NovoPointer

Table of Contents

Legal Notice 1
General Caution 2
1 Introduction 3
1.1 Accessories of NovoPointer 3
1.1.1 Installing CHANGEABLE TIPS 4
1.2 Connecting Projector to PC 4
1.3 Pen Action 5
2 Installing NovoPointer 6
2.1 Installing NovoPointer on your PC (Windows) 6
2.2 Installing NovoPointer on your PC (Mac) 9
3 Calibration 13
3.1 Screen Preview 13
3.2 Calibration 14
3.3 Others 15
4 Trouble Shooting 16
5 DT02 Multi-touch Interactive Module (Optional) 18
5.1 Accessories of DT02 18
5.1.1 Installing CHANGEABLE TIPS 19
5.1.2 About DT02 Multi-touch Interactive Module 20
5.2 Screen Board Requirement 21
5.2.1 Shape of Screen board vs Laser curtain 21
5.2.2 Screen board curvature requirement 21
5.3 DT02 System Configuration 22
5.3.1 Beamed Screen Position 22
5.3.2 Mounting Method of DT02 Multi-touch Interactive Module 23
5.3.3 Connecting DT02 24
5.4 Laser curtain characteristics 25
5.4.1 Fan angle of laser curtain 25
5.4.2 Laser curtain position on the screen board 25
5.4.3 Laser Curtain Alignment Principle 26
5.5 Laser curtain alignment 27
5.5.1 Alignment view of laser curtain 27
5.5.2 Using Alignment Mask 28
5.5.3 Laser curtain alignment process 29
6 Specifications 31
7 Trouble shooting 32
7.1 Cannot operate as a mouse and draw by connecting to a computer 32
7.2 The message and error occurred in the Interactive function. 32
7.3 The IR Pen does not work 32
7.4 The cursor does not move to the next position 32
7.5 The cursor moves automatically. 32

Legal Notice

Copyright @ Vivitek Corporation. All Rights Reserved.

The contents of this manual can be changed for product enhancement.

Part of or all of this manual cannot be changed or transmitted to other parties without permission of Vivitek corporation.

Information of Novo Interactive Tools

For latest information and software, please contact local sales representative.

General Caution

The Interactive feature is precisely designed by optical unit. Do not to hide the mirror camera. **The Interactive function is operated by infrared 850nm communication**. Note below points when using this function.

Do：

- ★ Make sure there is no strong light or sunlight shining on the Interactive camera receiver or the projection screen.
- ★ When install the projector, make sure the Interactive camera receiver is not too close to fluorescent lights.
- ★ The Interactive camera may be interrupted by electromagnetic interference from nearby equipment (such as electric motors or transformers).
- ★ Clean the front surface of the Interactive camera regularly and prevent dust from interfering interactive functionality.
- ★ Use only lens cleaning paper to clean the glass of the Interactive camera.
- ★ Calibrate after operating Projector Keystone.

Do not：

- ★ Paint or put any stickers on the Interactive camera receiver.
- ★ Use an infrared remote control or infrared microphone in the same room because the IR Pen may malfunction.
- ★ Keep in locations where the pen may get wet. The IR Pen is not waterproof.
- ★ Bend the pen tip of the IR Pen, and make sure the pen tip does not get damaged. Otherwise, the IR Pen may not work.
- ★ Press IR Pen heavily while writing. Use smoothly as you draw on whiteboard with a marker pen.
- ★ Drop the IR Pen. IR Pen may malfunction.

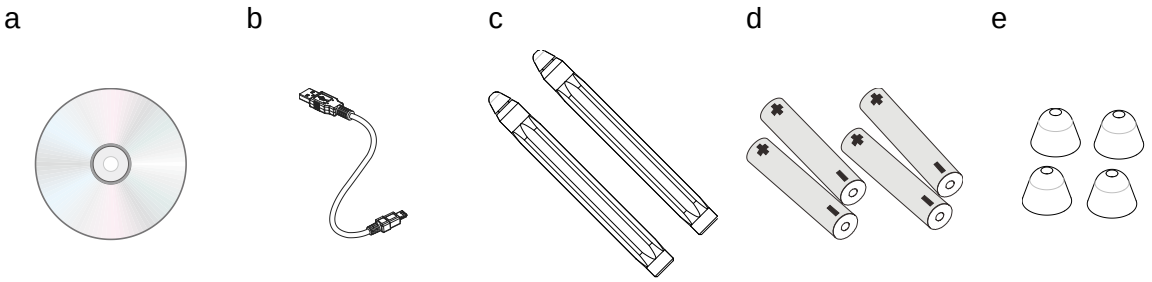
1 Introduction

1.1 *Accessories of NovoPointer*

NovoPointer is a calibration tool for built-in Interactive Whiteboard on the Projector. To use the NovoPointer correctly, please find necessary accessories and follow the instructions in this manual.

In the projector box, you will find the following accessories.

Note : Pens Box included “c”, “d” and “e” inside.



a. Installation CD: CD contains NovoPointer, NovoScreenote and User manuals.

b. 5 meter USB Cable: Type A to mini USB cable for connecting the Projector to PC.

c. IR Pen: IR Pen is a pen type wireless mouse. Before using the pen, insert batteries correctly.

d. Battery: AAA size battery.

e. Extra Pen Tip: 4 extra pen tips included

Caution:

When inserting battery into the IR Pen, make sure the battery polarity is correct.

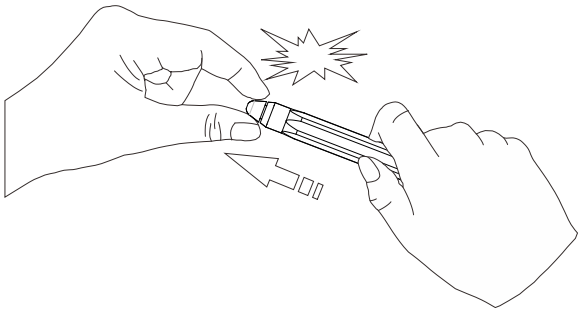
1. Only use AAA batteries (Alkaline batteries are recommended).

2. Dispose of used batteries according to local ordinance regulations.

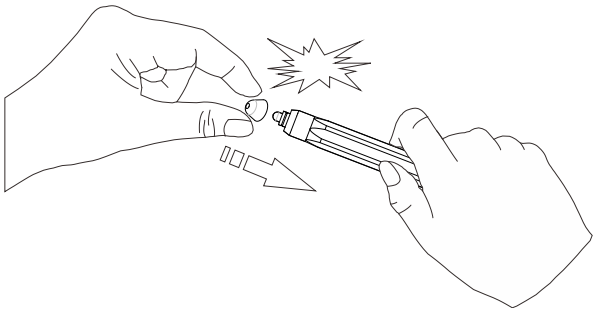
3. Remove the batteries when not using the IR pen for prolonged periods.

1.1.1 Installing CHANGEABLE TIPS

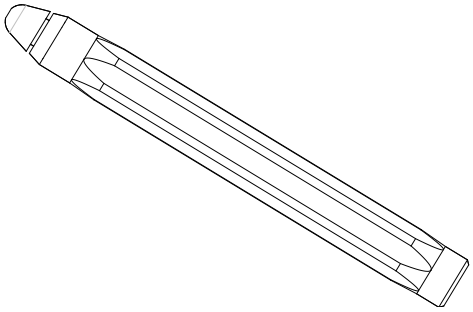
Clenched and forced to pull out the tip.



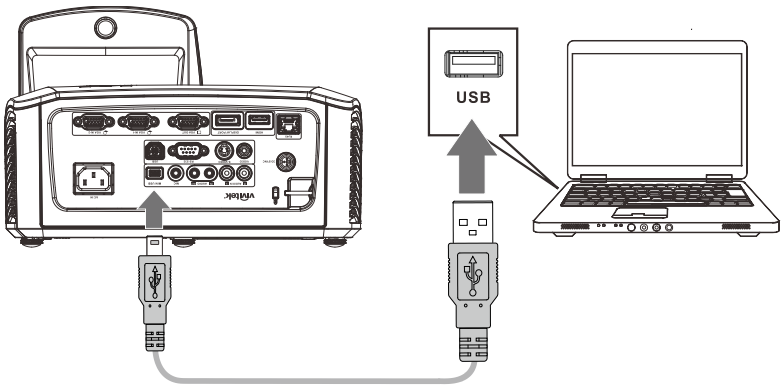
Installing a new Pen Tip until you feel it click with Pen.



Complete the replacement tip.



1.2 *Connecting Projector to PC*



***Note*：**
In the accessories, a 5m USB cable is provided. If more than 5 meter USB cable length is required, then use repeater cable to extend the USB cable length.

1.3 *Pen Action*

IR Pen provides four actions, Click, Double Click, Right Button Click and Drag.

