

User Guide for WB2100

The ultimate plug and play portable interactive whiteboard solution

The WB2100 is a fully featured interactive whiteboard system that transforms any standard whiteboard, flat surface (such as a wall) or projection screen into an interactive whiteboard.

It requires NO signal receiver or device to be attached onto the projection screen surface making it fully portable between classrooms.

Transform your office/ classroom wall into a huge touch screen

Integrated optical position detection technology supports interactively on both hard and soft projection surface of any size up to an amazing 150"! No battery is required for the USB signal receiver and the unit can be mounted to the ceiling if a permanent solution is required.

Working with the extendable pointer E-Pen or stylus E-Pen, you and your students can explore internet websites, use digital e-Content, build interactive flipcharts and create more opportunities for discussions and interaction in the classroom.

Powerful, high definition and superior stability

The WB2100 is designed to deliver superb agility and reliability in interactive writing on all types of projection screen. It is also packed with new features such as superior resistance to ambient lighting, sophisticated new styling, and newly updated software and tools. With the signal receiver installed and first positioning calibration implemented, no further calibration is required even when connected to another PC.

The supplied FreeClass software features quick notebook mode, movable toolbar, interactive screen keyboard, spotlight, screen shade and annotation functions.

Product Specifications

Signal Receiver	
Optical Detection Technology	Infrared
Active Area (max projection size)	150 inch diagonal
Horizontal Reception Angle	33 +/- 2 degrees
Adjustable Vertical Reception Angle	0-30 degrees
Position Calibration	Optical Indication Positioning
Active Distance (from projection screen)	1.5 – 5 m
Connectivity Interface	USB2.0 (3m) & RS-232 (optional, for distance up to 40 m)
Resolution	Within 2 pixel jitter at centre for display resolution of 1024X768
Power Consumption	Less than 1W
Weight	210 g
Dimension	125 x 85 x 25 (mm)
System Requirements	
OS Required	Microsoft Windows 2000/XP
Processor Type	Intel Pentium or above
RAM Size	128 MB (256MB recommended) or above
Min. Hard Drive Space	100 MB

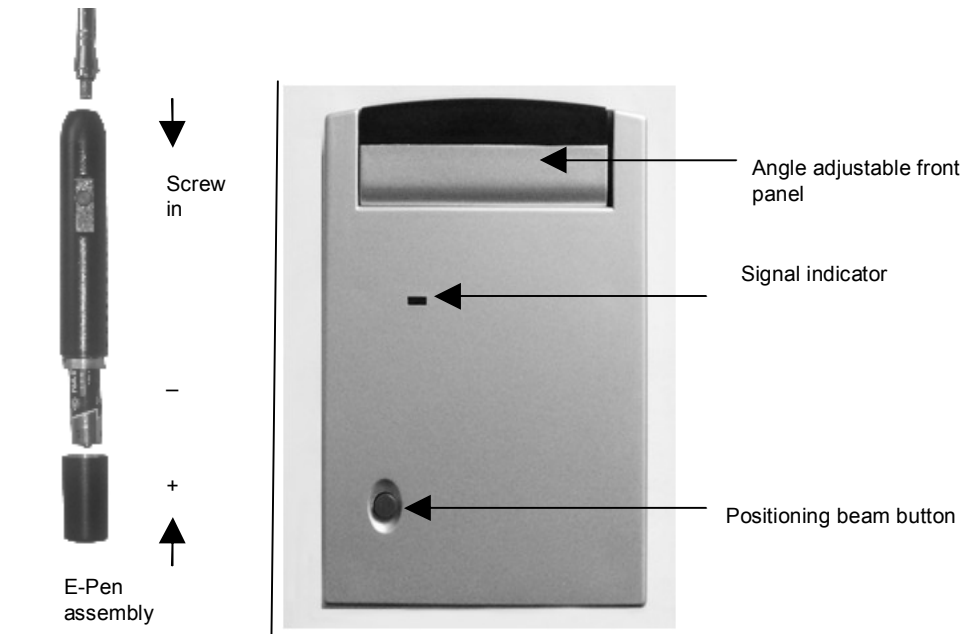
Product Specifications

Pointer E-Pen	
Light Emitted	Infrared
Control Buttons	1 button
Power Requirement	Battery AA x2
Working Current	40—50 milliamp
Pen Body Dimension	15.0 cm (length); 21.0 mm (diameter)
Pen Body Weight	55g (exclude battery)
Pointer Extendable Length	36 cm, extendable up to 65 cm
Pointer Weight	50g
Stylus E-Pen (Optional)	
Light Emitted	Infrared
Pen Tip Trigger Switch	Pressure Sensing
Control Buttons	1 button
Power Requirement	Battery AAAx2
Working Current	40—50 milliamp
Pen Body Dimension	15.7 cm (length); 19.5 mm (diameter)
Weight	60g (exclude battery)

