLER CONNECTION

Once the touch sensor (foil) installation has been completed and the touch sensor is sufficiently dry, the controller board can now be connected to the sensor. Please note that if the board is connected to the sensor too soon after the installation process, the extra weight of the board may cause the sensor to move from its original position.

We suggest using Velcro or double-sided tape to hold the controller in position on the substrate. Alternatively, you can use the 2 mm diameter holes on the board corners which are provided for fixing with screws.

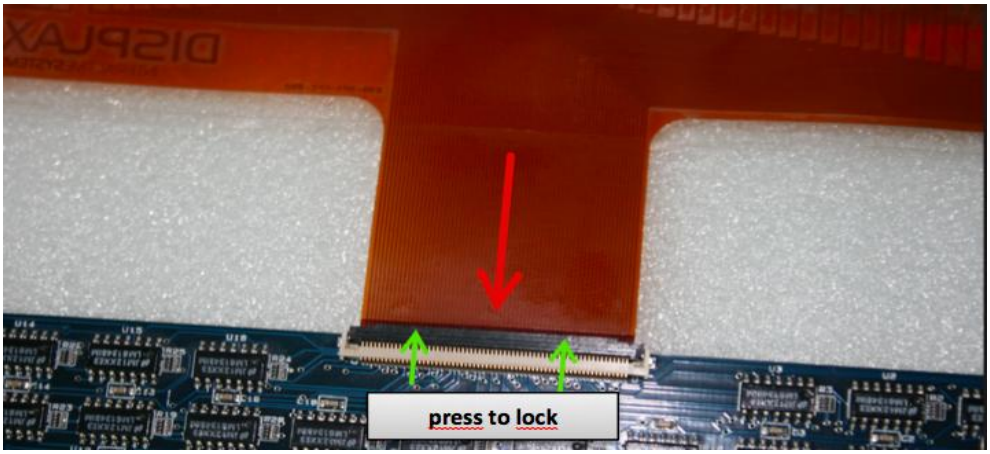


1. Carefully lift the clamping clip (grey bar) as shown on the following picture, taking care not to over extend the clamping clip.

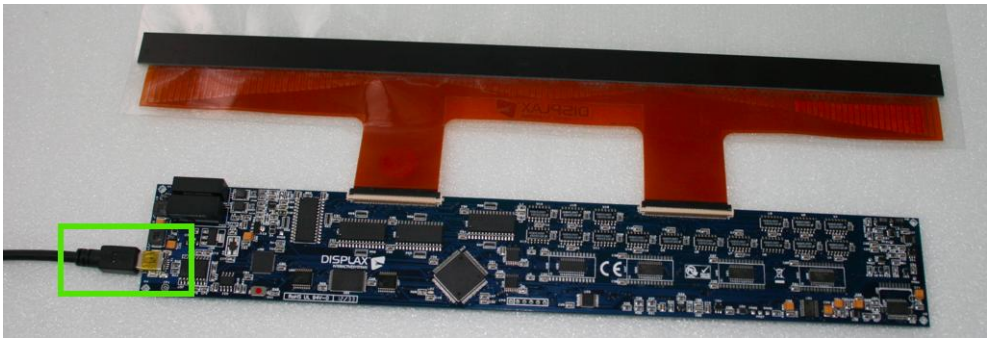


2. Make sure you connect the sensor to the controller at the correct side. The orientation is clear by comparing the DISPLAX™ logo position at the ribbon cable and at the controller board. Align the position of the controller connectors with the orange ribbon cables.

3. Gently insert the ribbon cables into position. Once the ribbon cable is inside the connector, gently press down the clamping clip to lock it.



4. Connect the USB cable on the touch controller and then to the computer.



07

DRIVER AND CONTROL PANEL INSTALLATION

PROCEDURE

The Driver and Control Panel are compatible with both the 32 and 64-bit versions of Microsoft Windows 7 and Windows 8 operating system, and the installer is provided in two distinct files ('Setup_x32.exe' for the 32-bit version, and 'Setup_x64.exe' for the 64-bit version).

Before you install the driver and control panel, we strongly advise you to make sure you know your computer's system type (32 or 64-bit). You can get this information at **Windows > Control Panel > System.**

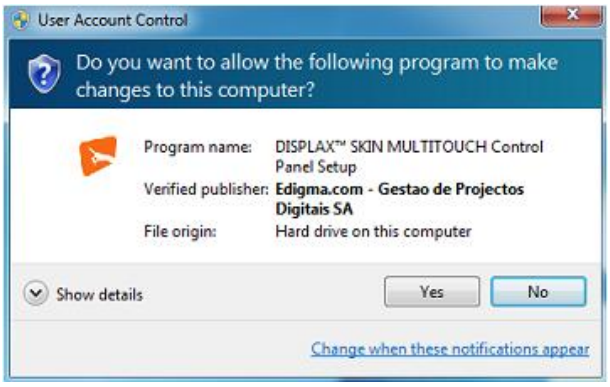
If you haven't downloaded the driver and control panel installation files, please check section 1. PACKING LIST for further details.

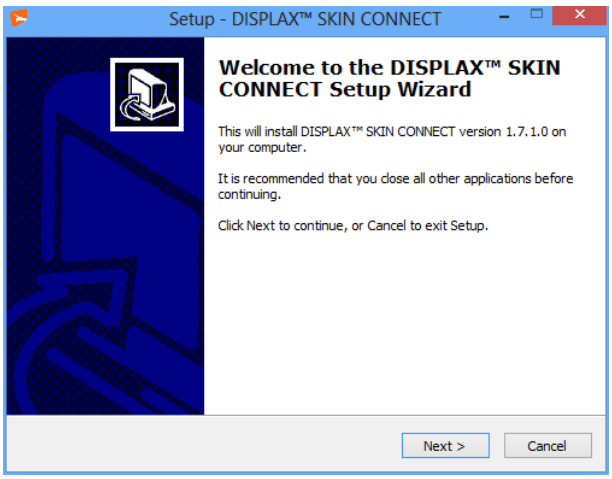
- Make sure the touch controller is properly connected using the usb adapter to the computer (see "**CONTROLLER CONNECTION**" section).
- Install the Driver and Control Panel (see next section)

DRIVER AND CONTROL PANEL INSTALLATION

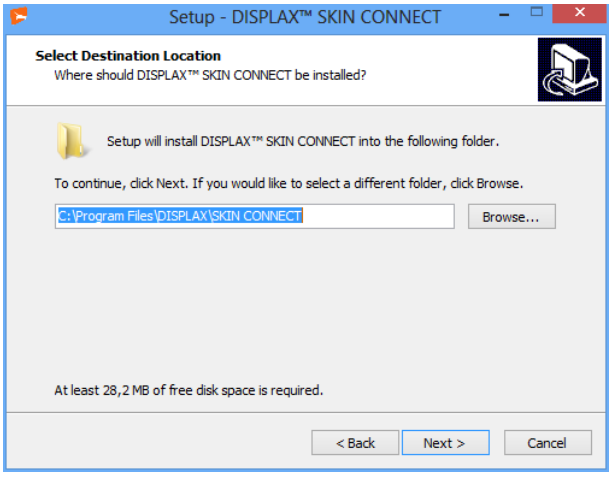
Proceed as follows:

1. Double-click the setup file **'Setup_x32.exe'** (or **'Setup_x64.exe'**) and the installation program will start. Click **Next**.

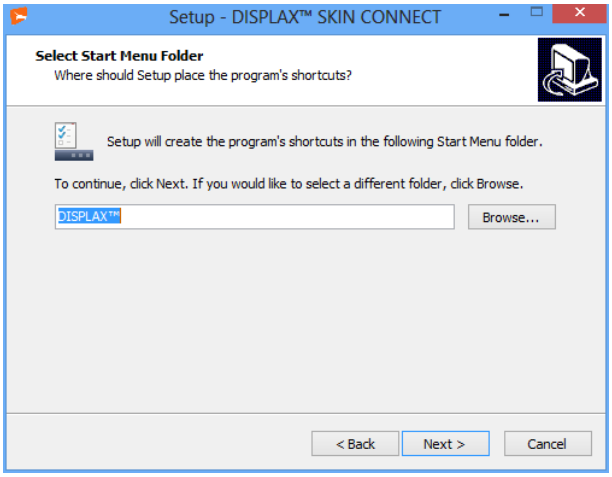




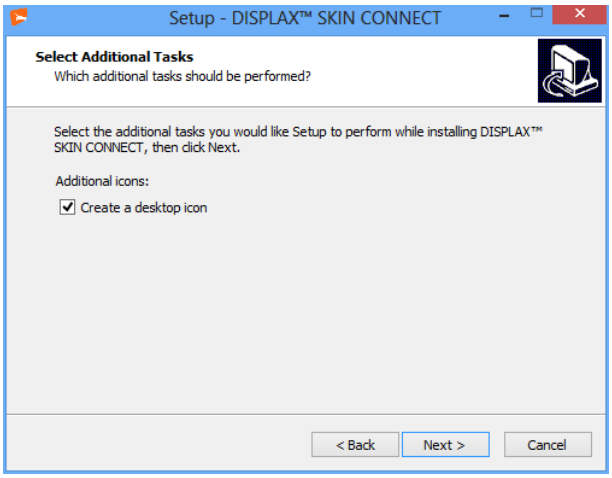
2. Select the folder where the Control Panel application will be installed. The default folder is C:\Program Files\Displax\Skin Multitouch; if you wish to use this folder click **Next**; otherwise, click **Browse** to select a different folder and after that click **Next**.