Click	: Touch an icon or a menu on the screen.
Double Click	: Touch an icon or a menu on the screen twice.
Right Button Click	: Touch an icon or menu 2 seconds.
Drag	: Touch and drag an object on the screen

2 Installing NovoPointer

2.1 *Installing NovoPointer on your PC (Windows)*

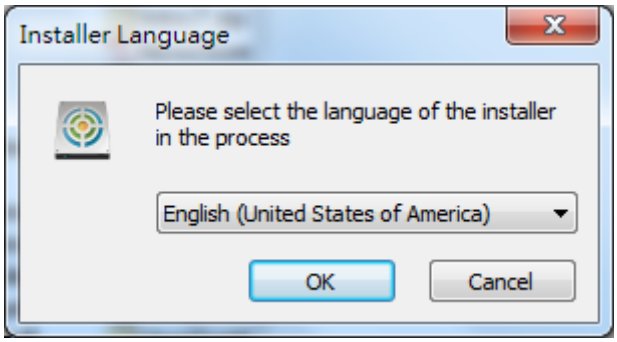
The installation wizard guides you through the NovoPointer setup process on your computer.

To start the installation, follow these steps:

a. Insert Novo Interactive Tools CD into the CD-ROM drive.

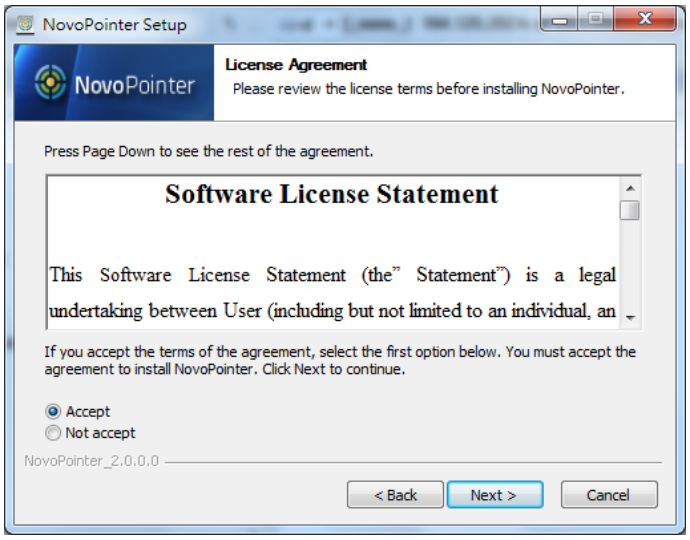
b. Click “Install NovoPointer” and follow the screen prompts.

c. Select your preferred language. Click OK to proceed.

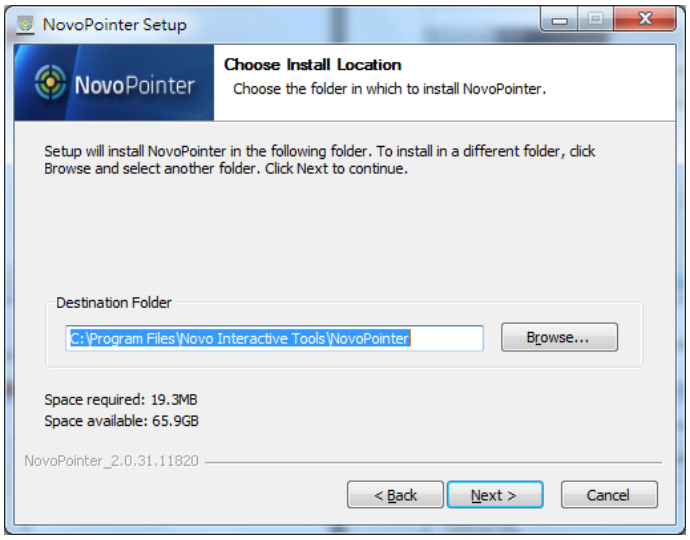


d. Close all other applications and click Next to proceed.

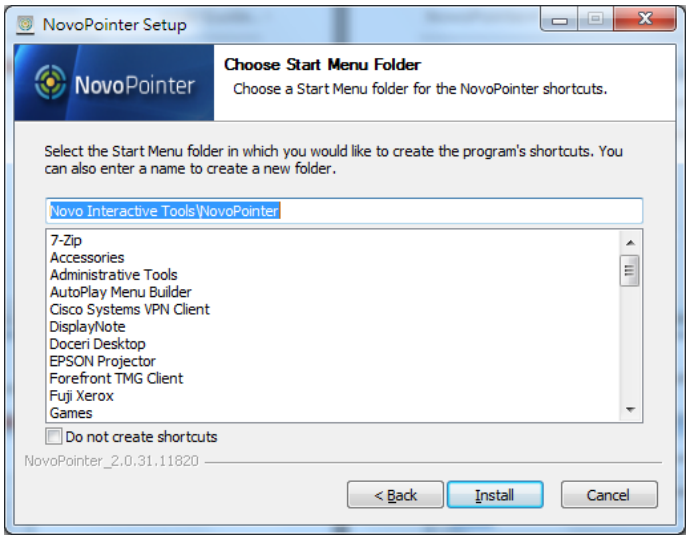
e. Read the license agreement and select Accept then click Next to proceed.



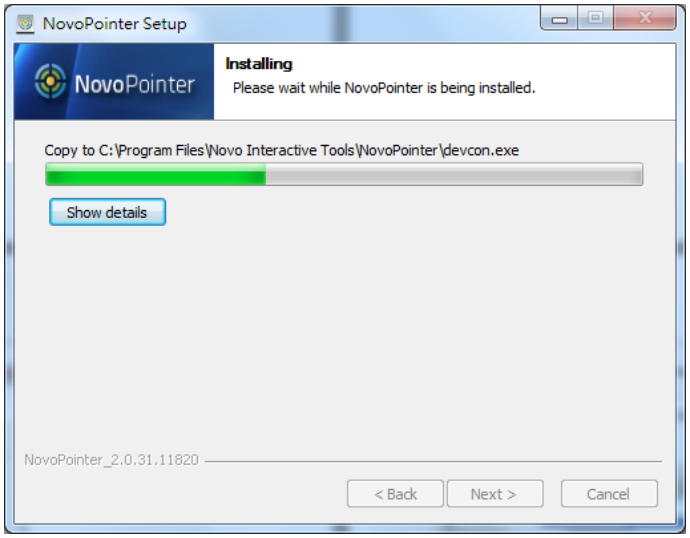
f. Select the destination folder then click Next to proceed.



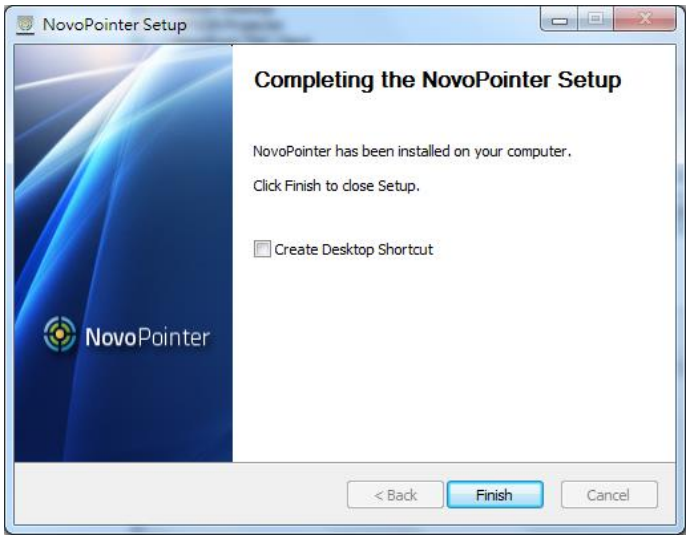
g. Select the Start Menu folder where you'd like to create the NovoPointer shortcut. Then click Install to proceed.



The Installation progress screen is shown below.



h. Check Create Desktop Shortcut and click Finish to complete the installation.



i. Once you are done with the setup and you select to create desktop shortcut, you should see the following icons under NovoPointer program group .

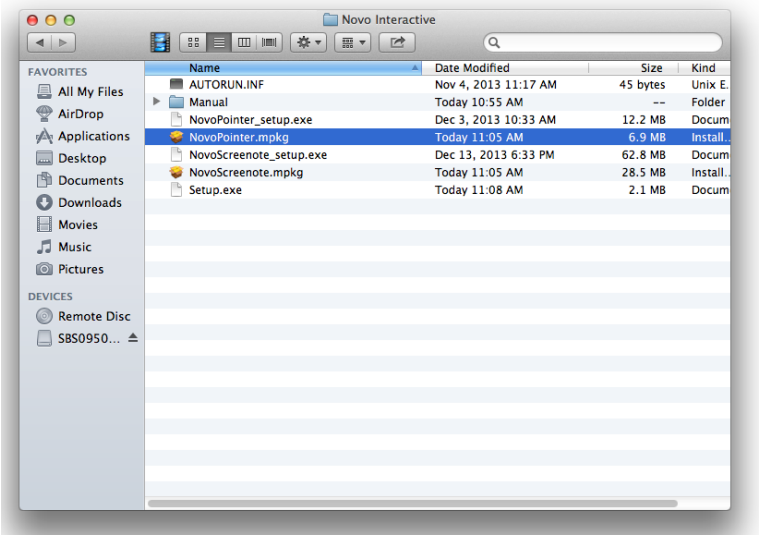
2.2 *Installing NovoPointer on your PC (Mac)*

The installation wizard guides you through the NovoPointer setup process on your computer.

