

# PENMOUNT DEVICE DRIVER USERS' GUIDE FOR MICROSOFT WINDOWS

Version 3.2

24/May/'18



## Preface

### Disclaimer

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties regarding the contents of this manual and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Furthermore, the manufacturer reserves the right to revise this publication or make changes in the specifications of the product described within it at any time without notice and without obligation to notify any person of such revision.

### Trademarks

**PenMount** is a registered trademark of **SALT International Corp.** Microsoft and Windows are registered trademarks of Microsoft Corp. Other product names used in this manual are the properties of their respective owners and are acknowledged.

### Copyright

This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. Neither this manual, nor any of the material contained herein, may be reproduced without the express written consent of the manufacturer.

**Copyright © 2018 All rights reserved**

## Revision Table

Date	Revision	Changes
<b>17/Feb/2011</b>	1.0	Initial Release
<b>08/Aug/2013</b>	2.0	Revised Layout
<b>22/Nov/2013</b>	2.1	Add descriptions of Microsoft Windows 8.1 Chapter 3: Adds function summary of PenMount Control Panel
<b>01/Jan/2015</b>	2.2	Add support information for new PenMount controllers. Add description for PenMount Universal Driver V2.4.3.
<b>16/Sep/2015</b>	2.4	Add support information for new PenMount controllers. Add description for Windows 10 support.
<b>24/Nov/2015</b>	2.5	Textual refinement and editing
<b>20/Oct/2016</b>	3.0	Revise 1.2 Supported Device
<b>07/Feb/2017</b>	3.0A	PM1415, PM1715, and PM2204 are added to the supported device list
<b>17/Dec/2017</b>	3.1	(1) Update CopyRight terms. (2) Update 2.1.2 for "Silent" option. (3) Update 2.1.3 for "JitterFilter option". (4) Update 3.1.5 : more detailed information on launching calibration with command line.
<b>24/May/2018</b>	3.2	2.1.2: New Debug options 2.1.3: New PressAndHold and Beep options.

# Table of Content

Preface.....	i
Disclaimer.....	i
Trademarks.....	i
Copyright.....	i
Revision Table.....	ii
1. Summary.....	5
1.1. Supported Device Driver Version.....	5
1.2. Supported Device.....	5
1.3. Supported Systems.....	7
2. Setup.....	8
2.1. Setup Options.....	8
2.1.1. Silent Install.....	8
2.1.2. Setup.ini.....	8
2.1.3. Install.ini.....	9
2.2. Installation Process.....	10
2.3. Installation Types.....	13
2.3.1. Comparison.....	13
2.3.2. Differences in PenMount Monitor.....	14
2.3.3. Differences in PenMount Control Panel.....	15
2.4. Checking Installation Result.....	16
2.5. Refreshing Device.....	17
2.6. Uninstall Device Driver.....	17
3. Utility.....	19
3.1. Touch Calibration.....	21
3.1.1. Standard Calibration.....	22
3.1.2. Advanced Calibration.....	23
3.1.3. Plot Calibration Data.....	24
3.1.4. Turn off EEPROM storage.....	25

3.1.5.	Calibration with Command Line .....	25
3.1.6.	<b>Avoid</b> Using Inbox Calibration .....	26
3.2.	Multiple Monitors Mapping.....	28
3.2.1.	Mouse Mode.....	28
3.2.2.	Digitizer Mode .....	29
3.3.	Screen Rotation.....	30
3.3.1.	Windows XP 64bit Support.....	30
3.3.2.	Operation Mode .....	32
3.4.	Beep Sound .....	33
3.5.	Right Button .....	33
3.5.1.	Mouse Mode.....	33
3.5.2.	Digitizer Mode .....	35
3.6.	Edge Compensation .....	35
3.7.	Device Information .....	36
3.8.	Draw Utility .....	37
3.9.	Contact Information.....	38
3.10.	Gesture Utility .....	39
3.10.1.	Enable PenMount Gesture .....	39
3.10.2.	PenMount Gesture Types.....	40
3.10.3.	Configuring PenMount Gesture .....	41
3.10.4.	Using System Gestures .....	43

# 1. Summary

This document is the device driver users' guide for PenMount touch screen controllers.

## 1.1. Supported Device Driver Version

The content of this document is based on the PenMount Windows Universal Driver V2.4.

## 1.2. Supported Device

The supported control boards and interfaces are listed in the table below.

Series	Product Name	USB	RS-232 / UART	I <sup>2</sup> C <sup>1</sup>
PenMount P2-02 Series	PM1100		v	
	PM2101		v	v
PenMount P2-03 Series	PM1200	v	v	
	PM1201	v	v	v
	PM2201	v	v	v
PenMount P2-04 Series	PM1300A	v		
	PM1302	v	v	v
	PM1400A	v	v	
	PM1401	v	v	
	PM1401A	v		v
	PM1500	v	v	v
PenMount P2-06 Series	PM1110A		v	
	PM1210	v	v	v
	PM2103	v	v	v
	PM2203	v	v	v
	PM2203B	v	v	v
	PM2203C	v		
	PM2204	v	v	v
	PM2300	v	v	v
PenMount P2-08 Series	PM2351	v		
	PM1310	v	v	v
	PM1410	v	v	v
	PM1415	v		v
	PM1710	v	v	
	PM1711	v		v
PenMount 5000 Series	PM1715	v		v
	PM5126	v		v
PenMount 6000 Series	PM51A5	v		
	PM6200	v	v	

<sup>1</sup> I<sup>2</sup>C interface currently requires using PMT101 bridge board to operate on Windows systems.

	PM6202	v	v	
	PM6300	v		
	PM6500	v	v	
	PM6005	v	v	
	PM6010	v	v	
<b>PenMount 9000 Series</b>	PM9026		v	
	PM9036		v	

### 1.3. Supported Systems

The PenMount Windows Universal Driver supports the following Windows operating systems. The PenMount device driver can be installed as a digitizer on systems that provides Tablet PC support.

	Operating System	Tablet PC Support	Multi-Touch Support
<b>Windows Desktop</b>	Windows 2000	---	---
	Windows XP	---	---
	Windows XP Tablet PC Edition 2005	Yes	---
	Windows Vista	Yes	---
	Windows 7	Yes	Yes
	Windows 8 / 8.1	Yes <sup>2</sup>	Yes
	Windows 10	Yes	Yes
<b>Windows Server</b>	Windows Server 2003 / 2003 R2	---	---
	Windows Server 2008 / 2008 R2	Yes <sup>3</sup>	---
	Windows Server 2012 / 2012 R2	Yes	Yes
	Windows Server 2016	Yes	Yes
<b>Windows Embedded</b>	Windows XP Embedded	---	---
	Windows Embedded Standard / POSReady 2009	---	---
	Windows Embedded Standard / POSReady 7	Yes <sup>4</sup>	Yes <sup>5</sup>
	Windows 8 / 8.1 Embedded Standard / Industry	Yes	Yes
	Windows 10 IoT Enterprise	Yes	Yes

<sup>2</sup> For Windows 8 / 8.1 with OEM Licenses, need to update [KB3095649](#) for multi-touch support.

<sup>3</sup> Must manually install tablet pc service from control panel.

<sup>4</sup> Only WES7P SKU provides Tablet PC support.

<sup>5</sup> Only WES7P SKU provides Tablet PC support.



## 2. Setup

This chapter describes how to install the PenMount Windows Universal Driver on Microsoft Windows systems.

### 2.1. Setup Options

PenMount provides several ways to customize driver installation.

#### 2.1.1. Silent Install

For installing the device driver without using GUI, please run setup.exe with the following parameter:

```
setup.exe /S
```

**Please note that the “S” must be capital.**

#### 2.1.2. Setup.ini

The options in setup.ini provide switches for installing the device driver, utility, and gesture AP.

Section	Option	Value	Description
Setup	Driver	1	Install the device driver files
		0	Do not install the device driver files
	Utility	1	Install the utility files
		0	Do not install the utility files
	Gesture	1	Install the gesture recognizer files
		0	Do not install the gesture recognizer files
Option	ShowInfo	1	Show the PenMount contact information in the “PenMount Control Panel”
		0	Do not show the PenMount contact information in the “PenMount Control Panel”
	Silent	1	Silent Mode, no UI will show up during installation.
		0	Normal installation mode.
Debug	DbgLevel	> 0	Debug messages during installation will be saved.
		0	No debug message will be saved in DbgFile.
	DbgFile	Absolute File Path	The file that keeps the debug messages. Default file location is:

			Windows XP: <b>%ALLUSERSPROFILE%\Application Data\PenMount\PenMount.log</b>  Windows 7 / 8 / 10 : <b>%PROGRAMDATA%\PenMount\PenMount.log</b>
--	--	--	--

### 2.1.3. Install.ini

The install.ini file is located in the driver directory. It provides options that affect the behavior of the PenMount device driver installer. The following table lists the supported options in install.ini and the values in blue are the default settings.

Section	Option	Value	Description
<b>Install</b>	USB	1	Install the PenMount USB driver.
		<b>0</b>	Skip the PenMount USB driver installation.
	COM	1	Install PenMount RS232 driver.
		<b>0</b>	Skip the PenMount RS232 driver installation.
	MMonitor	1	Install PenMount for multiple monitor mapping.
		<b>0</b>	Disable the PenMount multiple monitor support.
	ENUM	1	Install PenMount non-PnP RS-232 device detection.
		<b>0</b>	Disable PenMount non-PnP RS-232 device detection.
<b>Option</b>	TouchReport <sup>6</sup>	1	Install device as mouse device.
		<b>2</b>	If system supports Tablet PC Input, install device as touch digitizer device; if not, install as mouse device.
	EdgeOffset	0	The value used by edge compensation.
		<b>5</b>	
		10	
		15	
		20	
		25	

<sup>6</sup> The Windows XP Tablet PC Edition / Windows Vista / Windows 7 / Windows 8 supports digitizer devices.