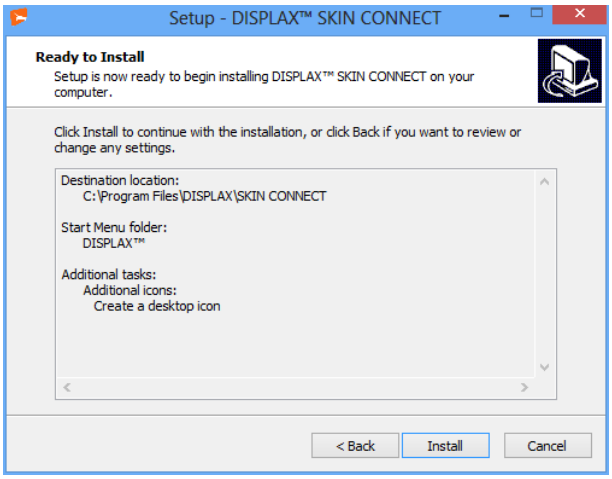
3. Select the Windows Start Menu folder where the application shortcuts will be created. The default folder is DISPLAX™; if you wish to install the shortcuts to this folder click **Next**; otherwise, click **Browse** to select a different folder and after that click **Next**;



4. If you want to create a shortcut at the computer desktop, check the box '**Create a desktop icon**'; otherwise, uncheck it. Click **Next**.



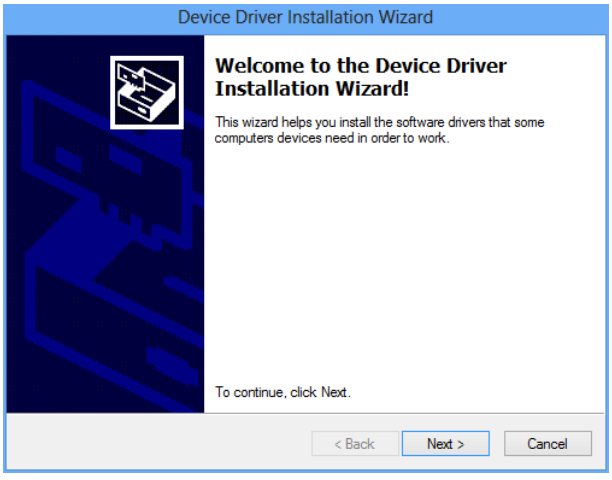
5. Review the installation settings. Click **Back** if you wish to change the settings; otherwise, click **Install**.

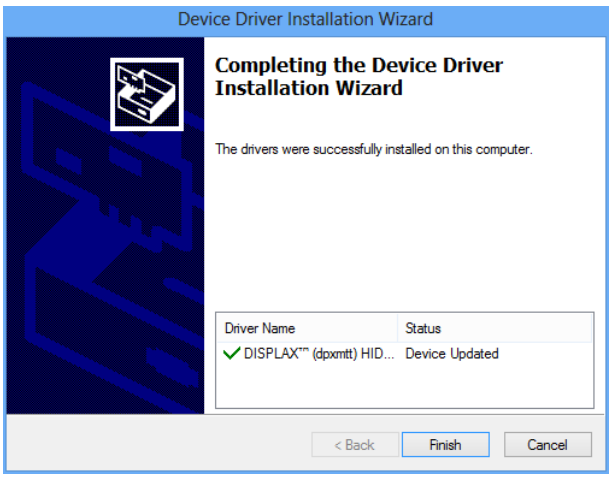


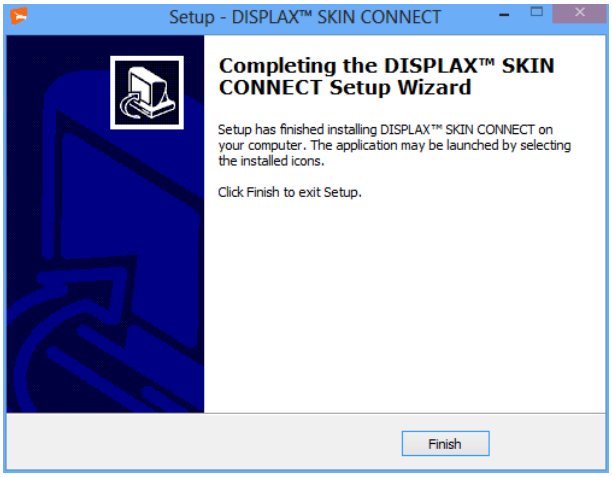
6. Wait while the installation files are extracted.

7. Wait until all the files are properly installed.

8. When the installation is complete, the following window pops-up.



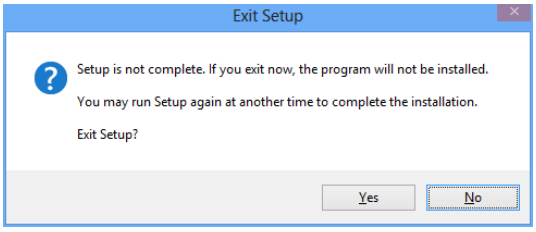




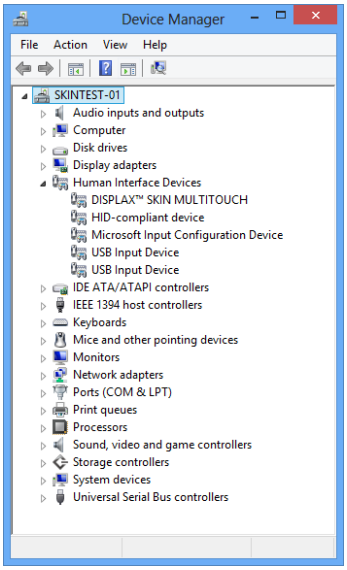
After installation click **Finish**

The Control Panel is now fully installed and ready to be used.

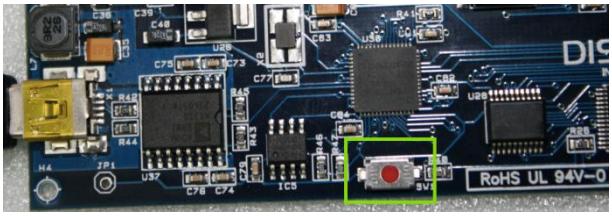
At any time, you can cancel the program installation by clicking the **Cancel button**. When you click **Cancel**, the following window pops-up. Click **Yes** to exit the setup or **No** to continue.



After installation, if you want you can check in the **Windows Device Manager** if the hardware has been detected and properly installed. The controller driver must be displayed at the **Human Interface Devices** (HID) section.

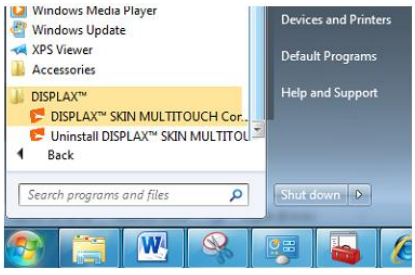


If the device is not shown, press the **Reset** button at the controller board (or unplug the USB cable) and wait for the system to detect it or unplug and plug the USB cable again.

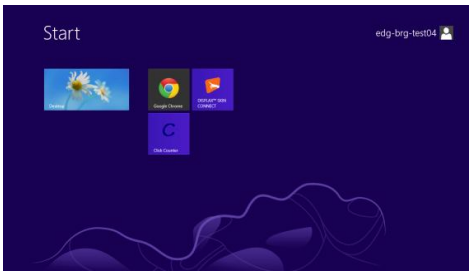


Run the Control Panel by clicking at the "**DISPLAX™ SKIN MULTITOUCH Control Panel**" shortcut, which is available at the Windows Start menu (and also at the Desktop, in case you have previously selected the shortcut option during installation).

Windows 7



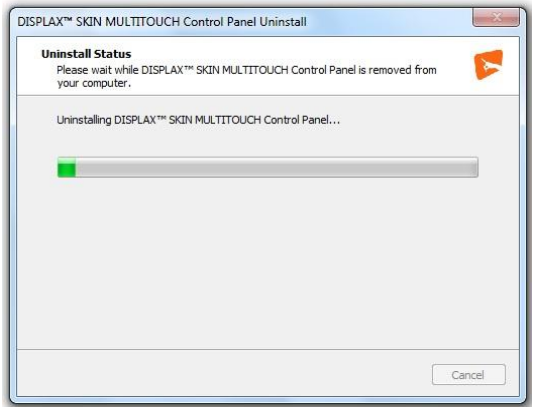
Windows 8



CONTROL PANEL UNINSTALL

1. Run the uninstall tool by clicking at the 'DISPLAX™ SKIN MULTITOUCH Control Panel Uninstall' shortcut, which is available at the Windows Start menu. The following window pops-up. Click Yes if you wish to uninstall the program, otherwise, click No.

Wait until all the files are properly uninstalled.



2. When the Control Panel uninstall process has been completed, the following window pops-up. Click **OK**.

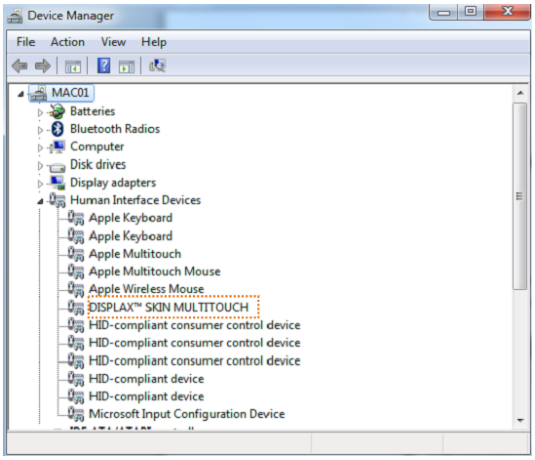
DRIVER UNINSTALL – MANUALLY

Option 1:

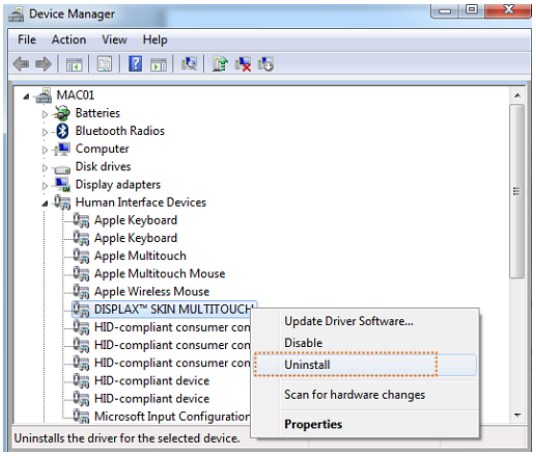
Please go to **C:/Program Files/DISPLAX/SKIN MULTITOUCH**, execute **Uninstall** there and everything will be uninstalled. Please check on the **Device Manager** if the **DISPLAX driver** was removed / not present.

