iTech E Series EETI Capacitive Touch USB Controller Trouble Shooting Guide

Index

CHAPTER 1 Preparation for Installation

Installation Warming and Safety Precautions 【安裝警告和安全注意事項】

Installation Warming 【安裝警告】

● Please follow the Installation Guide for your assembly steps.【請依照說安裝說明書進行安裝】

● Pay attention to the CAUTION Mark in the Installation Guide.【注意手冊中的警告標示】

● Please install each assembly component carefully.【小心安置各項安裝物件】

Important Safety Information 【重要安全資訊】

⚠ CAUTION
Before installation, please read below Safety Information. Wrong assembly way may hurt yourself and damage the assembly components. Please be sure to read and understand all Warning and Safety information. 【在開始之前請仔細閱讀以下安全注意事項。錯誤的安裝方式可能會傷害安裝人員及損傷物件。請確實閱讀並了解所有的警告及安全資訊。】

● Please make sure you have enough experience in assembling and disassembling for the different types of display, and understand the electronic properties of the components.

　　【必須對如何拆裝各種不同種類的顯示器有經驗且熟悉，並了解各部件的電子特性。】

● Please take off the items that may scratch the Sensor or the Display from you, such as watch, ring, necklace, and so on. In order to protect your safety and keep the components working correctly, wearing an anti-ESD wrist strap is necessary.

　　【請取下身上所有可能造成面板或顯示器刮傷的物品，如手錶、戒指、項鍊等。必需穿戴防靜電配件，以保護自身安全及各物件正常運作。】

● Avoid placing any foreign objects or connecting cables onto the Touch Sensor and Display.

　　【觸控面板及顯示器上方避免放置額外物品或任何連接線材。】

● Pay attention to the FPC tail creasing and routing, and do not try to use the tail to pick up the sensor.

　　【注意 FPC Tail 的轉折及布線方式，且勿直接以拉 Tail 的方式來拿取面板。】

Preparing Your Work Space 　【預備工作環境】

Preparing your work space will be described step by step in the following categories, respectively: **Protective Demand, Supplies Demand, and Tools Demand**. Please be sure to prepare your work space for good work efficiency.

【預備工作環境將由以下分類逐一說明：分別針對防護說明、耗材需求、及工具需求來做說明。為了良好的工作效率請確實預備工作環境。】

Protective Demand　【防護需求】

- A working space that make you feel comfortable.【一個讓你感到舒適的工作環境。】
- An anti-ESD wrist strap or gloves.【抗靜電手套或手環。】
- A working pad with anti-ESD function and good protection for collision.
  【具抗靜電及防撞功能的工作桌面。】

Supplies Demand　【耗材需求】

- Natural cleaner and soft wiper【天然清潔劑及軟布】
- Sealing Tapes【密封條】
- Double-side foam Tapes【雙面泡棉膠帶】
- Plastic washers or spacers【塑膠墊片】
- Electrical Tapes (for affixing the tail)【電工膠帶 (固定 Tail 用)】
- Container for holding loose parts (Sush as a paper cup) 【裝拆下來零件的容器 (如：紙杯)】

Tools Demand　【工具需求】

- Screwdriver【螺絲起子】
- Screws for the controller【控制器用螺絲】
- Knife【刀片】
- Mounting poles for the controller【控制器安裝用腳柱】
- Wire stripper【鉗子】

Open Your Container　【打開包裝】

Before your installation, please open the shipping container and check following necessary components for a complete installation.

【在執行安裝前，請打開裝運箱並檢查以下安裝用組件是否完整。】

- A capacitive touch sensor　【電容式觸控面板】
- A controller board for touch sensor【觸控面板控制器】
- Y-Cable (switch to USB or RS232 interface)　【Y 型轉接線(可切換 USB 及 RS-232 介面)】
- A Serial (RS-232) cable or USB cable【RS232 或 USB 線材】
- A CD-ROM (Include driver software and documentation.)【安裝光碟包含驅動程式及安裝文件】
- Extension cable (Optional)【延長線材（選購)】

The following components are necessary for your integration:【以下為安裝必須組件】

- A Danotech touch sensor【達諾光電觸控面板】
- A touch screen controller board【觸控面板控制器】
- Y-Cable【Y 型轉接線】
- Controller driver【控制器驅動程式】

Remove all tapes on the package, handle the touch sensor carefully, place it on a clean, anti-static pad, then remove the protective film and clean the touch sensor with natural cleaner and soft wiper.

【拆除包裝，小心的取出觸控面板，放置於乾淨且抗靜電的平面上，移除外觀保護膜之後使用天然清潔劑將其擦拭乾淨。】

CHAPTER 2 Installing Capacitive Touch Sensor

Installation Consideration 【安裝前的考量】

Confirm Your Work Space【工作環境確認】

Before installation, confirming following things is necessary for smooth installation:

【在開始安裝之前，為了讓安裝能順利進行，以下事情需要請您再次確認：】

● Please confirm if the workspace and the necessary tools are prepared completely, and refer to Chapter 1 **"Preparing your work space"** for detail.

【請確認是否已預備好工作環境和所需工具，詳細可參閱第一章「預備工作環境」。】

● Please connect the display and the sensor to the computer then turn on, for the sake of confirming if the components are working well, and without damage or shortage. Then remove the power plugs and the connecting cables.

【請將顯示器及觸控面板連接電腦後開啟，以確認各部功能是否正常、各組件是否有短缺或損壞。確認後請移除電源及連接線材。】

After confirmation, please follow below assembly steps to perform the installation.

【確認工作空間後，請依照以下流程進行安裝。】

Basic Mounting Procedure【基本安裝步驟】

Step1. Verify if the display and the sensor work correctly.【確認顯示器及面板功能正常。】

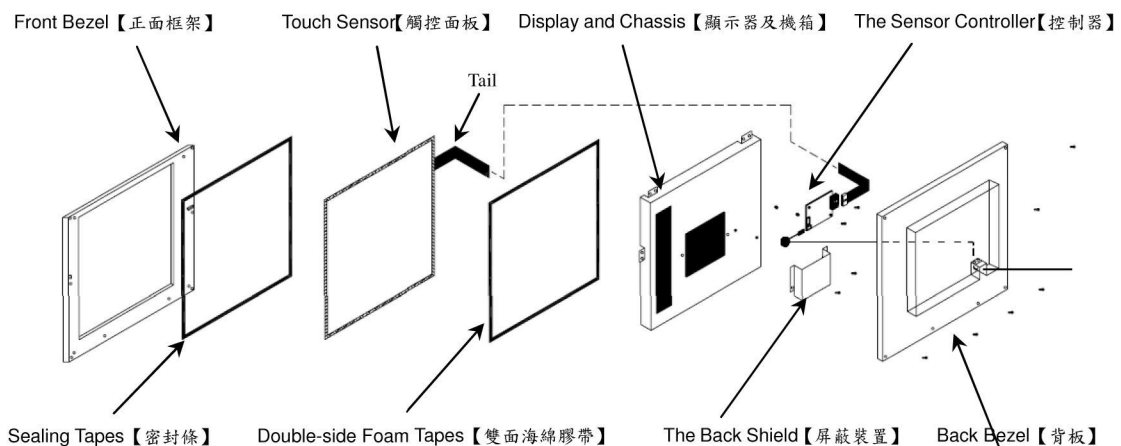**Step2.** Disassemble the bezel of the display.【拆除顯示器外框。】

Step3. Mount the sensor onto the display.【將面版安裝至顯示器上。】

Step4. Install controller.【安裝控制器。】

Step5. Connect the tail and the cable to the controller.【將 Tail 及連接線材接上控制器。】

Step6. Reassemble the bezel of the display and then connect to the computer.