		30	
	Operation <sup>7</sup>	0	Touch operates in “Pen Input Emulation” mode.
		1	Touch operates in “Click on Touch” mode.
		2	Touch operates in “Mouse Emulation” mode.
		3	Touch operates in “Click on Release” mode.
	JitterFilter	2	Movement within this threshold will be filtered.
Serial	ScanAllPorts	1	Scans all available COM ports for detecting PenMount RS-232 devices. The detection on some systems might take a few time to finish.
		0	Do not scan COM ports.
	COMx	<mode> ,<baud>	Manually set up a PenMount non-PnP RS-232 on a specific COM port, operates in the baud rate specified. For example, “COM1=6000,19200” means installing PenMount 6000 with 19200 bps on COM1.
PressAndHold <sup>8</sup>	Enable	1	Enables press and hold for right button.
		0	Disables press and hold for right button.
	Interval	n	The press and hold duration in ns. For example, 2000000 means 2 seconds.
Beep	Enable	1	Enable touch beep sound.
		0	Disable touch beep sound.
	Frequency	n	The buzzer frequency for touch beep sound.

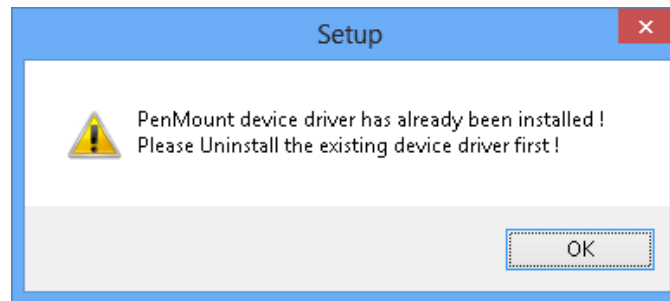
## 2.2. Installation Process

Please follow the steps below to install PenMount Windows Universal Driver. Please notice that if PenMount device driver has already been installed on the system, a warning message box will appear

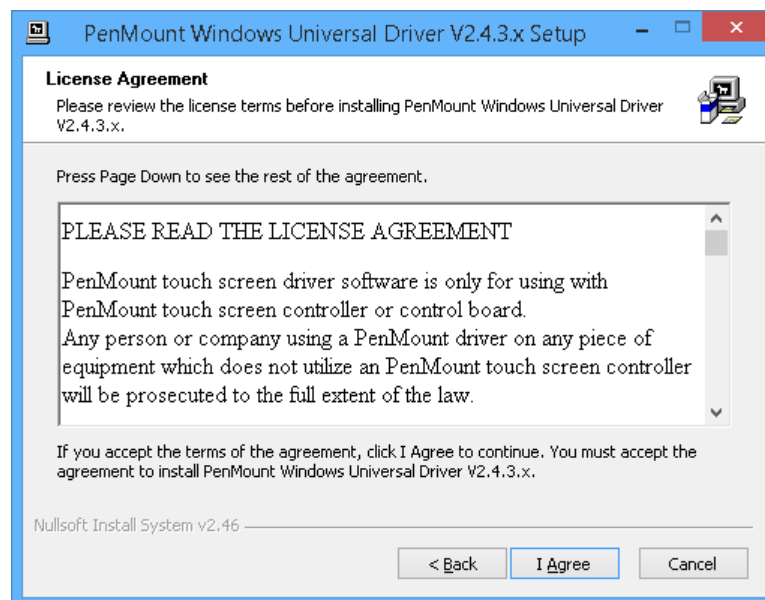
<sup>7</sup> These options will only work when installed as mouse device.

<sup>8</sup> These options will only work when installed as mouse device.

when trying to install a new device driver. Please click the OK button and perform device driver uninstallation before proceeding.



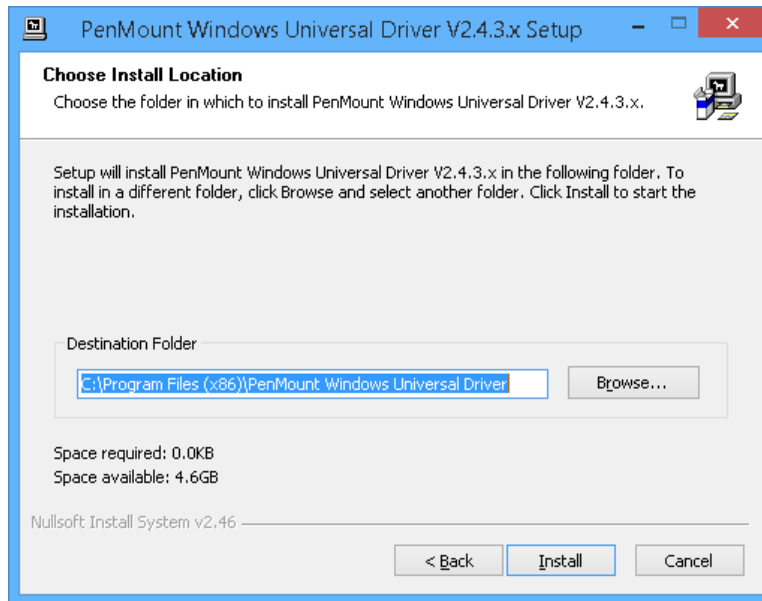
1. Connect the PenMount control board.
2. Run Setup.exe program.<sup>9</sup>
3. In the License Agreement window, click on the "I Agree" button to proceed.



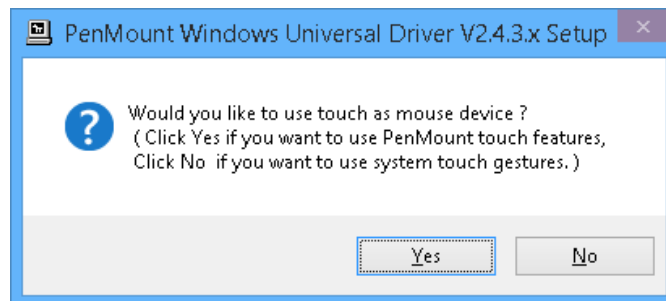
---

<sup>9</sup> Please do not run "install.exe" directory. Necessary files and registry might be missing without using Setup.exe

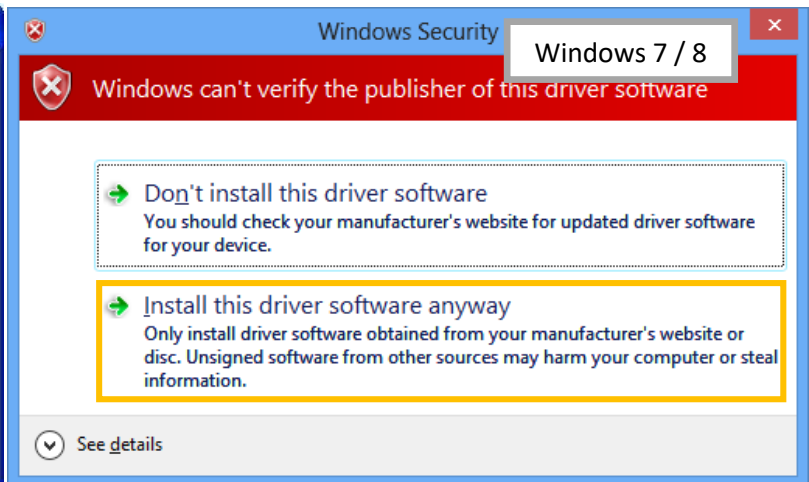
4. The setup program will install the device driver files to the Program Files directory by default. Please click on the “Install” button to confirm installation.



5. Starting from PenMount Universal Driver V2.4, the setup program will allow users to choose to install the device as a “Mouse Device” or “Digitizer Device” on systems that support Digitizers. A message box will pop up.



6. Please select “Yes” for installing PenMount as **mouse mode**; select “no” for **digitizer mode**. The later section describes these two modes in more detail.
7. The device driver installation will take some time.
8. When installing PenMount device driver without WHQL, a warning message box may appear. Please click the “Continue Anyway” button to proceed.



9. A window notifying installation completion appears. Please click on the “Finish” button.
10. Please restart the operating system.

## 2.3. Installation Types

The PenMount device driver supports two types of device type configurations: mouse and digitizer. The mouse device type is compatible to all Windows operating systems while the digitizer device only works on systems that support Tablet PC Input.

In general, installing the PenMount controller as a mouse device is recommended. If you wish to use the Tablet PC Input features in Windows 7 / 8, you may need to choose to install the PenMount device as a digitizer.

For more information on Windows 7 / 8 Tablet PC features, please check the following web page.

<http://windows.microsoft.com/en-US/windows7/help/videos/using-windows-touch>

This section compares several differences between installing the PenMount controller as mouse and digitizer devices.