To start the installation, follow these steps:

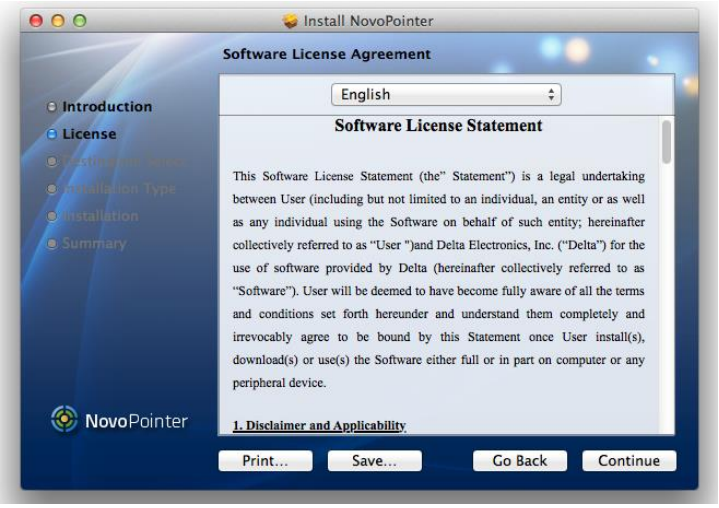
a. Insert Novo Interactive Tools CD into the CD-ROM drive. The disc icon is displayed on your desktop, then double-click the disc icon.

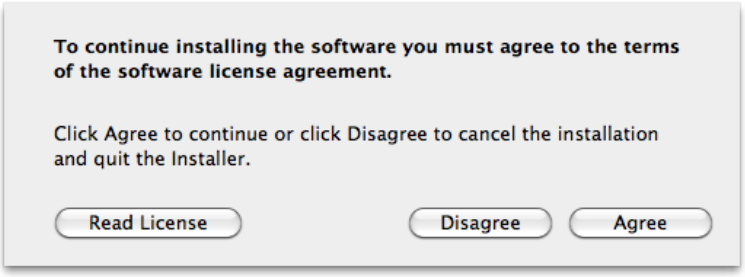
b. When the disc contents are displayed, double-click the **NovoPointer.mpkg** icon and follow the screen prompts.



c. The installation start screen is displayed. Click Continue to proceed.

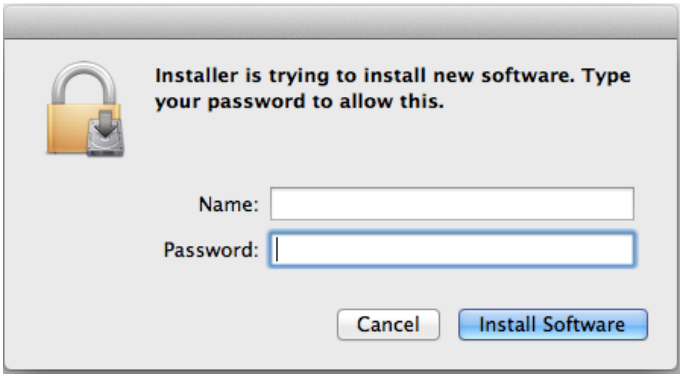
d. Read the Software License Agreement and select **Continue** then click **Agree** to proceed.



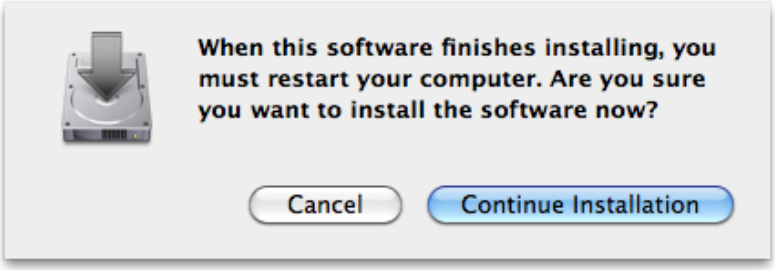


e. The installation screen is displayed. If you want to install as default settings, click **Install**. If you want to change the installation destination, click Change Installation Location....

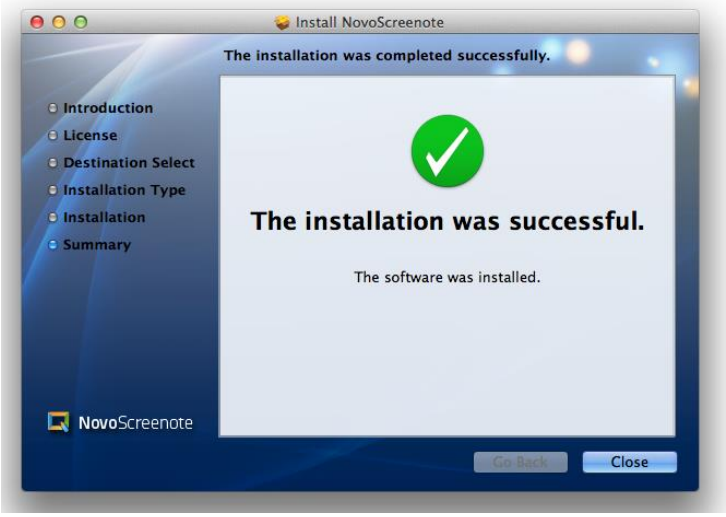
f. Enter the information of a user with administrator rights for the computer, and then click OK.



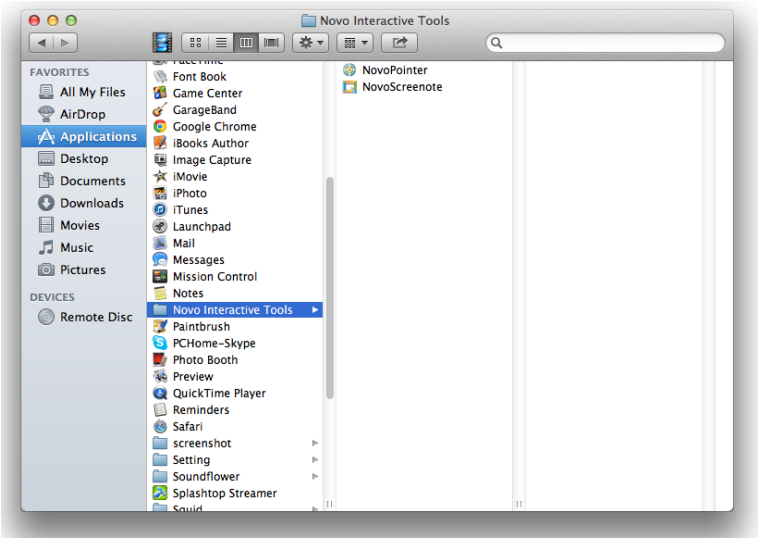
g. A confirmation screen about restarting after the end of installation is displayed. Click Continue Installation.



h. After installation, the setup finishing screen is displayed. Depending on your computer, restarting confirmation screen is displayed. In this case, be sure to restart your computer before you start using NovoPointer.



i. NovoPointer Software can be started from Finder. Select NovoPointer from Applications.



j. You can see the following icon in the Application folder Novo Interactive Tools.

3 Calibration

First time to use the Interactive Projector, the proper calibration of the NovoPointer configuration is needed. Connect the Interactive Projector USB Plug to the USB port of the PC (refer to 1.2 Connecting Projector to PC) that has been installed with NovoPointer.

In the PC, Navigate to Applications >> Novo Interactive Tools >> NovoPointer >> NovoPointer.

The following screen will be displayed on the projection zone:

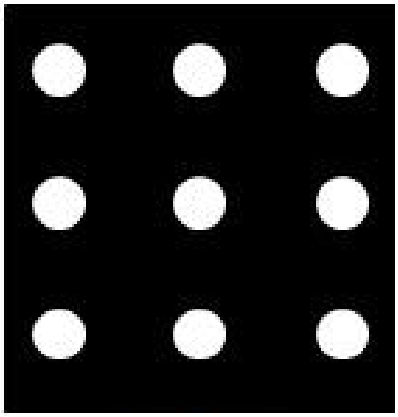
3.1 *Screen Preview*

Interactive Projector Model does not require checking “Screen Preview”. If necessary, use “Screen Preview” function. Upon clicking “Screen Preview”, the screen image is displayed as below. This function is to ensure projection area can be covered within the captured area of the Interactive camera.

3.2 *Calibration*

NovoPointer provides two kinds of calibration methods, Auto Calibration and Manual Calibration.

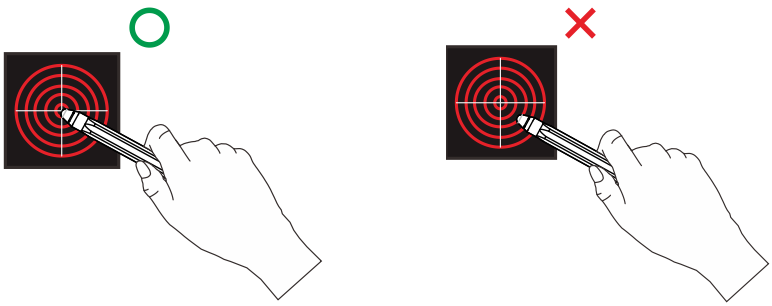
Auto Calibration: click **Auto Calibration**, the calibration process will run automatically. Below screen will appear to make auto calibration.