Option 2:

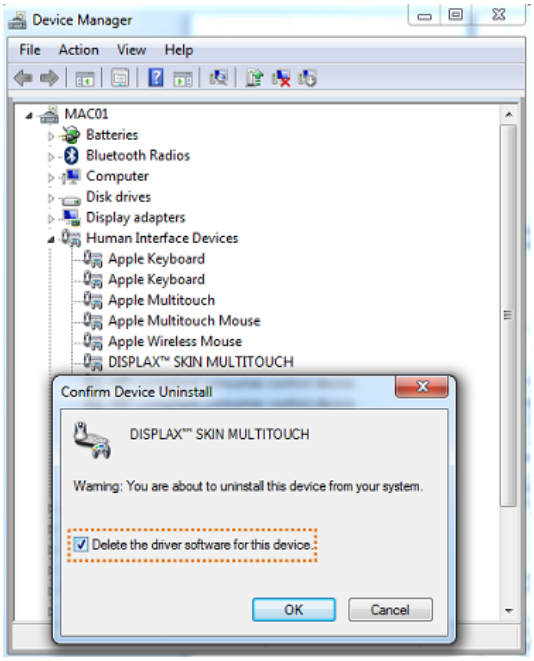
1. Open the Windows Device Manager. The controller driver is displayed at the Human Interface Devices section.



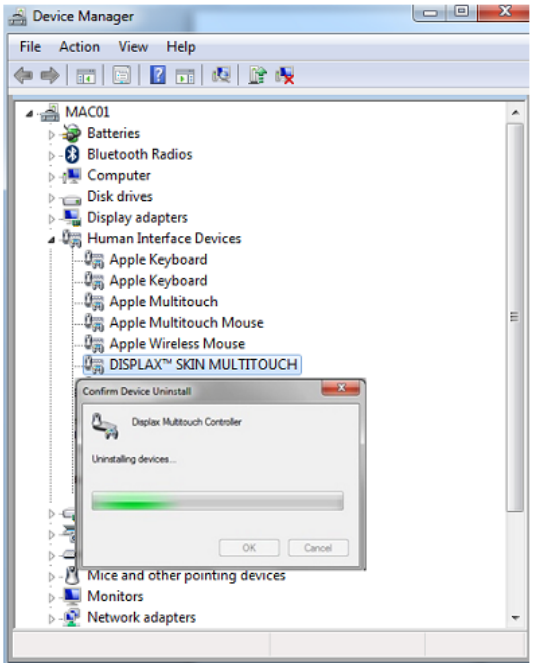
2. Right-click on the Displax Multitouch Controller and click Uninstall.



3. After clicking Uninstall the following window pops-up. Check the 'Delete the driver software for this device' box and click OK

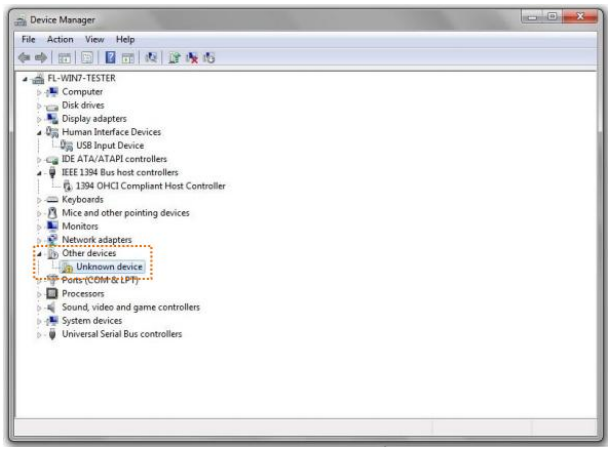


4. Wait until the driver is properly uninstalled.

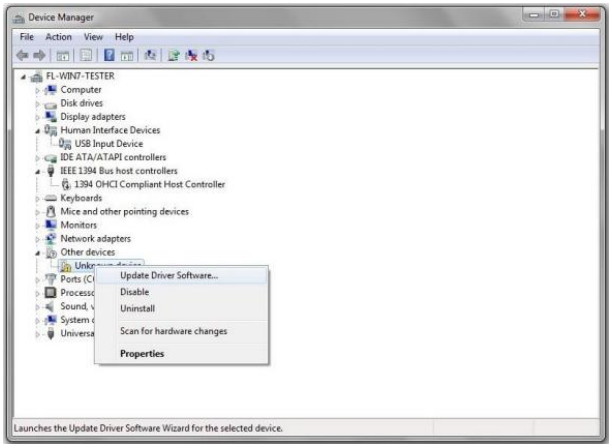


DRIVER REINSTALL – MANUALLY

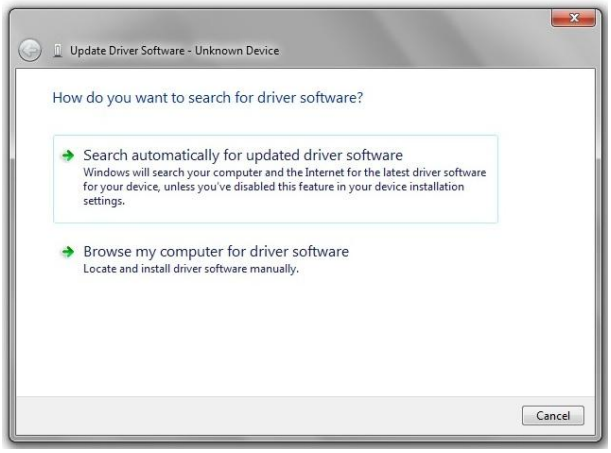
1. Make sure the controller is properly connected to the power adapter and to the computer (see 'CONTROLLER CONNECTION' section). The device is detected as an Unknown device on the Other devices section of the Windows Device Manager.



2. Right-click on the Unknown device and click Update Driver Software

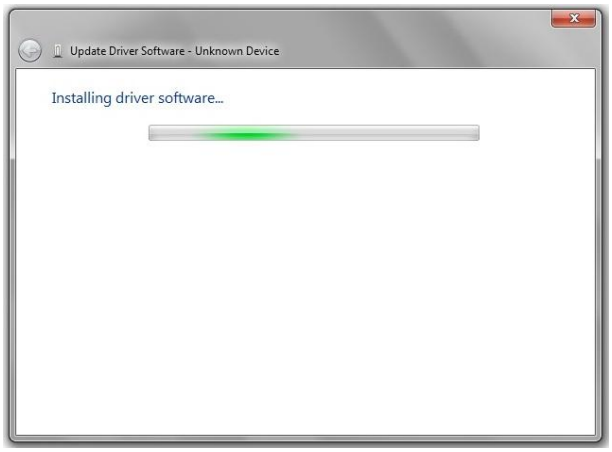


3. Click 'Browse my computer for driver software'.

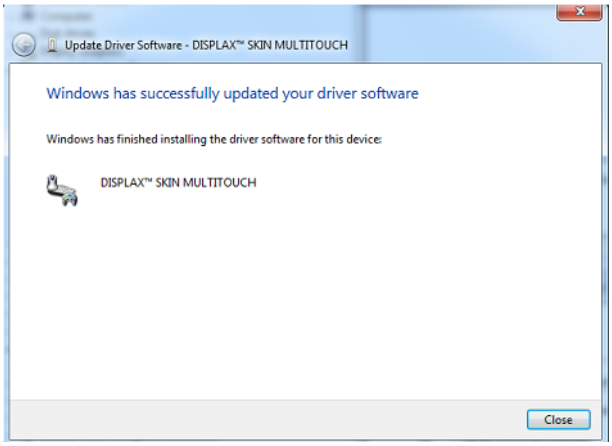


4. Choose the driver software location (if you haven't changed the destination folder during the previous Driver and Control Panel installation, it should be located at **C:\Program Files\Displax\Skin Multitouch\driver**) and click **Next**.

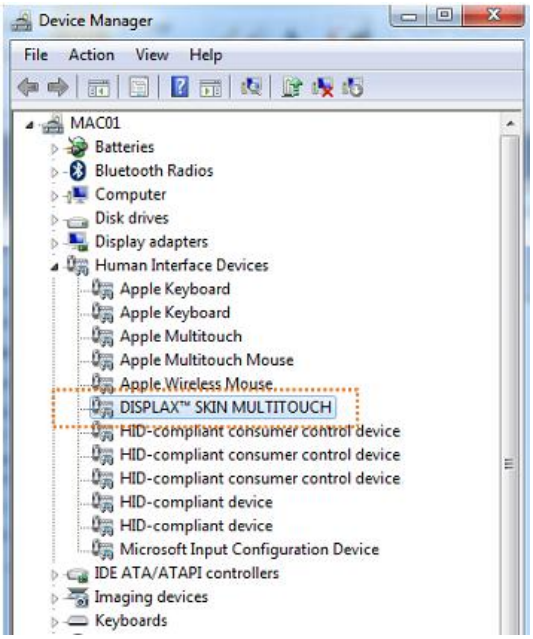
5. Wait until all the driver files are properly installed.



6. When the driver software is fully installed, the following window pops-up. Click Close.



7. The device drivers are now fully installed, and it´s visible under the **Human Interface Devices** section of the **Windows Device Manager**.

