



DISPLAX

DISPLAX INTEGRATION GUIDE

LARGE MULTITOUCH PROJECTED CAPACITIVE

DOCUMENT REVISION HISTORY AND APPROVAL

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PRODUCT COMPLIANCE



DISPLAX is a certified company under the ISO 9001 standard which establishes the requirements for a quality management system, meaning that our R&D, production, support, sales and marketing processes are organized around quality management practices to guarantee the effectiveness of our work and the satisfaction of our clients.



Our products are compliant with RoHS - Restriction of Hazardous Substances, meaning that they do not contain substances which might put at peril the product users, they are also compliant with the Electromagnetic Compatibility Directive 2014/30/EU, meaning that they can be integrated with other electronic components without provoking interferences over the regular functionality of other components or parts.



All our products have the CE certification mark, which can be ascribed to our products since they are compliant with RoHS and with the Electromagnetic Compatibility Directive 2014/30/EU, and they are developed, manufactured and supported under a certified quality system.

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SAFETY INSTRUCTIONS



The product contains electronics, which are electrically sensitive. Please take necessary precautions when using such devices.

DO NOT TOUCH THE UPPER OR LOWER FACES OF THE TOUCH CONTROLLER. FINGERS AND TOOLS CONTAIN STATIC ELECTRICITY, WHICH MAY DAMAGE THE TOUCH CONTROLLER. HOLD BY THE OUTER EDGES AND AWAY FROM ANY ELECTRONIC COMPONENTS.

- Select a suitable workspace.
- Avoid carpets in cool, dry areas.
- When you work on a carpet where static electricity is likely to be generated, make sure to take anti-static measures beforehand.
- 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.
- Take care when connecting or disconnecting cables. A damaged cable can cause a short in the electrical circuit.
- When installing a Flexible Flat 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 Flexible Flat Cable. Misaligned connector pins can cause mechanical damage to system components.
- When disconnecting a Flexible Flat Cable, always pull the strain-relief loop first before removing the Flexible Flat Cable.

INTEGRATION GUIDE

A video has been created to support the integration process:

URL:

<https://support.displax.com/en-us/article/9-starting-out-with-displax#step4>

Your product may present a different design from the one presented in this user guide and instruction video.

Note:

This guide assumes you already have the Touch Sensor laminated on glass. For more information on how to laminate, please refer to the lamination guide.

MOUNTING THE GLASS WITH THE TOUCH SENSOR ON A DISPLAY

Clean the LCD and the glass on which the Touch Sensor has been laminated. Use a soft damp lint free cloth with 10% dishwasher detergent solution to clean the glass. The same solution can be used to clean the Touch Sensor, which should be cleaned with care to avoid damaging the sensor electrodes, the flat flexible cable and its solder joints.

To mount the glass with the Touch Sensor on an LCD a suitable double sided bonding tape should be applied around the perimeter of the LCD such as 3M VHB tape.

This mounting procedure creates an air gap between the LCD and the Touch Sensor. This airgap is necessary to reduce electromagnetic interference from the LCD panel, this interference differ depending of the LCD panel characteristics. The air gap may vary between 1 and 10 mm, and should be as small as possible once there is no noise visible in the touch signal. We recommend using an air gap of at least 2 mm. In all cases this should be checked before the final integration (i.e. test different airgaps by introducing a temporary object, like a non-adhesive foam or cork spacers along the LCD bezel, to adjust the distance between the LCD and the touch sensor laminated on glass, and test the touch performance).

The double sided bounding tape should be non-sulphurous and must maintain its adhesion properties at any temperature that the LCD may be experiencing in normal use.



Fig.1

Having applied the or double side bounding tape, place the laminated Touch Sensor onto the LCD panel with the Touch Sensor facing the LCD (Fig.2 and 3).