Package Contents

Interactive Whiteboard System WB2100	
Signal Receiver	X 1
Pointer E-Pen	× 1
Ceiling Mount Bracket	X 1
15m RS-232 to USB Cable	X 1
USB cable	X 1
Battery AA	x2
Driver CD	X 1
Instruction Manual	X 1
Warranty	X 1
Stylus E-Pen	X 1 (Optional)

Assembling the System Parts



Connect **A** to pc, Connect **B** to c

Installation of Software

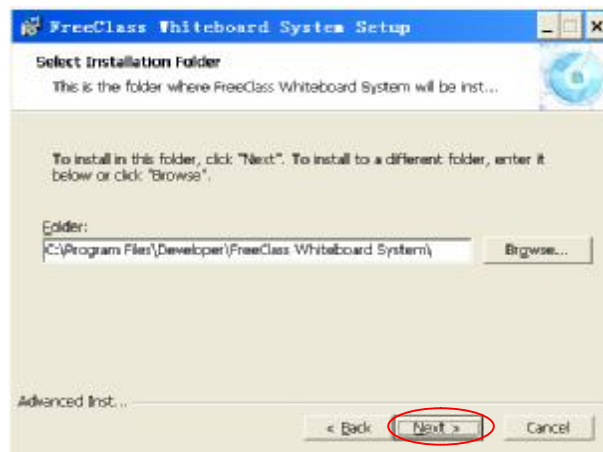
1. Installation of Interactive Whiteboard System Software

Insert the program CD-Rom into the computer's CD drive. The following window will appear automatically (picture 1 – 4). If the CD does not automatically play, double click the 'Setup' file from the CD drive directory for manual installation.



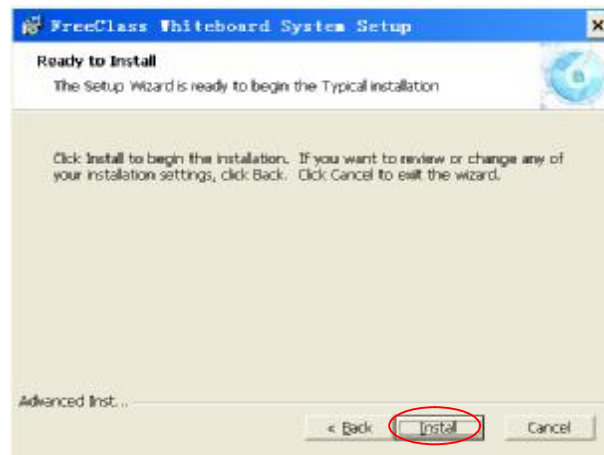
Picture 1

Click 'Next' to continue the installation.



picture 2

Select the folder where FreeClass will be installed, then click 'Next' to continue the installation.



picture 3



picture 4

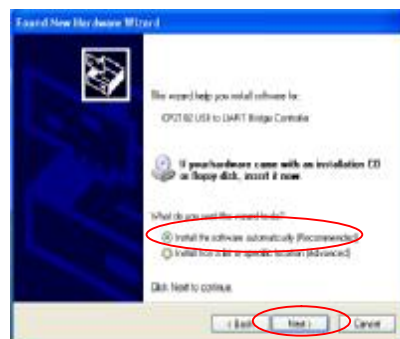
(Remarks: The image procedure depicted above is based on Windows XP)

2. Driver Installation

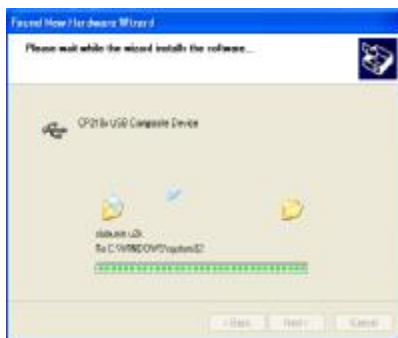
Connect the signal receiver to the computer via the USB cable after software installation. The 'Found New Hardware Wizard' window will appear automatically (picture 1 – 4). The software CD-Rom needs to be inserted to install the drivers.



picture 1



picture 2

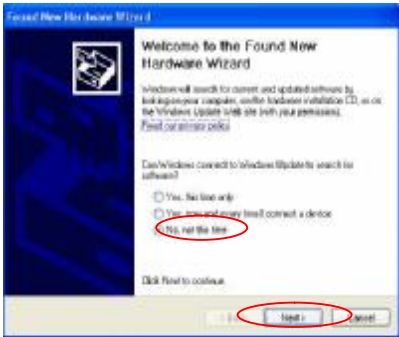


picture 3

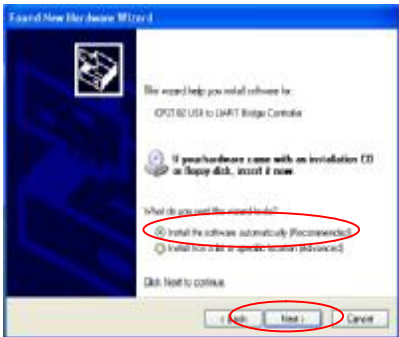


picture 4

Upon completion of the above procedure, the second 'Found New Hardware Wizard' will appear on computer screen again. To complete driver installation, repeat the above procedure (picture 5 – 8) once again. The installation of two drivers completed.