### 2.3.1. Comparison

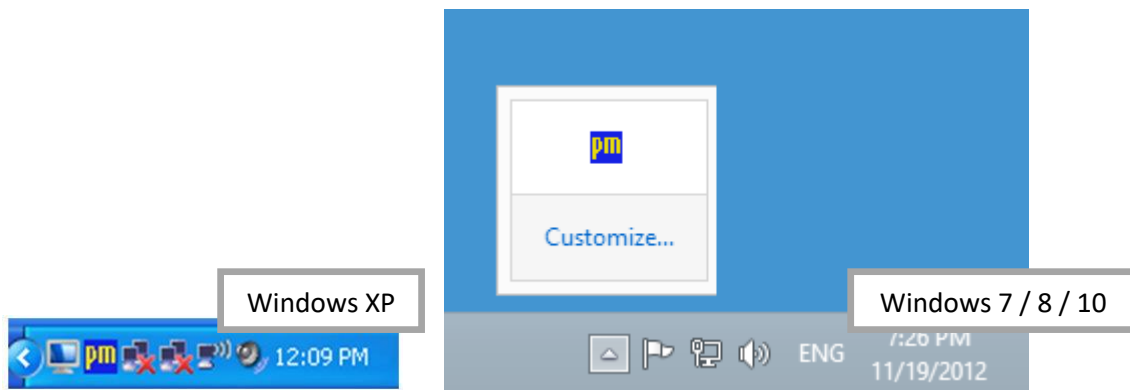
Device Type	Mouse Device	Digitizer Device
<b>Supported Operating System</b>	Windows 2000/XP/Vista/7/8/10	Windows XPT/ Vista/7/8/10
<b>PenMount Control Panel</b>	Launch in PenMount Monitor Menu	Launch with desktop icon
<b>Calibration</b>	Supported PenMount 4/9/16/25 calibration	

<b>Multiple Monitor</b>	Supported ( Use PenMount monitor mapping )	Supported ( Configured in Tablet PC Settings )
<b>Flicks ( Windows Vista / 7 )</b>	Not supported	Supported
<b>Right Button</b>	Supported ( Use PenMount Press and Hold / Right Click utility )	Supported ( Use system Press and Hold gesture )
<b>Edge Compensation</b>	Supported	
<b>Touch Beep Sound</b>	Supported	
<b>Operating Modes</b>	Supported	Not Supported

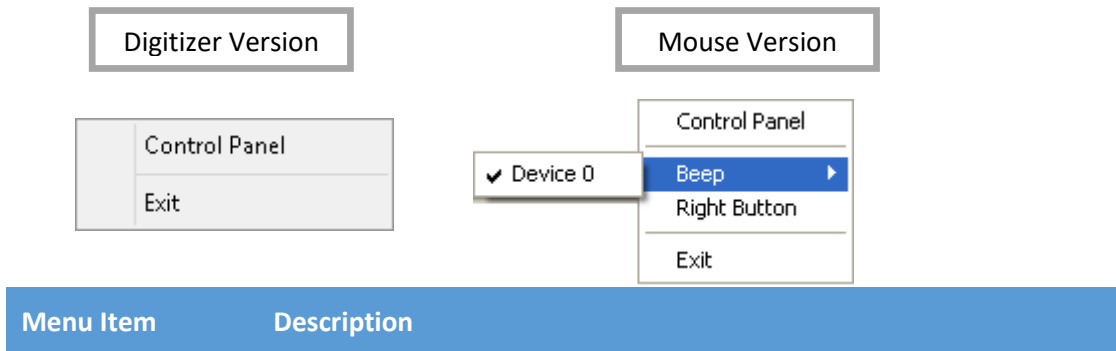
### 2.3.2. Differences in PenMount Monitor

PenMount Monitor is a utility designed for quickly launching other touch features.

PenMount Monitor will automatically be launched when system starts, and the icon  will appear in the notification area.



By clicking on the  icon, a shortcut menu will appear as below:



Control Panel	Open PenMount Control Panel.
Beep	Setting Beep function for each device.
Right Button	When you select this function, a mouse icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.
Exit	Exits the PenMount Monitor function.

### 2.3.3. Differences in PenMount Control Panel

The PenMount Control Panel is the utility for configuring touch settings. Please refer to Chapter 4 for more detailed information on configuring PenMount control boards.

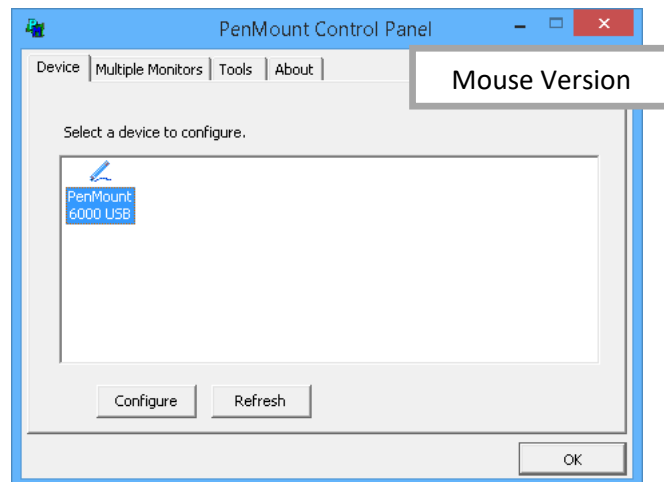
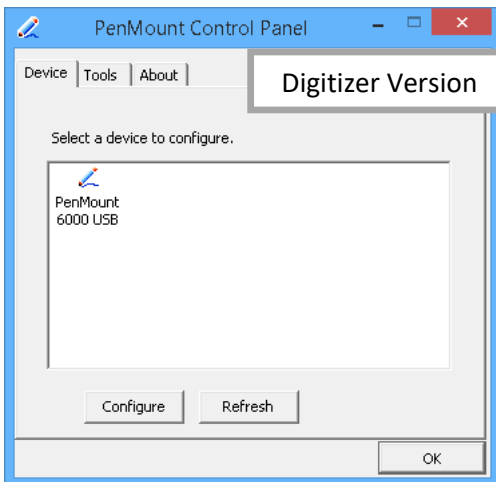
There are several differences between the mouse version and the digitizer version of the PenMount Control Panel.

When installed as a digitizer, a shortcut icon will be created on the Windows Desktop.



There is a “Multiple Monitor” tab in the mouse version for configuring monitor mapping.

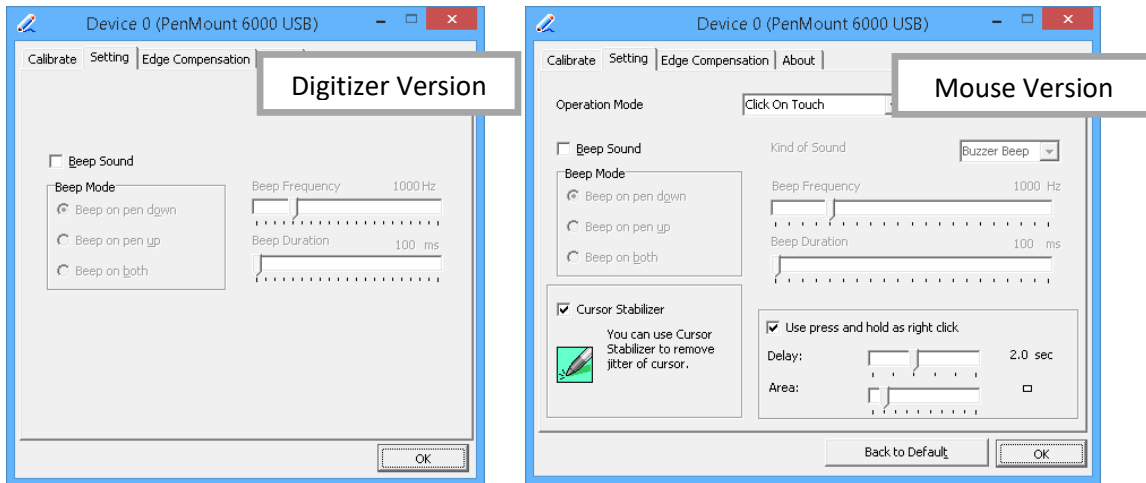
For digitizer devices, please check the “Tablet PC Settings” in the system Control Panel for mapping



monitors.



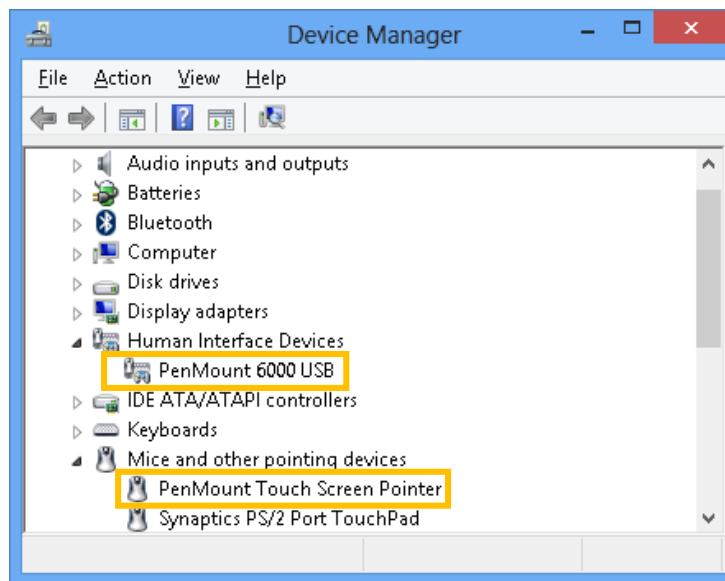
Take the PenMount 6000 for example, the device configuration window will appear after clicking on the “PenMount 6000 USB” or “PenMount 6000 RS232” icon in the PenMount Control Panel.



Only the mouse version has the “Setting” Tab.