【安裝顯示器外框後連接電腦。】

Front Bezel【正面框架】　　Touch Sensor【觸控面板】　　Display and Chassis【顯示器及機箱】　　The Sensor Controller【控制器】

Tail

Sealing Tapes【密封條】　　Double-side Foam Tapes【雙面海綿膠帶】　　The Back Shield【屏蔽裝置】　　Back Bezel【背板】

Important Note for the Components 【各組件注意事項】

Front Bezel and Sealing Tapes【正面框架和密封條】

⚠ CAUTION
Please do not use rubber containing the ingredient of sulfur as the sealing tapes. In high temperature environment, the sulfur will damage the reliability of silver trace somehow. 【請勿使用含有硫成分的橡膠作為密封條。在高溫環境中，硫會損壞面板銀路的可靠性。】

It is important for using Sealing Tapes to prevent dust, dirt, water, and particle. Normally, it's recommended to use Single-side Foam Tapes as the sealing tape. Please simply align and adhere the tape to the front bezel edge. The tape should contact the Sensor perimeter to ensure a good seal without touching the viewing area to avoid interference. Do not adhere the tape to the sensor surface. The gap between the Front Bezel and the Touch Sensor is important for good assembly. Especially, if the Front Bezel is metal or has conductive paint, please keep a proper distance to avoid interference from the Front Bezel. The optimal distance is 3~6mm for metal enclosures, but it is adjustable per your system design.

【使用密封條來避免灰塵，髒污，水，及小顆粒是很重要的。通常推薦使用單面的泡綿膠帶來當作密封條。請將泡綿膠帶簡單的對齊後貼在正面框架上。泡綿膠帶需接觸到面板的四邊且避免接觸可視區，以確保一個良好的密封又不會造成干擾。不要將膠帶貼在面板的表面。一個好的安裝，正面框架及觸控面板之間的距離是很重要的。特別是當正面框架的材質為金屬或導電漆，請保持正確的距離以避免來自正面框架的干擾。與金屬材質框架之間的最佳建議距離是3~6mm，但可依您的設計來做調整。】

Please mount the sensor directly to LCD. Avoid mounting LCD and sensor independently to a common bezel. The gap between the sensor and the LCD may be influenced, while the stresses are applied to the bezel. It may cause erratic operation and false touches.

【請直接將觸控面板安裝至顯示器上。避免將面板及顯示器個別安裝在一般的框架上。當壓力作用到擋板上時，面板及顯示器間的間隔會產生影響。這可能會導致操作不穩定及誤觸。】

Please avoid attaching the sensor to a door, if the display is attached to a cabinet for the same reason as above. If this cannot be avoided, do not operate the sensor with a partially open door. Upon closing the door, always reset the controller. It can prevent erratic operation such as jittery cursor and variable offsets.

【基於上述原因，如果顯示器是安裝在機櫃上，請避免將觸控面板安裝至開關的門上。若無法避免，請勿在門部分開啟時操作面板。當門關上時請重新啟動控制器。這可防止如游標抖動和偏移等操作不穩定情況。】

Touch Sensor and Tail Routing 【觸控面板及 Tail 路徑】

⚠ CAUTION

Please handle the touch sensor with care and avoid placing any foreign objects or connecting cables on the touch sensor. The tail is an electrical connection and not designed for high stress. Please take care with the tail when assembly. Do not bend the tail with constant stress and be sure it will not move freely after assembly.

【請小心的安置觸控面板,且避免放置額外物品或連接線材於面板上方。Tail 是一個電子連接端,並未被設計能承受高壓力。組裝時請小心 Tail,不要讓 Tail 有個固定應力折著 Tail,且確定組裝完成後 Tail 不會任意的移動。】

● If you need to remove the sensor for service, do not try to pry the sensor away from the display. You may break the glass and injure yourself or others.
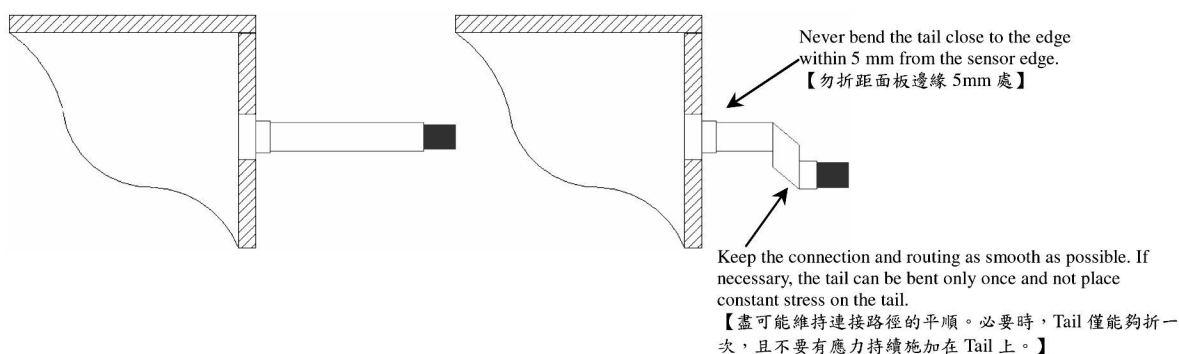
【若需移除觸控面板,請勿用撬開的方式,你可能會弄破玻璃而造成自己或他人受傷。】

● Never pick up the touch sensor by holding the tail. If necessary, the tail can be bent only once and not place constant stress on the tail. Never bend the tail close to the edge within 5mm from the sensor edge. Keep the connection and routing as smooth as possible.

【不要以拉起 Tail 的方式來拿面板。必要時,Tail 僅能夠折一次,且不要讓 Tail 有個固定應力折著 Tail。Tail 離面板邊緣 5mm 內務必不要折它。盡可能讓 Tail 連接與繞線方式能平順。】

● After assembling the touch sensor and display, affix the tail to the display chassis, and use Electrical Tape to fix Tail near the connector end to make sure the connection between Tail and controller is well. If necessary, the Tail can be extended by an optional extension cable. If extension cable is used, please always affix the cable and two ends of the extension cable to chassis by using Electrical Tape to prevent the unstable connection from shaking. In some application, unstable connection will affect the performance of touch. Never Route the Tail and the extension cable near the Backlight Inverter and Power Supply of the Display in order to reduce the EMI interference. Do not bend the extension cable with a sharp angle.
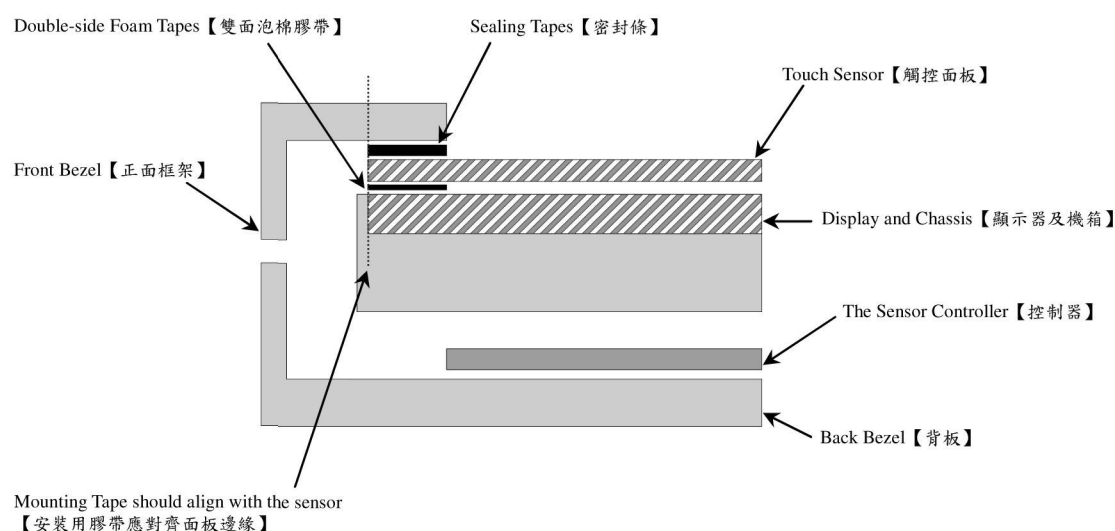
【完成組裝面板及顯示器後,將 Tail 固定於顯示器的底座上,並使用電工膠帶將 Tail 靠近控制器端固定好,以確保 Tail 及控制器間的聯接是完好的。必要時,可利用延長線來延長 Tail。若使用延長線,請利用電工膠帶將延長線以及延長線兩端固定於底座上,以確保不會因搖晃導致連接不穩定。在某些應用上,不穩定的連接將影響觸控的效能。為了減少電磁干擾,不要將 Tail 及延長線繞在靠近顯示器的背光變頻器及電源供應器上。勿將延長線彎折產生銳角。】