Manual Calibration: Click **Manual Calibration** and the calibration window will be projected to the screen. Touch the IR Pen on the calibration cursor, the next cursor location will appear. The user will touch 9 points to complete the calibration process.

NOTE :
Before doing Calibration , please remove the power of finger touch module (DT02).
To get better accuracy.

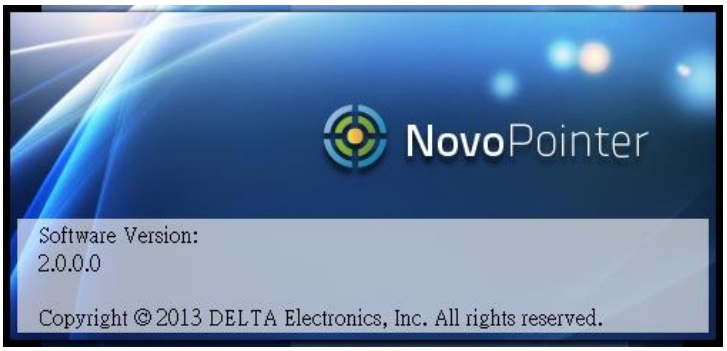
Make sure your touch center of the cursor marked; otherwise, it may not be positioned correctly.



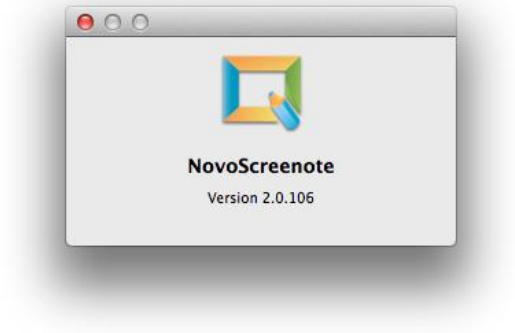
Note:
Depending on circumstances, Auto Calibration may fail or accuracy may not be adequate. If failed, NovoPointer will automatically switch to Manual Calibration.

3.3 *Others*

In Windows, click , the application information is displayed on the desktop.



In Mac, click **About NovoPointer** to get the application information.



4 Trouble Shooting

If you experience a problem with NovoPointer, please refer to the following information.

I can’t install NovoPointer on my Mac.

Currently NovoPointer support calibration after Mac OS X 10.7 and later, please make sure the PC used for calibration is Mac OS X 10.7 or later.

Cannot operate as a mouse and draw by connecting to a computer

The projector is not correctly connected to the computer.

- Check the USB cable connections. You may be able to resolve the problem by re-connected the USB cable.

If you are using a notebook computer when the battery power is running low, the USB port may stop working and you might not be able to use USB devices.

- Connect the computer to AC power source.

The IR Pen does not work

Be sure nothing obstructs the path between IR Pen and the projector.

- Remove the obstacle. Also, do not block the signal path when standing in front of the projection screen.

The signal is interfering with other things such as a light source that is emitting infrared rays.

- Do not use an infrared remote control or infrared microphone in the same room because the IR Pen may malfunction. Switch off the interfering device.

The battery is low.

- Replace the battery.

The environment is too bright.

- Do not allow strong light to shine on the projected screen or the projector's Interactive Function receiver.

Has pen calibration been performed correctly?

- Make sure you perform pen calibration when using the IR Pen for the first time so the projector recognizes the position of the pen correctly. Also, calibrate the pen again if you notice any discrepancy in positioning.

The cursor does not move to the next position

Information from the projection screen is not correctly received due to other things, such as a light source that is emitting infrared rays.

- Move the device away from the projector.

Information from the projection screen may not be received correctly if the projector is too close to the screen.

- Check the position of the projector.

The cursor moves automatically.

The IR Pen is disabled due to unstable conditions environment, such as a light source that is emitting infrared rays.

- Move the interfering device away from the projector.

5 DT02 Multi-touch Interactive Module (Optional)

5.1 *Accessories of DT02*

DT02 Multi-touch Interactive Module is a touch transmitter for the Vivitek interactive projector. To use the touch module, please find the standard accessories below and follow this manual.

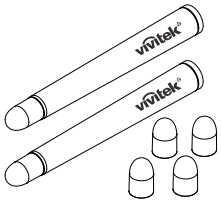
a

DT02 Multi-touch Interactive Module

b

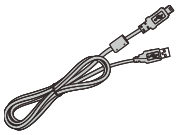
Installation CD

c



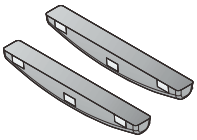
Dummy pen with pen tips x 2

d



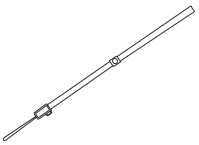
Mini USB cable

e



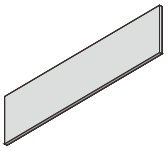
Alignment masks x 2

f



Wrist strip x 2

g



Tape x 2

a. DT02 Multi-touch Interactive Module

b. Installation CD: CD contains DT02 driver, NovoScreenote software and user manual.

c. Dummy pen with pen tips: 2 extra pen tips for dummy pen.

d. Mini USB Cable: Connect to supply power to the touch module.

e. Alignment masks: For laser curtain alignment.

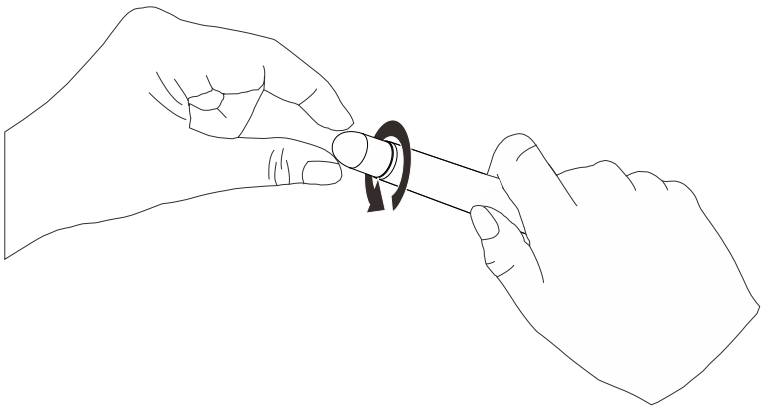
f. Wrist strip x 2

g. Tape x 2

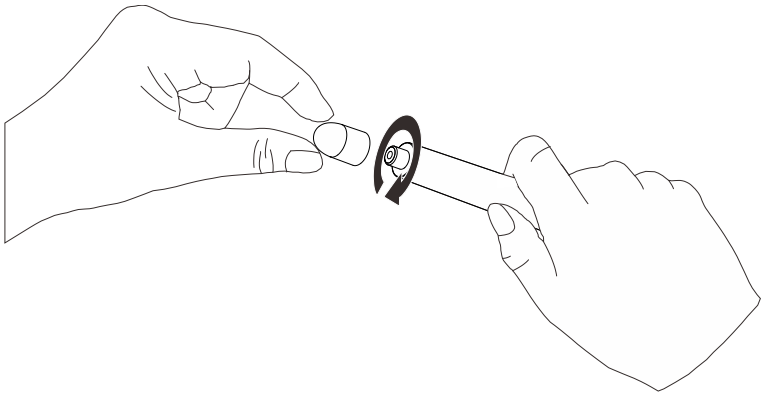
5.1.1 Installing CHANGEABLE TIPS

Note:
For better touch performance, keep the pen tip clean

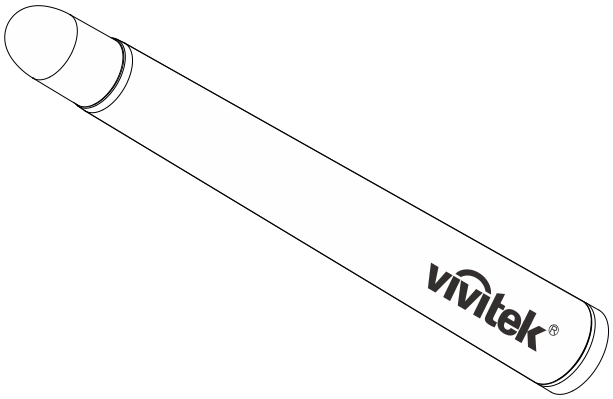
Counterclockwise direction to unlock pen tip.



Installing a new Pen Tip with Clockwise direction to lock pen tip.