picture 5



picture 6



Picture 7



picture 8

Installation of Signal Receiver

Position the signal receiver in front of the projection screen / surface at a distance of approximately 1.2 to 1.5 times of the width of the projection size (as a general rule, place the signal receiver next to and slightly ahead of the projector).

Press the red button on top of the receiver; a positioning beam will be emitted by signal receiver. Direct the LED light to the point at the centre of the projection screen (as shown in picture).

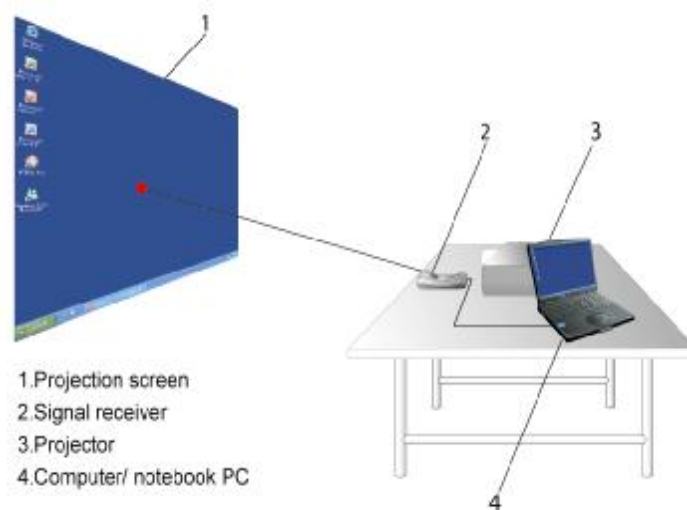


(Remarks: to achieve the best interactivity performance, avoid blocking the signal path when using the system.)

Recommended Signal Reception Range	
<i>Projection Size</i>	<i>Distance between Receiver and Projection Surface</i>
70 "	2.0~2.5 m
100 "	2.5~3.0 m
120 "	3.0~3.5 m
150 "	4.0~4.5 m

1. Desktop (mobile) Installation

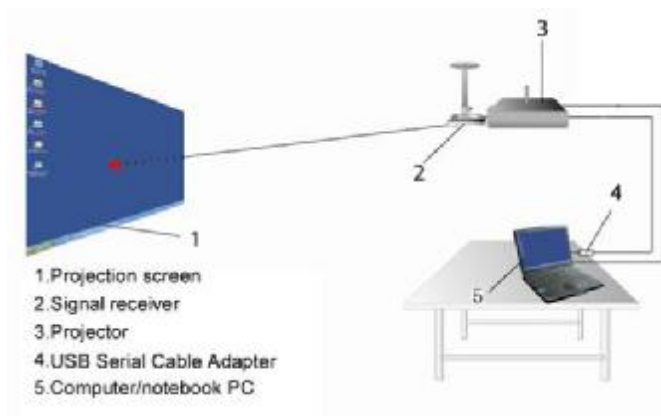
Place the signal receiver on desk top at a distance of approximately 1.5 times of the width of the projection image, or on top of or next to the projector. Adjust the position of receiver and the angle of the receiver's reception panel to direct positioning beam onto the centre of the projection screen.



Equipment installation illustration

2. Ceiling Mount Installation

Install the signal receiver to the ceiling with a mount bracket and extended cable. Adjust position of receiver and angle of receiver's reception panel to direct positioning beam onto the centre of the projection screen.



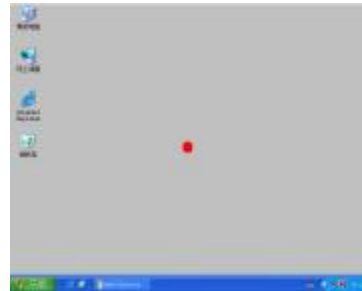
Equipment installation illustration




Signal receiver installation position illustration

Position Calibration

1. Position calibration is necessary for the first use of or when calibration is not accurate in subsequent use. Check the reception range of signal receiver before executing position calibration.



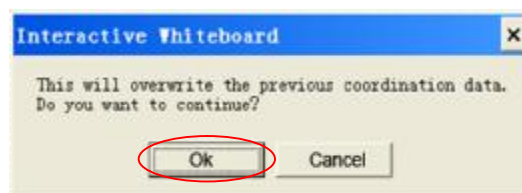
2. Start the FreeClass program
Start > Programs > FreeClass

The icon'  will appear in the system tray toolbar.

