i3PROJECTOR
Light Curtain Touch

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Usage Notice

Please follow all warnings, precautions and maintenance as recommended in this user's manual.

- Warning - Do not disassemble Light Curtain module/IR camera.
- Warning - Do not use, store, or leave Light Curtain module/IR camera near fire, or in places with a high temperature, e.g., in direct sunlight, or in sun-heated cars.
- Warning - Use standard USB cable(maximum length: 5m). To extend USB cable length over 5m, a certified active extension USB cable is required.
- Warning - Do not allow liquid or foreign material enter Light Curtain module/IR camera

Precautions

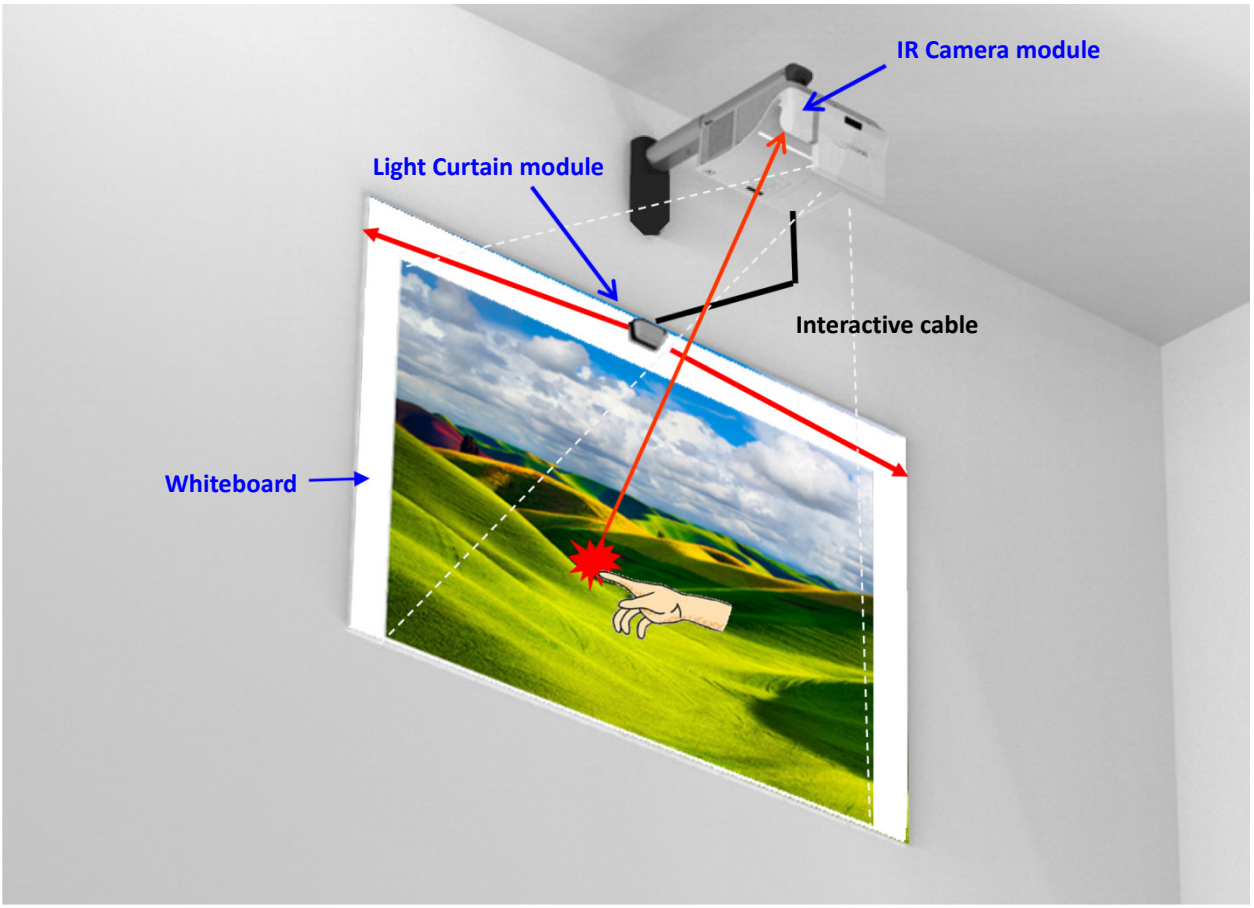
IR camera on projector receives infrared signal from Light Curtain module which is attached to the wall.

To operate normally:

- IR camera should face the projection image area on the wall.
- Remove any obstacle in between IR camera and Light Curtain module.
- Do not place other infrared communication devices, lighting equipments, or residential heating equipments etc, nearby.

Maintenance: Gently clean the optical port with dust blower.

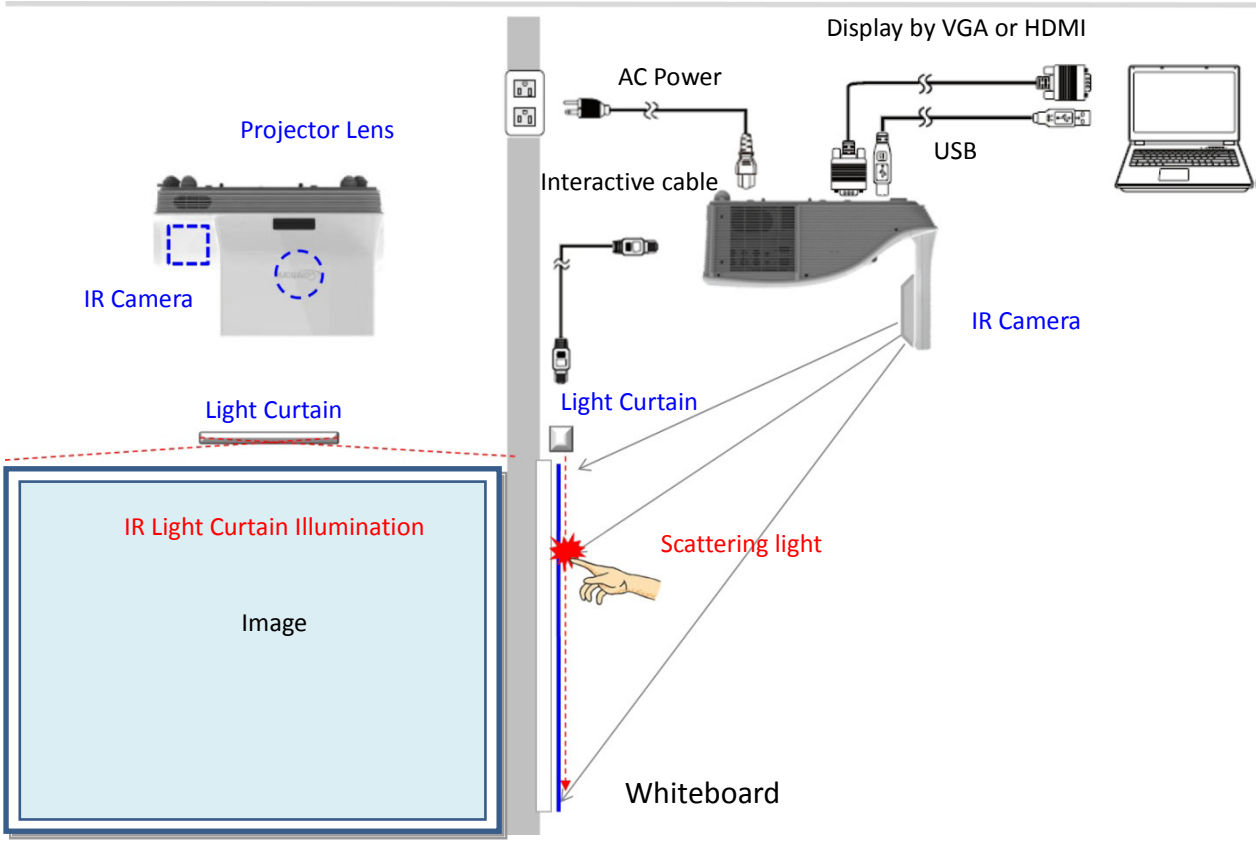
Light Curtain Touch



How it works

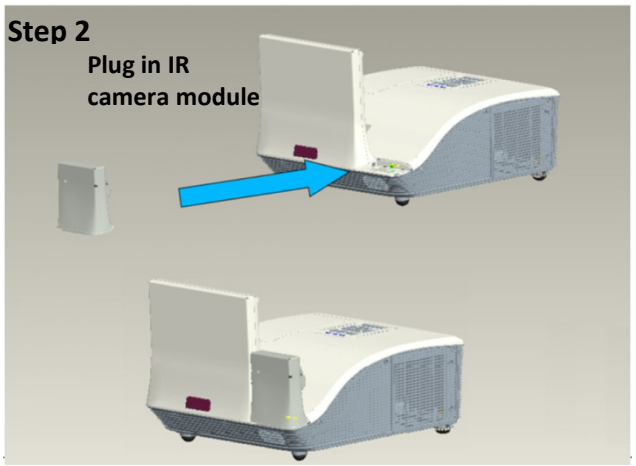
- Light Curtain covers the entire whiteboard with a thin invisible IR light.
- When finger or stylus breaks into the Light Curtain, IR light reflects to IR camera.
- Camera module tracks multiple touch points and reports positions to a PC or laptop via USB.
- To optimize Touch function, whiteboard non-flatness should be less than 5mm.

Light Curtain Touch Set-up

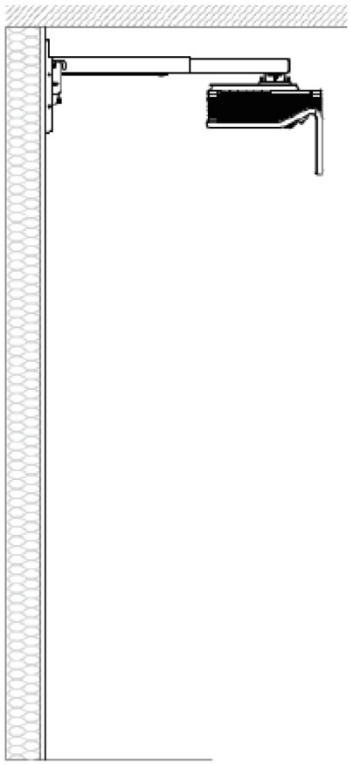


Step 1: Projector Set-up

A. Plug in IR Camera Module



B. Install Wall Mount and Projector

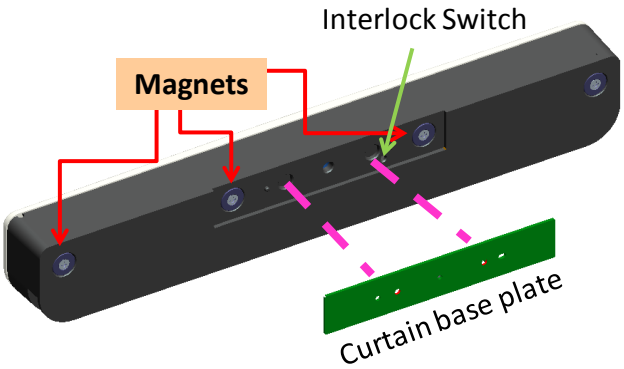


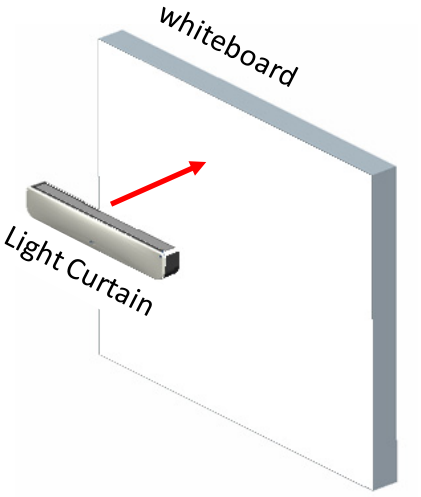
Step 2: Light Curtain and Whiteboard Set-up

A. Setup Light Curtain Base Plate

There are 4 available options:

1. For magnetic whiteboard: attach Curtain base plate to Light Curtain module first and avoid interlock switch fail. Put Light Curtain module onto whiteboard and magnets at the back of Curtain module will be attached.