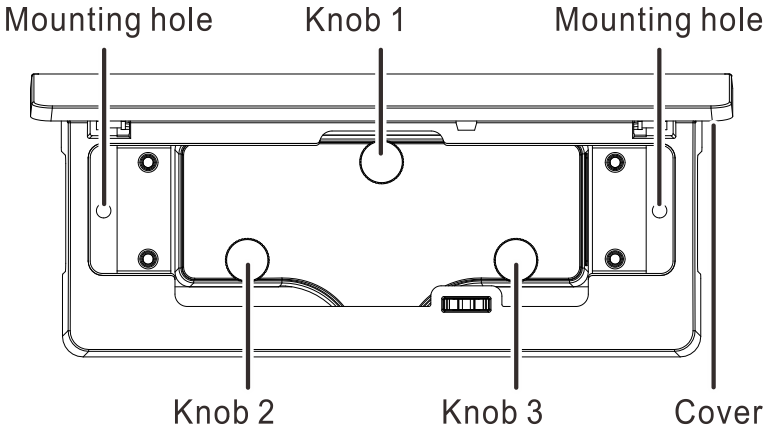


Complete the replacement tip.

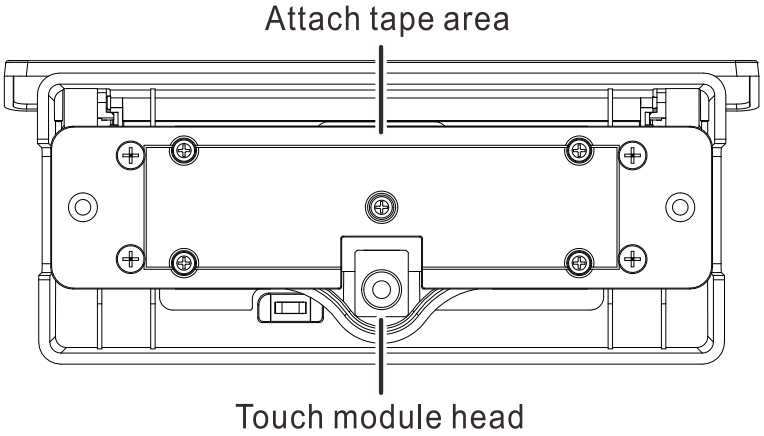


5.1.2 About DT02 Multi-touch Interactive Module

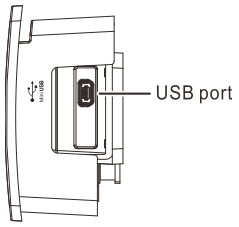
Front View



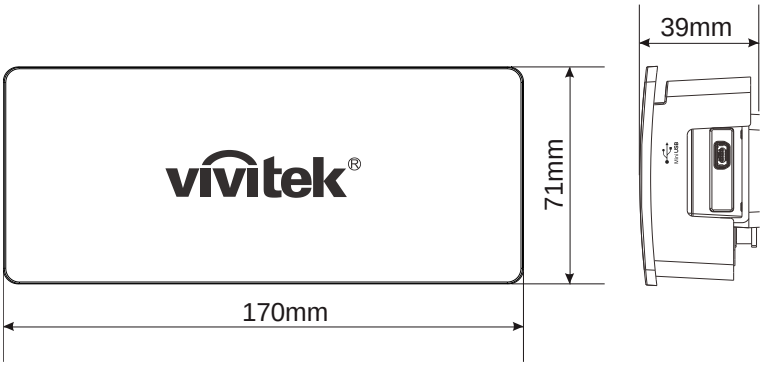
Rear Vieaw



Right View



Dimensions

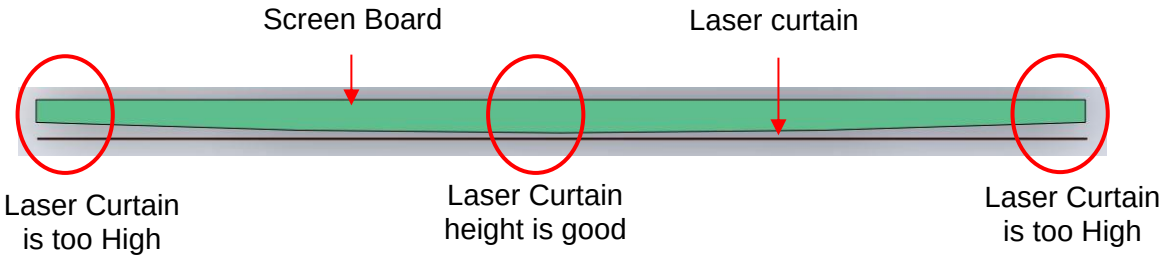


5.2 *Screen Board Requirement*

5.2.1 Shape of Screen board vs Laser curtain

Convex screen board :

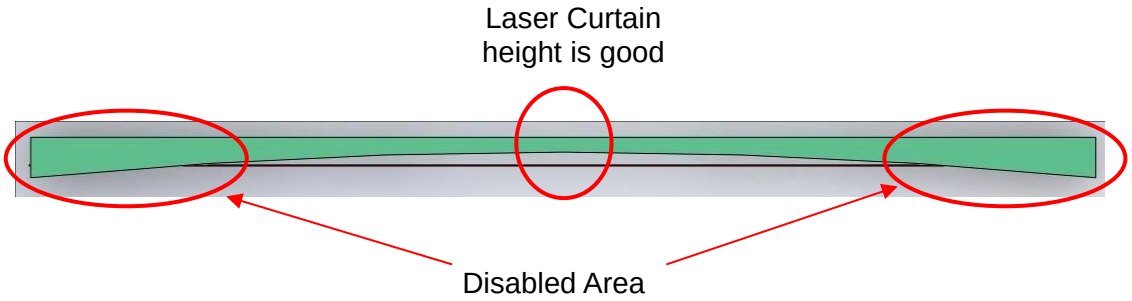
Center area, laser curtain height is proper but the edge area laser curtain height becomes too high.



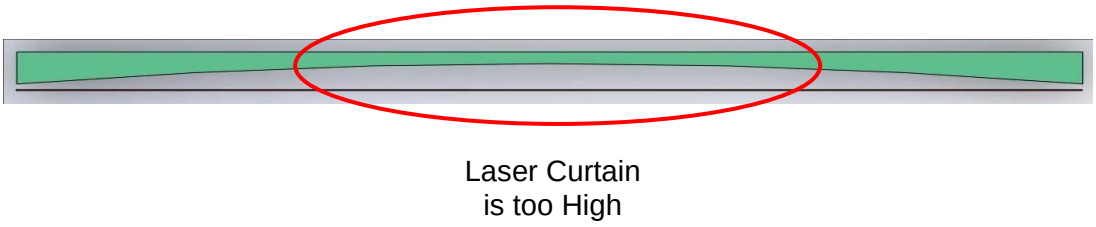
[Horizontal sectional view seen from top of Screen board]

Concave screen board :

If laser curtain height is adjusted in the center, then edge area laser curtain does not effect.



If laser curtain height is adjusted in edge area, then center area laser curtain height become too high.



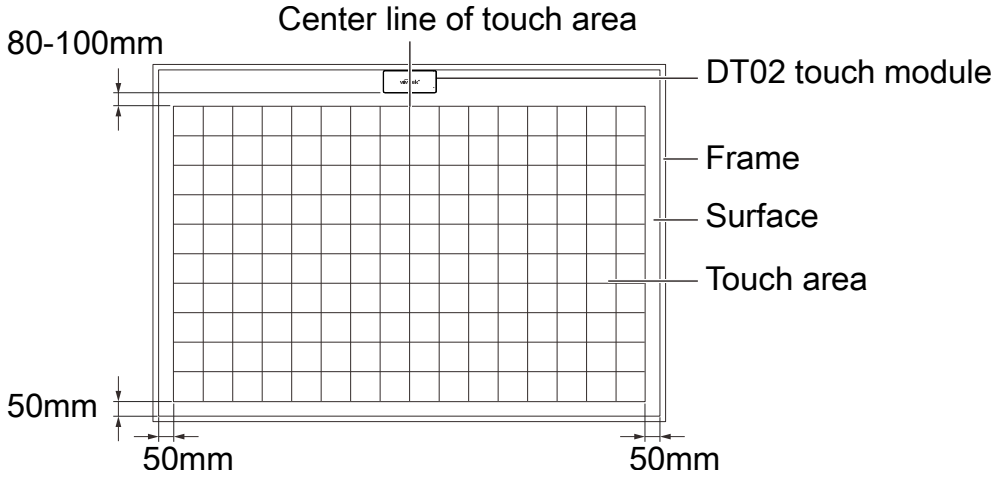
5.2.2 Screen board curvature requirement

Curvature of screen board should be less than 2mm.

5.3 *DT02 System Configuration*

5.3.1 Beamed Screen Position

Gap between sides/bottom of beamed screen and frame edge should be larger than 50mm.