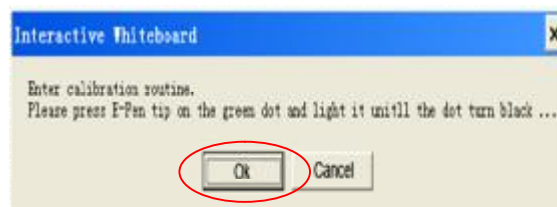
Right click the icon '  ', choose 'Calibrate'.



3. Pull up a dialog then click ok



4. Pull up a dialog then click ok again



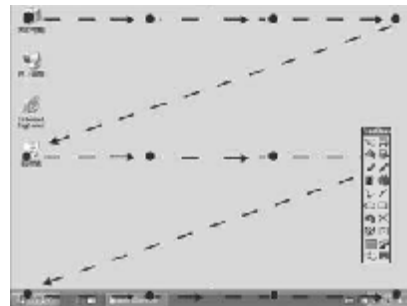
5. After that ,a green dot will appear on the top left corner of the projection screen.This indicates the start of the position calibration routine



6. Position the E-Pen's pen tip at the centre of the green dot (on the projection screen) and press the button for about 0.5 to 1 second until the dot turns black.
This indicates calibration of this sampling point has been completed.



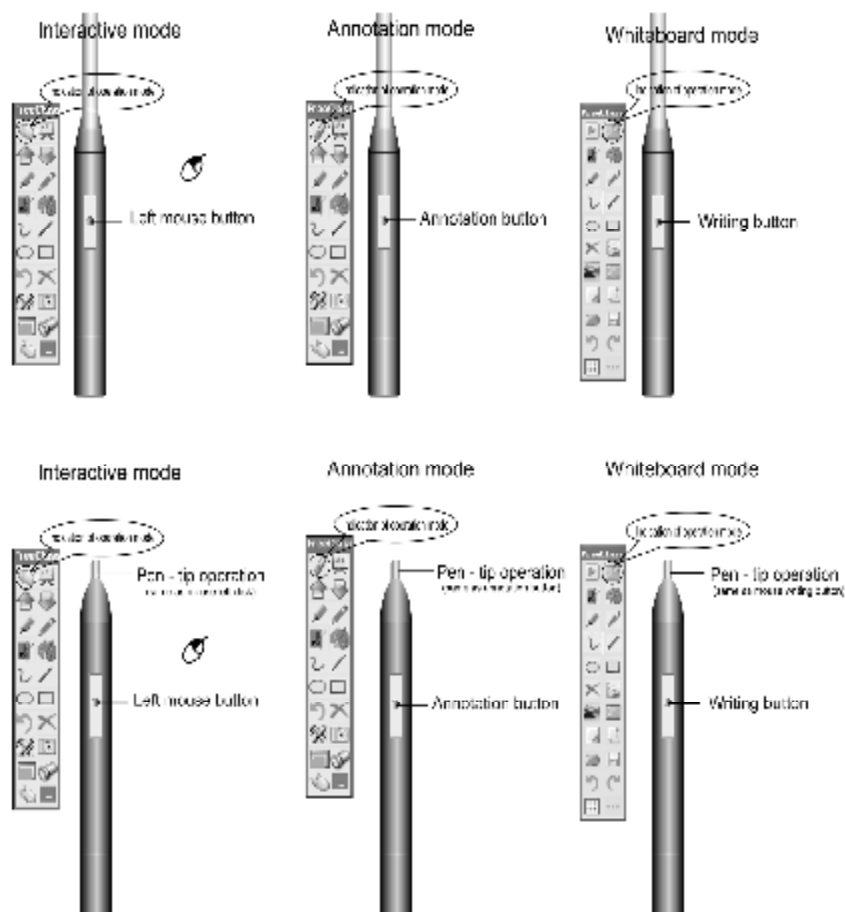
7. Repeat step 6 until all the green dots turn black. That will be a total of 12 sampling points. (according to the system setting).






8. Then, you will hear a prompt tone. This indicates the completion of the position calibration. The System is ready.


Introduction of Single Button E-Pen

The E-Pen consists of a larger button designed for operational function (normally it functions as the left mouse button). Function is to be executed via pressing the operational button. The stylus E-Pen's tip is pressure triggered and functions in the same way as the operational button. Once triggered, operations can be implemented via the stylus E-Pen's pen tip, requiring no further pressing on the operational button. It is recommended to hold the stylus E-Pen at a certain angle to the projection surface when writing as not to block the signal with your hand.