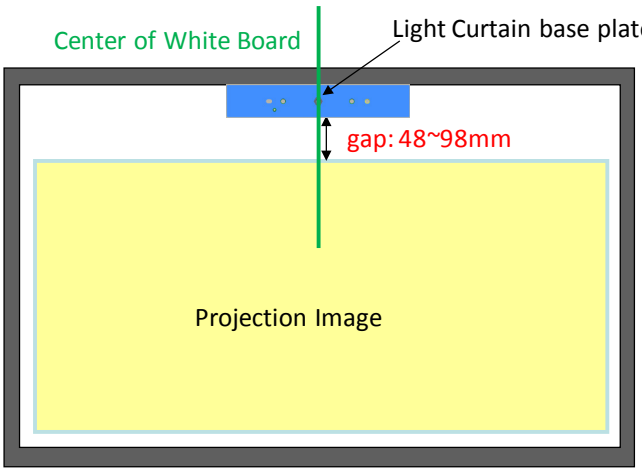


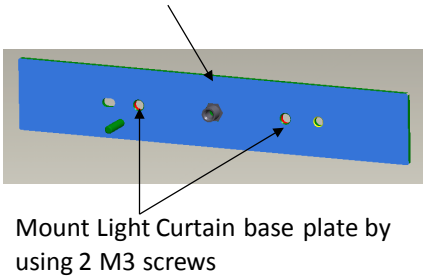
2. Install Light Curtain base plate by using 2 M3 screws

   Option 2 is recommended regarding environmental factors such as temperature, humidity, vibration and others.

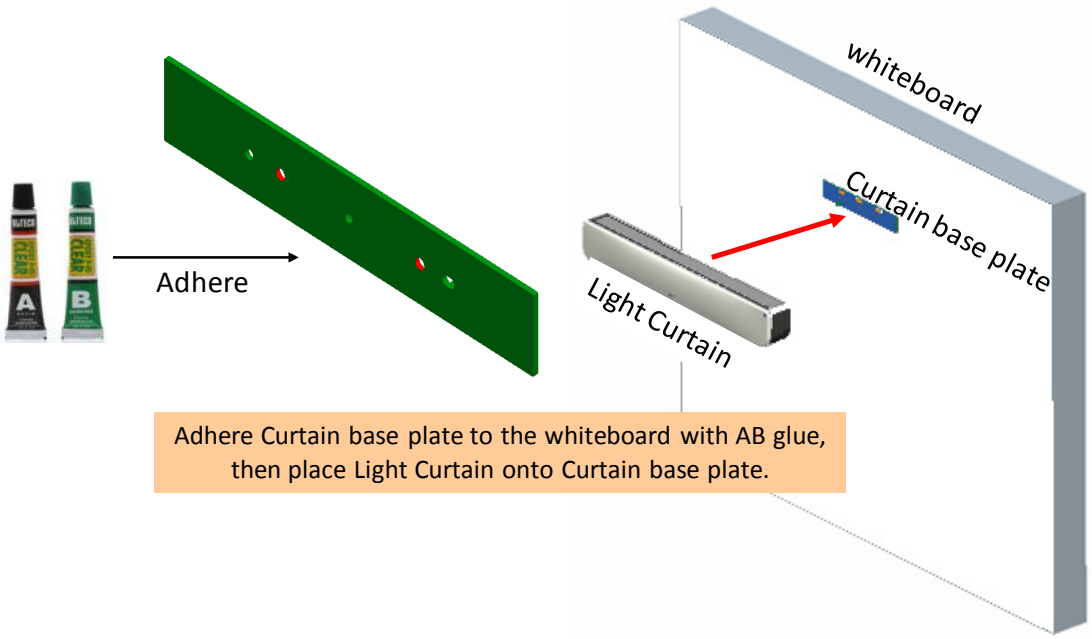
   2-1. Customized whiteboard is incorporated with Light Curtain base plate design.

   2-2. Regular whiteboard, the Light Curtain base plate needs to be installed first by using 2 M3 screws.

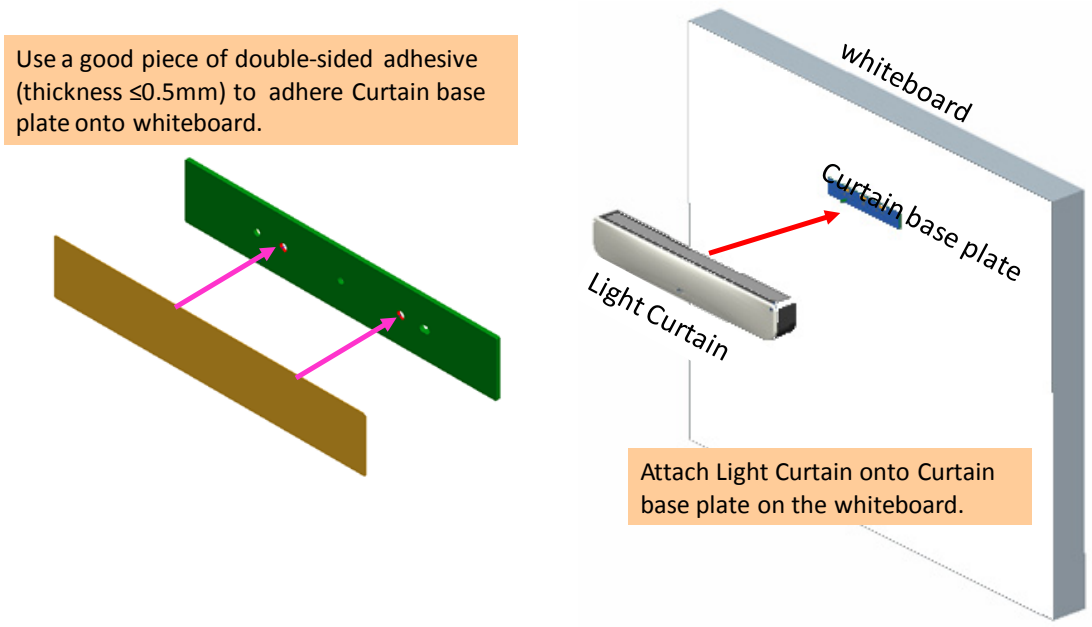




3. Use special glue(ex: AB glue) to adhere Curtain base plate to the whiteboard. Then place Light Curtain module onto Curtain base plate.



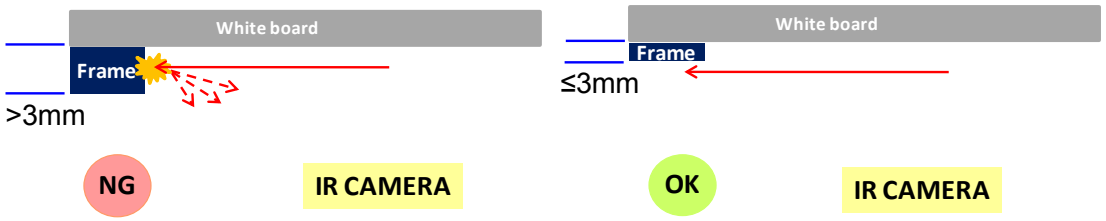
4. **This option is suitable for demonstration ONLY.**
   Use a piece of good quality double-sided adhesive (thickness less than 0.5mm) to adhere Curtain base plate onto the whiteboard. Then place Light Curtain onto the Curtain base plate.



B. Whiteboard frame suggestion

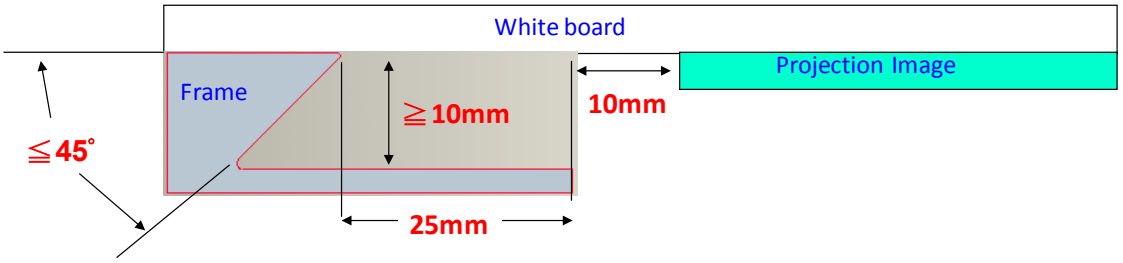
If whiteboard frame thickness is over 3mm, reflected light interference from whiteboard frame may be detected by IR camera and influence Touch function. It is suggested to keep at least 50mm at left/right and 100mm at bottom.

If whiteboard frame thickness is less than 3mm, ensure reflected light interference is not observed while doing Step 5 Laser Beam Adjustment.