Never bend the tail close to the edge within 5 mm from the sensor edge.
【勿折距面板邊緣 5mm 處】

Keep the connection and routing as smooth as possible. If necessary, the tail can be bent only once and not place constant stress on the tail.
【盡可能維持連接路徑的平順。必要時,Tail 僅能夠折一次,且不要有應力持續施加在 Tail 上。】

Double-side Foam Tapes 【雙面泡綿膠帶】

The Touch Sensor must be mounted onto Display by Double-side Foam Tape. It will keep the Touch Sensor away from the Display metal frame to prevent electric interference. Please make sure the gap between the Sensor and the Display will not vary due to compression or expansion from touch forces or temperature changes. The foam tape should have a minimum thickness of 1.5mm. (3M VHB 4956 for recommended) to mount Touch Sensor on the Display for the optimal performance of the Touch Sensor.

【觸控面板必須使用雙面泡綿膠帶來安裝於顯示器上。觸控面板與顯示器的框架有些距離以避免電子干擾。請確保面板及顯示器的距離不會因觸控的壓力或溫度的改變，而產生壓縮或擴張。雙面膠帶的厚度最少要有 1.5 mm(推薦使用 3M VHB 4956)來組裝面板及顯示器以取得最佳的性能。】

Double-side Foam Tapes【雙面泡棉膠帶】　　　Sealing Tapes【密封條】

Touch Sensor【觸控面板】

Front Bezel【正面框架】

Display and Chassis【顯示器及機箱】

The Sensor Controller【控制器】

Back Bezel【背板】

Mounting Tape should align with the sensor
【安裝用膠帶應對齊面板邊緣】

Display and Chassis 【顯示器及底座】

⚠ CAUTION
Keep the display to be powered off when assembling and disassembling the touch sensor. There may be hazardous voltages present in the display. 【在組裝及拆開面板時，將顯示器電源持續關閉。顯示器上可能存有一個危險的電壓】

First, please check the condition of the display before you install the touch sensor into the display. If the display is working properly, please turn off the power, disconnect all cables and power plugs, and then disassemble your display for installation. 【組裝前確認顯示器狀況，若一切正常，請關閉電源，並將所有連接線材及電源線移除，拆除顯示器解準備安裝。】

● Keep all components in care after removing them from the display.

【妥善保存拆下顯示器後的組裝零件。】

● Avoid placing any foreign objects or connecting cables on the display.

【顯示器上方避免放置額外物品或任何連接線材。】

Touch Sensor Controller 【控制器】

● The controller supports USB & RS232 interface. Before installation, please make sure the interface is chosen and connected correctly.

【控制器提供 USB 及 RS232 兩種安裝介面，安裝時請確認安裝介面並正確安裝。】

● Avoid dropping or making a collision, and keep it dry. 【避免掉落或碰撞，並保持乾燥。】

The Back Shield 【屏蔽裝置】

If the back shield of the DISPLAY module is removed, please make sure to put back the back shield. It can protect the controller from electronic noise and get the best performance.

【若顯示器的屏蔽裝置被移除，請確定將其裝回。它能保護控制器不被電子噪音干擾以取得最佳的性能表現。】

Touch Sensor Care and Cleaning 【觸控面板的保護及清潔】

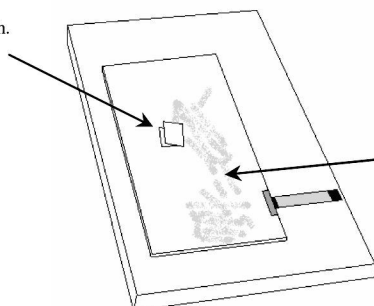| ⚠ CAUTION |
|---|
| Avoid placing any foreign objects or connecting cables on the touch sensor, and do not let any metal physically contact the front or sides of touch sensor and tail. This may induce an electrical field effect and confuse the controller.

【觸控面板上方避免放置額外物品或任何連接線材。不要讓任何金屬接觸到面板的正面及側邊，這可能會導致電場錯誤而使控制器混淆。】 |

● Ensure no any metal material or sand on the surface of the touch sensor before you start cleaning the touch sensor. Especially when you add pressure on a small material such as sand and then scratch the surface. This action always damages the touch sensor and unrecoverable.

【清潔面板前先確定表面沒有何金屬材質或沙質物品於面板上。特別是使用砂質材質在面板表面上用力刮，這時將會造成不可修復的損傷。】

● It's recommended to use an isopropyl alcohol and water solution ration of 50:50 for cleaning your touch sensor. Please use soft and lint-free cloth for cleaning purpose. Always dampen the cloth and then clean the sensor.

【建議使用 IPA(isopropyl alcohol 異丙醇)和水以 50 比 50 的比例來清潔面板。使用不掉毛的軟布來擦拭面板。將擦拭用軟布浸濕後再擦拭面板。】

Soft and lint-free cloth.
【不掉毛的軟布】

Use IPA and Water to clean the sensor.
【使用異丙醇及水來清潔面板】

Installing the Touch Sensor 【安裝觸控面板】

Disassembling the Display 【拆除顯示器】

⚠ CAUTION
Before disassemble the Display casing, the power must be disconnected and remove the pedestal. 【在拆除顯示器前，電源必須切斷且顯示器底座須先移除。】

Removing the Front Bezel【移除正面框架】

After removing the power and the pedestal, face down the Display on a pad with anti-ESD function and good protection for collision. Remove the screws from Display, and being sure to label them and put them into the prepared paper cup, then put them aside with the Front Bezel together.

【移除顯示器電源及底座後，將顯示器面朝下，放置於具抗靜電及防撞功能的墊子上。卸下顯示器上的螺絲，將螺絲標示清楚後放置於所預備的紙杯中，與卸下的正面框架至於同一處。】

Mounting the Sensor to the Display 【安裝觸控面板於顯示器上】

Step1. Apply the double-side foam tape around the Display surface. And then pull off about 5 mm of tape liner near one end of each side, but not tear off all. Fold the liner at 90 degree angle, not cut off the liner.

【將雙面膠貼於顯示器表面四邊。完成後撕下各邊膠膜約 5 公分的長度，勿全部撕下。將膠膜折 90 度但不要切斷】

Step2. After tearing off the protective film of the back side of the sensor, align the center of the sensor viewing area to the center of the display.