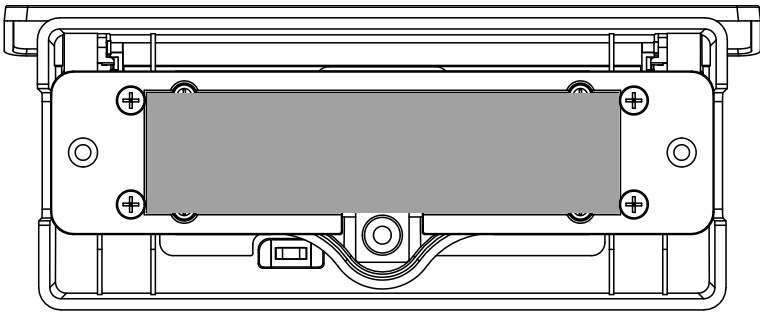


#	Item	Specification
1	Horizontal Position	Center Line of beamed screen.
2	Vertical Position	Ceiling Mounting: Top of the screen with Gap. Table Mounting: Bottom of the screen with Gap.
3	Gap	Min: 80mm, max: 100mm
4	Orientation	Head of laser module should be face to touch screen.
5	Touch Area	Min: 65”, max: 100” (without external lighting interference)

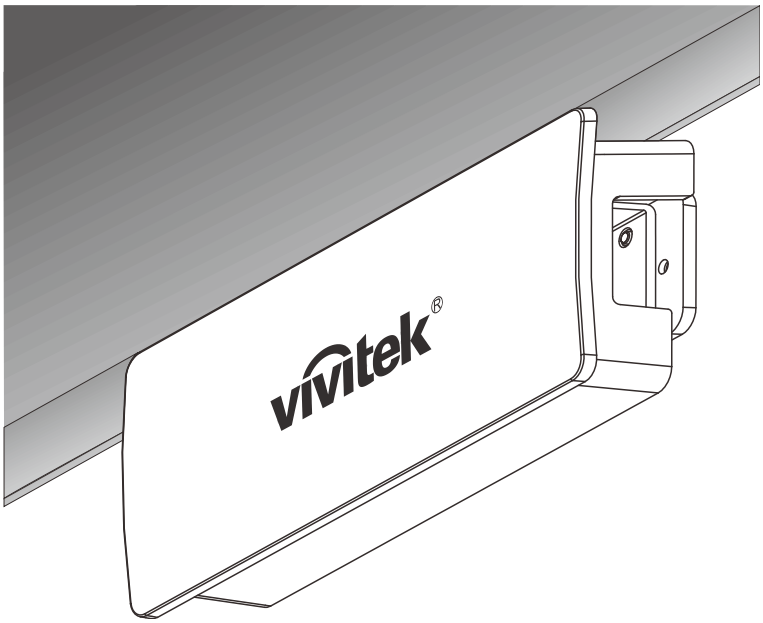
5.3.2 Mounting Method of DT02 Multi-touch Interactive Module

2 kinds of method :

Install the adhesive tape on the rear side of the DT02 Multi-touch Interactive Module.



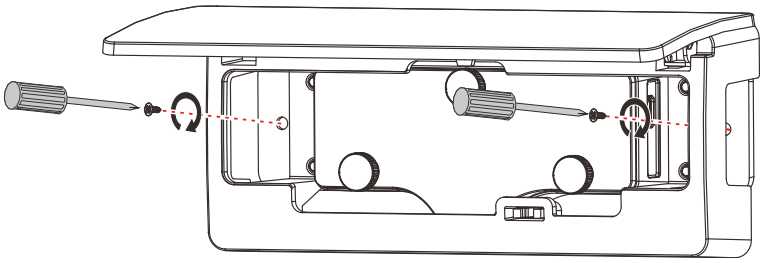
Following the instructions above to position the DT02 on the screen.



Note:
(thickness: 1mm) is recommended.

Turn over the front cover.

Secure the DT02 to the wall with screws.

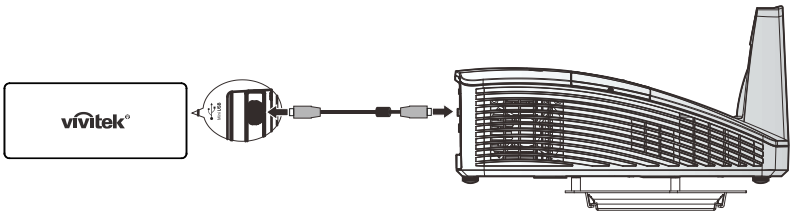


5.3.3 Connecting DT02

Connecting DT02

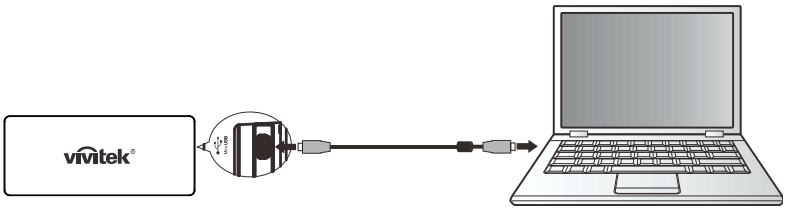
Use the USB cable to connect the DT02 for power supply. There are three ways to connect the DT02.

Connect DT02 to Projector (Recommended)



Note:
USB type-A power is available for selected projector model.

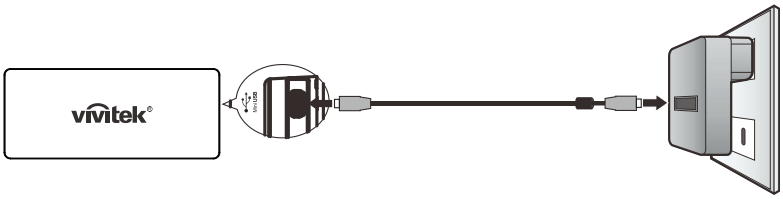
Connect DT02 to Computer



Caution:
USB power may be unstable under the following conditions:

- *disconnecting AC power*
- *all USB ports are populated*

Connect DT02 to 5V USB Adapter



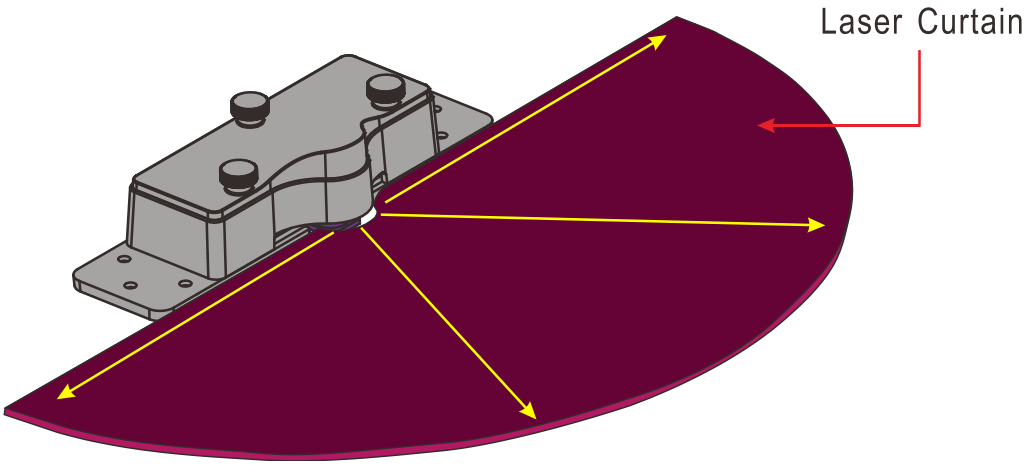
Caution:
It is important to disconnect the adapter when the touch function is not used. A continuous transmit will decrease the life time of the touch module.

5.4 *Laser curtain characteristics*

5.4.1 Fan angle of laser curtain

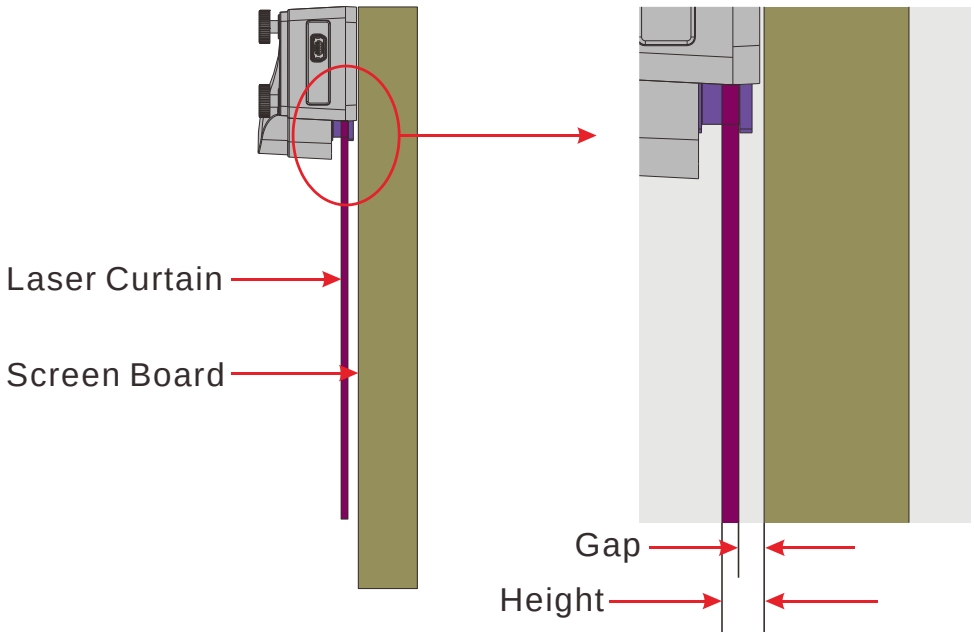
Laser curtain covers 180 degree and form a laser curtain.