## 2.4. Checking Installation Result

To check whether the installation finished successfully, please launch the “Device Manager” from Control Panel, and check the device name under “Human Interface Devices” and “Mice and other pointing devices”



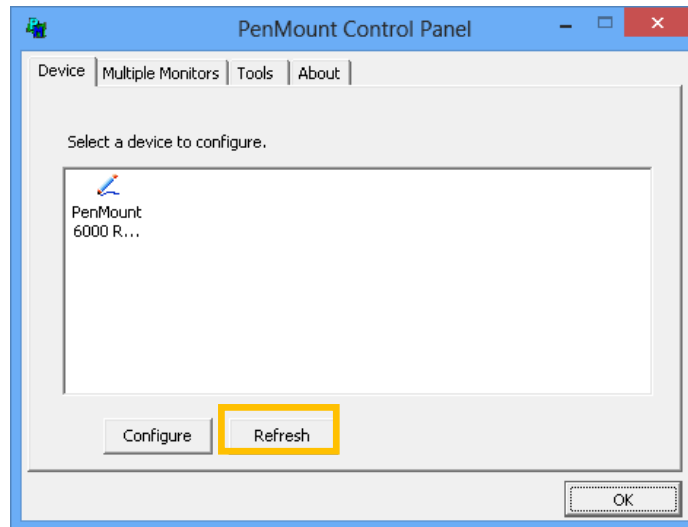
Possible device names are listed in the table below.

Device Name	Description
USB Input Device	The PenMount device driver is not installed yet
PenMount 5000 USB	The PenMount 5000 USB device driver has been installed
PenMount 6000 USB	The PenMount 6000 USB device driver has been installed
PenMount P2 USB	The PenMount P2 USB device driver has been installed

<b>PenMount 9000 Serial</b>	The PenMount 9000 RS-232 device driver has been installed
<b>PenMount 6000 Serial</b>	The PenMount 6000 RS-232 device driver has been installed
<b>PenMount P2 Serial</b>	The PenMount P2 RS-232 device driver has been installed
<b>PenMount Touch Screen Pointer</b>	The PenMount HID mouse device driver has been installed It only exist when PenMount is installed as mouse device

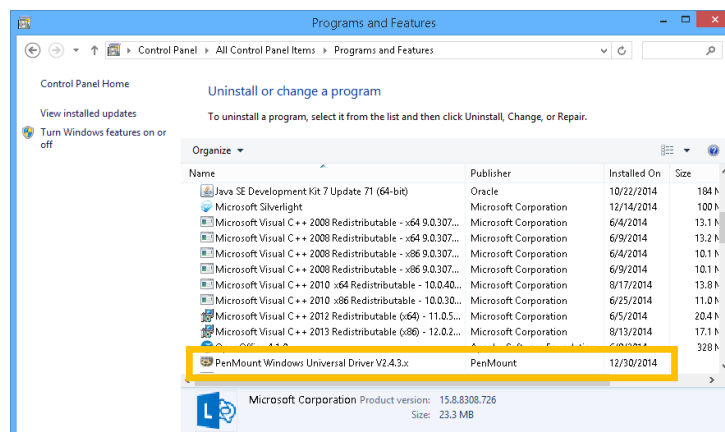
## 2.5. Refreshing Device

If a PenMount device is not attached during device driver installation, users can still install by using the **Refresh** feature in the PenMount Control Panel.



## 2.6. Uninstall Device Driver

For uninstalling device drivers, please go to the Control Pane, and launch “Add/Remove program”. Please select” PenMount Windows Universal Driver”, and click on the “Change/Remove” (Windows XP) or “Uninstall/Change” (Windows 7 / 8) button.



Please select ‘Uninstall’ to remove PenMount Windows Universal Driver.



### 3. Utility

This section provides descriptions on using the utilities for changing device settings. The main utility is the [PenMount Control Panel](#) and can be launched from the start menu. The following tables summarize the functions that the PenMount Control Panel provides.

- The Main Window

	Main Item	Sub Item	Mode	Remarks
1	Device Tab	Refresh Device		Install device drivers for newly connected touch controllers, require administrator
		Configure Device		Opens Device Setting Window
2	Multiple Monitors Tab	Enable Multiple Monitor Support		Can Switch between enable or disable states
		Map Touch Screens		Interactively maps touch controller to a certain monitor
3	Tools Tab	Draw	Show Grid	Shows grid in Draw Utility
			Show Pen Location	Shows touch location in Draw Utility
			Clear Screen	Clears current screen
		Right Button Icon	Desktop	Launches the right button utility, display icon on desktop
			System Tray	Launches the right button utility, display icon in the notification area of system tray
Double Click Speed		Adjusts double click speed, from 200ms to 900ms		
4	About Tab	Utility Version		Displays the version of the PenMount Control Panel utility
		Installed Devices		Lists the installed PenMount touch controllers
		Contact Information		Displays the email and website information

- The Device Setting Window

	Main Item	Sub Item	Mode	Remarks
1	Calibrate Tab	Standard Calibration	4	Performs standard 4 point calibration
		Advanced Calibration	9	Performs standard 9 point calibration
			16	Performs standard 16 point calibration

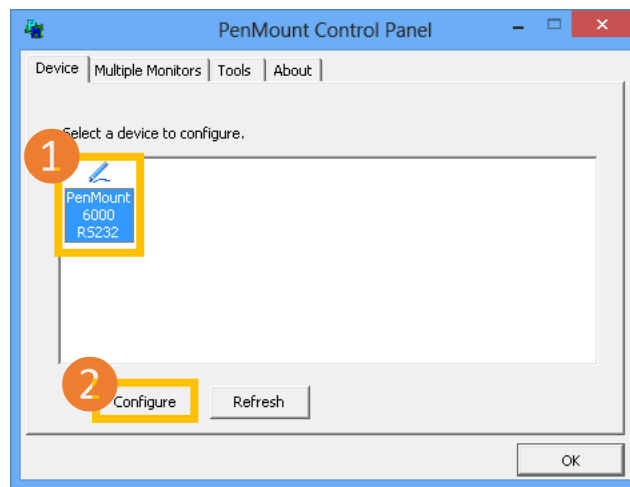
			25	Performs standard 25 point calibration
		Plot Calibration Data		Draws the linearity of the calibrated touch screen
		Turn off EEPROM Storage		Disable or Enable writing back the calibration data to controller
2	Setting Tab	Operation Mode	Mouse Emulation	Let the device driver sends pen down on touch and pen up on release
			Pen Input Emulation	The device driver will not send pen down on touch unless it has moved out of a predefined offset, and pen up on release
			Click on Touch	Let the device driver sends pen down and pen up on touch
			Click on Release	Let the device driver sends pen down and pen up on release
		Enable Beep Sound		Enables or disables beep function
		Kind of Sound	Buzzer Beep	Beep sound output from buzzer
			Audio Beep	Beep sound output from audio speaker
		Beep Mode	Beep on Pen Down	Beep occurs when pen down
			Beep on Pen Up	Beep occurs when pen up
			Beep on Both	Beep occurs when pen down and pen up
		Beep Frequency		Changes the frequency of buzzer beep
		Beep Duration		Changes the duration of buzzer beep
		Cursor Stabilizer		Make the touch cursor more stable when holding on a certain position
		Enable use press and hold as right click		Enable of disable the press and hold gesture for right click
		Right Click Delay		The press and hold duration for generating right click event
Right Click Area		The valid range for holding, dragging out of this area will cancel the gesture		
3	Edge Compensation Tab	Left		Adjust the compensation value on the left side of touch panel
		Right		Adjust the compensation value on the right side of touch panel
		Top		Adjust the compensation value on the top side of touch panel

		Bottom		Adjust the compensation value on the bottom side of touch panel
4	About Tab	ADBit		Displays the AD bit supported
		Baudrate		Displays the baud rate used by RS-232 device
		Driver Version		Displays the driver version
		Firmware Version		Displays the firmware version
		Firmware Parameters		Displays the parameters used by firmware
5	Back to Default			Restores the device driver settings back to default

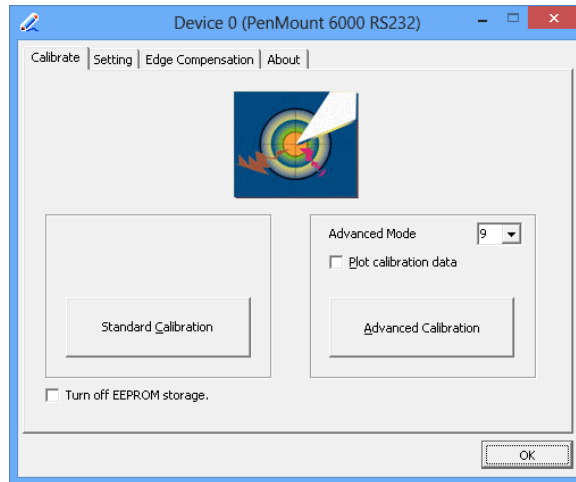
### 3.1. Touch Calibration

For resistive touch screens, the most important feature that the PenMount Control Panel provides is calibration. This feature is disabled for projected capacitive touch screens, since they usually do not need calibration.

Take the PenMount 6000 for example, please click on the “PenMount 6000 USB” or “PenMount 6000 RS232” icon, and then click the “Configure” button to open the device specific configuration window.

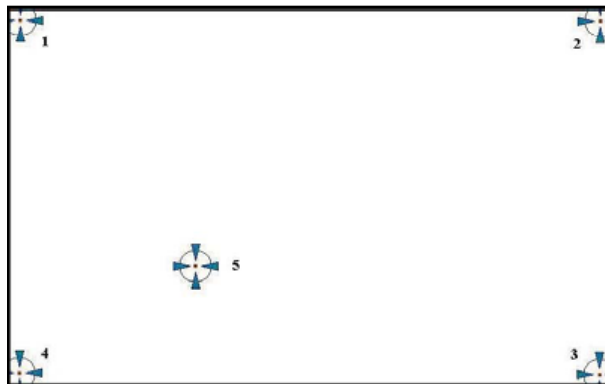


The first tab is the calibration tab, which consists of four features: “Standard Calibration”, “Advanced Calibration”, “Plot calibration data” and “Turn off EEPROM storage”.