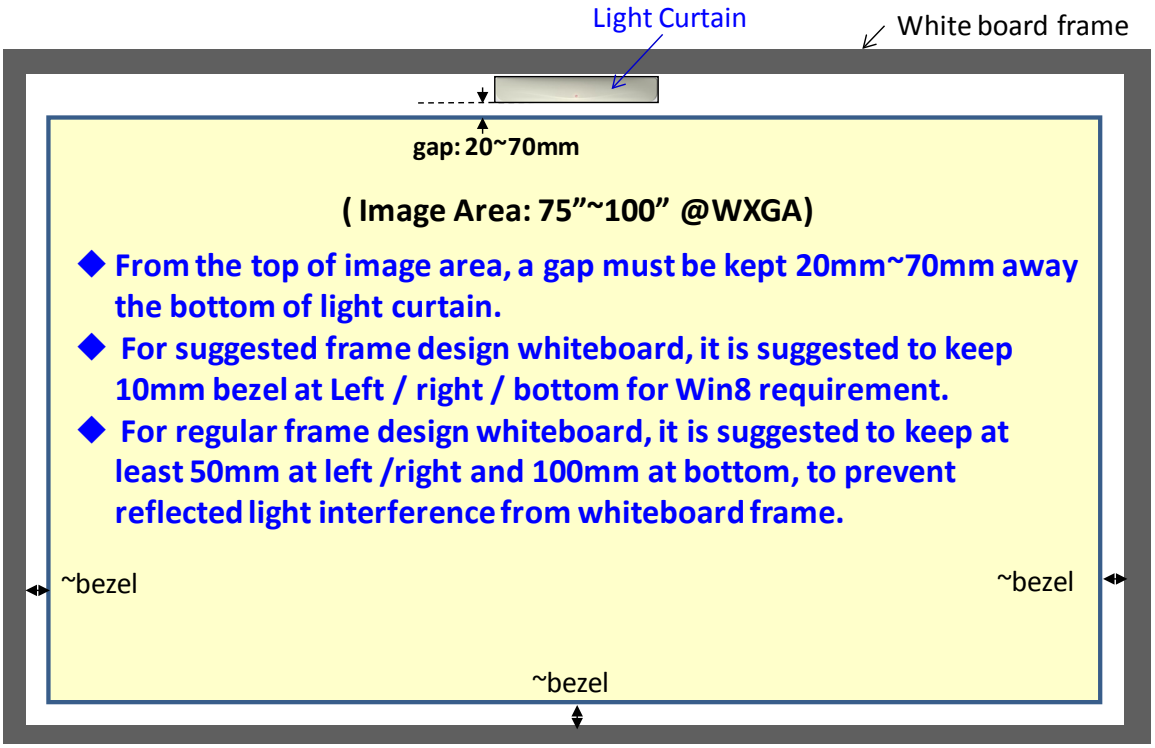


Therefore, it is suggested to use whiteboard frame less than 3mm, or follow below whiteboard frame condition:

- Surface treatment: Matt , with mold texture ≥11010
- Shape: as figure below

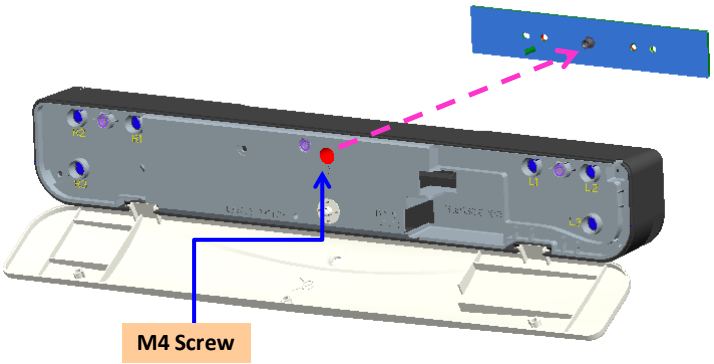


C. How to Setup whiteboard



D. Install Light Curtain Module on whiteboard.

1. Open top cap.
2. Align the M4 screw hole to the Curtain base plate; magnets at back of Light Curtain module will attract Curtain base plate.
3. Use one M4 screw to fix Light Curtain module and Curtain base plate



4. Close top cap.

Step 3: Install Driver

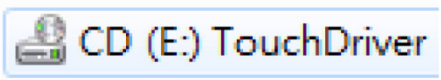
1. System requirements

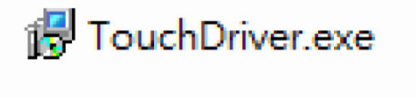
To ensure normal operation of the touch function, follow below requirement to check your system condition.

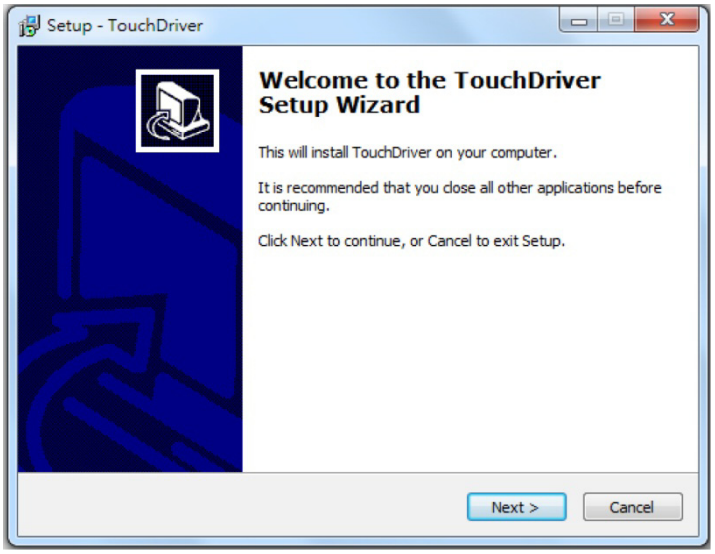
System requirement	
Operating system	Microsoft Windows XP (SP3)/Windows 7 (32bit/64bit)/Windows 8 (Must be installed. NET Framework 4.0)
CPU	Intel® Core™ i3 or above
Memory	2GB or more
Minimum hard disk space	110 MB

2. Install TouchDriver

A. Plug in USB cable to PC, go to Windows File Manager and run “TouchDriver.exe” on CDROM.



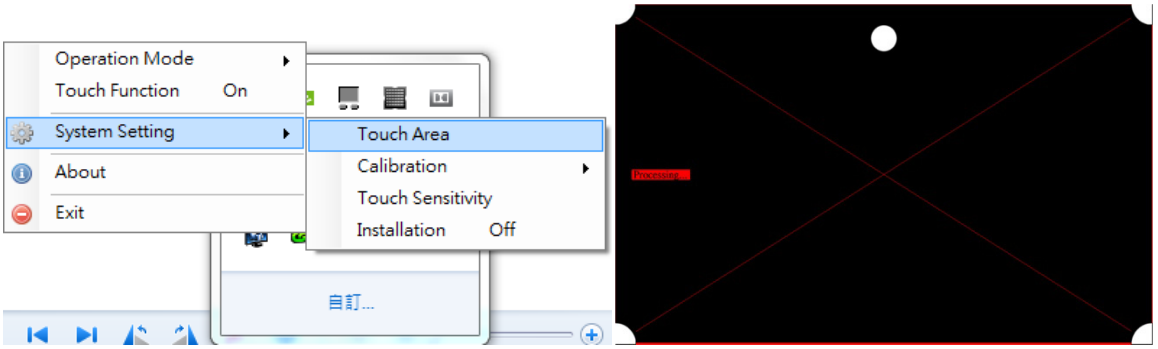




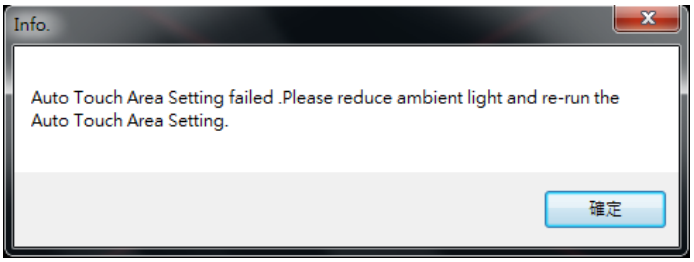
Step 4: Touch Area Setting

There are two Touch Area Setting modes: Auto and Manual.

A. Execute Auto Touch Area Setting:



If fail message pops up, follow below steps to trouble-shoot and re-run Auto Touch Area Setting:

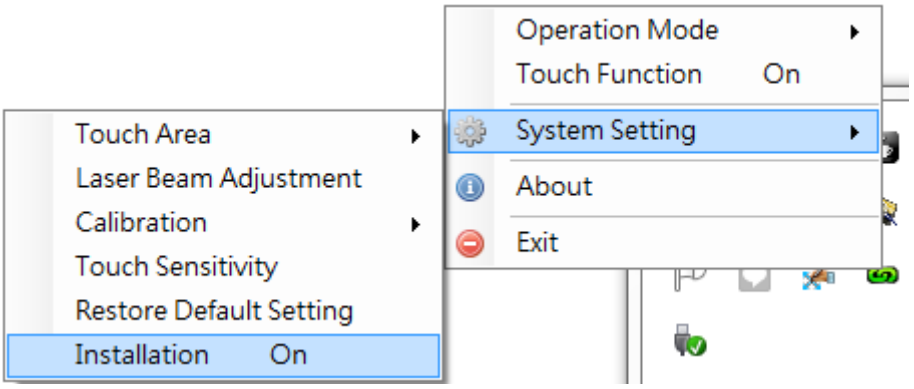


a. Quit all software application
b. Reduce ambient light
c. Do not obstruct or shake lens during Touch Area Setting
d. Check if projection image is clear. If not, adjust focus to sharpen the image

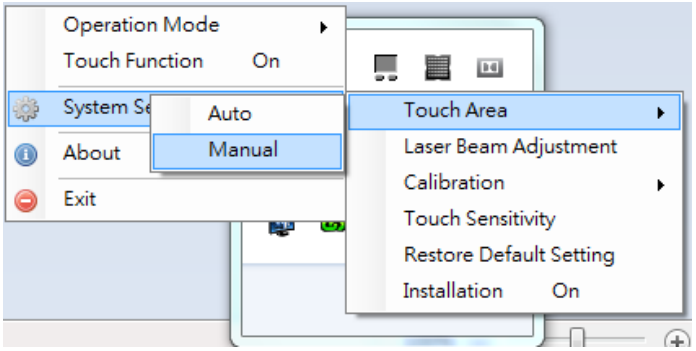
If the fail message still pops up, switch to Manual Touch Area Setting.

B. Touch Area Setting is for installer use only. If Auto Touch Area Setting fails:

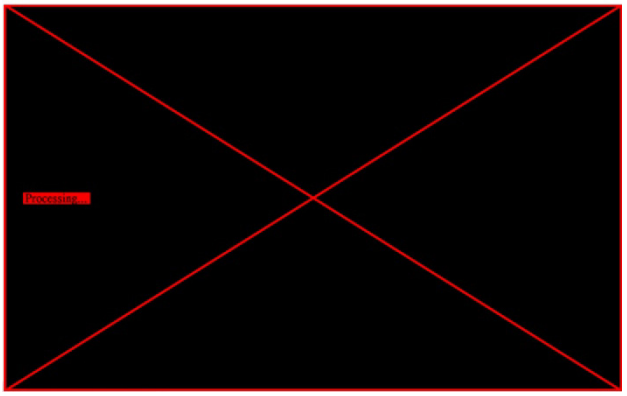
Switch “ON” Installation mode(this is for installer use only) under System Setting in TouchDriver.