Fig.2

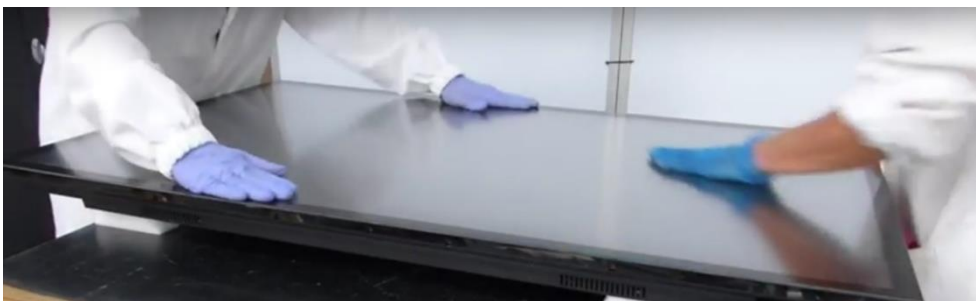


Fig.3

When positioning the laminated Touch Sensor over the LCD, carefully align the (viewing) area of the LCD with the active area of the Touch Sensor laminated on glass. It is also important to take into consideration the position of the flexible cables when planning the integration to ensure the best alignment for mounting the PCB controller on the back of the LCD.

In this respect take into account that the backlight of the LCD is usually the noisiest part. Traditionally, this component is placed in one of the sides of the display. If your Touch Sensor is a side tail version, the sensor side where the PCB Controller attaches should be on the same side of the LCD backlight since the signal is stronger here, thus minimizing the impact of the noise from the backlight. Contact your LCD manufacturer for more information regarding the backlight location.

INTEGRATING THE TOUCH CONTROLLER

To open the Touch Controller protection air bag, pierce the bag, using a blade to release its air to make it easier to remove it in safety (Fig.4 and 5).



Fig.4



Fig.5

Define the position to secure the Touch Controller to the LCD.

When defining the Touch Controller position:

- a) Make sure the flexible cable reaches comfortably the Touch Controller (PCB);
- b) Make sure there is a good access to the USB cable in that location;
- c) Identify a grounding option for the Touch Controller;
- d) Avoid, when possible, placing the Touch Controller near the LCD power source.

Touch Controller integration - attach the Touch Controller to the back of the LCD:

- a) The Touch Controller cannot be directly placed on metal;
- b) Use either mounting screws in the 3 mm holes provided or a double-sided bonding tape to attach the Touch Controller to the back of the LCD. The gasket must maintain its adhesion properties at any temperature that the LCD may be experiencing in normal use.
- c) Make sure to have a minimum distance of 3 mm from the Touch Controller to the LCD, to ensure that the electromagnetic noise from the LCD doesn't affect it. This distance can be created either by placing a double sided tape under the Touch Controller, as previously described, or by using metal standoffs connected to the LCD chassis above which the Touch Controller can be placed and attached using screws threaded into the metal standoffs. This procedure also grounds the Touch Controller.
- d) Ground the Touch Controller, either by using screws threaded into the LCD metal chassis or by using the low impedance grounding cable supplied with the Skin product which must be connected to the Touch Controller socket (Fig.6 and 7) and to a metal part of the LCD chassis

(Fig.8). To connect the ground cable to the Touch Controller insert its tip into the socket, and make sure it stays securely fixed. Later if you want to remove the ground cable from its socket use a tip of a pen or a paper clip to unlock the ground cable connector (Fig.6 and 7).