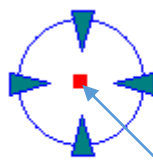


### 3.1.1. Standard Calibration

The Standard calibration function uses four points for calibration and one point for confirmation. Under normal circumstances, standard calibration is all you need to perform an accurate calibration.



For better calibration results, please use a stylus and press on the red dot until the program prompts “Lift off to proceed”. Using a finger often causes poor results.



Touch the red square.

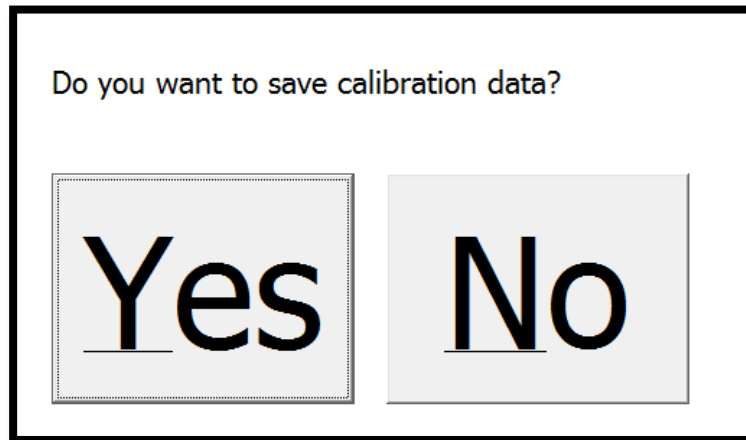
Hold...



Lift off to proceed

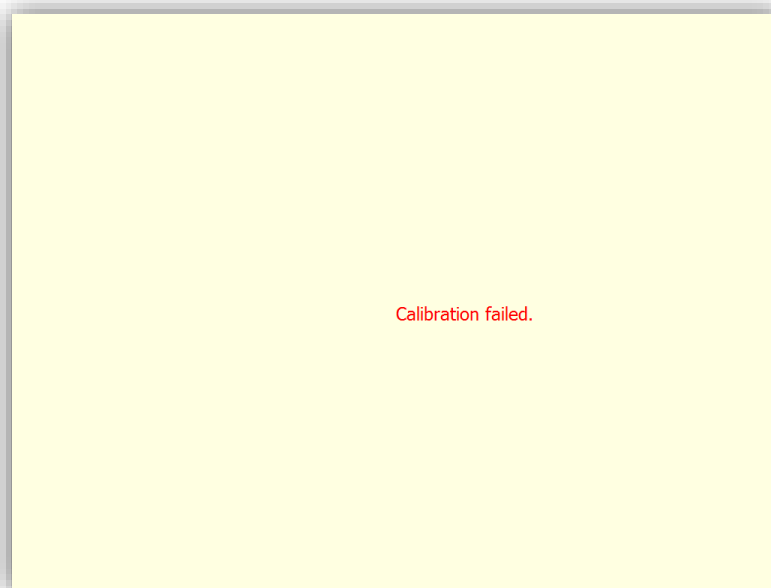
The last point is called the **verification point**, and it will only pass verification when the calibrated position is located within a predefined range.

If it does not pass verification, the calibration process will show a dialog box as below:



Please use the keyboard to choose Yes or No. Press the “Y” key for Yes if you can accept an inaccurate result. Press the “N” key for No and it will restart from point #1 again.

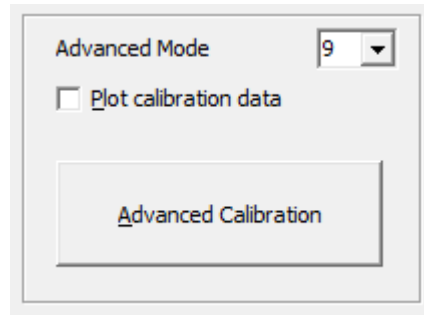
After three retries, the calibration process will fail, please press the “Esc” key to exit. If this happens, please consider using **advanced calibration**.



### 3.1.2. Advanced Calibration

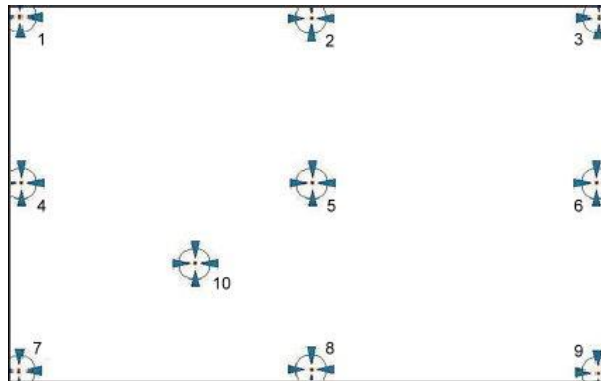
The advanced Calibration function improves the accuracy of calibration by using more complex algorithms and is good for less accurate touch panels.





Advanced calibration supports 9, 16, or 25 point modes. Please scroll down the “Advanced Mode” drop down list to choose the desired mode.

The following diagram shows the points for 9 point calibration. Please notice that the 10<sup>th</sup> point is used for verification, which is similar to standard calibration.

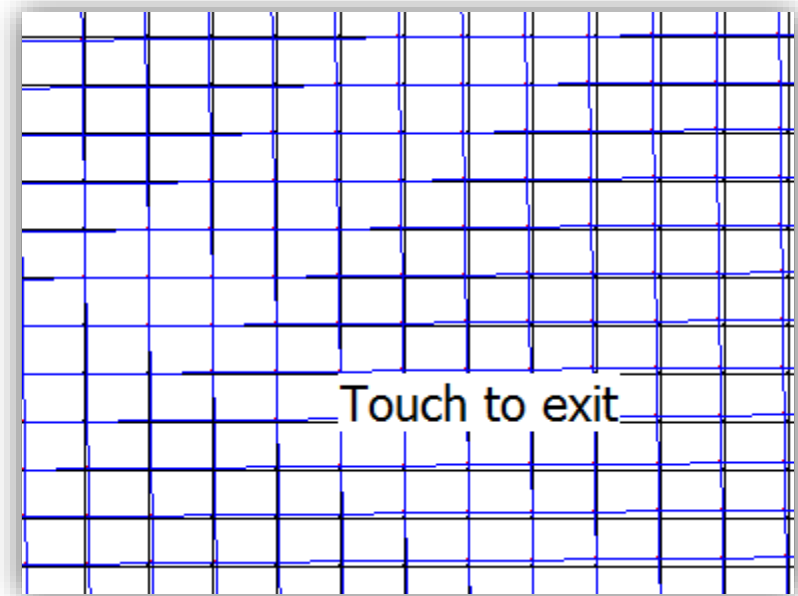


The more points used for calibration, the greater the accuracy. Errors in calibration may occur due to viewing angle or individual skill and there may be little difference in using 16 or 25 points. Note that a stylus is recommended for the most accurate results.

### 3.1.3. Plot Calibration Data

Check this function to have the touch panel linearity comparison graph appear when you finish Advanced Calibration.

The black lines reflect the ideal linearity assumed by the PenMount application program while the blue lines show the approximate linearity calculated by the PenMount application program as a result of user’s execution of Advance Calibration.



#### 3.1.4. Turn off EEPROM storage

Some PenMount controllers support onboard storage (EEPROM or flash) and the device driver will use stored calibration data if available.

The PenMount Control Panel allows users to turn this feature off. If EEPROM storage is disabled, the calibration process will only update the registry data after it finishes successfully.

#### 3.1.5. Calibration with Command Line

In some cases, users may want to launch calibration directly in the command line. Please use the following command:

For 32-bit Windows

```
"%ProgramFiles%\PenMount Windows Universal Driver\DMCCtrl.exe" -calibration <mode>
```

For 64-bit Windows

```
"%ProgramFiles(x86)%\PenMount Windows Universal Driver\DMCCtrl.exe" -calibration <mode>
```

If the device driver is not install in "PenMount Windows Universal Driver" directory, please check the following registry for driver install path:

For 32-bit Windows

```
reg QUERY HKLM\SOFTWARE\PenMount /v Path
```

For 64-bit Windows

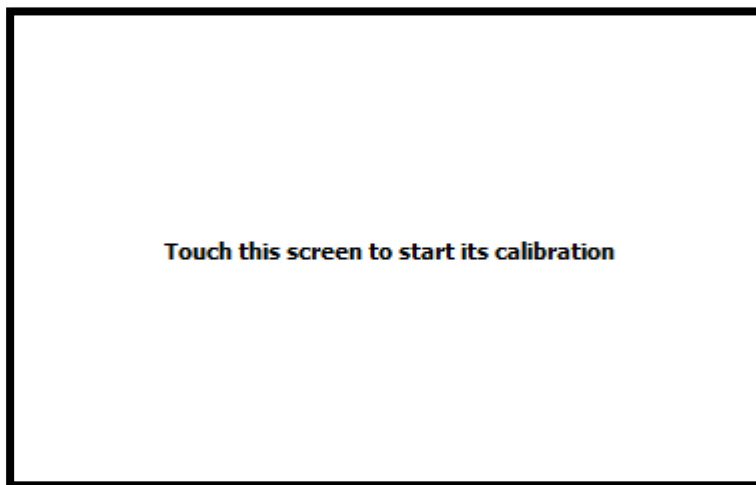
```
reg QUERY HKLM\SOFTWARE\WOW6432Node\PenMount /v Path
```

For example, the “PenMount Windows USB Driver V2.4.5.365” will be installed in “%ProgramFiles%\PenMount USB Windows Driver”.