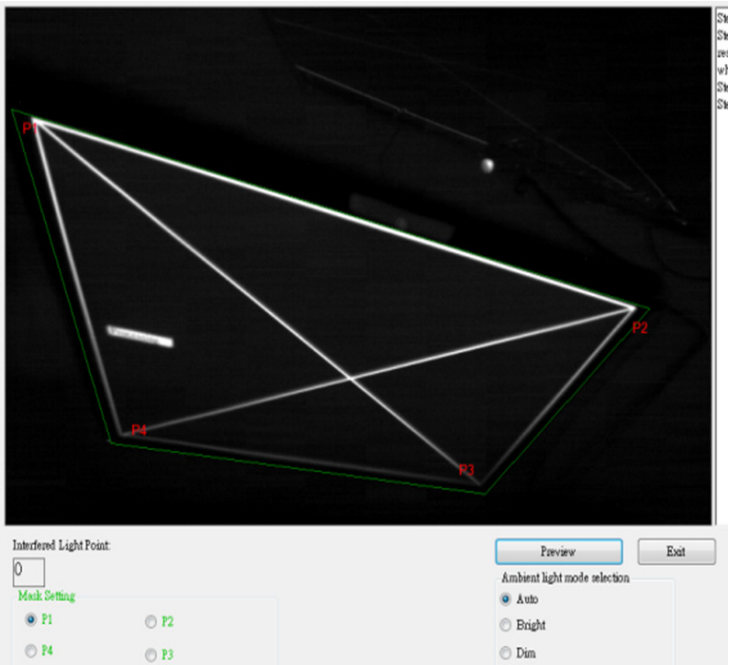
Select “Manual” to execute the Manual Touch Area setting.



B-1. Wait for Touch Area Setting test pattern.



B-2. After the camera captures the projection image, a Touch Area window will pop up. If the captured image is not clear enough, please re-select “Ambient light mode selection” from “Auto” to “Bright” or “Dim” according to actual ambient light condition. Then press “Preview” and the camera will re-capture the image.



B-3. Touch Area Boundary Fine-tuning

Step 1: Click on P1 then move the mouse cursor within the window.

Step 2: Left click the mouse to adjust the green frame at the P1 corner. The green frame should locate between the effective projection area and reflected light spots of whiteboard frame. Release the button when adjustment is done.

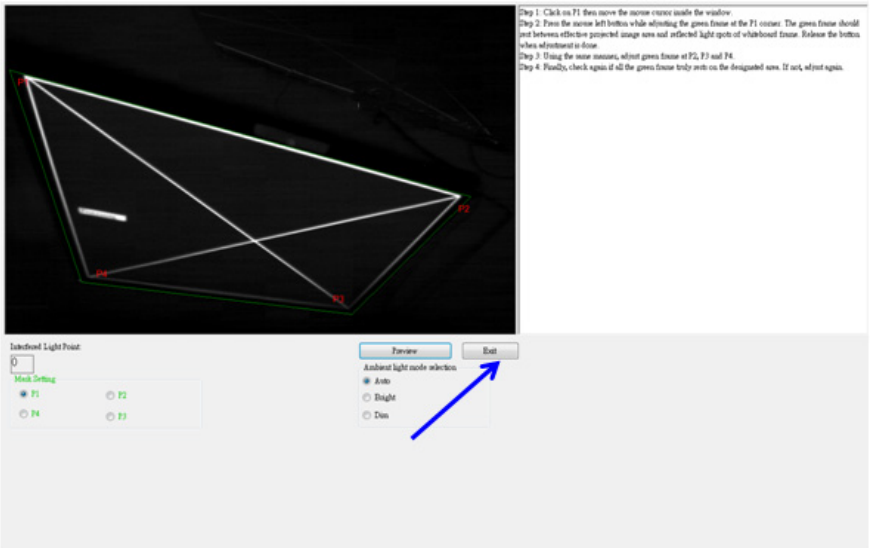
Step 3: Use the same method to adjust green frame at P2, P3 and P4.

Step 4: Finally, check again if all the green frame locate correctly in the designated area. If not, adjust again.

✓ Note: If Touch function is not responding at the edge of projection area, slightly re-locate the green frame outside of Touch Area test pattern.

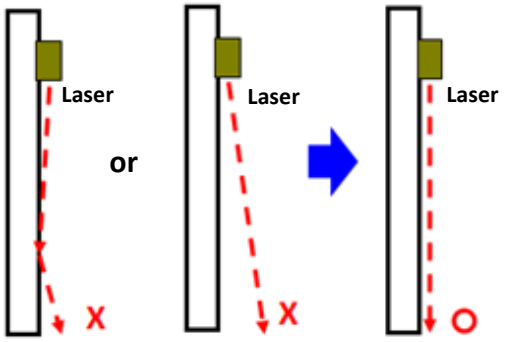
B-4. Exit Touch Area Setting

When the Touch Area is delineated, click to “Exit.”

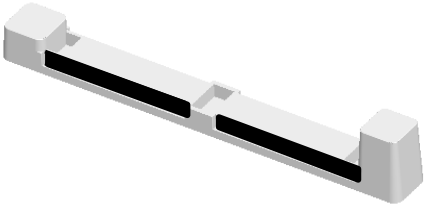

Step 1: Click on P1 then move the mouse cursor inside the window.
Step 2: Press the mouse left button while adjusting the green frame at the P1 corner. The green frame should rest between effective projected image area and reflected light spots of whiteboard frame. Release the button when adjustment is done.
Step 3: Using the same measure, adjust green frame at P2, P3 and P4.
Step 4: Finally, check again if all the green frame truly sets on the designated area. If not, adjust again.
P1
P2
P3
P4
Interfered Light Point:
0
Mask Setting
P1
P2
P4
P3
Preview
Exit
Ambient light mode selection
Auto
Bright
Dim

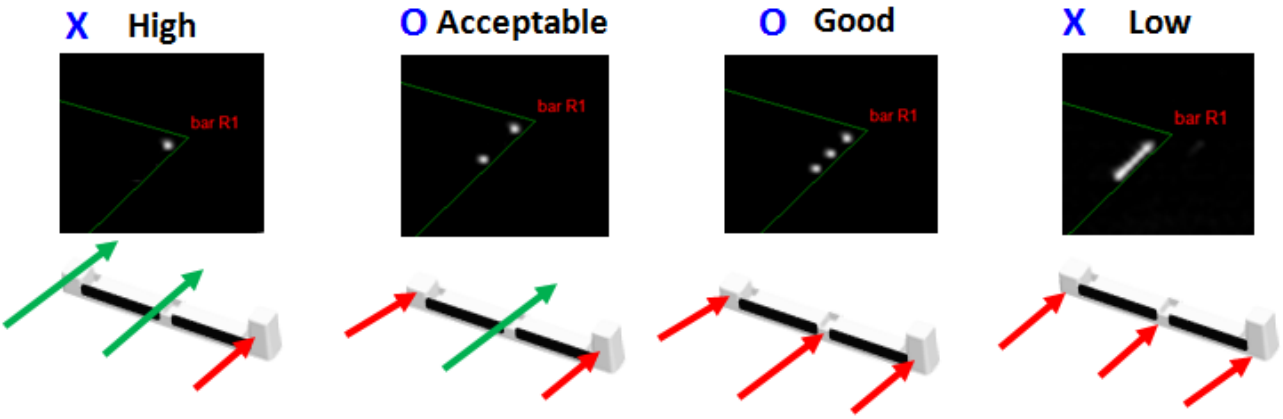
Step 5: Laser Beam Adjustment

A. Purpose



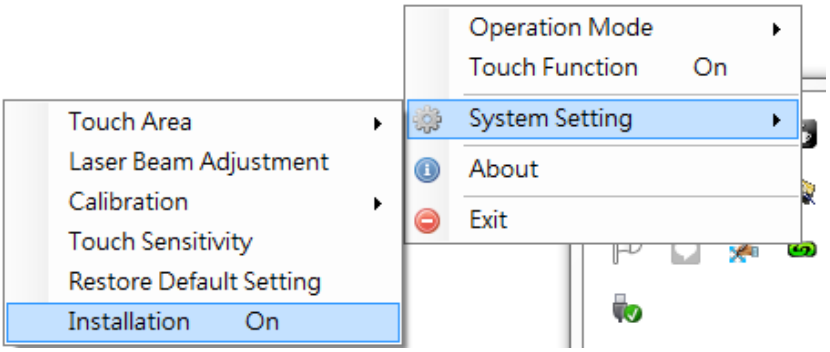
Reflection of alignment bar: Three white blocks reflect Laser beam. Black area is non-reflective.



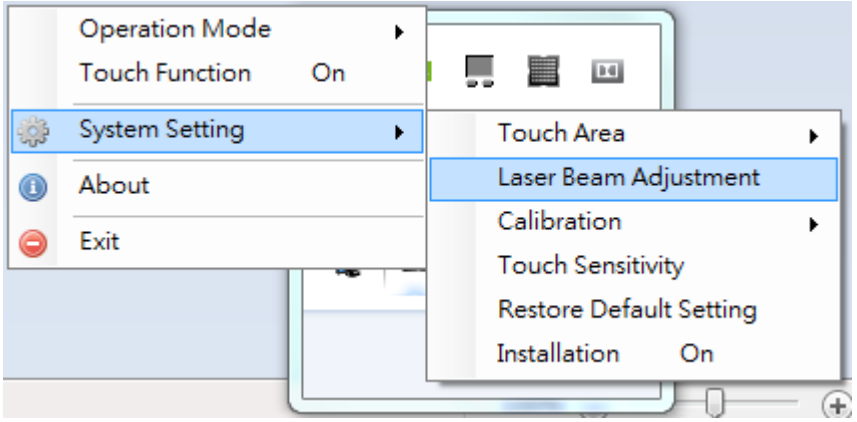


B. Initiate “Laser Beam Adjustment” function

Switch “ON” Installation mode(this is for installer use only) under System Setting in TouchDriver.

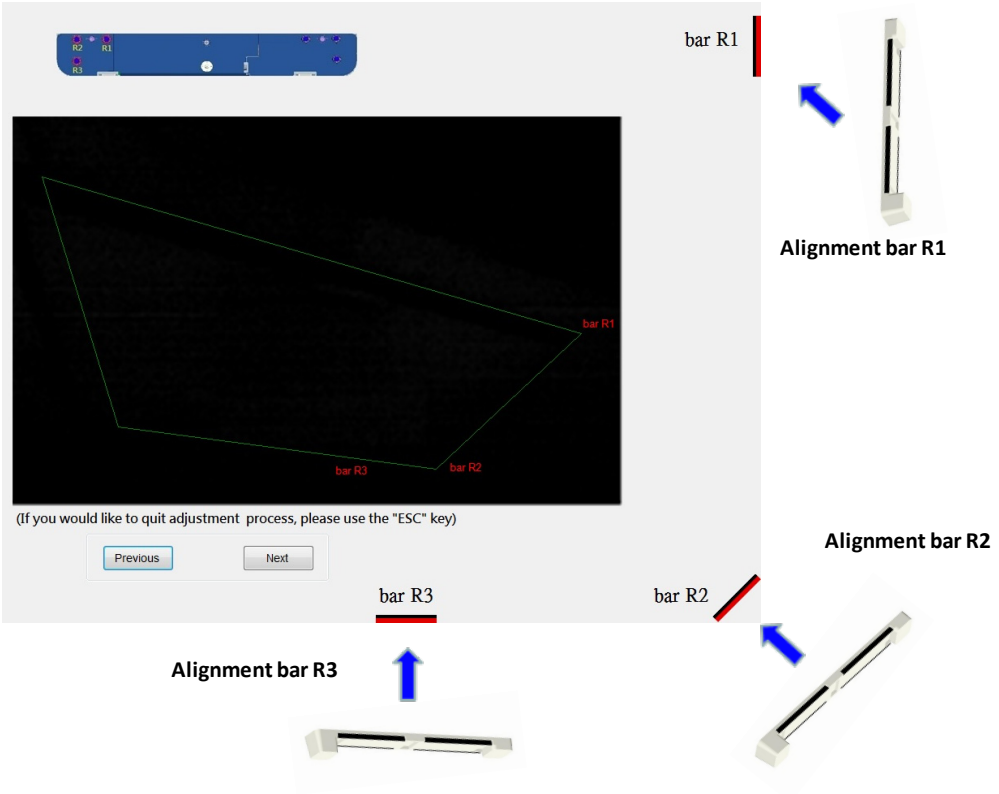


The function of “Laser Beam Adjustment” displays a real time image from IR camera.