【將面板背面保護膜撕下後，對齊面板可視區的中心至顯示器的中心。】

Step3. Attach the Touch Sensor to Display carefully. Make sure it without dirt, dust, and particles between them, and align for the correct position.

【小心的連接面板及顯示器，確保兩者當中沒有任何灰塵及髒污顆粒，然後對齊在正確的位置上。】

Step4. Slowly pull out the remained liner of the double-side tape each side after holding the sensor in place.【將面板用手固定後，緩慢的將四周的雙面膠膜撕下。】

Step5. Press firmly down each side of the sensor, make sure the sensor are adhered to the display completely .【用力按下面板四周，確認面板及顯示器已完全連接。】

Step6. Use natural cleaner and soft wiper to clean the Touch Sensor.

【用天然清潔劑及軟布來清潔觸控面板。】

⚠ CAUTION

The tape should not form a full seal. Preserve 1-2 mm gaps at the corners for ventilation to avoid damaging the Display with temperature and pressure equalization issues.

【雙面膠不是完全的密封。在顯示器的角落預留 1-2mm 的距離通風，為了避免因溫度及壓力平衡問題而破壞顯示器。】

Preserve 1-2mm gaps at the corners.
【於角落預留 1-2mm 的距離。】

Preserve 1-2mm gaps at the corners.
【於角落預留 1-2mm 的距離。】
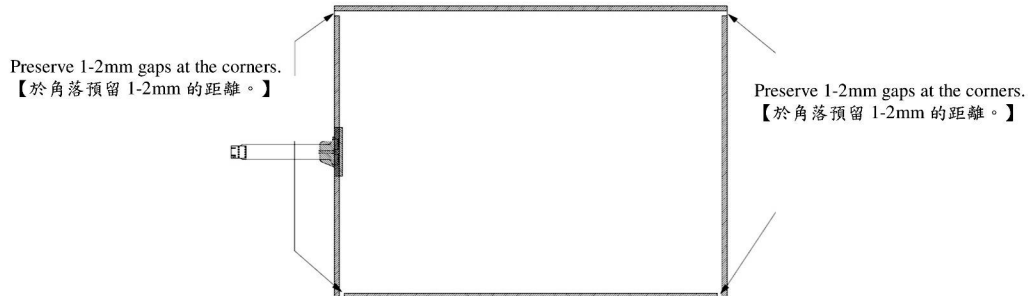
⚠ CAUTION

If you need to remove the sensor for service, do not try to pry the sensor away from the display. You may break the glass and injure yourself or others.

【若需移除觸控面板，請勿用撬開的方式，你可能會弄破玻璃而造成自己或他人受傷。】

CHAPTER 3 Installing the Touch Screen Controller

Controller Outline Dimension 【控制器外觀及尺寸】
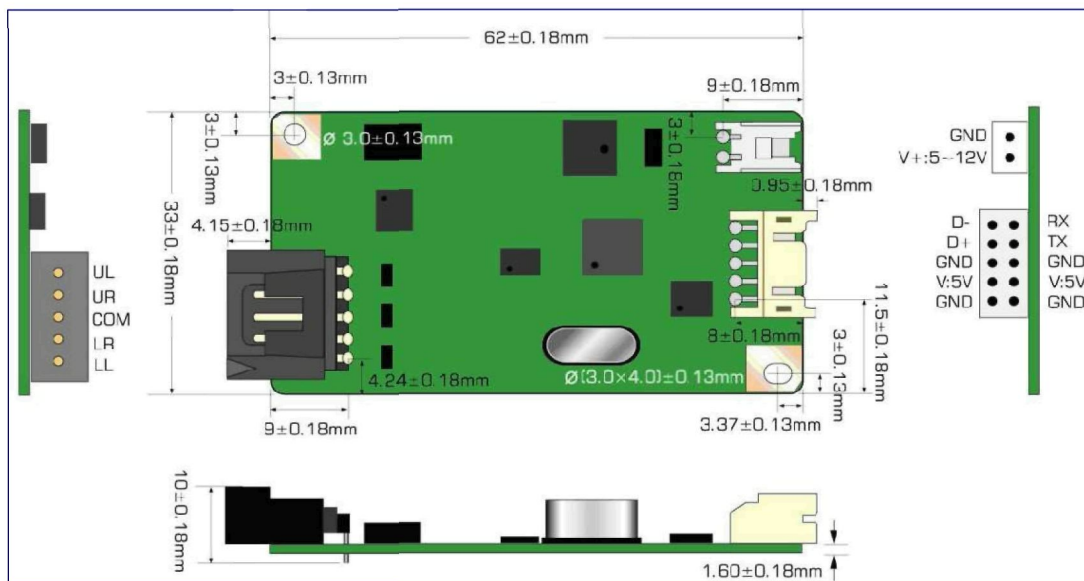
Controller Specifications 【控制器的規範】

Circuit Board Dimension	62mm x 33mm (2.445inches x 1.299inches)
Power Requirements	D.C.+5V, external 5~12V unregulated power (Maximum 65mA, typical 55mA, 50mV peak to peak maximum ripple and noise)
Operating Temperature	-40 to 80 ℃
Interface	Bi-directional RS-232 serial communication USB: 2.0 compliant
Protocol	RS232:No parity,8 data bits,1 stop bit,9600 baud (N,8,1,9600) USB: Full Speed, USB 2.0 compliant
Resolution	2048×2048
Report rate	Adaptive Sampling Rate. Max. 180 points/sec
Response time	Max. 25 ms
Electro-Static Discharge (ESD)	Contact: 8KV / Air: 27KV

Completing Controller Mounting 【完整安裝控制器】

Positioning Your Controller 【將控制器定位】

Before installing the controller, please wear Anti-ESD wrist strap first. Make sure that there is enough internal space for accommodating touch panel controller. Choose a proper location for the controller on the back side of the LCD chassis. Determine the positions of the controller mounting holes. Drill at least two mounting holes and tap the holes for mounting screws. Choose proper length of poles for the electrical isolation between the controller and the LCD chassis.

【安裝控制器前，請戴抗靜電手環。確認內部有足夠的空間可放置觸控面板控制器。於顯示器的機箱後部選擇一個適當的位置來放置控制器。確認控制器的安裝孔位置，至少鑽兩個安裝孔用於安裝螺絲。在控制器與顯示器機殼間使用適當長度的螺柱以作為電絕緣隔離。】

| ⚠ CAUTION |
| --- |
| Ensure the controller board is proper grounding to the chassis with the mounting screws. This can provide a stable reference voltage for controller and prevent from ESD shock. |
| Do not positioning the controller near the backlight inverter or LED power supply. |
| 【確定控制器透過安裝螺絲正確的接地於顯示器機殼。這能夠為控制器提供穩定的電壓及避免靜電衝擊。不要將控制器安排在靠近背光變頻器及顯示器電源供應處。】 |

Interface Selection 【介面選擇】

Upon your selection of computer/controller interface (RS232 or USB), simply connect the cable (RS232 or USB) to the proper interface of the Y converter cable.

【根據你所選擇的**電腦/控制器**介面(RS232 或 USB)，正確的將連接線材連接至 Y 型轉接線上所對應的介面即可。】
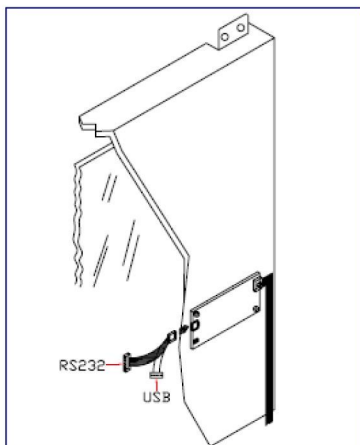
Controller Mounting Steps 【控制器安裝步驟】

Step1. Secure the controller onto the back side of the LCD chassis by using proper size screws.