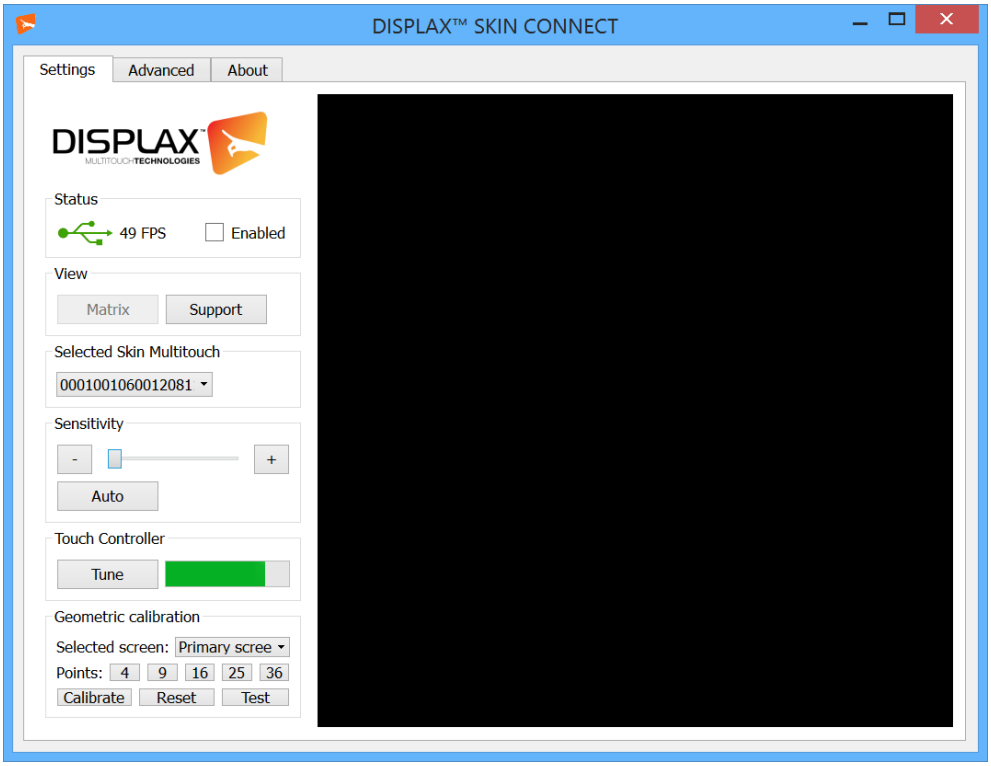


08

CONTROL PANEL

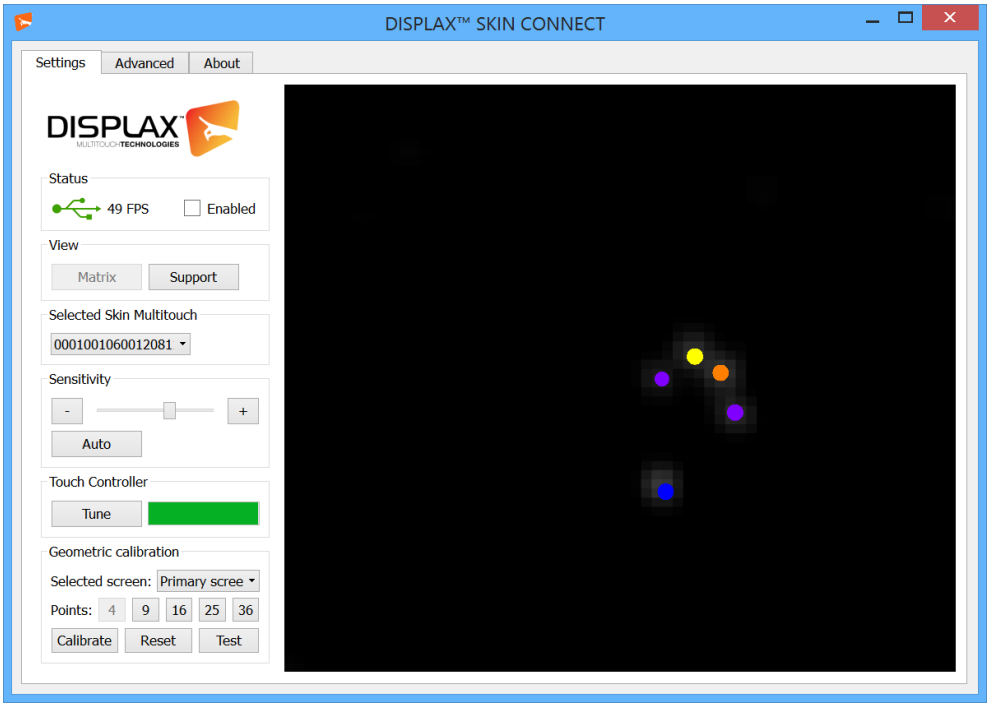
The Control Panel window has three tabs: **SETTINGS**, **ADVANCED** and **ABOUT**.

SETTINGS TAB



In case the controller is not connected or not recognized, the Settings tab displays the following image.

The display below the tabs identifies the sensors status and plots the sensitive region. Color dots identify multiple touched points and the black background identifies the whole touch sensor area.



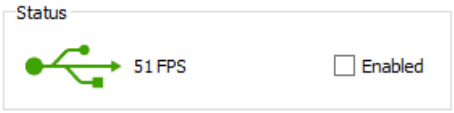
STATUS

The controller status is symbolized by the color of the USB trident logo, which can be:

The real-time frame rate number is displayed in frames per second (FPS).

When the controller is not connected the value is replaced by NA (not applied).

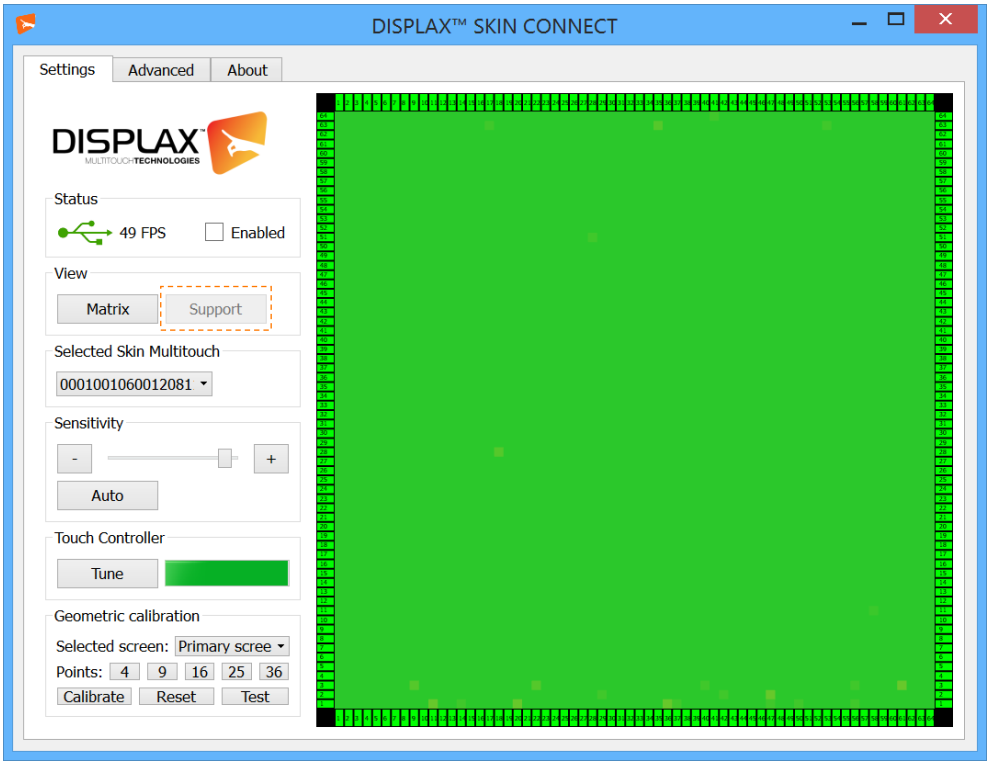
The STATUS section allows the user to enable/disable the touch processing. By default, touches are disabled.



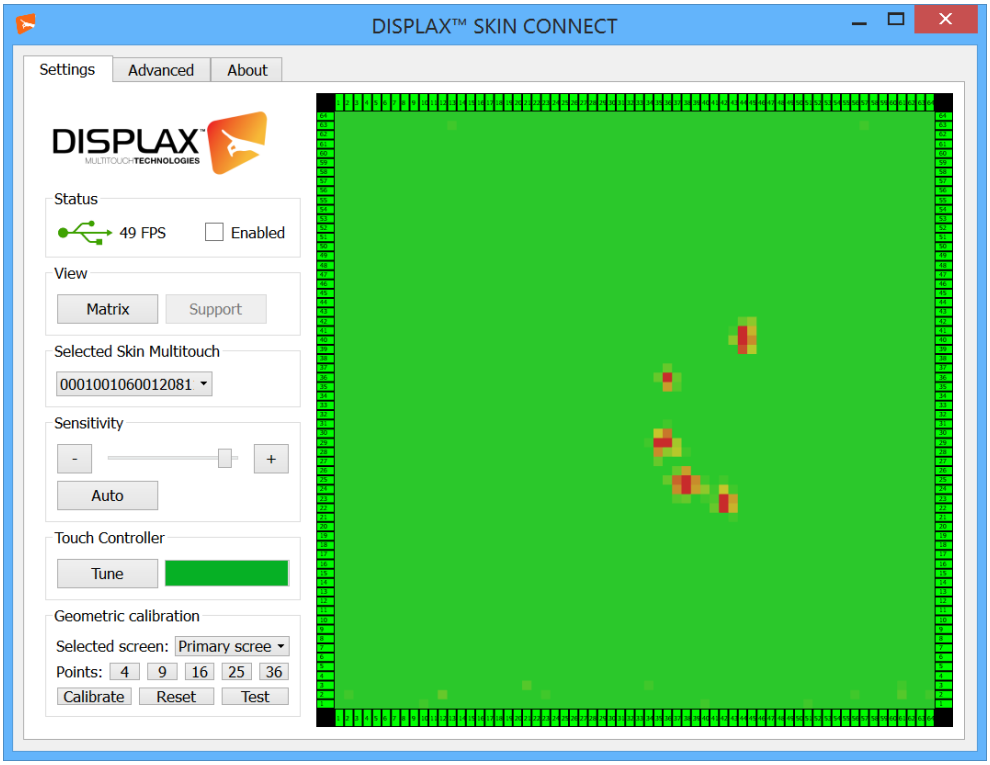
By clicking at each check box it will send touches to the operating system

Note: the FPS is usually around 50 FPS; it can have small variations depending on external elements like computer used, operative systems and cables. The changes are so small that the experience will not be affected.