Laser curtain is perfect plane with 2mm thickness.



5.4.2 Laser curtain position on the screen board

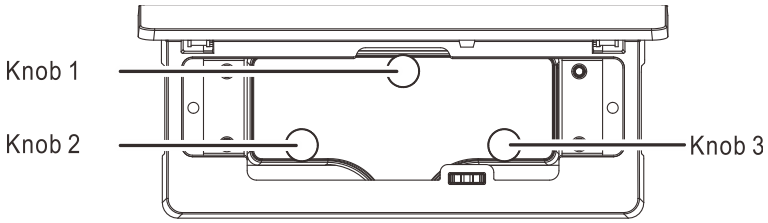
Laser curtain shall not be contact with screen and it's height should be low enough.



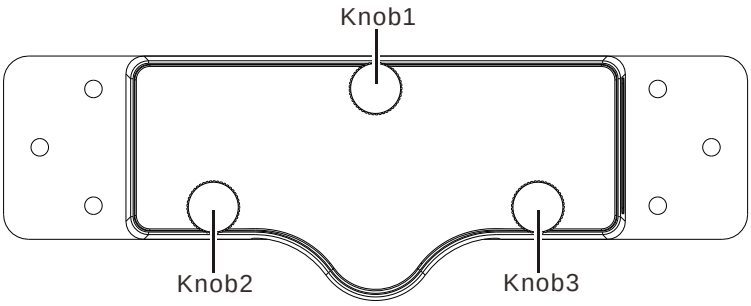
⚠ ***Caution:***
Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

5.4.3 Laser Curtain Alignment Principle

Rolling/Pitch/Level control of Laser Curtain

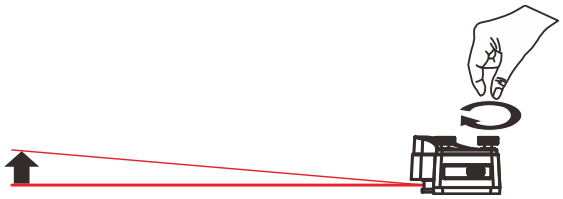


Knob 1 : Pitching control / Knob2, Knob3 : Rolling control



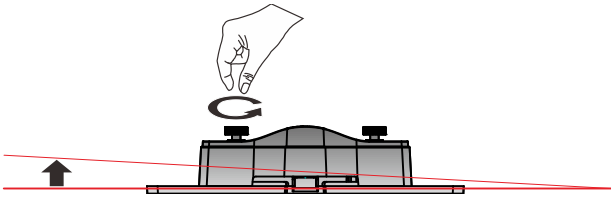
Pitching control

Rotate knob 1 in **clock wise**, then laser curtain **goes up** like figure below. And if rotate knob 1 in anti-clock wise, then laser curtain goes down

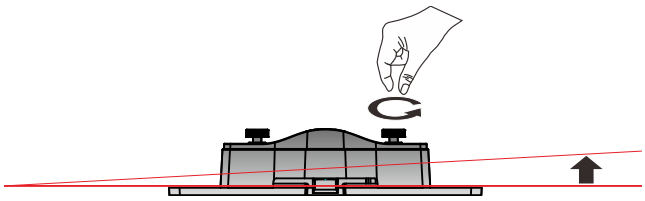


Rolling control

Rotating knob 2 in **anti-clock wise**, then left side of laser curtain **goes up**.

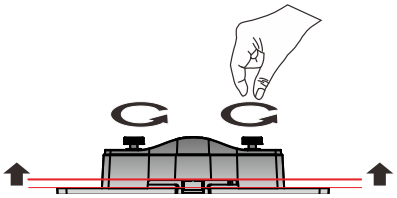


Rotating knob 3 in **anti-clock wise**, then right side of laser curtain **goes up**.



Level control

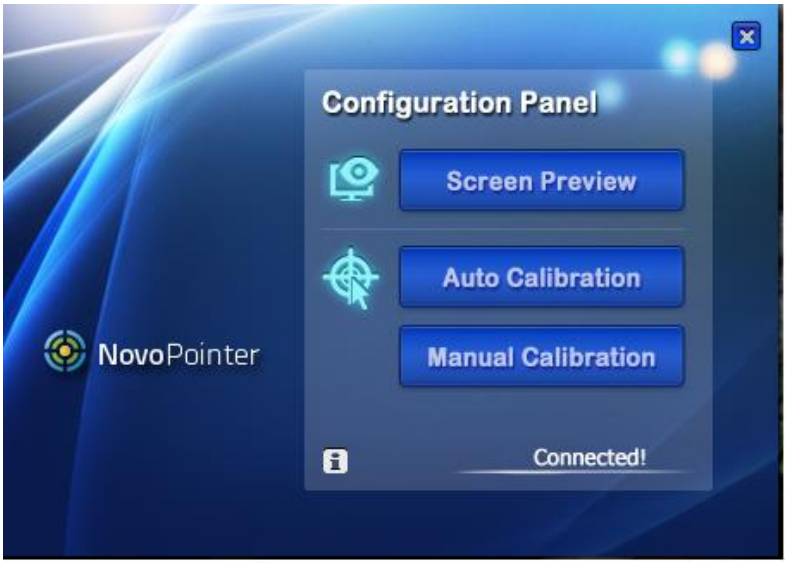
Rotating knob 2 and Knob 3 in **anti-clock wise**, then level of laser curtain **goes up**.



5.5 *Laser curtain alignment*

5.5.1 Alignment view of laser curtain

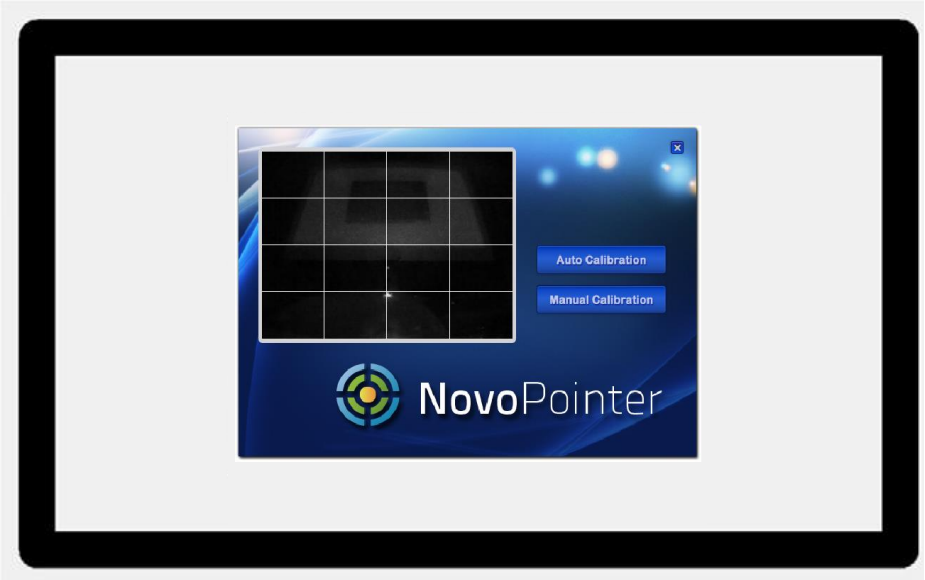
In the PC, Navigate to Applications >> Novo Interactive Tools >> NovoPointer >> NovoPointer.



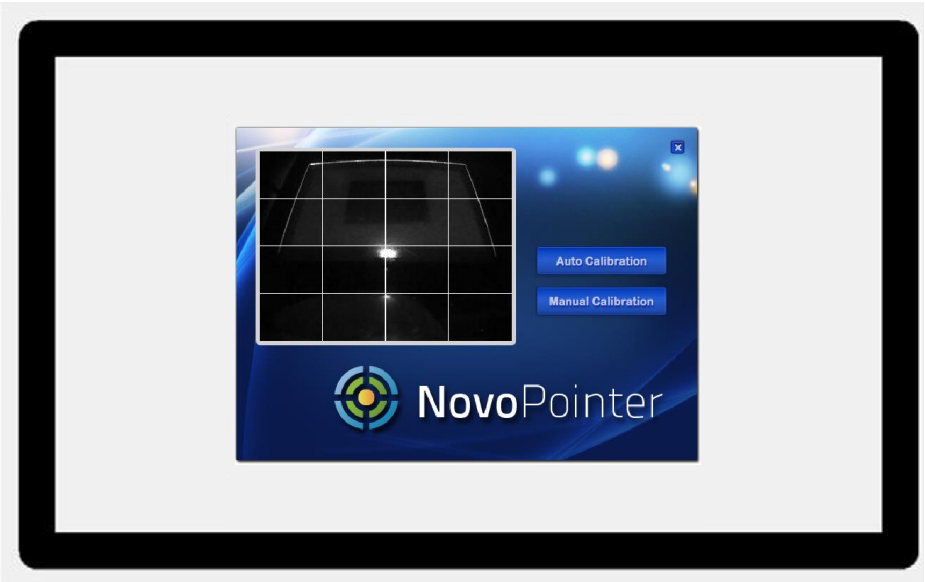
> ⚠ ***Caution:***
> *Before setting DT02 Multi-touch Interactive Module, please finish auto or manual calibration.*

Press **Screen Preview** to start Laser curtain alignment.