【使用合適尺寸的螺絲將控制器牢固的安裝於顯示器機殼背面。】

Step2. Reconfirm controller interface selection (RS232 or USB).

【再次確認所選擇的控制器介面（RS232 或 USB）。】

Step3. Connect the tail of touch sensor to the locking connector on the controller, and affix the tail to the chassis of LCD panel by electrical tape. Be aware not to bend the tail more than once as mentioned earlier.

【將觸控面板的 Tail 連接至觸控控制器的固定連接器上，並使用電工膠帶將 Tail 黏貼至顯示器機箱上。如先前所提及，小心不要折 Tail 超過一次以上。】

Step4. Connect your Serial or USB cable to the controller and route the other side of cable out of the rear case, and then secure the cable to the case.

【將你所選擇的連接線材連接至控制器，並理線將線材的另一端繞線繞出 LCD 背板外，之後將線材固定到機殼上。】

Step5. Test your touch controller by connecting the interface cable to your computer. For serial type controller, connect both PS/2 and RS232 cables to the PS/2 port and RS232 port on your computer respectively. For USB type controller, use a USB cable to connect the controller with your computer. After the connection, the LED light on the controller should keep blinking.

【將連接線材接到你的電腦上，測試控制器。串聯型介面(RS232/PS2)，控制器可分別連接 PS/2 及 RS232 連接端至你的電腦上。USB 型介面，控制器使用 USB 連接線來與你的電腦連接。完成連接後，控制器上的 LED 燈會持續閃爍。】

Step6. Reassemble the LCD panel and rear cover.

【將顯示器面板及背蓋安裝回去。】

⚠ CAUTION
It will interfere the controller if you change the assembly when the controller is under working, for example, changing the distance between sensor & front bezel, or changing the distance between sensor & LCD, or attaching metal front bezel onto sensor, or mounting sensor onto the LCD, and so on. If you have done something mentioned above, especially in testing phase, you will sometimes experience poor performance of Touch Screen. In this case, please reboot the controller to make everything back to normal situation. An easy way to reboot the controller is to re-power on the controller (for example, re-plug the USB cable connecting controller with host system). 【若控制器運作中改變組裝，會干擾控制器，例如，改變 sensor 與前框的間距、改變 sensor 與 LCD 之間的間距、把金屬前框放到 sensor 上、將 Sensor 放到 LCD 上、…等。如果你已做了上述某些事項，尤其是測試階段，那麼有時候你會感受到 sensor 效能不佳。若有上述情形發生，請重新啟動控制器即可恢復正常。一個簡單的重新啟動控制器的方法就是重新 power on 控制器，譬如重新插拔連接控制器與主系統的 USB 線】

Turning on Your System 【開啟系統】

Make sure all cables and screws are connected properly and fixed. Then turn on your monitor and computer.

【確認所有的線材及螺絲皆正確的連接及固定後，開啟螢幕及電腦。】

● For most operation systems today, it should find a new device automatically and have a basic function for operation.

【目前大部分的作業系統，應該都可自動偵測到新的設備並能做基本的操作。】

● When we touch the touch screen, the LED light on the touch screen controller will have a corresponding signal light.

【當我們觸摸觸控面板時，控制器上的 LED 燈會出現一個相對應的信號燈。】

● If we may find a new device on the operation system, we can make sure that the device is connected well.

【如果我們可以在作業系統中找到新增設備，便可確定設備已連接完成。】

● For the next step, we need to install the correct driver for the new device, touch controller device.

【為了接下來的步驟，我們需要為新設備的控制器安裝正確的驅動程式。】

Congratulation! You successfully installed the touch controller and connected the touch screen to your computer. You are now ready for the final task.

【恭喜你！已經成功安裝控制器並將觸控面板與電腦連接。現在要準備最後的任務。】

Installing Software 【安裝驅動程式】

Danotech provides user the following operating systems for touch panel system.

【達諾光電提供使用者以下作業系統來安裝觸控面板系統。】

● Windows 95 / 98 / ME / NT4 / 2000 / XP / XP Tablet PC Edition / Vista / 7 / 8 / 8.1
● Embedded XP
● Windows CE 2.12 / 3.0 / .NET / 5.0 / 6.0
● Linux RedHat / Fedora / Mandrake / SuSe / YellowDog / Debian / Ubuntu (up to kernel 2.6)
● iMac. OS9.x / OSX
● MS-DOS

Please install your driver and application according to User's Manual in the CD-ROM.

【請依照安裝光碟中的用戶手冊來安裝你的驅動程式及相關應用軟體。】

Calibrating the Touch Screen 【校正觸控螢幕】

| ⚠ CAUTION |
| --- |
| Please make sure all cables are connected properly and the controller is connected to the computer correctly. If all cables have been connected correctly but the touch does not response, please re-plug the cable connecting between computer & controller to make host system re-detect the controller.

【請確認所有線材正確接好且控制器正確連接到電腦。若線材已經正確連接好但觸控沒反應，那麼請重新插拔連接電腦電腦與控制器的連接線材以讓主系統可重新偵測控制器。】 |

We provide the functions list below for calibration and linearization. Calibration aligns the touch sensor with the underlying monitor and defines the dimensions and directions of the image areas. The Linearization function is used to compensate the touch screen linearity. After linearization is completed, the linearity of the touch screen will be shown in the Linearity Curve window. In drawing test window, users can verify the panel linearity, calibration capability, and drawing line quality.

【我們提供下列功能來進行校正及線性補償。四點校正用來對齊觸控面板及顯示器，並且定義顯示區域的尺寸及方向。線性補償功能是用來補償觸控螢幕的線性表現。完成線性補償後，觸控螢幕的線性表現將會顯示於線性曲線視窗中。在手繪測試視窗裡，使用者可以驗證該面板的線性表現，校正能力，及劃線的品質。】

4 points calibration 【四點校正】

It needs calibration before the touch screen can work accurately. Whenever the user feel the accuracy lost, user can do calibration again to get a more accuracy touch function. Pressing this button, a new window will be popped-up at the location when the touch screen was mapped to area for this touch system to guide the user do 4 points calibration. User should follows the guide to touch and hold the blinking symbol in the calibration window until it shows "OK" to make sure that the utility can gather enough data for computation.

【要讓觸控面板準確的運作，執行校正是必須的。當使用者感到觸控失去準度，便可再次進行校正以取得準確的觸控功能。按下校正按鈕，觸控面板所對應的位置區域將會彈出一個新的視窗來引導使用者完成觸控系統的四點校正，使用者應依照指示觸摸並按住校正視窗中的閃爍符號，直到顯示「OK」，以確保該工具能取得足夠的數據來進行校正運算。】
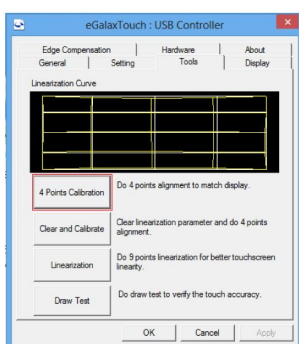
Clear and Calibration 【清除並校正】

Press this button to erase the 25 points calibration/linearization parameters and force user to do 4 points calibration again. After 25 points calibration/linearization data was clear, the 4 points calibration data will be invalid. It needs to do 4 points calibration.