Introduction of Software

The FreeClass program brings superb interactivity to the Interactive Whiteboard System by performing various versatile functions under the Interactive mode ' , Annotation mode ' , and Whiteboard mode ' .

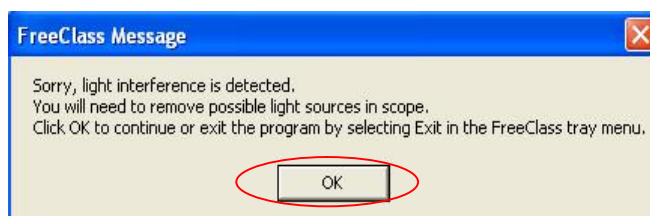
1. Interactive mode: the E-Pen functions exactly as a mouse on the projection screen with functions like double click, single click, drag and drop. To operate right click function with operational (left) button, click at Right button simulation '  ' icon in the toolbar menu first.
2. Annotation mode: FreeClass offers powerful writing and annotating tools like drawing, highlighting, lines, and shapes such as rectangles and circles. This allows the user to highlight key points, record, and write with great ease at any time. Users can also write on media graphics including video and flash. Annotation mode is a real time operation, screen function still can be operated, e.g. page scroll functions. All writings, annotations and drawings generated on the screen can be saved in image format for record.
3. Whiteboard mode: it offers the same powerful writing tools like drawing, highlighting, lines, and shapes, etc. Moreover, the Whiteboard mode integrates real time recording function. All contents generated on the Whiteboard mode are recorded simultaneously for replay anytime. It can be saved in different image formats or exe format. Whiteboard mode also provides different background pictures for selection including current desktop background. 'Undo', 'Redo' and 'View list' are the new powerful features for easy use.

All three working modes provide various accessory tools such as screen shade, spotlight etc., to enable the users conveniently highlight key points, making teaching much more interactive.

Remarks:

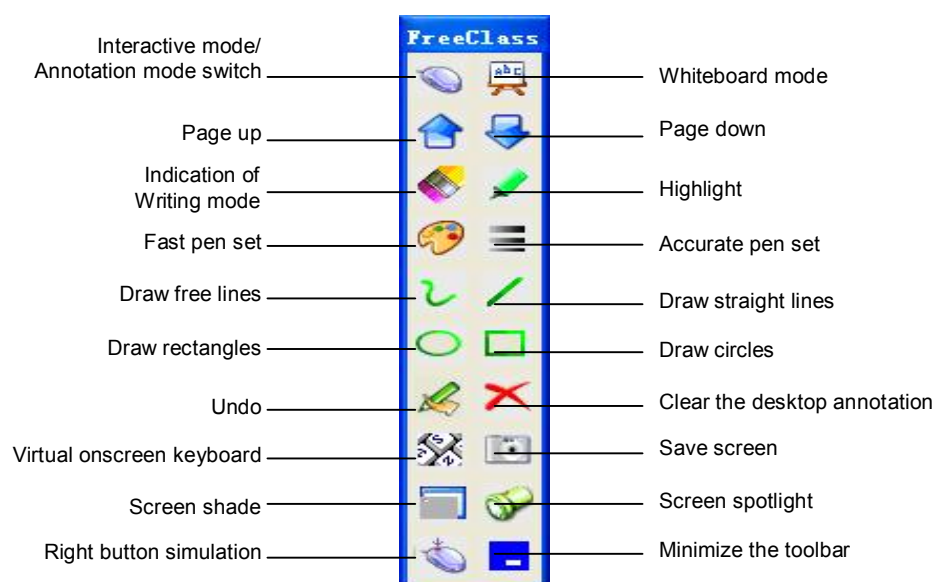
Message of light interference:

If the system cannot work normally and the mouse cursor cannot operate correctly because of light interference, please wait for 30 seconds. FreeClass will eliminate interference automatically and the mouse cursor will resume to normal. Remove the light sources and run again the FreeClass program. A prompt message window will pop up as below:



Program Function Keys

Interactive Mode / Annotation Mode





Interactive mode: E-Pen functions exactly as a mouse. Click on this icon to enter Annotation mode.



Annotation mode: E-Pen can be used to write, draw and annotate anywhere on the screen. Click on this icon to enter Interactive mode.



Whiteboard mode: click on this icon to enter Whiteboard mode. The screen instantly transforms into an interactive whiteboard/flipchart page.



Page up: go to previous page in an opened document file. It is applicable under Interactive mode and Annotation mode.



Page down: go to next page in an opened document file.



Indication of Writing mode.



Indication of Rubber mode.