C. Attach the Alignment Bars:

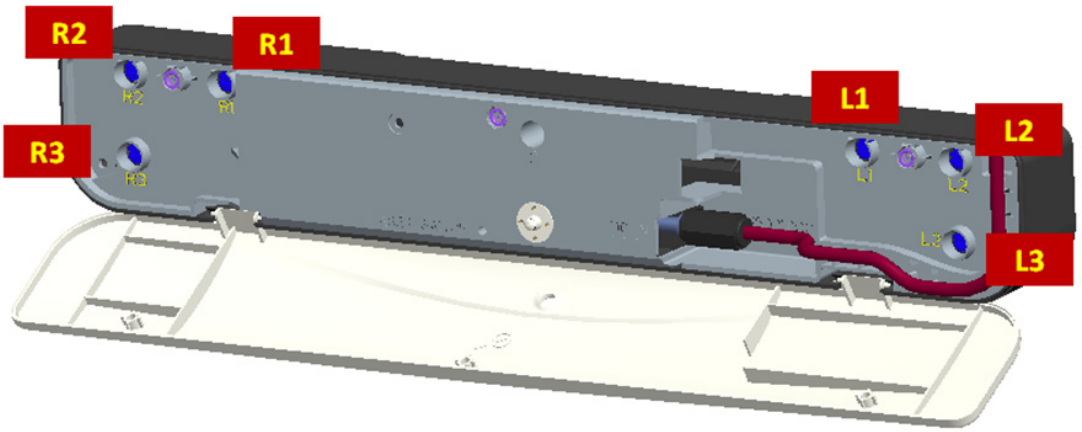
This is a full-screen image with alignment bar positions indicated to be attached.



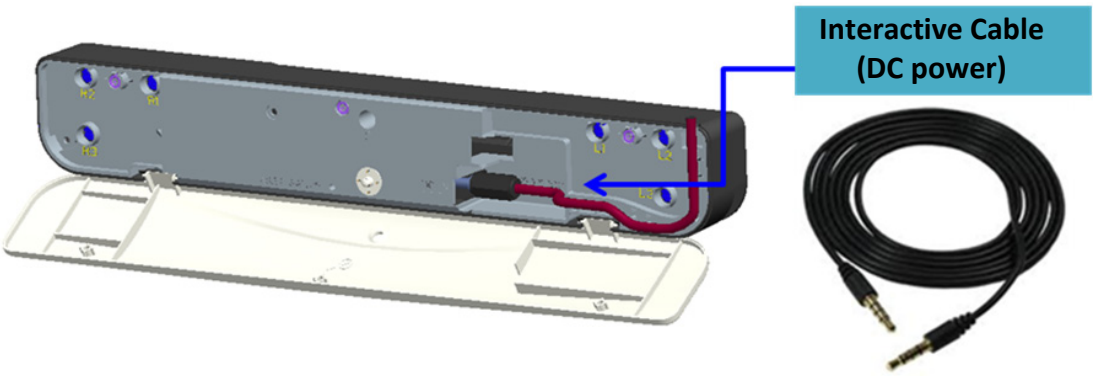
D. How to Adjust Laser Beam:

D-1 Open the Top Cap:

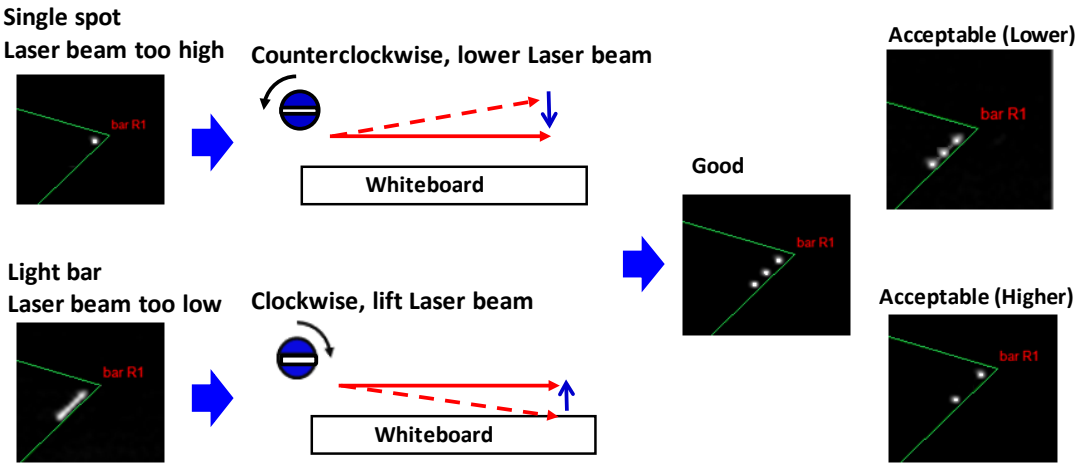
Open the top cap of Light Curtain module. There are 6 screws with 6 corresponding positions of alignment bars.

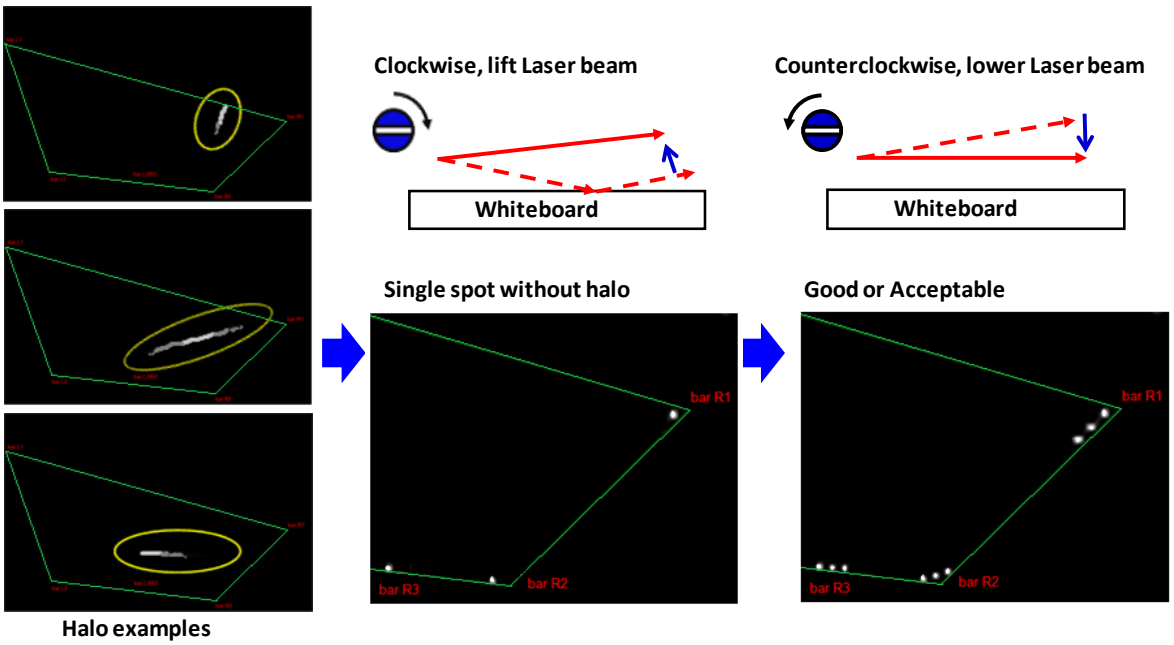


D-2 Plug in Interactive cable.



D-3 How to adjust when Laser beam is too high or low

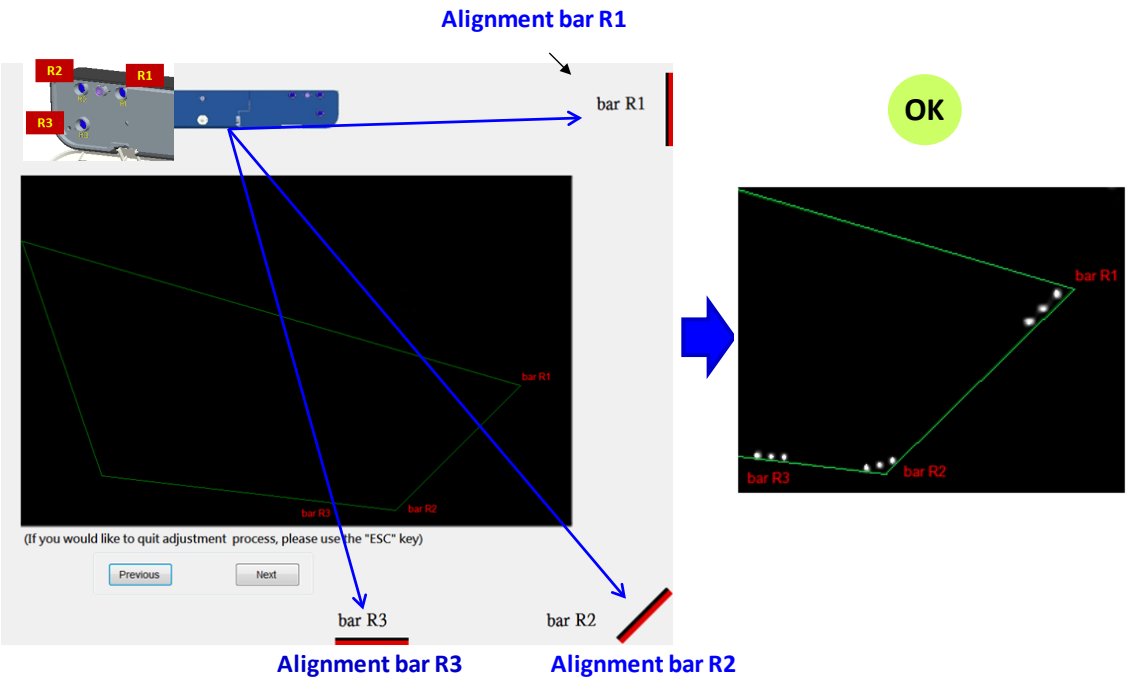




D-4 Right-hand side adjustment order:

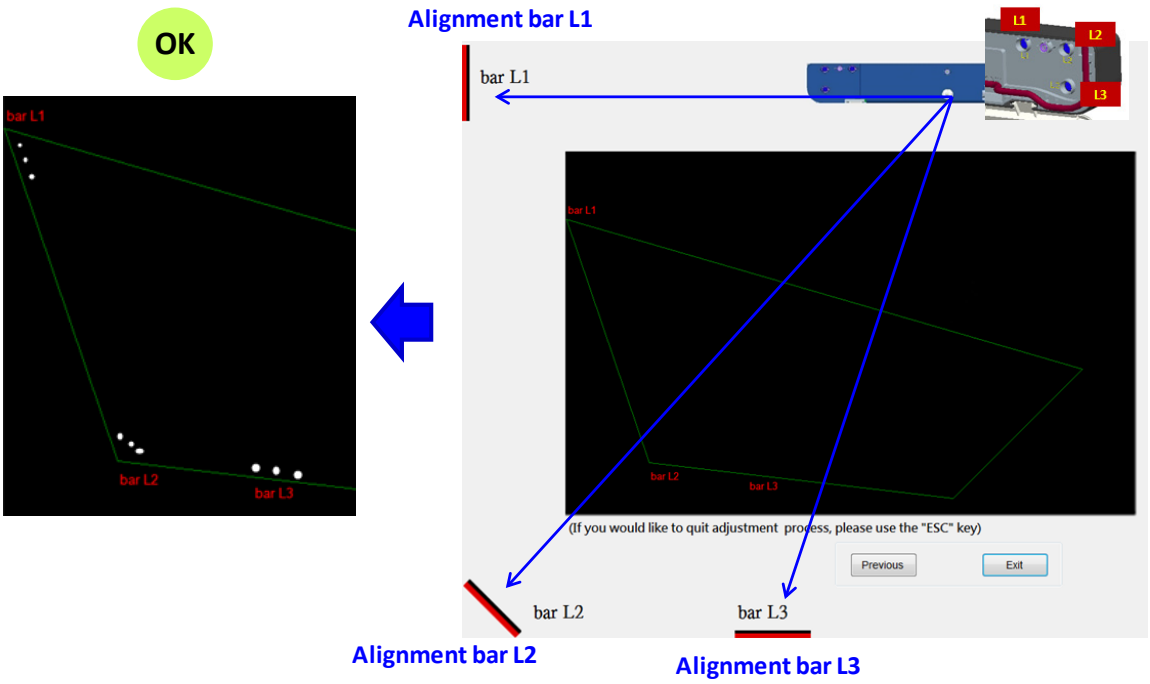
1. Attach alignment bars
2. Adjust screws in the order of **R1→R3→R2**.
   a. Adjust R1 screw until 3 light spots appear at bar R1.
   b. Adjust R3 screw until 3 light spots appear at bar R3.
   c. Finally, adjust R2 screw until 3 light spots appear at bar R2.
   d. Fine-adjust if necessary.
   e. Remove alignment bars.

When the screw ties or sounds 'cluck', stop and see Question 7 for trouble-shooting.



D-5 Left-hand side adjustment order:

1. Attach alignment bars
2. Adjust screws in the order of **L1→L3→L2**.
   a. Adjust L1 screw until 3 light spots appear at bar L1.
   b. Adjust L3 screw until 3 light spots appear at bar L3.
   c. Finally, adjust L2 screw until 3 light spots appear at bar L2.
   d. Fine-adjust if necessary.
   e. Remove alignment bars.



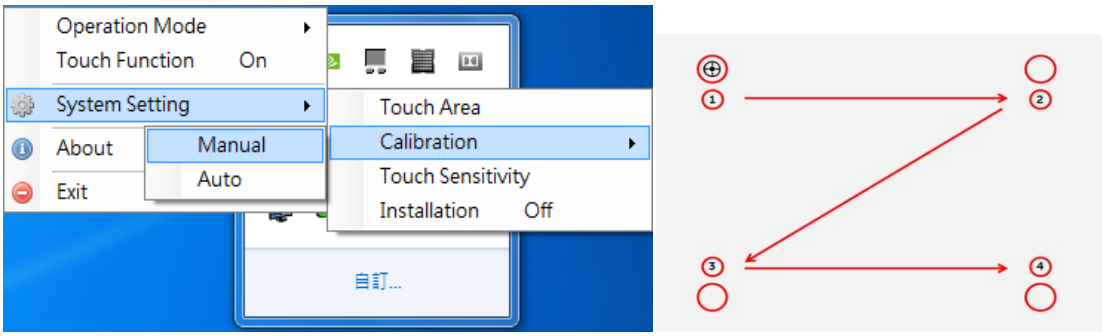
D-6 Close Light Curtain top cap

D-7 Quit Laser Beam Adjustment Mode

Click to “Exit”

Step 6: Calibration

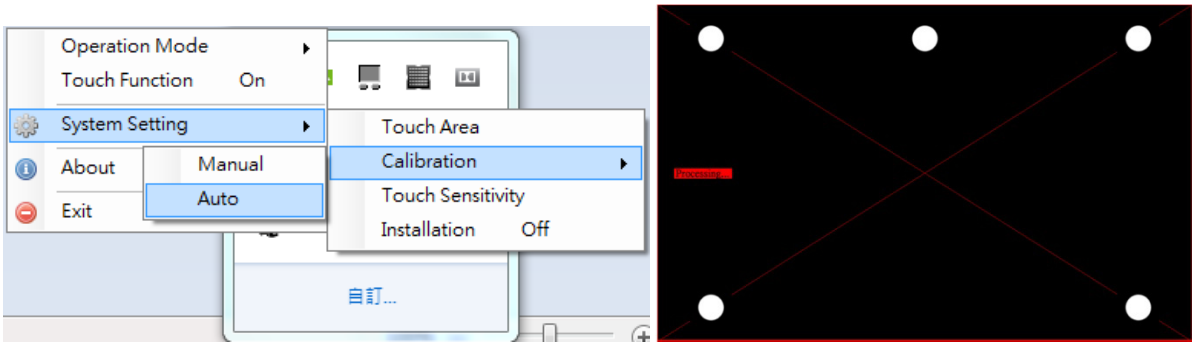
A. Execute Manual Calibration Procedure



Touch the target marks on the screen. (Press “Esc” key to exit calibration anytime.) After the 4th point of Calibration is finished, the system will save Calibration data. Wait until data is saved.

Note: Manual Calibration is suggested for better accuracy.

B. Select “Auto” to execute the Auto Calibration procedure.



If the fail message pops up, follow below steps to trouble-shoot and perform Auto Calibration again.

a. Close all software application

b. Reduce ambient light

c. Do not obstruct or shake lens during calibration

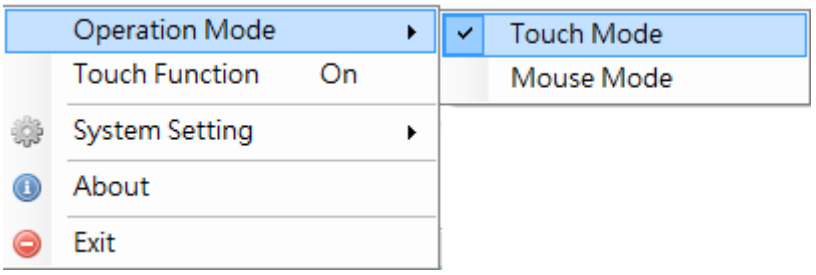
d. Check if projection image is clear. If not, adjust focus to sharpen the image

If the "Auto Calibration still failed" message pops up on screen, change to Manual Calibration mode.

Step 7: Mode Selection

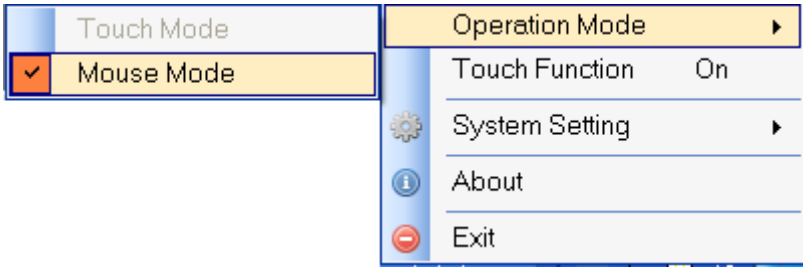
Select Mode as Touch Mode or Mouse Mode.

For Windows 7/8:



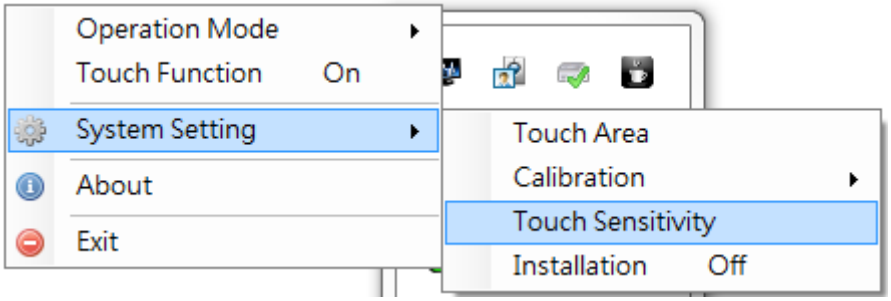
Windows 7 and Windows 8 operating system support multi-point touch control. Users can select default Touch Mode for multi-point touch or switch to Mouse Mode.

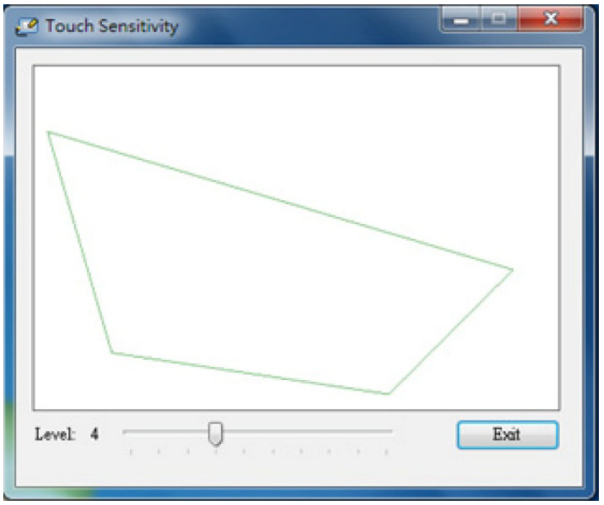
Only **Mouse Mode** is available for Windows XP.