【按下此按鈕以清除二十五點線測及校正參數讓使用者能再次執行四點校正。完成清除資料後原本的四點校正資料將會無效，需重新執行四點校正動作。】

Linearization 【線性補償】

Linearization (9 or 25 points calibration) function is used to compensate the touch screen linearity. After linearization completed, the linearity of the touch screen will be shown in the Linearity curve window. Pressing this button, a new window will be popped-up at the location when the touch screen was mapped to area for this touch system to guide the user do 25 points calibration. User should follows the guide to touch and hold the blinking symbol in the calibration window until it shows "OK" to make sure that the utility can gather enough data for computation.

【線性補償功能（九點或二十五點校正）是用來補償觸控面板的線性。完成線性補償後，觸控面板的線性曲線將會出現在曲線視窗中。按下按鈕，觸控面板所對應的位置區域將會彈出一個新的視窗來引導使用者完成觸控系統的二十五點校正，使用者應依照指示觸摸並按住校正視窗中的閃爍符號，直到顯示「OK」，以確保該工具能取得足夠的數據來進行校正運算。】

Draw Test 【手繪測試】

This function is used for accuracy and performance check. Press this button and a new pop up window will be popped up in the location where the touch screen was mapped to the touch system as below,

【此項功能是用來確認準確度及性能。按下按鈕，觸控面板所對應的位置區域將會彈出一個新的視窗，如下圖。】
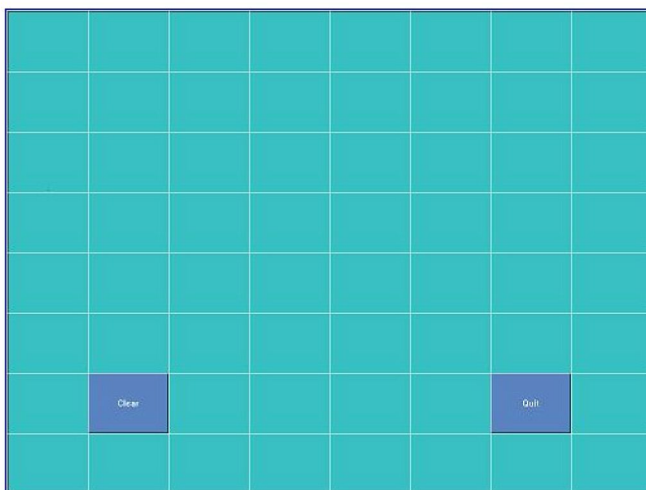
User can press the 'Clear' button to clear the window. Press 'Quit' button to terminate this draw test.

【使用者能按下清除鍵來清除視窗畫面。按下離開鍵可結束手繪測試。】

CHAPTER 4 Touch Screen Application Considerations

Electrical Field Effect 【電場影響】

Any electrical devices that generate electrical fields can cause problems. Such as inverters inside the LCD monitor or radio transmitters from the environment.

【任何會產生電場的電氣設備可能會造成問題。像是顯示器中的變頻器或是環境裡的無線電發射器。】

Metal Enclosures 【金屬外殼】

- It's strongly recommended to use plastic bezel for application consideration. Some plastic bezels with conductive paint could act as a metal bezel. If your current product has a metal bezel, make sure it does not directly contact the front or sides of touch sensor.

  【我們強烈建議在應用的考量上使用塑膠膠框。部分塑膠膠框塗的是有導電性的塗料，此應視為金屬膠框。若您目前的產品已使用金屬膠框，請確保它沒有直接接觸觸控面板的正面或側面。】

- The metal bezel should be appropriately grounded and very rigid. Use insulating tape or gasket as a spacer. For metal enclosures or bezels the gap to the touch sensor at least need 3~6mm.

  【金屬膠框需確實且適當的接地。使用絕緣膠帶或襯墊來做為墊片。金屬外殼或膠框至面板的間距至少需要 3~6mm。】

- If there is a metal door and sometime needs to be open/close. The stray capacitance might be changed and a reset sequence will start for few seconds. If your touch device is designed for outdoor use, we recommend you to make a bevel design in the front bezel below/around the touch area for the sake of avoiding rain water staying here to affect the performance of the touch.

  【若機構有金屬門，且有時候需要被開啟或關閉。雜散電容可能會改變而控制器的重啟程序需要幾秒鐘來進行。若您的觸控裝置是設計來用於戶外使用，我們很建議在觸控區域下方或四周的前框作斜角設計，以避免因雨水停留於此而影響觸控的性能。】

# CHAPTER 5 Capacitive Touch Panel Controller

In order the check the clear original linearization of the touch sensor, we need to clear the compensation of the controller.
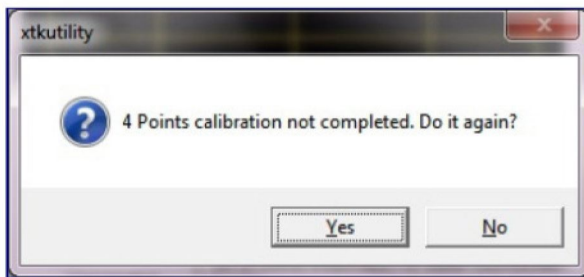
Step 1: Follow the actions as below:

[eGalaxTouch] -> [Tools] -> [Clear and Calibrate]
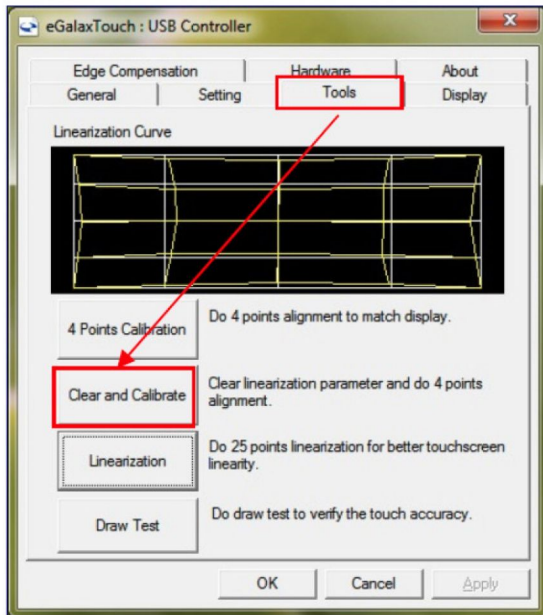
Step 2: [Clear and Calibrate] : This button will force the controller to clear the linearization parameter and do 4 points calibration. Please press [ESC] on the keyboard and do not finish the calibration.
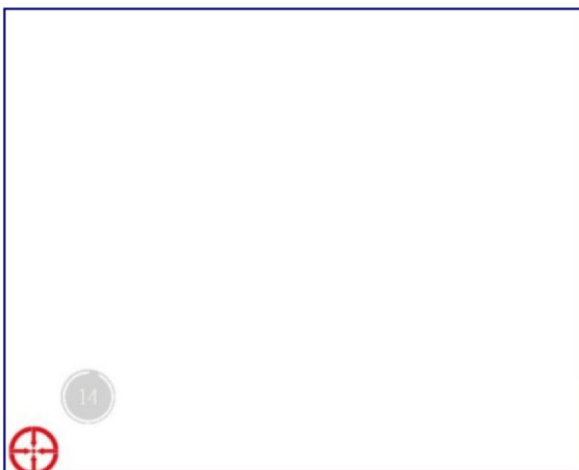
Step 3: Press [No] and close the window as below.