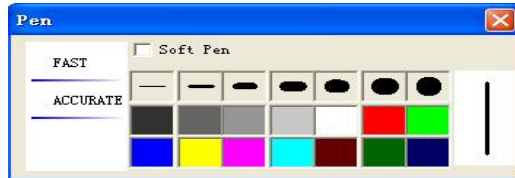
Under Rubber Mode, different rubber modes can be selected as shown:



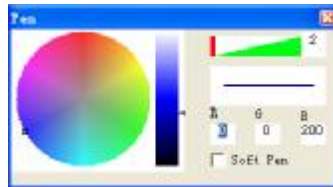
Highlight: write and annotate with highlight pen effect.



Fast pen set: choose pen color, line width and soft pen in fast way.



Accurate pen set: choose pen color, pen width and soft pen in accurate way.



Draw free lines: write and annotate free on the screen.



Draw straight lines.



Draw circles.



Draw rectangles.



Undo: cancel the last annotation or erase operation.



Clear the desktop annotation: clear all desktop annotation and writing contents. Contents cannot be recovered after screen is cleared.



Virtual onscreen keyboard.



Save screen: capture current screen and save as an image file.



Screen shade: use to cover up the screen, the shade area and direction is free to change anytime.



Screen spotlight: emphasize page content with spotlight effect – color and transparency outside the spotlight zone are customizable.

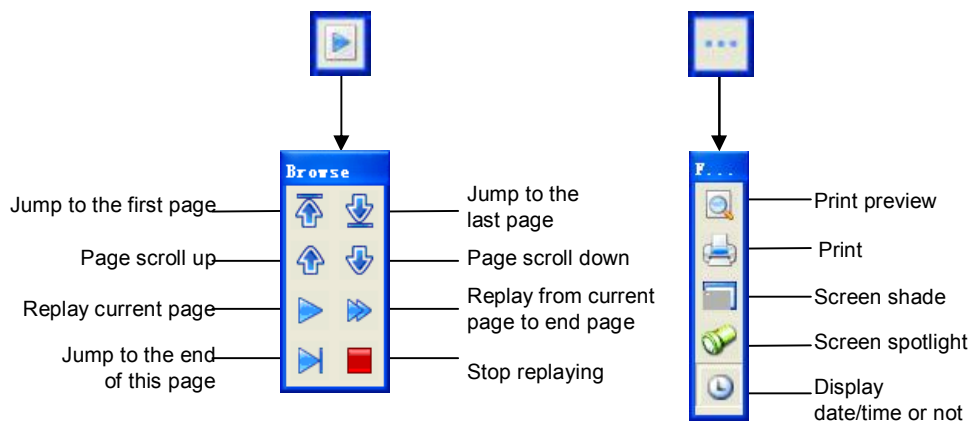
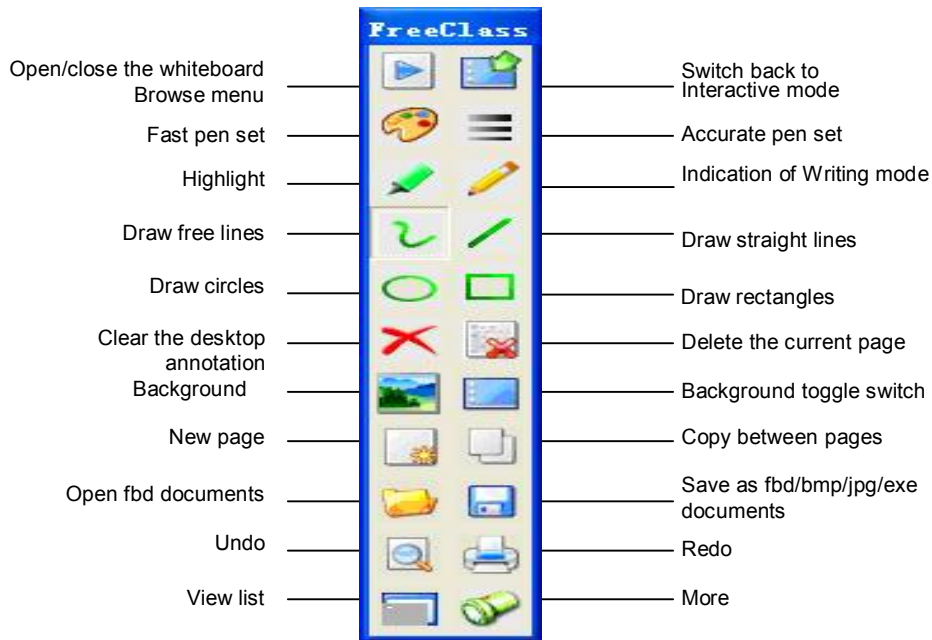


Right button simulation: the operational button of the E-Pen is defaulted as the left mouse button under Interactive mode. Use E-Pen to click at the 'Right button simulation' to switch the operational button to right click instead. E-Pen automatically returns to default mode after the right click action and the 'Right button simulation' icon will pop up again.



Minimize the toolbar.

Whiteboard Mode





Open/close the whiteboard Browse menu.