Step 8: Touch Sensitivity

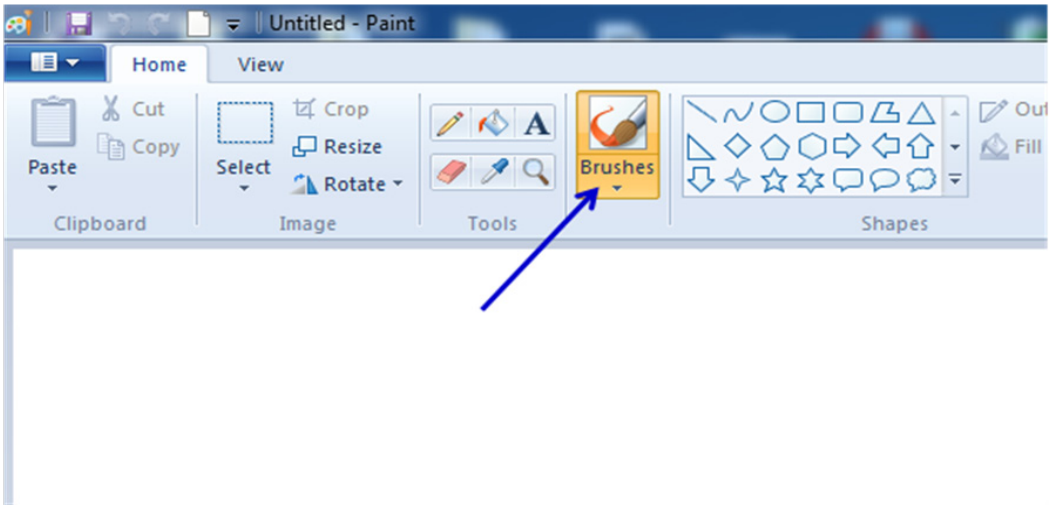
When touch function is insensitive or writing is intermittent, sensitivity could be enhanced by adjusting Touch Sensitivity level.



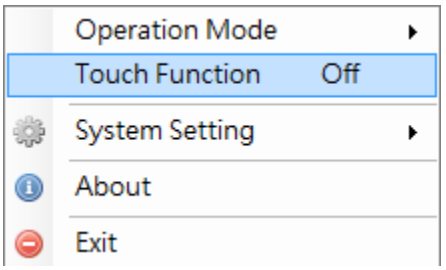


Step 9: Application

After executing software application, users can experience multi-touch function immediately. For example, launch Paint from Win7 or Win 8 and click on "Brushes" to draw 10-touch point simultaneously.



To write with marker pen on whiteboard, it is suggested to switch "Off" Touch Function.

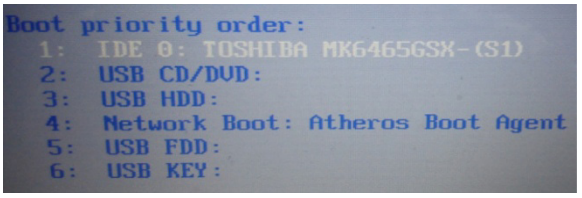


Trouble-shooting

Q1 Why cannot the PC boot when the USB cable which connects PC and projector is already plugged in?

A:

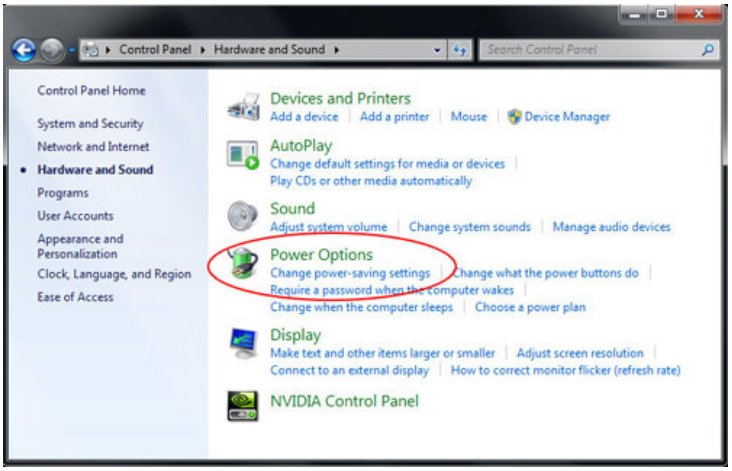
1. Unplug USB cable from PC; or
2. Go to BIOS setup page of PC and modify the “Boot priority order.” Choose Hard disk as top priority, save the change and restart PC.

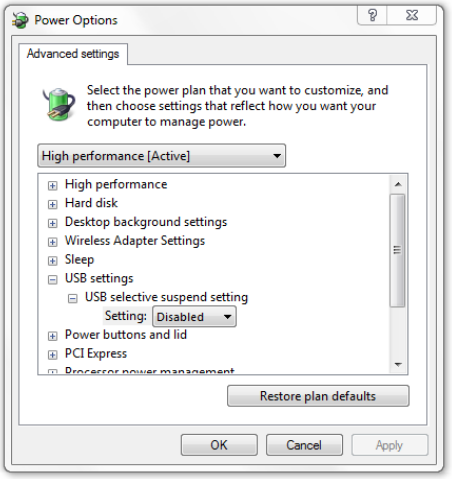


Q2 What to do when Windows system cannot identify the USB device?

A:

1. Unplug/re-plug in the USB cable and check again.
2. Switch to another USB port and check again.
3. Restart your computer and check again.
4. Go to Power Options in Control Panel, check USB selective suspend settings status in USB settings under Advance Settings. Switch to “Disabled”.





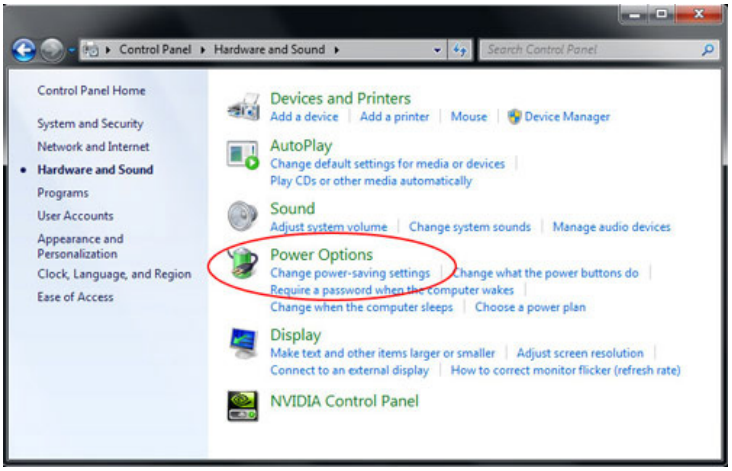
5. Go to official website of the laptop/PC manufacturer, and update USB driver to latest version.
6. Use the USB cable included with your projector and check again. If an USB extension is needed, please contact your distributor.
7. The USB port of your computer maybe not working. Please contact your IT staff.

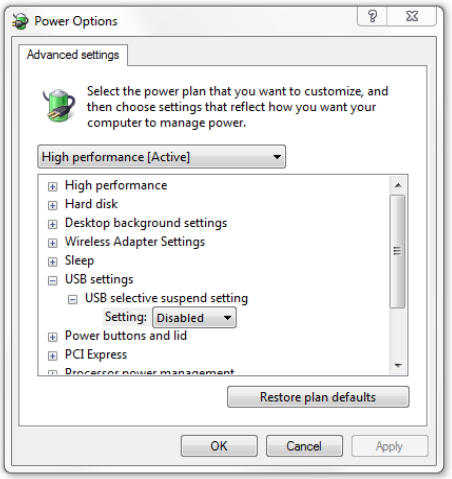
Q3 Why TouchDriver icon ( ) is red, not green ( )?

A: Red icon( ) indicates fail connection, this may be caused by following:

1. Check if interactive function is enabled via OSD selection

2. Unplug/re-plug in the USB cable and check again.
3. Switch to another USB port and check again.
4. Restart your computer and check again.
5. Go to Power Options in Control Panel; check USB selective suspend settings status in USB settings under Advance Settings. Switch to “Disabled”.





6. Go to official website of the laptop/PC manufacturer, and update USB driver to latest version.
7. Use the USB cable included with your projector and check again. If an USB extension is needed, please contact your distributor.
8. The USB port of your computer maybe not working. Please contact your IT staff.

Q4 Why does the LED indicator flash in blue and interactive function is not working?

A: LED indicator table

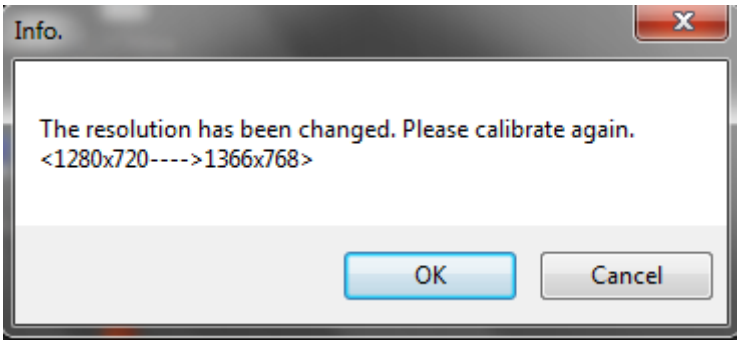
LED Blue	LED Red	Status	Description
On	Off	Normal	System is working normally.
Flash	Off	Interlock switch Fail	Please check if Light Curtain module is installed at the correct position.
OFF	On	Light Curtain Fail	If LED indicator remains in red, this indicates Light Curtain fail. Please contact Service Center.

This represents interlock switch fail. Please check if Light Curtain Module is properly located on the Curtain base plate.

Q5 When should Calibration and Touch Area Setting be done?

A: Please perform Calibration and Touch Area setting during first installation. If projector or whiteboard is moved, Touch Area Setting and Calibration should be performed again.

- When Laptop or NB resolution is changed, below TouchDriver notification will remind users to calibrate again. User could choose “Cancel” and do Calibration when a larger offset is observed.



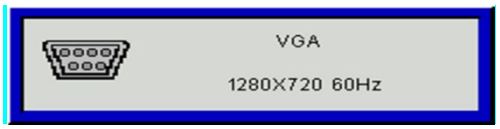
- For better accuracy, please do Manual Calibration.
- If an overlarge offset is observed, please perform Manual Calibration and see Step 6 Calibration for troubleshooting.

Q6 What to do when Auto Calibration and Auto Touch Area Setting both failed?

A:

1. Check “Ceiling Mount” OSD setting first. The interactive function supports Ceiling Mode only

2. When projector OSD message is shown, this may result failure to Auto Calibration and Auto Touch Area Setting. Please wait until OSD message is gone before performing Auto Calibration and Auto Touch Area Setting.



3. Please follow below trouble-shooting steps to perform Auto Calibration and Auto Touch Area Setting again.
   a. Quit all software application
   b. Reduce ambient light
   c. Do not obstruct or shake lens during Calibration
   d. Check if projection image is clear. If not, adjust focus to sharpen the image.
   e. If the “Auto Touch Area Setting failed” or "Auto Calibration failed" message pops up on screen again, please switch to Manual Mode to do Touch Area Setting and Calibration.
4. Please check Projector Lamp Power Mode selection. Lower lamp brightness (ECO mode) may affect both Auto Touch Area Setting and Auto Calibration. Please switch to Normal mode to complete Touch Area Setting and Calibration.