Alignment view

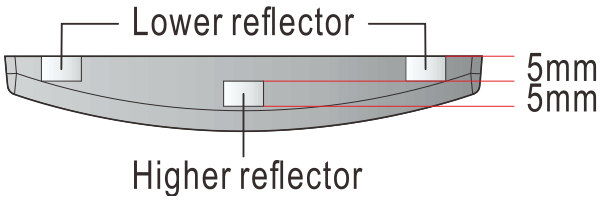


Connect the USB cable for DT02



5.5.2 Using Alignment Mask

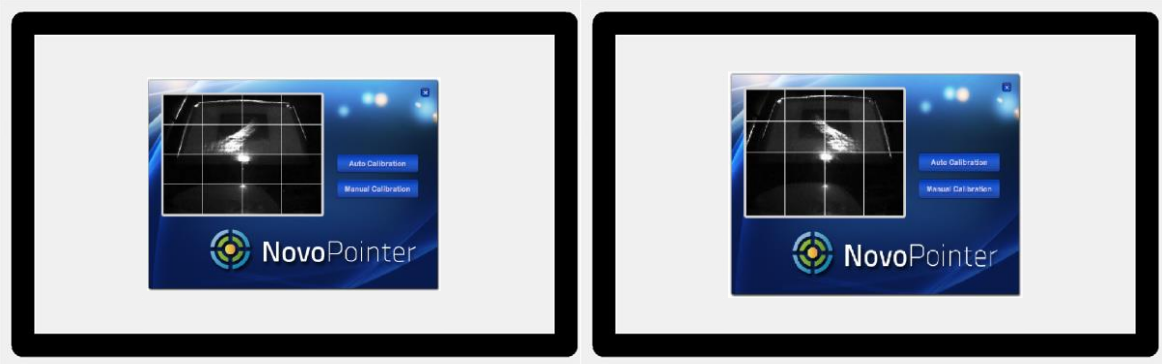
Shape of Alignment Mark



Mounting Position of Alignment Mark :

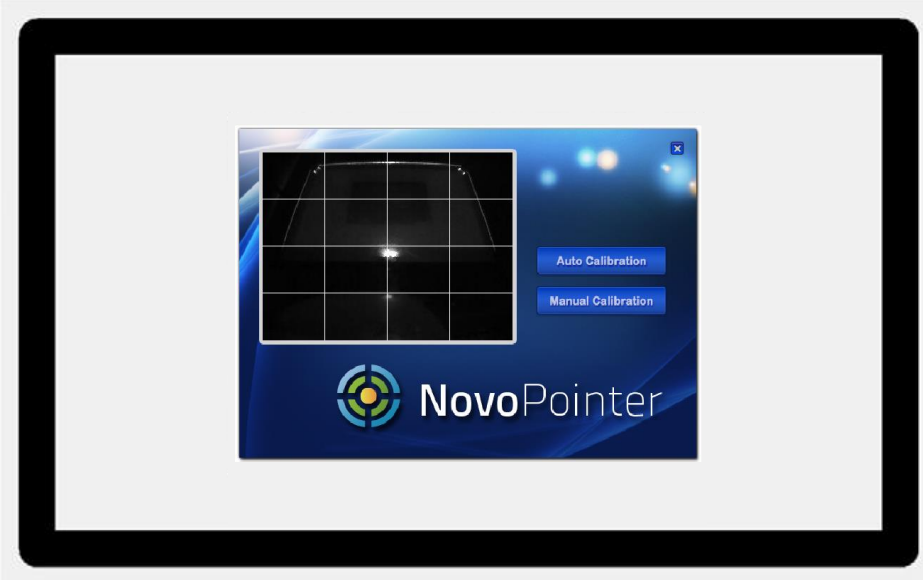
5.5.3 Laser curtain alignment process

First rotate slowly #1 knob then you can see the reflection line like below picture

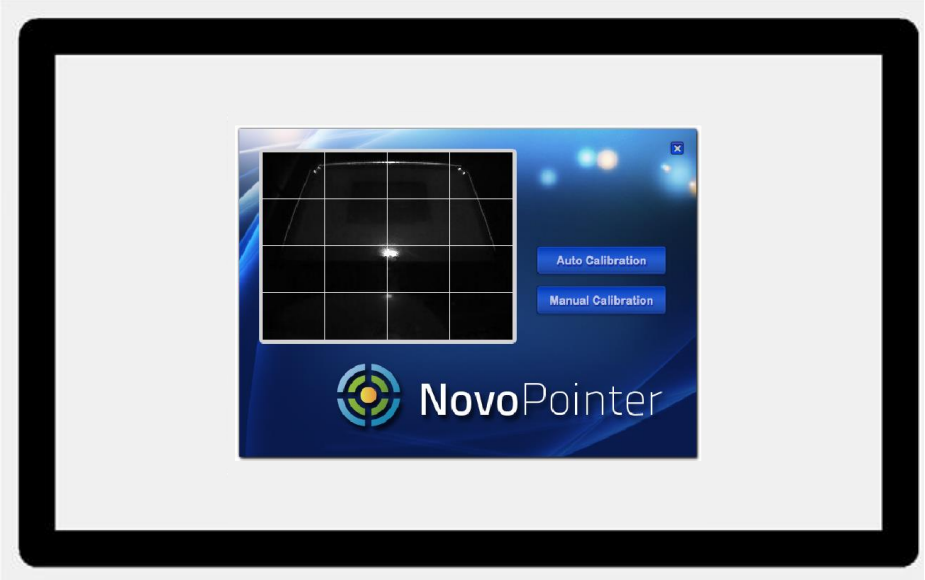


Then, rotating #2/#3 knob accordingly to make reflection line horizontal and near the laser module.

Rotating #1 knob slowly and until see one white reflector point of alignment mark



Finally rotating #1 knob anti-clockwise and stop once seeing two white reflector points of alignment mark



6 Specifications

Touch module	
Model Name	DT02
Operating Voltage	4.7~5.2V
Power Consumption	Max 180mA
USB Type (Power)	Mini USB B type
Power Source	Power via USB connector or 5V adaptor
Wavelength	850nm ± 10nm
Fan Angle	Max : 180° (1 laser beam)
Rolling Control Range	Max 5°
Pitch Control Range	Max 8°
Safety	Class 1
Dimension	170mm x 71mm x 39mm
Weight	172g (with cover)

General function	
Camera Type	CMOS Sensor , 640*480 array
Multi Pen Supported	Up to 10 touch points (Pen/Finger)
Response Time	0.016 sec
Refresh Rate	60 Frames/sec
Calibration	Auto / Manual 9 points
Dual screen Calibration	Yes
USB Cable Distance	Max 15meter (5meter USB cable + repeater)

7 Trouble shooting

7.1 *Cannot operate as a mouse and draw by connecting to a computer*

- Is Configuration set correctly?

  Make the following settings to link with the computer's functions.

  - Set projector type – Short throw or ultra short throw from the configuration menu.
  - Set projector mounting type –Normal or Ceiling mount from the configuration menu.
- The projector is not correctly connected to the computer.
  - Check the USB cable connections. You may be able to resolve the problem by re-connected the USB cable.
- If you are using a notebook computer when the battery power is running low, the USB port may stop working and you might not be able to use USB devices.
  - Connect the computer to AC power source.

7.2 *The message and error occurred in the Interactive function.*

- An error has occurred in the Interactive Function.
  - Contact your dealer.

7.3 *The IR Pen does not work*

- Be sure nothing obstructs the path between IR Pen and the projector.
  - Remove the obstacle. Also, do not block the signal path when standing in front of the projection screen.
- The signal is interfering with other things such as a light source that is emitting infrared rays.
  - Do not use an infrared remote control or infrared microphone in the same room because the IR Pen may malfunction. Switch off the interfering device.
- The battery is low.
  - Replace the battery.
- The environment is too bright.
  - Do not allow strong light to shine on the projected screen or the projector's Interactive Function receiver.
- Has pen calibration been performed correctly?
  - Make sure you perform pen calibration when using the IR Pen for the first time so that the projector recognizes the position of the pen correctly. Also, calibrate the pen again if you notice any discrepancy in positioning.

7.4 *The cursor does not move to the next position*

- Information from the projection screen is not correctly received due to other things, such as a light source that is emitting infrared rays.
  - Move the device away from the projector, or move the projector away from the device.
- Information from the projection screen may not be received correctly if the projector is too close to the screen.
  - Check the position of the projector.

7.5 *The cursor moves automatically.*

- The IR Pen is disabled due to unstable conditions environment, such as a light source that is emitting infrared rays.
  - Move the projector or turn off the interfering device.