Please also replace the <mode> with one of the following values:

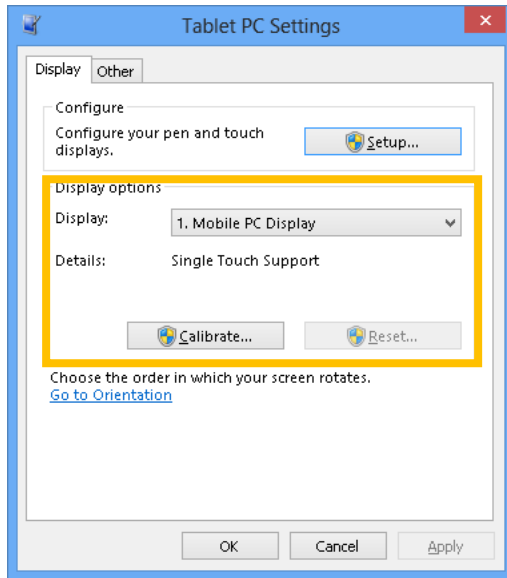
Mode	Description
4	4 point standard calibration
9	9 point advanced calibration
16	16 point advanced calibration
25	25 point advanced calibration

Please note that if multiple monitors are connected to the host PC, the calibration process will prompt to choose a desired display first.



### 3.1.6. **Avoid** Using Inbox Calibration

Windows Vista / 7 / 8 also provide its own calibration utility which can be launch in the Control Panel.



The inbox calibration process prompts for clicking on the 16 points located in the four corners of the screen. If incorrect points are clicked, please use the Press and hold gesture on a certain point to return to the previous position.



Please note, that for accuracy and compatibility reasons, we strongly suggest using the PenMount calibration utilities instead. If you have used the inbox calibration before, please click on the "Reset ..." button to disable inbox calibration.

## 3.2. Multiple Monitors Mapping

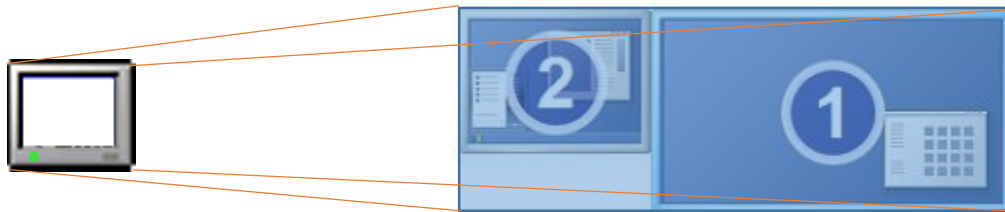
PenMount supports two or more touchscreen displays on one system. Each monitor requires its own PenMount touchscreen control board either installed inside the display or in a central unit. Multiple Monitors supports the following modes:

- Windows Extend Monitor Function
- Matrox DualHead Multi-Screen Function
- nVidia nView Function

**NOTE:** The Multiple **Monitors** function will be disabled if there is only one touchscreen display. Once this function is enabled, the **Rotation** function will be disabled.

### 3.2.1. Mouse Mode

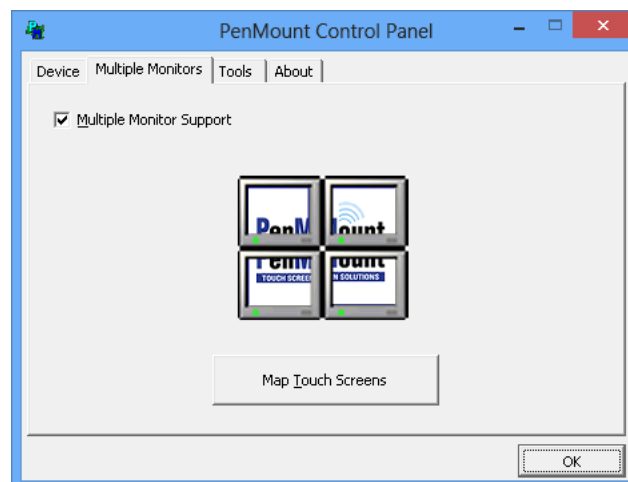
This section provides information on mapping PenMount devices to monitors as a mouse device. When more than one monitor is connected to the host PC, touch will be mapped to the whole virtual screen before it is mapped to a certain monitor with the PenMount Control Panel. So, it is necessary to



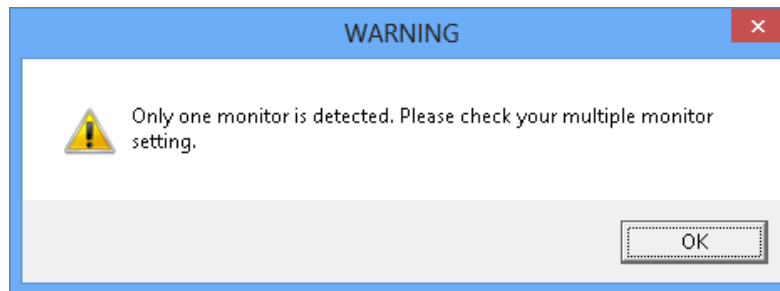
perform monitor mapping.

Please follow the steps below to enable the multiple display function:

1. In the PenMount Control Panel, under Multiple Monitors tag, check the “Multiple Monitor Support” box.
2. Click on the “Map Touch Screens” button to start assigning touch controllers to displays.



3. If there is only one monitor attached, a warning message box will show up.



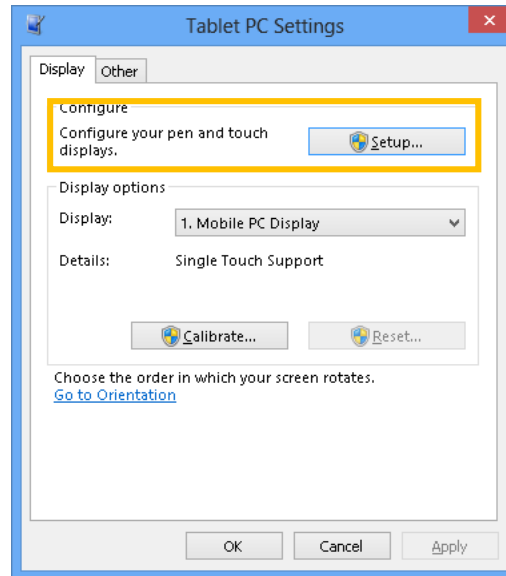
4. Touch each screen when it displays "Please touch this monitor. Press the 'S' key to skip", or wait for 10 seconds to skip automatically. Press the Esc key if you want to cancel the mapping process.



5. After the setting procedure is finished, you may need to calibrate each panel and controller.

### 3.2.2. Digitizer Mode

When a PenMount device is installed as digitizer, the device will be mapped to the main display by default. To map to other display monitors, please launch "Tablet PC Settings" in the Control Panel.



1. Press the “Setup...” button.
2. Touch the display that shows the following messages.

Touch this screen to identify it as the touchscreen.

If this is not the Tablet PC screen, press Enter to move to the next screen. To close the tool, press Esc.

3. Press the Enter key when the above message is shown on displays that are not touch enabled.

### 3.3. Screen Rotation

There are currently a number of software packages on the market that support rotating monitors 0°, 90°, 180°, and 270°. However you will not be able to use a touchscreen unless it is matched to the appropriate rotation. Our rotation configuration function allows you to easily match the touchscreen when you rotate your monitor.

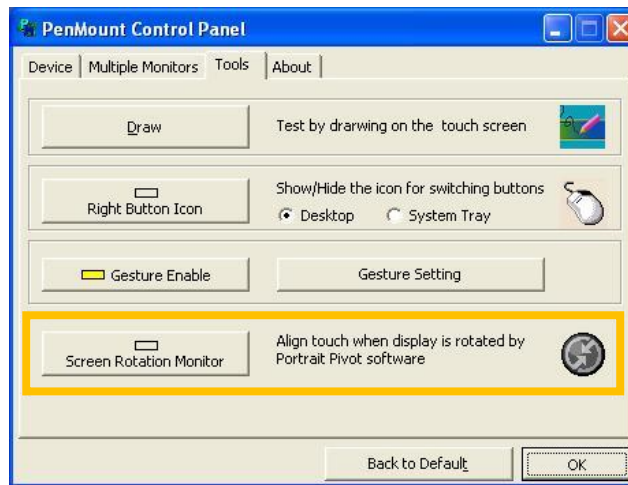
If you use a rotating monitor you will need a display card from **nVidia**, **Intel**, **SMI** or **ATI** and software such as **Portrait Pivot Pro**. For software operation and features, please refer to your software manual.

PenMount supports rotation detection of 90, 180, and 270 degrees and automatically adjusts touch position.

#### 3.3.1. Windows XP 64bit Support

On Windows XP 64 bit systems, however, users still need to manually turn on rotation detection support with the instructions described below.

1. There is a “Screen Rotation Monitor” button that appears only in PenMount driver utilities for the Windows XP 64bit system.



2. On enabling “Screen Rotation Monitor”, you will see a screen like below:

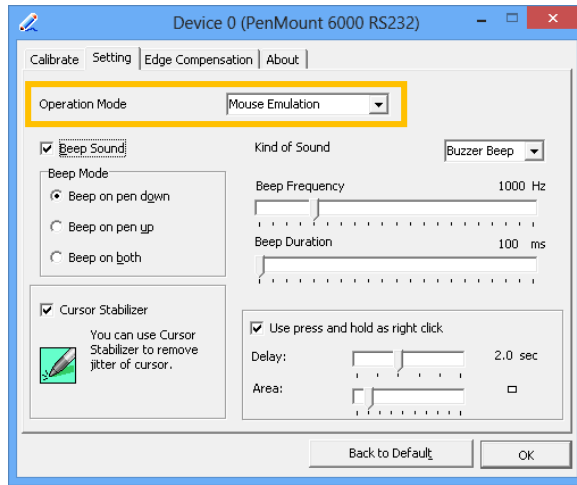


3. Choose rotate function (0°, 90°, 180°, 270°) in the 3<sup>rd</sup> party software. The calibration screen will appear automatically. Touch this point and rotation is mapped.