5. Please check Projector Color Mode selection. To ensure accuracy of both Auto Touch Area Setting and Auto Calibration, it is suggested to switch Color mode to Bright Mode.

Q7 What to do when the screw ties or sounds 'cluck'?

A-1: If screw R1/L1 ties and cannot tighten further, stop adjusting screw R1/L1, and:

1a) Adjust R2/L2 by same screwing direction encountered from R1/L1, until bar R1/L1 is 3 spots. (For example, if R1 ties while screwing clock-wisely, then adjust R2 clock-wisely accordingly.)

2a) Re-do right/left adjustment order as **1 → 3 → 2**

3a) Fine adjust if needed

A-2: If screw R3/L3 ties and cannot tighten further, stop adjusting screw R3/L3, and:

1a) Adjust R2/L2 by same screwing direction encountered from R3/L3, until bar R3/L3 is 3 spots. (For example, if R3 ties while screwing clock-wisely, then adjust R2 clock-wisely accordingly.)

2a) Re-do right/left adjustment order as **1 → 3 → 2**

3a) Fine adjust if needed

Q8 What to do when the mouse cursor ( ) flashes or jumps on screen, or when Touch function does not work well at certain projection area?

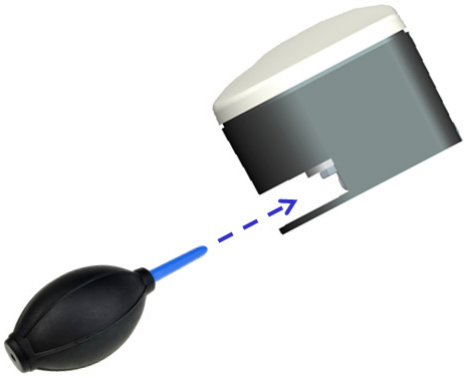
A:

1. Check if there is strong light shown on the whiteboard. If yes, turn off the light.
2. Check if there is any foreign object on the whiteboard. If yes, remove the object.
3. Switch “On” to initiate Installation mode under System Setting in TouchDriver and perform Laser Beam Adjustment to check if Laser beam is hitting the whiteboard. Please refer to Step 5 Laser Beam Adjustment for detailed procedures.
4. Switch “On” to initiate Installation mode under System Setting in TouchDriver and perform Step 4 Manual Touch Area setting to check if Touch Area boundary is delineated properly.

Q9 What to do when projection area corner is insensitive or intermittent lines are observed?

A:

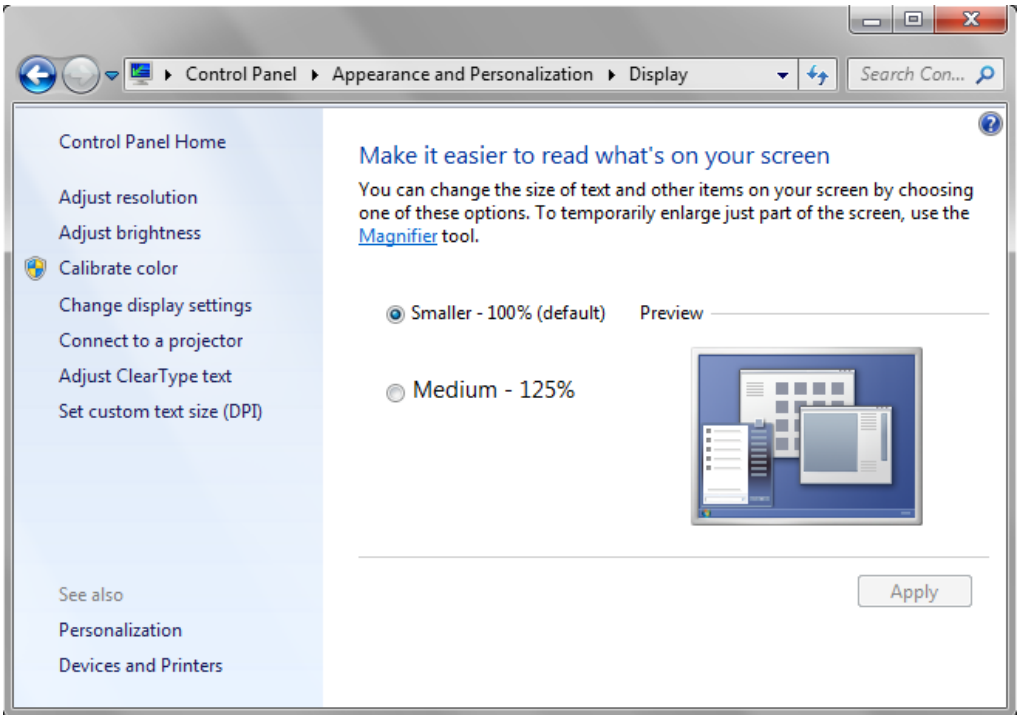
1. Adjust the level of Touch Sensitivity to enhance sensitivity, see Step 8 Touch Sensitivity for trouble-shooting.
2. If Touch function remains insensitive, please check the optical port condition. If dust or particles are observed, gently clean the optical port with dust blower.



Q10 What to do when Touch function is not accurate?

A: Touch accuracy may be impacted when Windows default display setting under Windows has been changed.

1. Go to the setting page <Start menu/Control Panel/Appearance and Personalization>



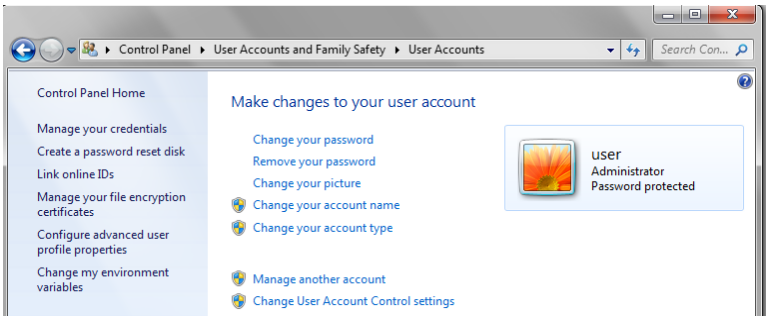
2. Select “Smaller - 100%(Default) ” and click “Apply”.

Q11 Why virtual keyboard is not working under Mouse Mode of Windows 7 Operating System?

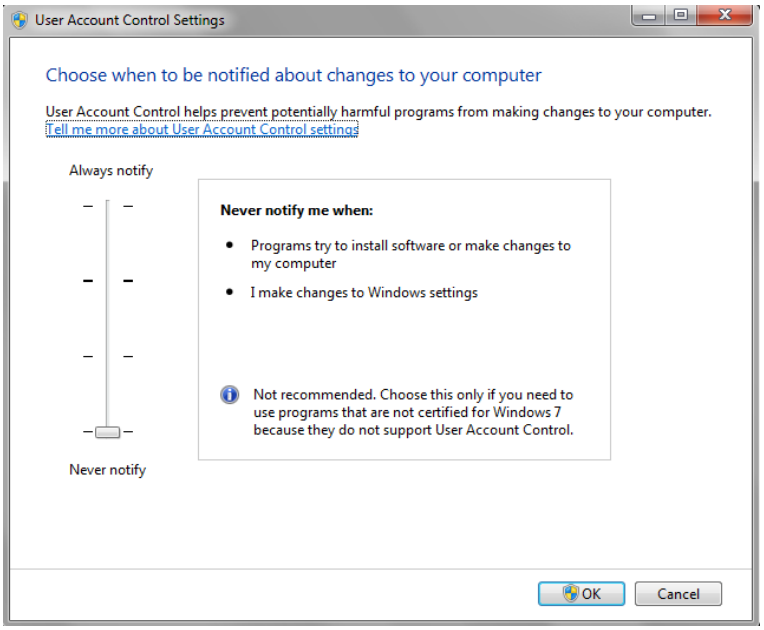
A: This function may be restricted by <User Account Control, UAC> setting of the Windows 7 Operating System. Please see following steps to modify:

1. Go to the setting page <Start menu/Control Panel/UserAccounts>.

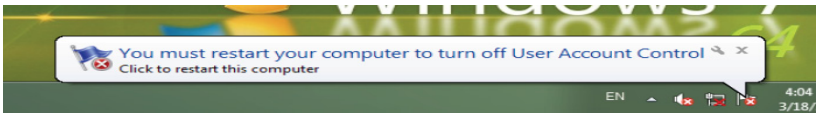
2. Select <Change User Account Control settings>



3. Change the level of User Account Control to "Never notify" and then click "OK" to confirm.



4. Restart the computer to complete the process

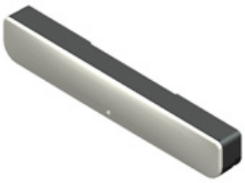
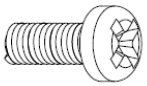
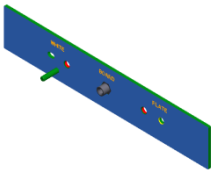


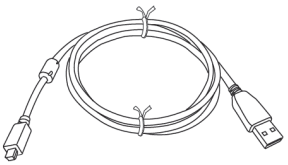
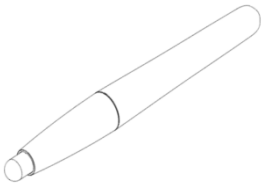
Appendix A: Specification

I. IR Camera Module	
ID Size (W*L*H)	104.7 (W) x 118.3 (L) x 71.5(H) mm
Weight	≤165 g
Power Consumption	5V/0.3A
II. Light Curtain Module	
Laser Safety	Class 1
Curtain to Screen Distance	20 mm~70 mm @100”
LED Indicator	Blue/Red
I/O Port	Interactive Jack x1
ID Size (W*L*H)	330.2 (W) x 50.7 (L) x 41.1 (H) mm
Weight	≤330 g
Power Consumption	12 V/0.2 A
III. General Specifications	
Calibration	● 4 points Manual Calibration for Windows ● Auto calibration supported
Multi-touch	10-touch points (Win 7 and Win 8 compliant)
Multi-touch Min. Distance	≥40 mm
Working Projection Image Size	75”~100” @WXGA co-operate with TR0.35 projector
Display mode	Support Ceiling mode only
IR camera installation	IR camera cannot support hot plug. Before installation, please ensure AC power cord is unplugged from projector

IV. Software Driver		
System Requirements	OS Required:	● Microsoft Windows XP (SP3): Mouse mode supported. ● Windows 7/Windows 8: Touch mode-10 touch points supported and Mouse mode supported (Windows: .NET Framework 4.0 installation is required)
	Processor Type	Intel Core™ i3 or above
	RAM	2GB or More
	Min. HHD Space	110 MB

Appendix B: Accessory

Item	Description	Quantity
1	Light Curtain Module 	1
2	IR Camera	1
3	Screw M3 	2
4	Screw M4	1
5	Interactive cable	1
6	Alignment Bars	3
7	Curtain base plate 	1

8	5m USB A to mini USB B cable 	1
9	Passive Pen 	1
10	User Manual CD	1
11	Quick Start Card	1