Step 4: We may find the linearization Curve was reset and there is no any compensation now.
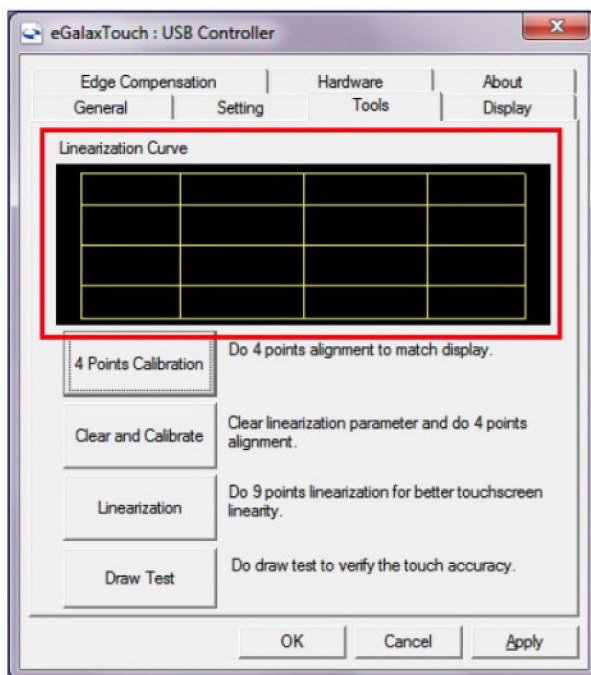
Step 5: Follow the actions as below:
[eGalaxTouch] -> [Tools] -> [Draw Test]

Step 6: Draw a line (red line in the picture below) along the touch sensor and we may have a result such as the picture below. If the rectangle is proportion to the monitor, it means the linearization of the sensor is fine. Furthermore, we know the connection between the touch sensor and the controller is fine through this test.
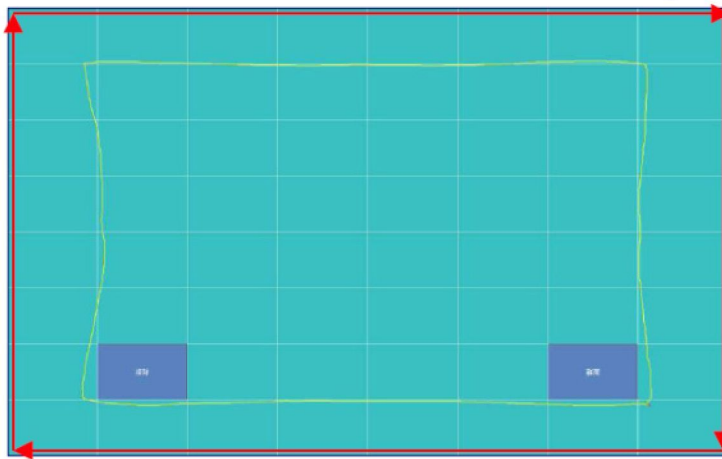
Step 7: Calibrating the touchscreen

Linearization (9 or 25 points calibration) function is used to compensate the touch screen linearity. After linearization completed, the linearity of the touch screen will be shown in the Linearity curve window.
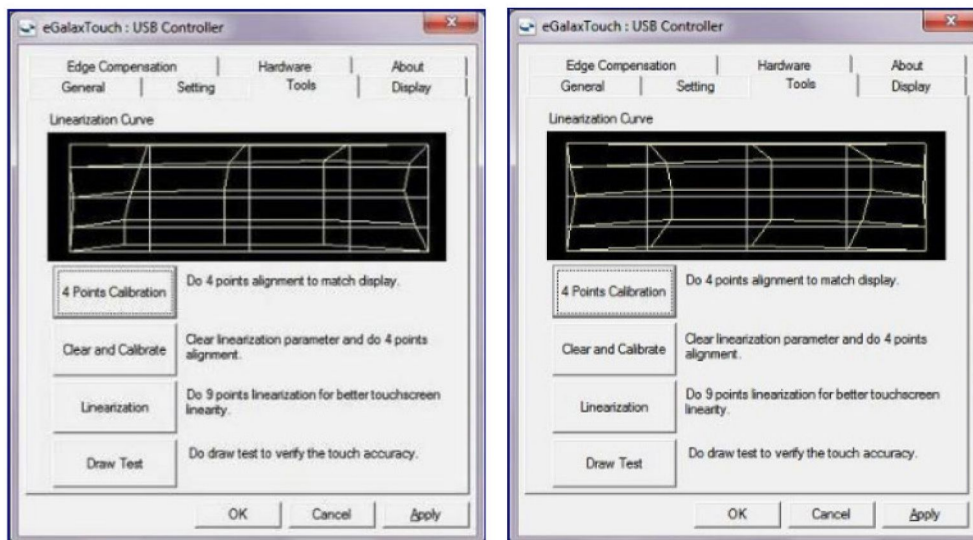
Step 8: Do 25 points linearization and check the result.

Check if the yellow line and white line overlap. There will not be far and only a small gap between them.
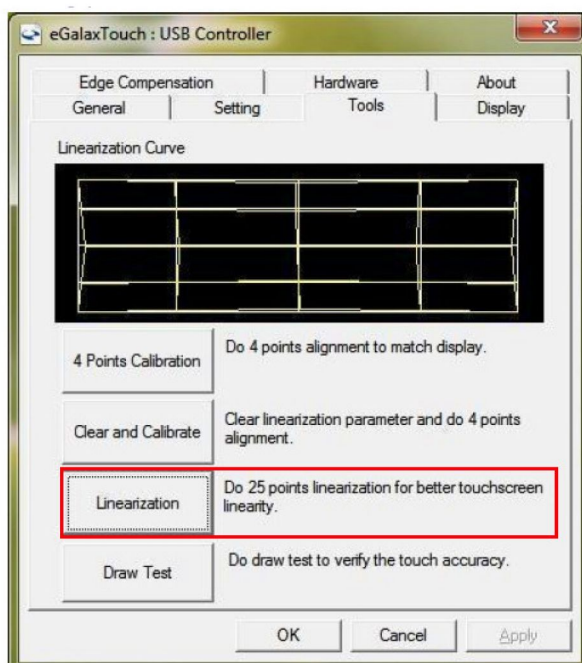
Examples for bad linearization curve

If you find the linearization curves are abnormal as described below. It 's meant sensor have problem.

Touch failure or does not work properly might contributed by following reasons:

1. Integration or cable connection:

    1.1 Usually front bezel of touch monitor crossover active region of touchscreen will cause constant touch on edge.

    1.2 Bad contact of internal cables for touchscreen, controller, and connector PCB, or external USB/RS232 cable between touch monitor and PC.
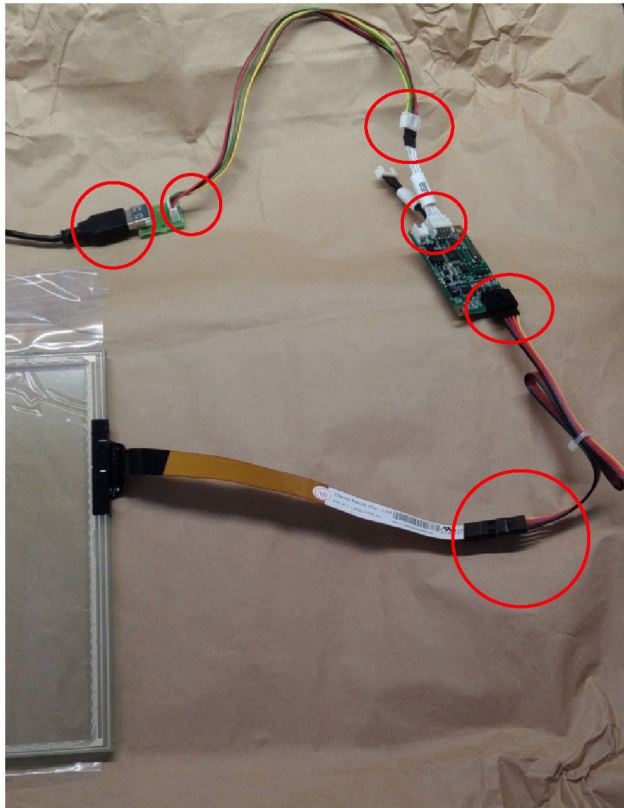
    1.3 USB cable supply 5Vdc +/- 5% to controller from PC side, the power consumption of controller is about 65mA maximum, if USB cable length too long made voltage drop or signal attenuation then touch will not work properly.