Switch back to Interactive mode.



Fast pen set: choose pen color, line width and soft pen in fast way.



Accurate pen set: choose pen color, pen width and soft pen in accurate way.



Highlight: write and annotate with highlight pen effect.



Indication of Writing mode.



Draw free lines: write and annotate free on the screen.



Draw straight lines.



Draw circles.



Draw rectangles.



Indication of Rubber mode.



Clear the desktop annotation: clear all desktop annotation and writing contents. Contents cannot be recovered after screen is cleared.



Delete the current page.



Background: insert any picture as whiteboard background.



Background toggle switch: click to change the whiteboard background to current desktop background or preset color or patterns.



New page: create a new page on whiteboard.



Copy between pages: copy writing contents from previously displayed page to current page.



Open fbd documents: open previously saved as 'fbd' format whiteboard document.



Save documents: save the whiteboard document in different file formats: fbd, exe, bmp, jpg. The fbd file is standard format of FreeClass. The exe file can be self-executed independently without running FreeClass.



Undo: cancel the last annotation or erase operation.



Screen shade.



Screen spotlight.



Print preview.



Print.



Jump to the first page.



Jump to the last page.



Whiteboard page scroll up.



Whiteboard page scroll down.



Replay current page.



Replay from current page to end page.



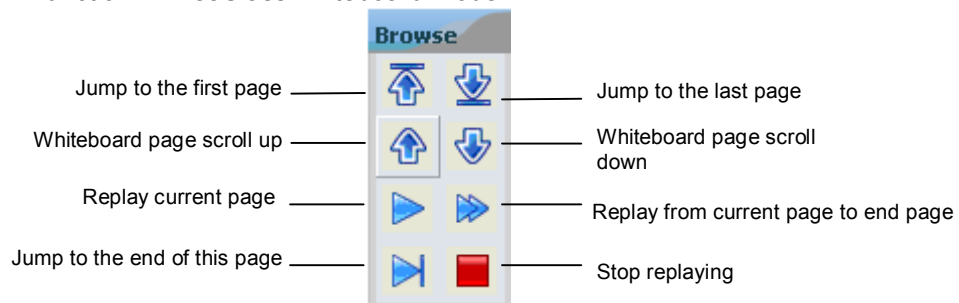
Jump to the end of this page.



Stop replaying.

Save as EXE File

Whiteboard document saved in exe file can be executed independently without running FreeClass. Just double click on exe file created by whiteboard document to open it. This document doesn't include editable function, it only can be replayed. The replay function is the same as the function in FreeClass whiteboard mode.



System Tray Menu

After running FreeClass program, an icon '



Minimize the toolbar.



Saving Setting: select file saving path and the format of screen capturing.



Calibrate: refer to position calibration.



About: FreeClass info, connection status and system hardware's serial numbers HSN.



Exit

Screen Shade

Screen shade: use to cover up the screen, the shade area and direction are free to change anytime. Use the E-Pen to drag at vertical or horizontal direction, and the direction icon will

be highlight as '  ' or '  '.

One moving direction is valid at the same time.



Screen Spotlight

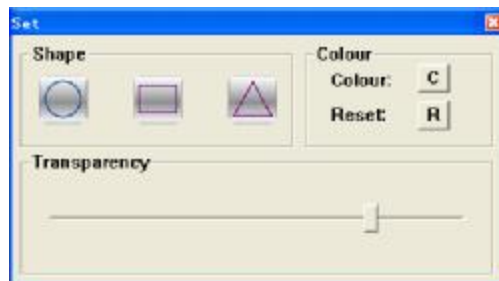
Screen spotlight: emphasize page content with spotlight effect – color and transparency outside the spotlight zone are customizable.





Close spotlight.




Spotlight setting. Click on the icon and the menu pop up as below:



Click at Shape ' ' , ' ' , ' ' ' to select spotlight shade.

Click at Colour ' ' , to change spotlight background colour. ' ' Reset spotlight.

Drag at Transparency ' ' ' to change the spotlight background transparency.

Drag at the spotlight background to move the spotlight. Drag at the spotlight side to change the spotlight size.

Appendix

FAQs

Q: I have received the error message 'hardware device not found'

A: The reason for 'hardware device not found' while the FreeClass program is being activated may be one of the following:

1. Connection cable is not connected properly.

Inspect the connection cable to make sure it is connected properly. There is a red power indicator light on the receiver.

2. Some anti-virus software or programs may block the use of USB or serial port.

Make sure no such software or program is activated. If yes, close all such programs and restart the FreeClass program.

3. Defect on PC's USB port.

Check if the PC's USB port and the setting are functioning properly. Call a qualified engineer to repair in case of USB defect.

