



PRE-SCREENING TOUCH SCREENS FOR OVER-EVACUATION

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Overview

The purpose of the pre-screening test is to check incoming 5 wire ULTRA touch panels for premature over-evacuation of the switch layer. Though the test may be performed at any temperature, for most accurate results the test is performed at below-freezing temperatures. The test consists of reducing the temperature of the sensors to their lower operating limit of -10°C ; as temperatures lowers, the air that separates the two conductive layers of the resistive touch screen contracts and will draw the conductive layers into closer proximity. If the conductive layers draw too closely to one another, the sensor can begin to malfunction.

Equipment Needed

- Ohmmeter, with two test probes or patch cable
- Cooling enclosure (freezer or environmental chamber)
- Slotted trays

Procedure

- 1) Upon receipt, remove the sensors completely from their packaging. If the sensors are packed in foam pouches, remove them from the pouch before performing any testing. Protective films or paper may be safely left on the sensor without affecting the test.
- 2) Place the sensors in a temperature controlled freezer or environment currently set to room temperature.
 - It is recommended to place the sensors vertically in slotted trays with the cables easily accessible, making sure to separate the sensors with a small gap to allow air to circulate between them. Ensure the back sides of the sensor lean against the top edges of the slots; no hard surfaces should press against the touch screen surface (see Figure 1).

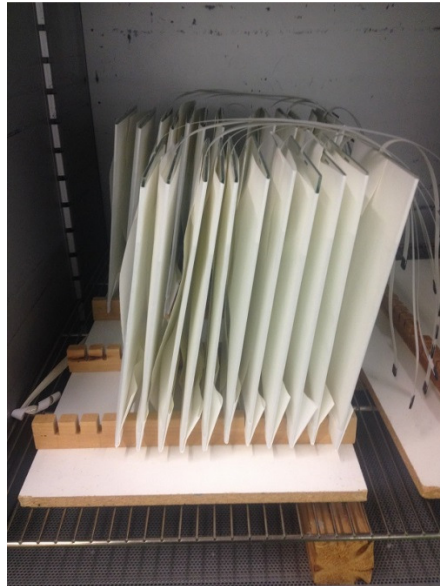


Figure 1 – Sensors in Slotted Trays

- 3) Ramp the freezer down to -10°C at a controlled rate of approximately 1°C per minute and dwell for minimum 1 hour. During this time, do not open the freezer; the sensors must dwell at -10°C for the full duration.
- 4) After dwelling for minimum 1 hour, the sensors may be electrically tested. The sensors must remain at -10°C for the duration of the electrical test. Ensure that no surface pressure is being applied to the touch panels during the test.
 - Set the ohmmeter detection limit to $20\text{M}\Omega$ or higher.
 - Place one probe of the ohmmeter directly against the exposed middle pin (pin 3) on the cable connector and the other directly against any of the other exposed pins (pin 1, 2, 4 or 5) on the cable connector (see Figure 2 below). If using a patch cable (with pin 3 and any other pin connected to each terminal), simply plug the cable into the connector.

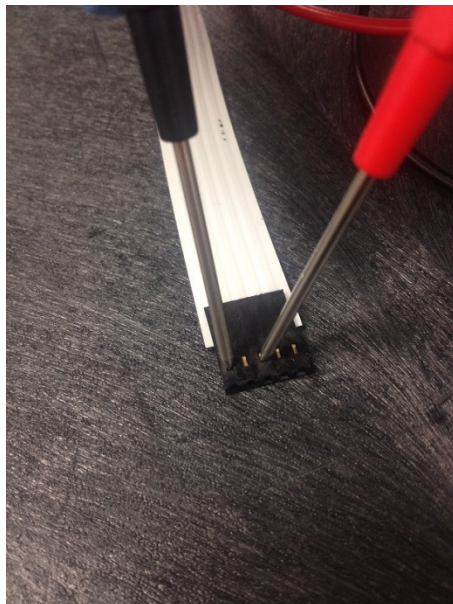


Figure 2 – Probe Testing

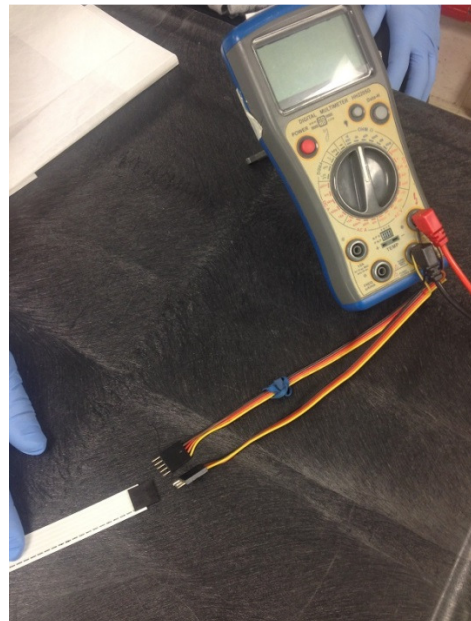


Figure 3 – Patch Cable Testing (Unplugged)

- Take the ohmmeter reading. If the reading is less than $20M\Omega$, then the sensor may be over-evacuated and should be rejected. If the reading is greater than $20M\Omega$, then the sensor is not over-evacuated and may be further processed.
- 5) After all sensors have been tested, power off the freezer and allow sensors to slowly return to room temperature to avoid thermal shocking.

General Handling Notes

- Always wear powder free latex gloves when handling bare glass to keep the surfaces clean of smudges and/or finger oils.
- Never carry sensors by the tail; ensure sensors are properly held and supported by the glass substrate.
- Avoid knocking sensors together; handle sensors with care.