SUPPORT

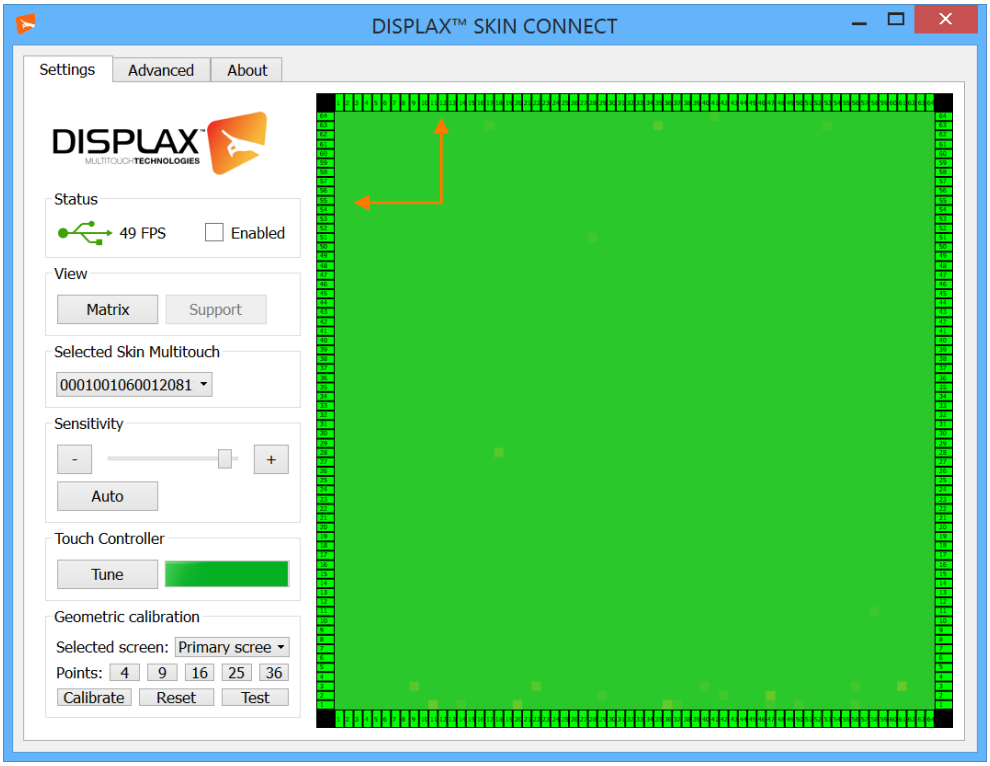


In this tab, the display identifies the sensors status and plots the sensitive region (a red mark identifies a touched point and the green background identifies the untouched area).



GRID SIZE CONTROL

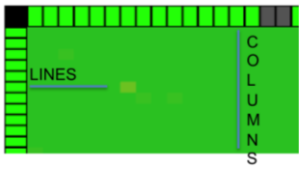
Here you can visualize the entire touch sensor matrix of lines and columns that is the basis of the touch sensor.



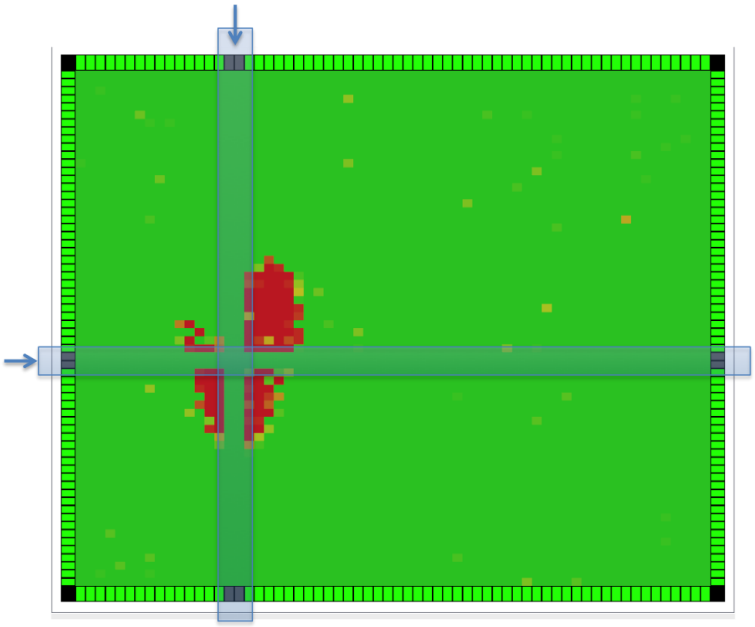
It's possible to define the sensitive area dimensions by disabling line-by-line and column-by-column of the touch sensor grid just by clicking on top of the green rectangles present on the Support Tab. Could be useful to define areas where you don´t want people to have feedback when they touch.

Green = active

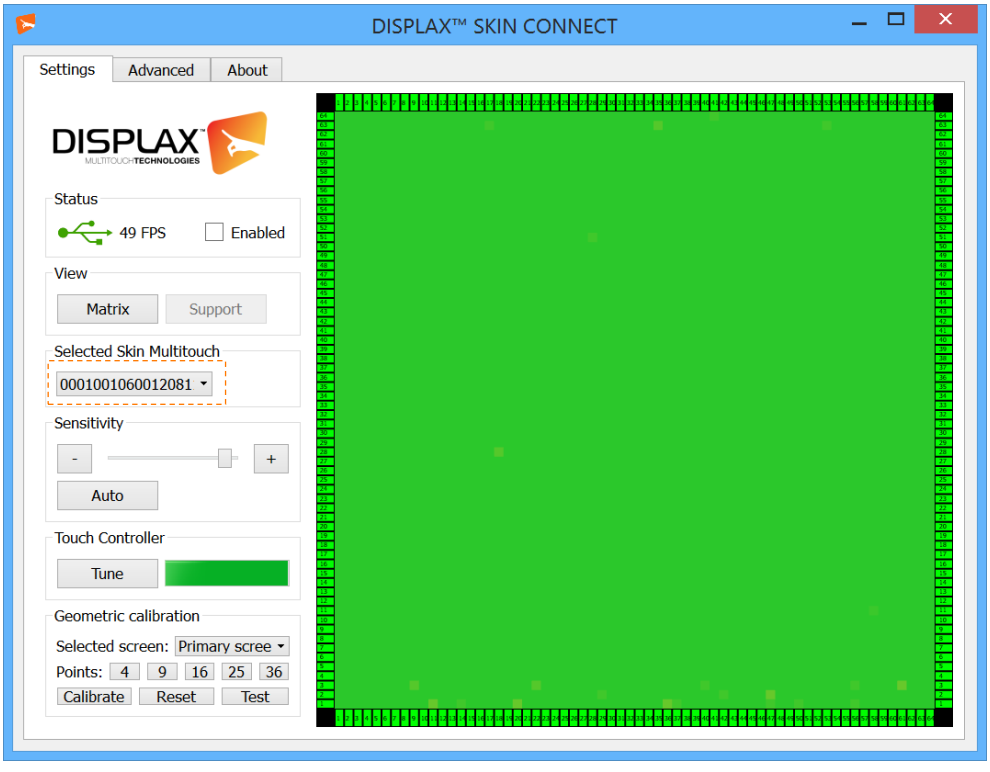
Grey = disabled

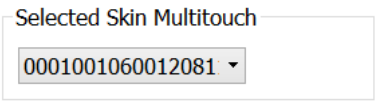


See an example of disabling 2 Lines and 2 Columns



SELECT DEVICE





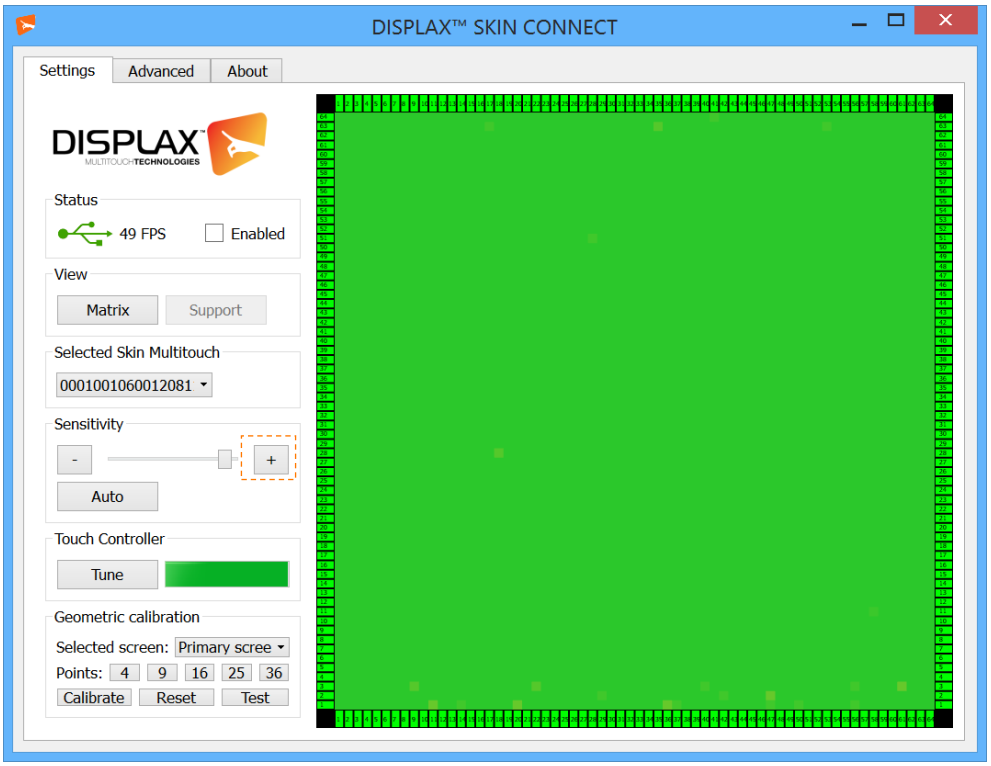
Each computer can run more than one SKIN at the same time.