### 3.3.2. Operation Mode

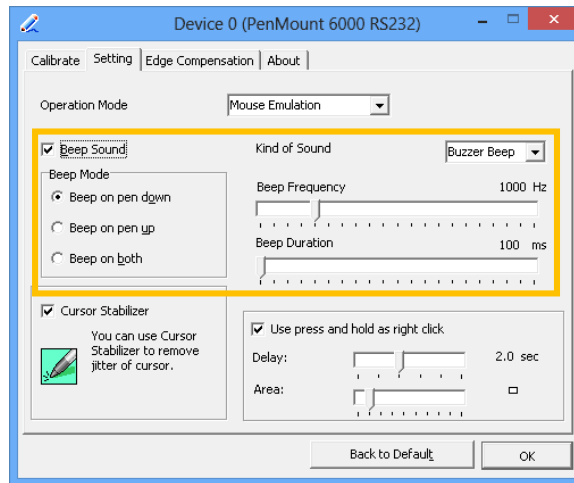
This option is for mouse mode devices only. By specifying different operation modes, users can change the input mode for different application usages.



Operation Mode	Description
Pen Input Emulation	Select this mode and mouse will emulate Windows Vista pen input device operation, by which no mouse event will be sent until the touch is dragged out of range or released from the screen.
Mouse Emulation	Select this mode and mouse functions as normal and allows dragging of icons.
Click on Touch	Select this mode and mouse only provides a click function, and dragging is disabled.
Click on Release	Select this mode and mouse only provides a click function when the touch is released.

### 3.4. Beep Sound

All PenMount device drivers support the beep sound function; however, some PC systems may only offer a fixed buzzer sound, and only mouse mode devices support buzzer adjustment.



Beep Settings	Description
Enable Beep Sound	Turns beep function on and off
Beep Mode	Change the beep timing on pen down, pen up, or both.
Kind of Sound	Choose beep from Buzzer or Audio. Choosing Audio beep requires PC Speaker.
Beep Frequency	Choose the desired beep frequency.
Beep Duration	Choose the desired beep duration.

### 3.5. Right Button

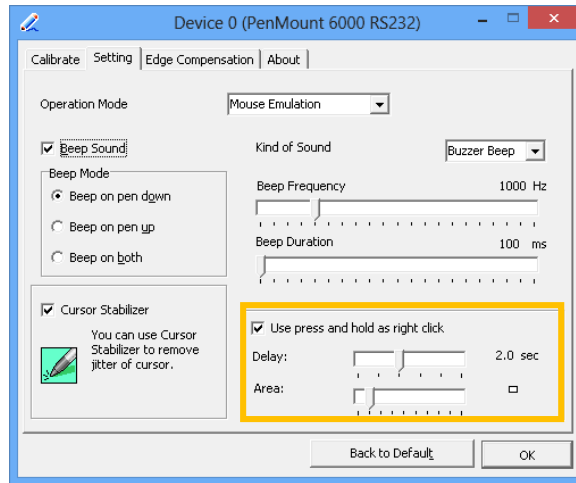
In Windows, users frequently use the right mouse button for showing the popup menu. For this reason, the PenMount device driver supports sending right mouse button events with touch.

#### 3.5.1. Mouse Mode

For mouse devices, the PenMount supports two ways of simulating the right mouse button.

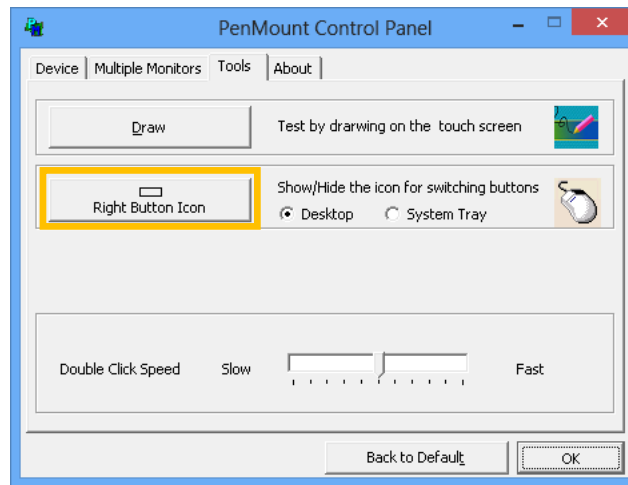
1. Press and Hold as Right Click

The press and hold delay and allowed area are adjustable in the “Settings” tab of the PenMount Control Panel.

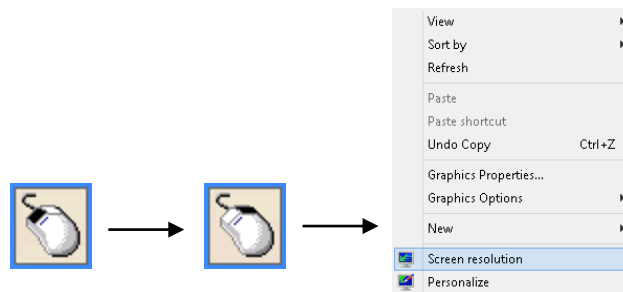


## 2. Use Right Button Utility

The right button utility can be launched in PenMount Monitor, PenMount Control Panel, or by using the shortcuts in the start menu.



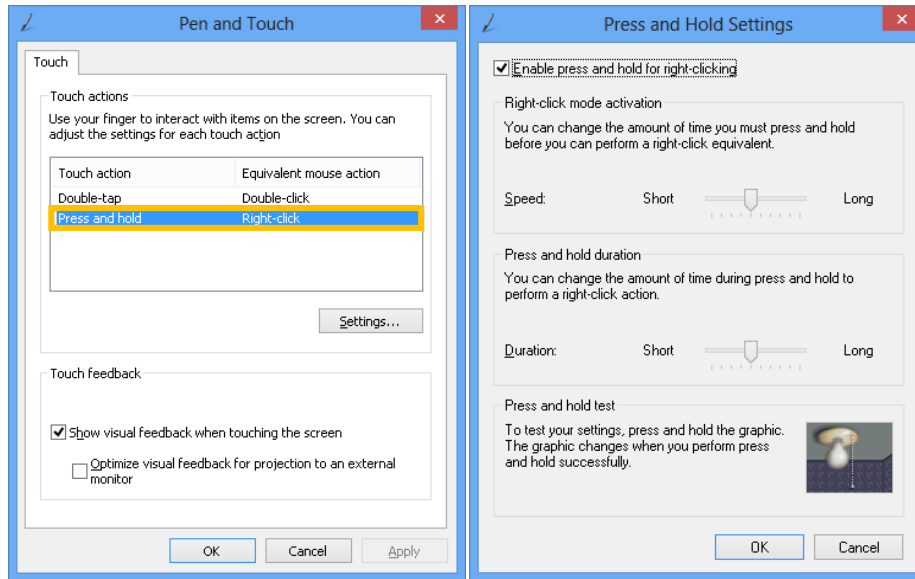
A mouse icon as below will show up on the Windows desktop or in the system tray. Touching the icon will trigger right click mode in the device driver and the next touch will become a right mouse click.



### 3.5.2. Digitizer Mode

For digitizer devices, the system already supports the press and hold gesture for simulating the right button. The settings can be changed in “Pen and Touch” of the Control Panel.

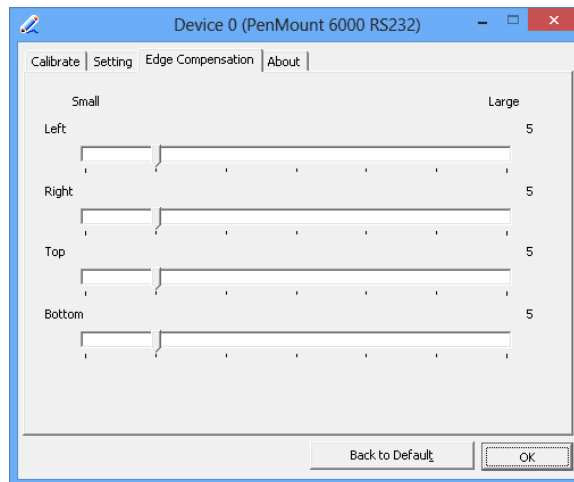
1. Please touch the “Press and hold” in the Touch action list, and then click the “Settings ...” button.
2. The “press and hold” gesture can be disabled in this dialog box. The activation and durations can also be changed.



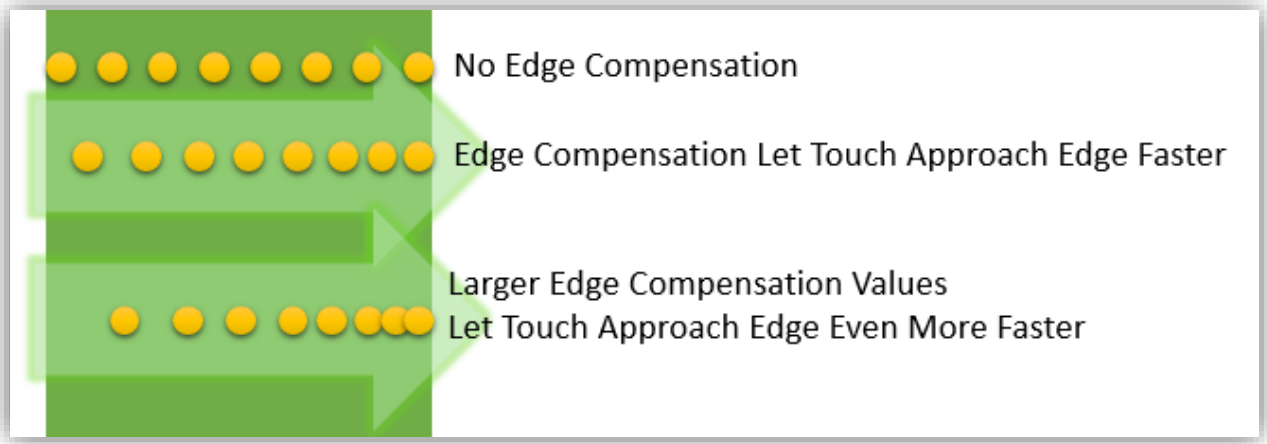
### 3.6. Edge Compensation

The edge compensation settings can be found in the “Edge Compensation” Tab in the PenMount Control Panel.