   1.4 Serial RS232 controller requires 5Vdc supply by touch monitor internally.
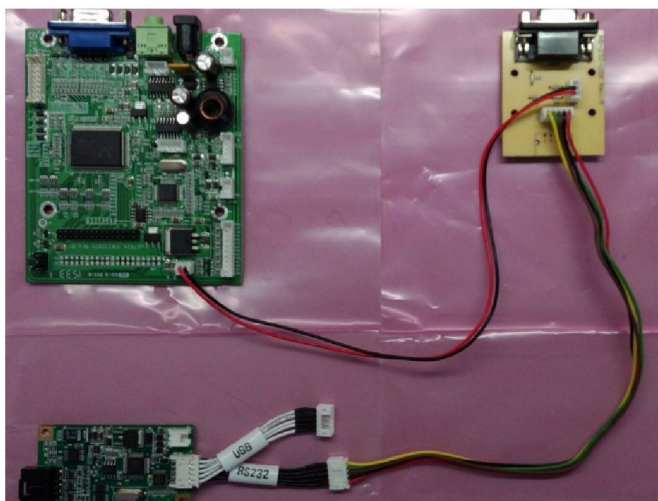
2   Software:

It's better to uninstall other touch driver completely before install resistive touch one. Touch driver/tool does not installed properly or confliction with others will cause touch malfunction. Make sure install proper driver for specific controller, mostly installed EETI ESCAP7000 controller with SCT touchscreen.

3   Touch controller:

3.3 When touch driver tool install in system, for example, most of resistive touch will install eGalaxtouch of EETI, when touch connect to PC via USB or RS232, the tool will show touch device (USB or RS232) and in device manager of Windows OS, in "Mice and other pointing devices" will show "Touch Screen Controller (Universal)" or "Serial Touchscreen Controller (ComBus)".

3.4 Without touchscreen connect to controller, normally with controller connect to PC only can run calibration function of touch tool. If controller can run to "4 Points Calibration", and by "Clear and Calibrate" then escape the job the "Linearization Curve" will be cleaned to default, that means controller is normal, otherwise failure of controller.
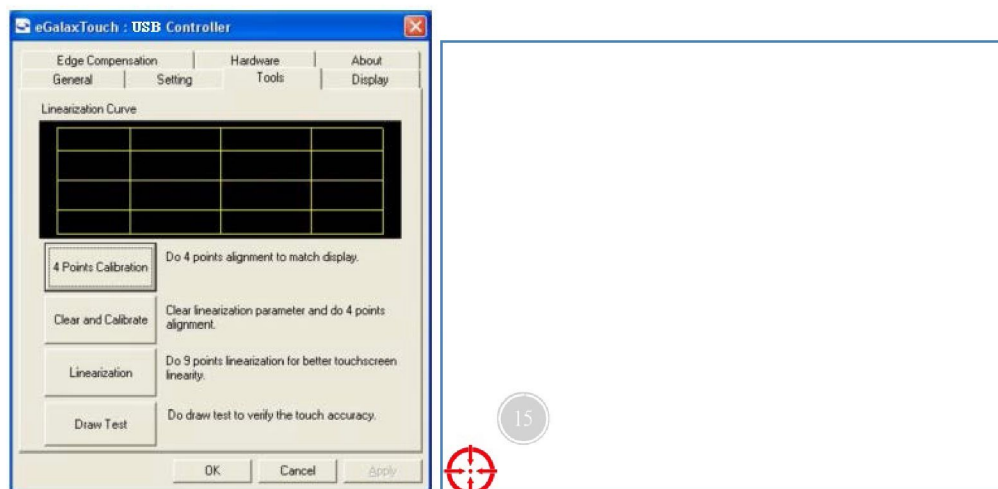

3.5 The LED indicator of controller will light on immediately to response to user point touch on touchscreen.

4 Touchscreen issues:

4.1 Bad linearity:

First run "clear and calibrate" and set parameter to default in tab of "edge compensation", and then do 25 points "linearization", make sure the "Linearization Style" set at "25 points" in tab of "Setting". The following picture shows touchscreen failure pattern after linearization.
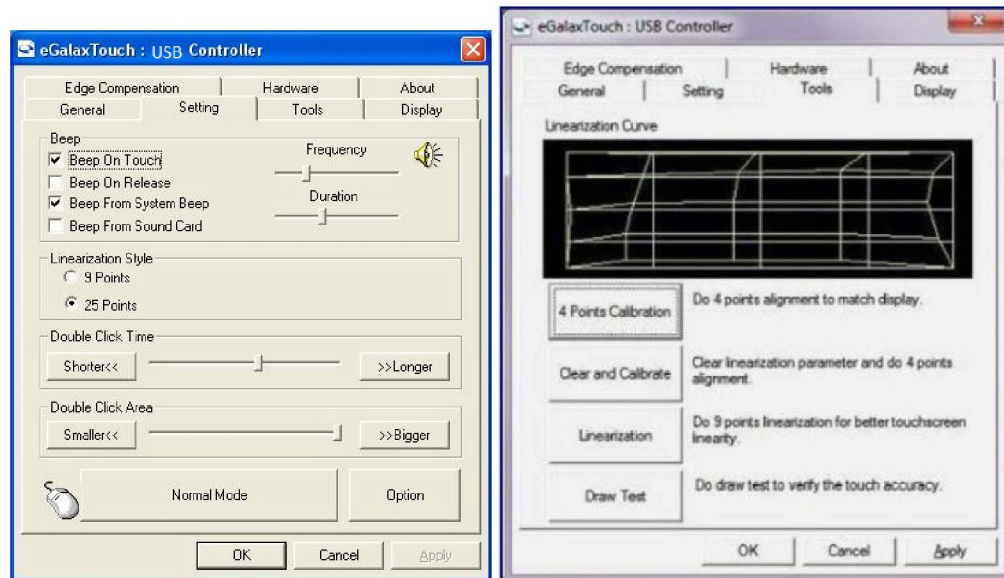
4.2 Large offset:

First run "clear and calibrate" and set parameter to default in tab of "edge compensation", make sure the "Linearization Stylus" set at "25 points" in tab of "Setting" and then do 25 points "linearization". The following picture is normal graph after doing linearization. 1 % offset of diagonal active region length on touchscreen is acceptable.
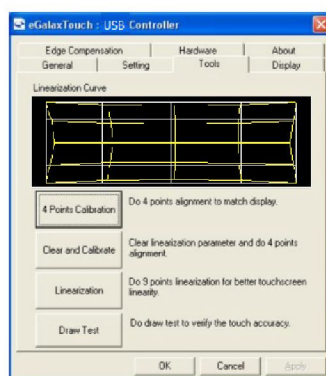
5 Tip for troubleshooting

If you have good cable, controller or touchscreen, by replacement will be quick method to diagnosis failure part.

6   Note

6.1 Please refer to touch maker's installation guide. It's important in gap between touchscreen, LCD panel and user's front bezel. Grounding and isolation both are important factors in installation.

6.2 Please refer EETI controller troubleshooting guide.