By selecting the device on the drop down list you will activate control to a specific SKIN Unit.

The description refers to the SKIN unit serial number.

SENSITIVITY

- CRITICAL STEP



Auto

The Auto button is not mandatory but it will automatically adjust the sensitivity to a setting where no false touches are detected. It is a help tool and a step to help you decide the maximum level of sensitivity. In some cases it will work as the best sensing level, but you MUST consider using the manual slider after performing AUTO for fine tuning and adjusting the sensitivity at it is best according to your installation.

THIS IS CRITICAL

The manual Sensitivity slider allows the user to manually increase or decrease the touch sensor sensitivity. If you wish to adjust the sensors sensibility to a thinner glass/less sensing, then move to LOW sensitivity (move slider to low/-); if you wish to adjust the sensors sensitivity to a thicker glass/more sensing, then increase the sensitivity (move slider to high/+). The sensitivity must be adjusted to provide the lowest possible setting without losing continuous touch detection. There is an optimum point that must be found on place after installation is done!

In order to get the best performance, you need to adjust the sensitivity bar so the touch screen is sensitive to a smooth touch but also avoid non-intentional touches with nearby fingers. The best setting is achieved by adjusting from high to low the sensitivity bar and try the best level at the same time, with the finger always touching the sensor. It is very unusual that the sensitivity bar will be set at the maximum.

Below, you can find some examples of good and bad settings.

GOOD EXAMPLE

Why? The color touch points, representing the fingers forms a sharp round area, meaning the touch is well defined and the system is just receiving touches when I intentionally touch. So you should try to get the best round point with the minimum area around it..

The right setting is a trade-off between glass thickness, good touch tracking during a touch and a drag movement. So this needs to be manually adjusted after installation having in mind the combination of this factors.

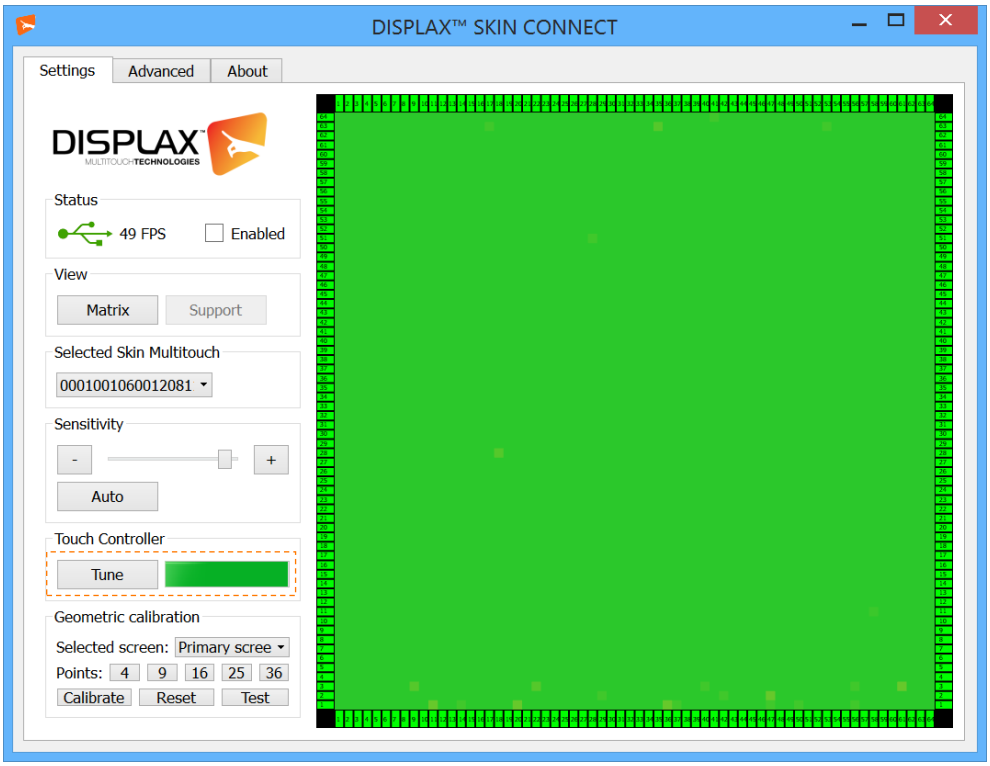
BAD EXAMPLE

Why? The color touch points, representing the fingers, are too big round and so the touch will be activated with non-intentional touches and before real touch happens. This means the Sensitivity is very high and hand proximity or any potential interference will activate the touch creating possibly some false touches.

In this case is necessary to reduce the Sensitivity bar.

WRONG

CONTROLLER

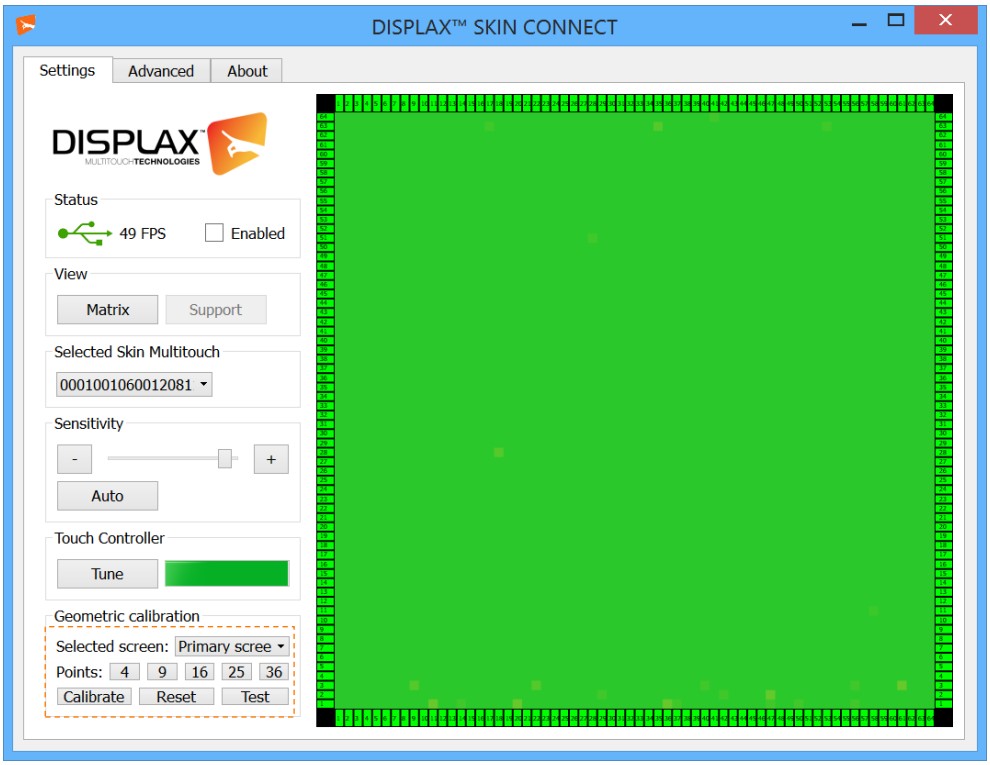


The **TUNE** button performs a full electrical automatic calibration of the touch sensor.

When you press **TUNE**, the **Status** display is changed to yellow (adjusting settings) and a warning image is displayed, requesting DO NOT TO TOUCH THE TOUCH SCREEN.

The **GREEN BAR** is a countdown timer to the next automatic recalibration according to the environment, assuring so the system to run smoothly along the time.

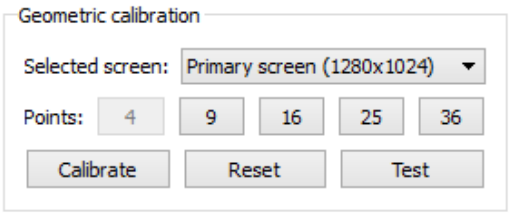
GEOMETRIC CALIBRATION



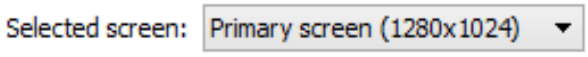
The **Geometric calibration** section allows the user to launch the geometric calibration tool (**Calibrate** button), and to reset the geometric calibration to the default values (**Reset** button).

On a first installation it is mandatory to perform a calibration.

That first calibration will automatically adjust to the display orientation you have and will follow your changes to landscape or portrait at anytime in the future.



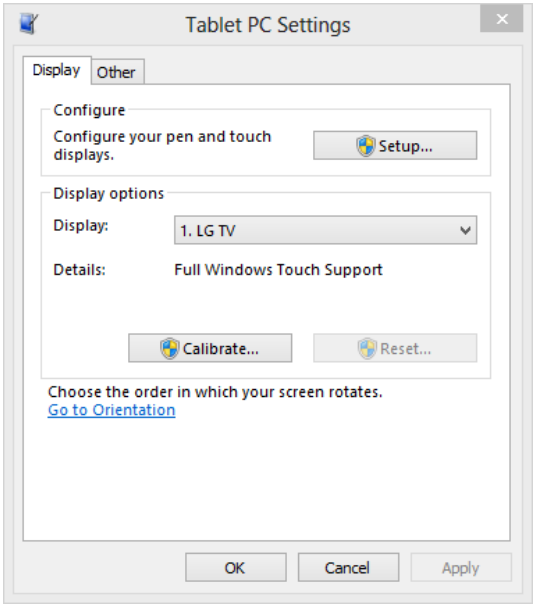
SELECT THE SCREEN TO CALIBRATE



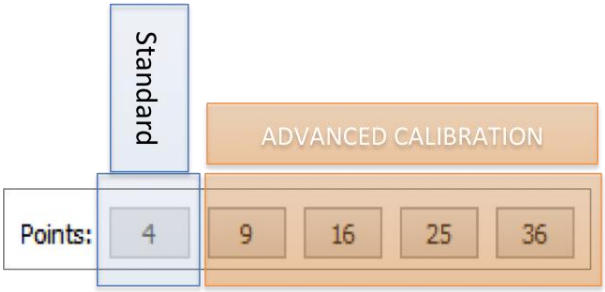
It's possible to connect multiple monitors to one computer and then define which is the display desired to be the touchscreen. Here you can select which screen will be used to touch.