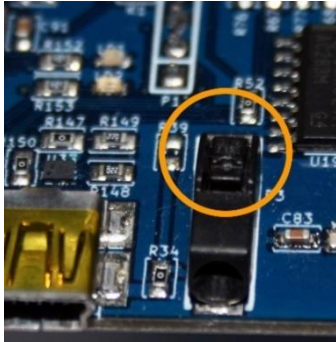


Fig.6

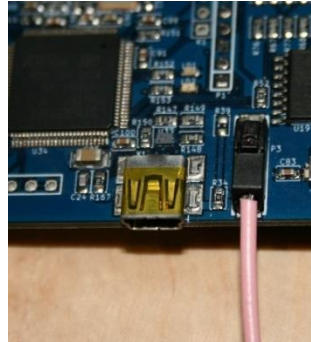


Fig.7



Fig.8

e) In some applications the LCD may only have a plastic casing and grounding to the LCD chassis is not an option. Other times the LCD electricity plug doesn't ground. In both of these cases, use the ground provided in the power socket to ground the Touch Controller. Make sure there is a good access to the ground cable (Fig.9 and 10).

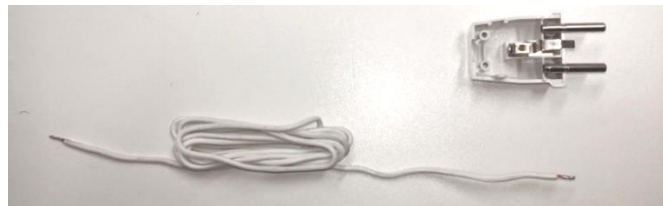


Fig.9



Fig.10

INTEGRATION EXEMPLIFICATION:

Secure the Touch sensor flexible cable to the LCD rear side using a double sided bonding tape (Fig.11 and 12).



Fig.11



Fig.12

Ensure that the flexible cable endings are clean, free of any particle or lint and properly connect them to the Touch Controller sockets (Fig.13 and 14) – if needed you can use alcohol and a lint free cloth to clean the flexible cable endings.



Fig.13



Fig.14

Apply a standoff support, or a double side bonding tape, with a minimum height of 3 mm, to bond the Touch Controller to the LCD rear (Fig.15).



Fig.15

Ground the Touch Controller to the LCD using the low impedance grounding cable, supplied with the skin product.

Connect the ground cable to the Touch Controller and to the LCD chassis (Fig.16).



Fig.16

To connect the low impedance ground cable to the LCD chassis, find a suitable grounding option. A screw bonded to the metallic LCD chassis can be an option (Fig.17 and 18). In Fig.19 the ground cable has been attached to the screw near the LCD VGA entrance grounding the Touch Controller.



Fig.17



Fig.18

It is advisable adding cable clips to secure the grounding cable, and to secure the USB cable connecting the Touch Controller to the PC (Fig.19 and 20).



Fig.19



Fig.20

Alternative integration methods can be implemented and all the devices may be included inside the LCD depending on the LCD design and internal spacing, as well as the size of the PC in use. Embedding cases attached to the LCD may also be used to protect or encase the setup devices.

CONNECTING THE SKIN TOUCH CONTROLLER

Download 'DISPLAX Connect', the software required to configure the Skin product:

<https://support.displax.com/private-area/downloads/displax-connect/displax-connect-2-0/>

Install 'DISPLAX Connect' and then run the software.

After running the software, connect the USB cable to the Touch Controller and to the PC.



Touch Controller led status:

Led status	Normal Operation (HID)	Device Firmware Update
Red led	Fast blinking	On
Orange led	On with touch Off without touch	Slow blinking

Note: 'DISPLAX Connect' should be closed before disconnecting the Touch Controller board.

If the Touch Controller board is removed before closing 'DISPLAX Connect', its settings may not be properly recorded, causing a reset to re-establish the factory settings.

To configure "Displax Connect" refer to its user guide. Published separately.

WARRANTY

DISPLAX provides quality products. DISPLAX warrants to the original end user and 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 Skin products have 2 years warranty under normal use (for products sold after the 1st of January, 2017), which starts counting from the product's invoice date. During the warranty period, DISPLAX will repair or replace defective parts that are returned to our head-quarters, 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 (difficult to understand)
- Damage caused by the use of the product outside the permitted or intended usage 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 covers only the returned items to the base, and it 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 will pay all shipping charges to send the repaired, replaced or exchanged product to the original shipment point.