4. No USB driver has been installed.

After the installation of the USB driver on the PC, a new usable port can be found in 'Control Panel – System – Device Manager – Port'. Otherwise, it is 'driver not installed' or 'not installed properly'. Alternatively, check 'Control Panel – Device Manager – USB Controller', if an unknown USB device found states that no driver has been installed or not installed properly, reinstall the USB drivers. These can be found on the system CD-Rom.

5. PC's operating system recognizes the signal receiver as another device and activates the relevant program. This causes a serial port being occupied. Check if any unknown serial device has appeared in the Device Manager. For example if an abnormal serial device appears in 'Control Panel - System – Device Manager – Mouse and other pointer device', just prohibit the use of that device and restart the program again.

6. When the notebook PC's power runs out, the USB port may stop functioning, causing the USB device not be detected or utilized properly. In this case, the notebook PC should be connected to a power point. The USB port on some notebook PCs may not supply the standard 500mA current or incompatible with the USB device. Under such unusual circumstances, please consult with PC engineer.

Q: No green dot has appeared on the PC screen after the positioning calibration routine has been activated?

A: This may be due to a number of reasons:

The PC screen is being refreshed continuously. Close all programs that involve screen refresh, e.g. Flash animations, etc.

The green dot will not appear when the signal receiver device is not detected by the PC. Check the device connection and restart the program.

Q: The first green dot has not turned black in the process of positioning calibration?

A: First check if the indication light on the signal receiver is flashing continuously, if yes, that means the signal receiver is disturbing by a light source. Try repositioning the receiver.

Alternatively, it may be due to improper installation position of the signal receiver or the receiver is positioned too close to the screen.

Q: The green dot has turned black automatically?

A: This may be due to ambient lighting disturbance. Adjust the position of the signal receiver or remove the lighting source. Also check that the pen is not active (button stuck on).

Q: The E-Pen does not appear to be responding when in operation?

A: 1. The signal path from the signal receiver may be blocked by the user. Avoid blocking the signal path when working on the projection screen.

2. The E-Pen has run out of battery.

3. Disturbance by strong ambient lighting.

4. Device not connected properly.

Q: The annotation lines appear jagged in real-time writing?

A: 1. The E-Pen is being used at a distance too far from the projection surface.

2. The E-Pen is running out of battery.

Q: How can you judge if there is ambient lighting disturbance?

A: There is a red indication light on the top of the signal receiver. This indication light will be stable when there is no optical signal communicated from the E-Pen. When the receiver detects optical signals, it will flash. If there is no optical signal being transmitted from the E-Pen and the indication light keeps flashing, that means there is ambient lighting disturbance. In the case of positioning calibration failure, cursor fluctuating or unpredictable lines appearing, check the indication light on the signal receiver first. One simple way to find out the cause is to cover the front panel of the signal receiver with your hand. The indication light should stop flashing. This indicates the device is functioning properly. The signal reception failure is due to ambient disturbance. Otherwise, the device may be defective. Seek help with product distributors or resellers.

Q: The E-Pen does not function after the PC enters standby or sleep mode?

A: When the PC enters standby or sleep mode, the signal communication between the PC and the signal receiver is terminated. Quit the program and restart the program again to resume normal functionality.

Q: The position of the mouse cursor is not accurate?

A: This can be due to the following:

1. Positioning calibration is not accurate.
2. The position of the signal receiver or the projector has been changed.
3. The screen display resolution has been changed.

Recalibration of the system is required.

Q: How can I remove ambient lighting disturbance?

A: Avoid strong light shining directly on the projection screen or the signal receiver.

Disturbance from sunlight: Be aware that the disturbance of sunlight is not necessary correlated to the brightness of the room. For example, when the drawn curtain leaves a slit which lets in a shaft of very bright sunlight. This can cause very strong lighting disturbance for infra-red devices.

Other sources of light can also cause disturbance to the signal receiver. For example, lighting close to the projection screen or the signal receiver, and the existence of reflecting materials close to projection screen.

Operation of the Stylus E-Pen

1. The Stylus E-Pen functions in the same manner as the Pointer E-Pen via its operational buttons, but can also be operated via its pen tip.
2. The Stylus E-Pen is pressure triggered and functions as mouse left click when pressed.
3. Hold the Stylus E-Pen at an angle of 30 - 45° to the projection surface to implement annotation.
4. The pen tip of the Stylus E-Pen is very delicate. Do not over press the pen tip when writing to avoid damage to the E-Pen or the projection surface.
5. In the case of the Stylus E-Pen lights up continuously while writing, slightly tap the pen tip with your hand to return to its normal position.

Important Notes

The E-Pen functions via optical signals. It is important to make sure there is no strong light (e.g. sunlight) on the projection screen and the reception panel of the signal receiver when using the system.

Signal communication can be abnormal when the USB cable is too long and over the communication standard. Use an USB with power source or an USB adapter with power source and connect to an extension USB cable instead.