This tool gives flexibility to the installation.

You can also have more settings on Windows Tablet PC Settings



SELECT THE NUMBER OF TOUCH POINTS TO CALIBRATE



STANDARD CALIBRATION

4 Touch Points are enough to get a proper geometric calibration.

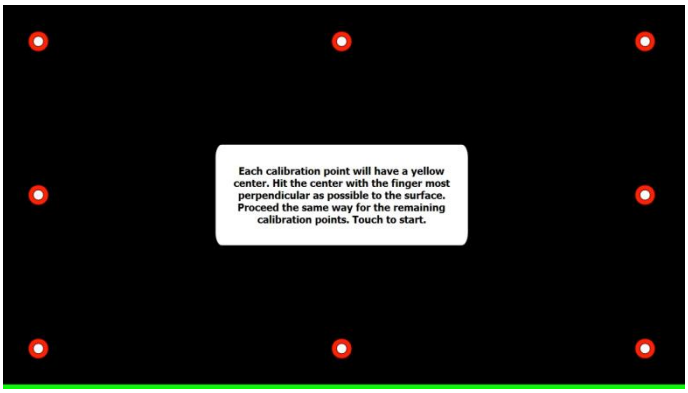
ADVANCED CALIBRATION

Advanced calibration is an extra tool for special calibrations

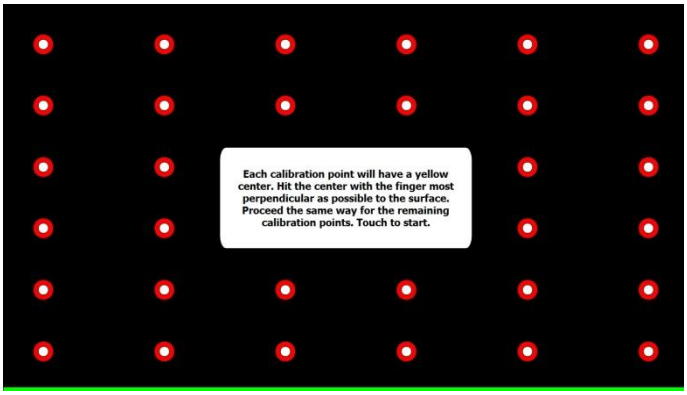
In the case you installed a special custom project you might need an advanced tool for special scenarios. This tool provides an array of touch calibration points up to 36 points.

4 TOUCH POINTS

9 TOUCH POINTS



36 TOUCH POINTS



TOUCH TEST WINDOW

The Test button opens a Touch Test Window.

It´s also possible to visualize the Touch ID´s, x & y coordinates.

When you press Calibrate at the Geometric calibration section, you will be asked to touch the sensor at four yellow marked points for a given amount of time, in the following order:

1. Top left
2. Top right
3. Bottom left
4. Bottom right

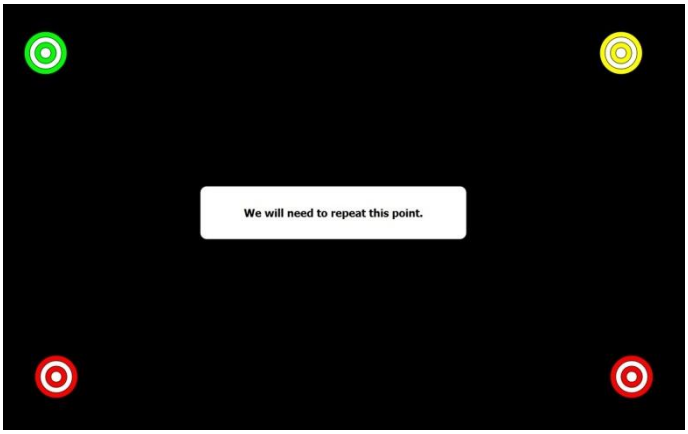
The following picture illustrates a status during the calibration process. During the calibration process, the four calibration points will be marked up with green (1-calibrated), yellow (2-calibration in process) and red (3-uncalibrated).

After the following message is displayed, press the mouse's left button to continue.

Touch at the top left circle until the timer reaches the end.

Touch at the top right circle until the timer reaches the end.

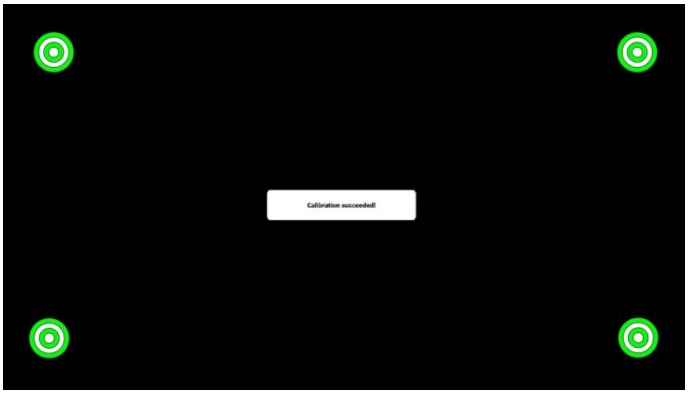
In case any calibration step needs to be repeated, due to touch position uncertainty, the following message is displayed. If this happens you will need to repeat the calibration procedure for the defined point (marked up with yellow).



Touch at the bottom left circle until the timer reaches the end.

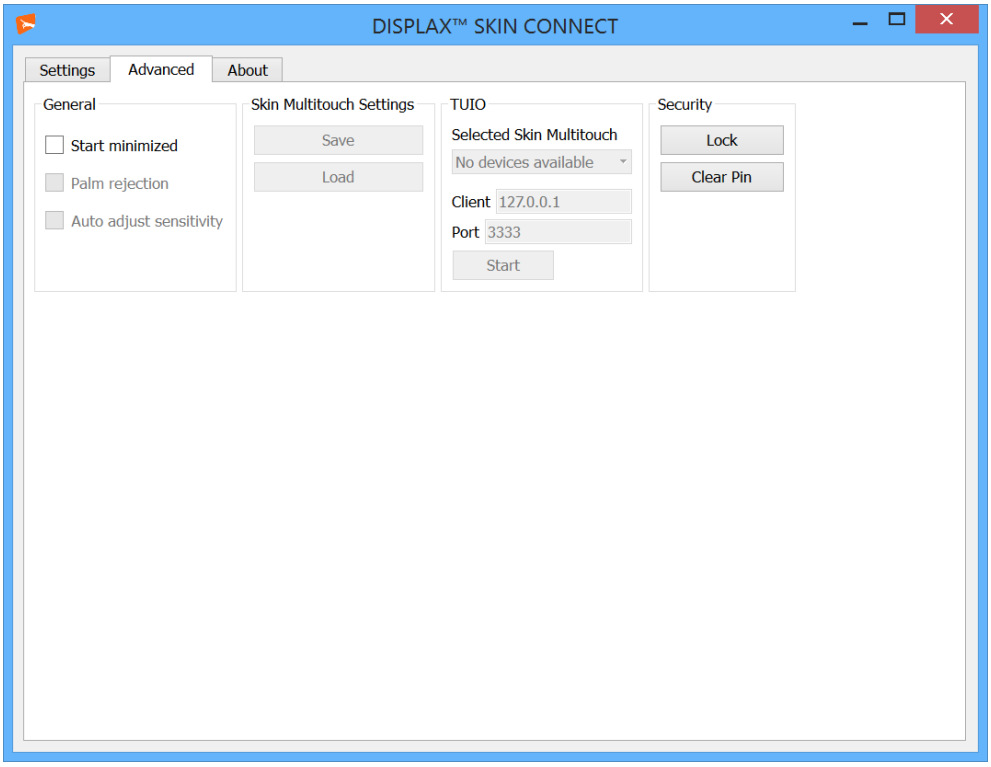
Touch at the bottom right circle until the timer reaches the end.

When the geometric calibration finishes, the message “Calibration Succeeded” is displayed:



Press any key to continue (the new calibration will be saved) or Esc to cancel (default geometric calibration is restored).

ADVANCED TAB



GENERAL

Start minimized – When activated, this feature ensure that the Control Panel software will start minimized in the system tray, every time the PC boots.

Palm rejection - If Palm and Arm Rejection are enabled, the touchscreen will reject the touch from big touch area dimensions like one hand, arm or multiple palm and arms. The touch will still be operational in the other areas.

Auto adjust sensitivity - when enabled, every time the system detects false touches, it will automatically perform a Touch Sensor scan and adjust the sensitivity to a level more suited to the current conditions. If you don't want the sensitivity level changed by the system, leave the feature disabled (its default status).

SKIN MULTITOUCH SETTINGS

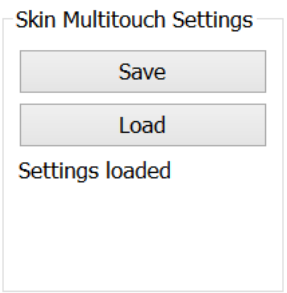
This is the Load & Save Settings feature. It should be used when you have multiple units of an identical setup because it saves time configuring the Control Panel Software. You can SAVE the settings from your current setup into a file. This will save the values of the following parameters:

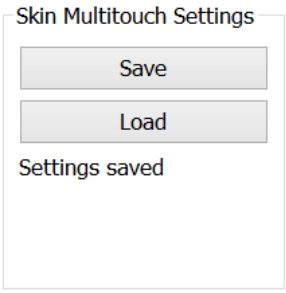
- Touch status (enabled/disabled)
- Sensitivity
- Geometric Calibration
- Palm rejection

- Auto adjust sensitivity

When you LOAD the file into a new setup (PC + display + Skin Multitouch), the Control Panel software will assume the values of the previous setup. It is recommended that you always review each setup touch performance to verify if additional fine-tuning is required.

Bear in mind that this feature should be used with equivalent setups, ie, same LCD, glass thickness and size, sensor size and air gap.





TUIO

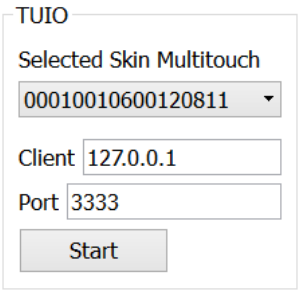
TUIO is an open framework that defines a common protocol and API for tangible multitouch surfaces. Check www.tuio.org

Here you can find support to install the DISPLAX Skin Multitouch with **TUIO Support**.

The TUIO protocol allows the transmission of an abstract description of interactive surfaces, including touch events and tangible object states. This protocol encodes control data from a tracker application (e.g. based on computer vision) and sends it to any client application that is capable of decoding the protocol. There exists a growing number of TUIO enabled tracker applications and TUIO client libraries for various programming environments, as well as applications that support the protocol. This combination of TUIO trackers, protocol and client implementations allow the rapid development of table based tangible multitouch interfaces. TUIO has been mainly designed as an abstraction for interactive surfaces, but also has been used in many other related application areas. Technically TUIO is based on Open Sound Control - an emerging standard for interactive environments not only limited to musical instrument control - and can be therefore easily implemented on any platform that supports OSC. See more and detailed info at http://www.tuio.org

This tool will enable you to report touch inputs to one TUIO app, being the source the Skin Multitouch.

So, to send the touch inputs to TUIO Apps, please configure the Tuio App Settings to be ready to listen to a specific address and port.

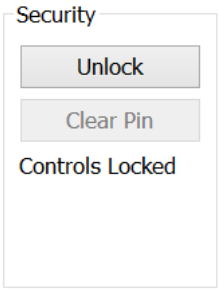


SECURITY

This feature exists to prevent unauthorized access to the Control Panel software that may result in unwelcomed changes to the setup.

When active, all the features available in the Control Panel software are disabled and require a secret 4 digit code to unlock.

To activate the 4 digit PIN you will be asked to enter the code twice.

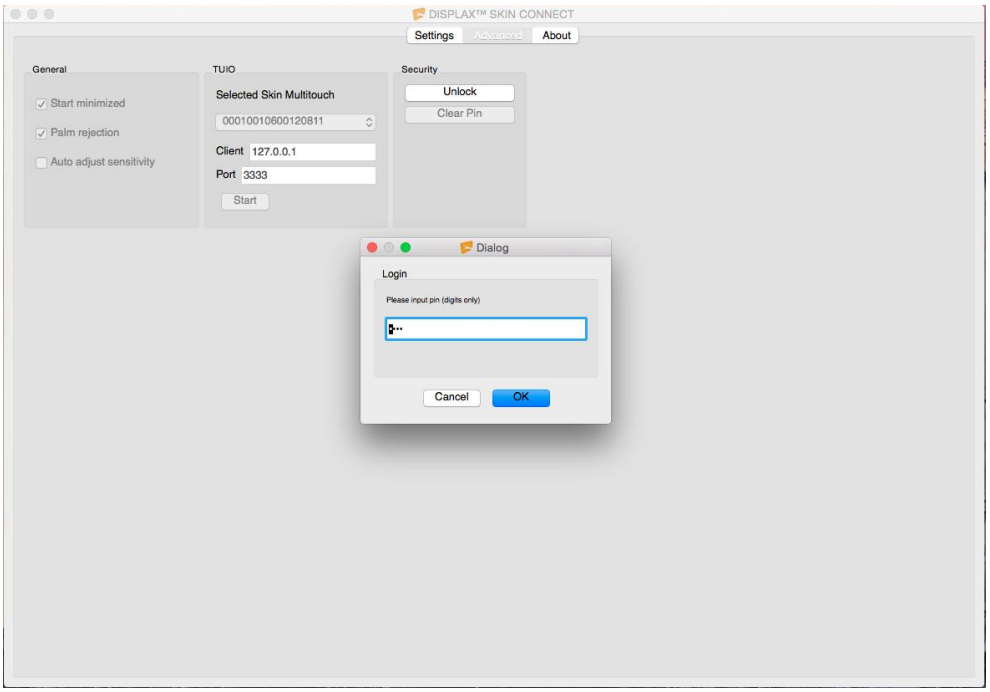


If you forgot the PIN code there are two ways of unlocking the Control Panel software.

- Using the command line tool “dpx utils”. Please refer to Application Note 004.

This feature works slightly differently in Mac OS X.

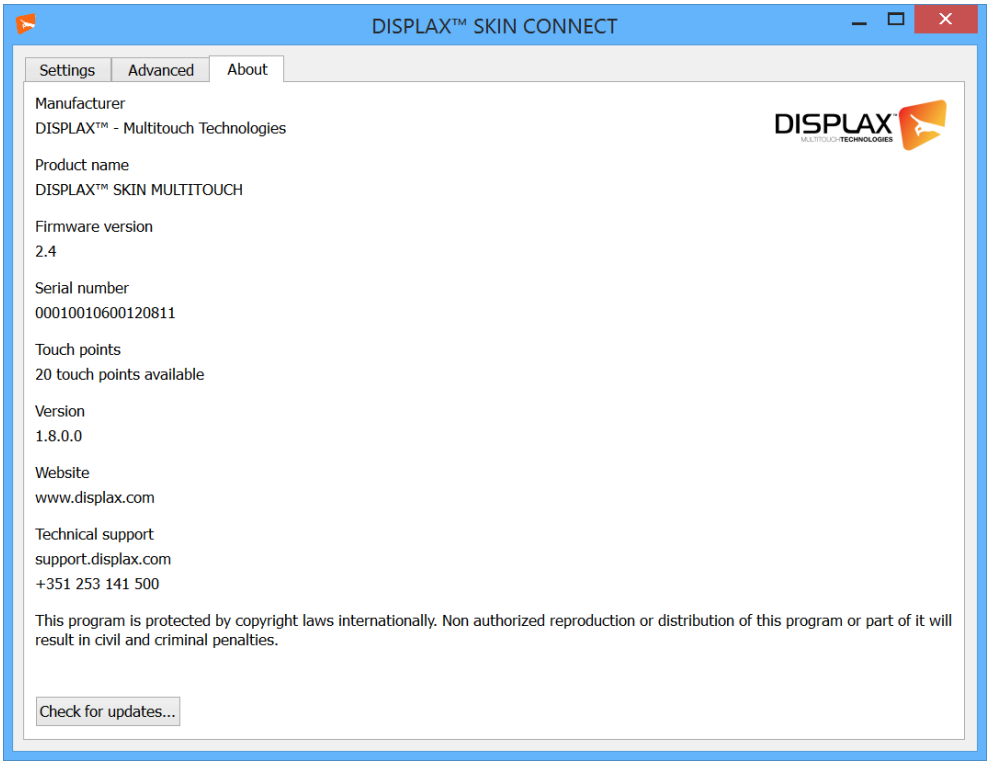
In Mac OS X, the Control Panel needs to be always open (though it may be minimized) for Skin Multitouch to work. So, to unlock the Control Panel, you must open it and click the “Unlock” button, the only one enabled, when the Control Panel is locked.



ABOUT TAB

The About tab displays the following product information:

- Manufacturer: DISPLAX™ - Multitouch Technologies
- Product name: DISPLAX™ Skin Multitouch
- Firmware version of the Touch Controller
- Unique Serial number of your Touch Controller
- Number of Touch points detected
- Control Panel version
- Contact Details
- Check for Driver Updates



WARRANTY

09

DISPLAX provides quality products. DISPLAX warrants to the original end user customer of its products that they are free from defects in material and workmanship. In the event of experiencing problems with any of our product please follow these guidelines.

DISPLAX Pad has 1 year warranty under normal use from date of invoice of the product.

During the warranty period, DISPLAX Multitouch Technologies will repair or replace defective parts that are returned to DISPLAX head-office, in Braga, Portugal, Europe.

Replacement parts are warranted for the remainder of the warranty period. All parts that are exchanged under this warranty become the property of DISPLAX.

This limited warranty does not cover any damage to this product that results from:

- Improper installation
- Accident
- Abuse
- Misuse
- Natural disaster
- Insufficient or excessive electrical supply
- Abnormal mechanical or environmental conditions

This limited warranty also does not apply to any product on which the original configuration has been:

- Altered
- Obliterated or removed
- Incorrect handling
- Non Cautions Packaging
- Damage caused by use of the product outside the permitted or intended uses described in the product specifications

Damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of DISPLAX or by anyone unauthorized by DISPLAX is not covered.

For any warranty claim, the Buyer must provide DISPLAX with:

- Applicable model and serial numbers, the date of purchase, and the nature of the problem.

DISPLAX, in its discretion, may also require that the Buyer return the product being covered under warranty.

The warranty is return to base only, and does not include:

- On-site repair charges such as labor
- Travel
- Shipping
- Other expenses associated with the repair or installation of replacement parts.

Shipping Charges: When applicable, DISPLAX Multitouch Technologies will pay all shipping charges to send the repaired, replaced or exchanged product to the original point of shipment.

For more detailed information contact:

DISPLAX™ - MULTITOUCH TECHNOLOGIES

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SKIN MULTITOUCH

User Guide