You can adjust the settings from 0 to 30 accommodate the differences of each touch panel.

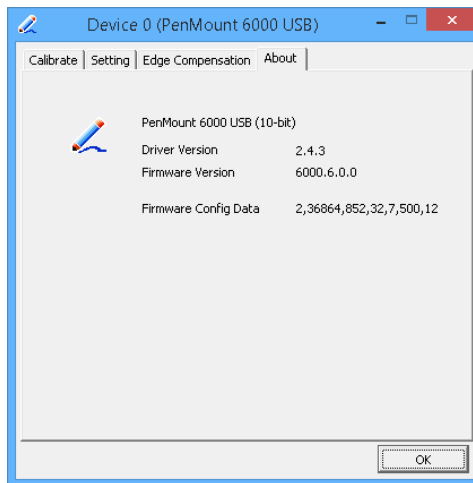


The larger the value, the easier the touch point reaches the edge of screen.



### 3.7. Device Information

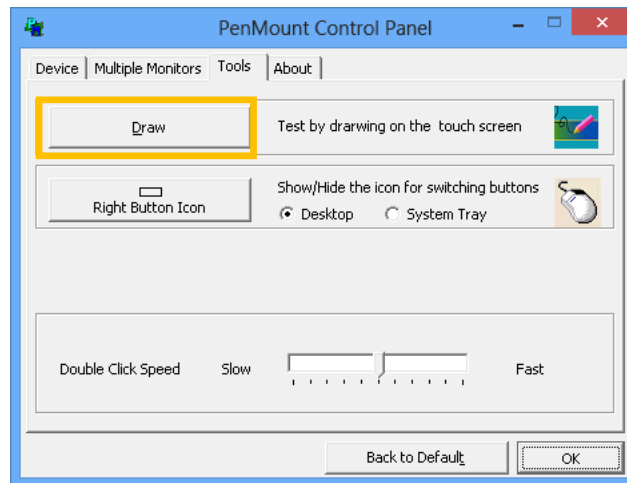
The “About” Tab in the device configuration table shows information about the PenMount device, such as baud rate used, firmware version, and firmware configuration data.



If there are touch issues with PenMount controllers, please print out this page and provide the screenshot to us.

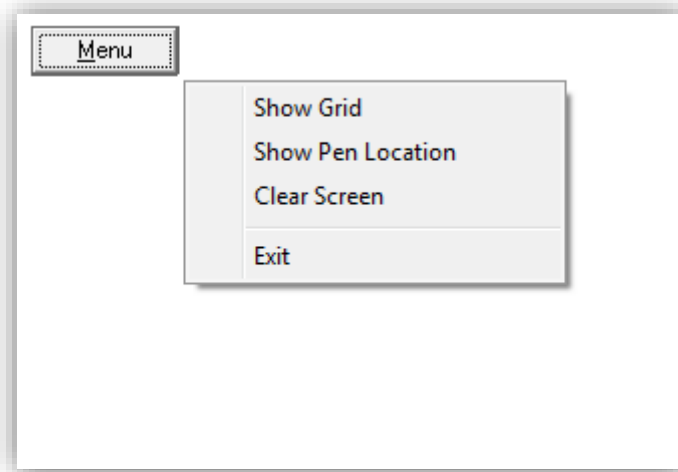
### 3.8. Draw Utility

This utility is for testing or demonstration of touch operations. The display shows touch location. Click on the Draw button to start.



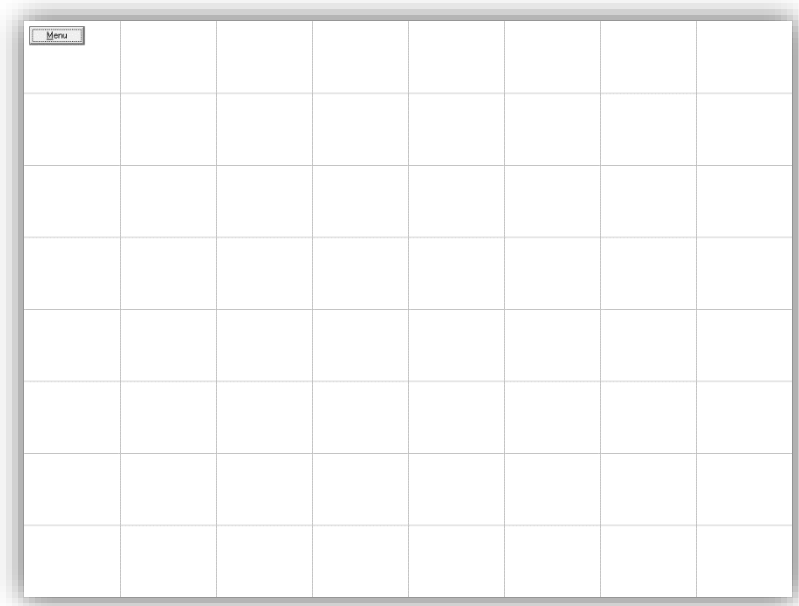
Touch the screen with your finger or a stylus and the drawing screen registers touch activity such as left down, left up, right down and right up.

The draw utility also provides several options to help testing. Please click on the “Menu” button on the top left corner, and choose one of the options in the pop up menu.



- Show Grid

The “Show Grid” option displays a grid onscreen to help testing.



- Show Pen Location

The “Show Pen Location” option displays the mouse cursor position for mouse down, mouse move, and mouse up.

- Clear Screen

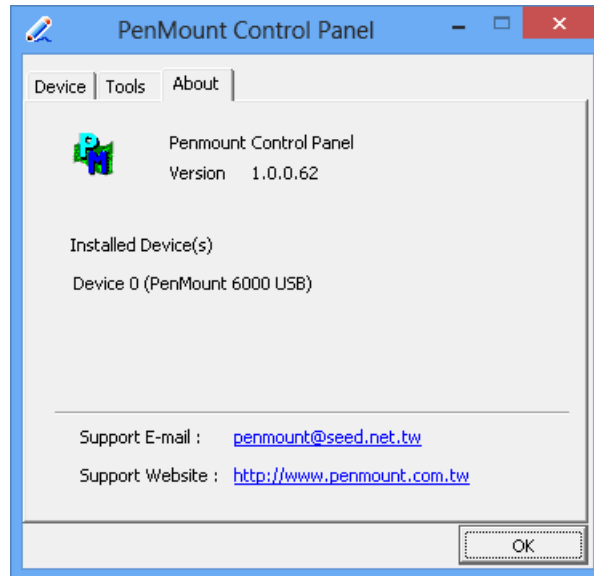
The “Clear Screen” option clears the display with a white background color.

- Exit

The “Exit” option allows user to exit the program.

### 3.9. Contact Information

The “About” tab in the PenMount Control Panel shows the version of the utility and PenMount contact information.



Updated device drivers are available for downloading on the PenMount website at the following web address:

<http://www.penmount.com>

### 3.10. Gesture Utility

The PenMount Gesture utility is a standalone tool for recognizing touch gestures and performing predefined actions.

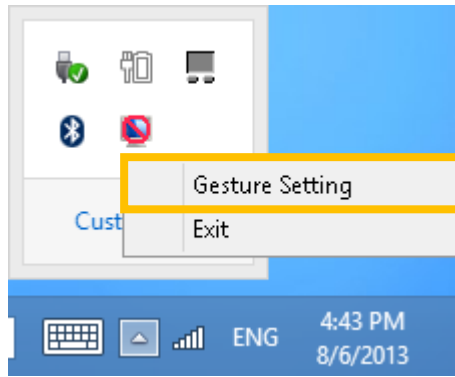
This utility is not installed by default. To enable it, please open setup.ini and set “Gesture=1” before installing the device driver. After installation, the PenMount Gesture utility will automatically start after system start up, and an icon will be shown in the notification area of the taskbar.

Icon	State
	Gesture Disabled
	Gesture Enabled

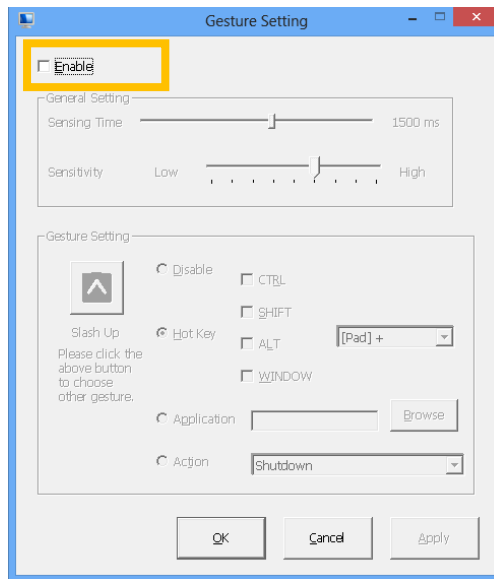
#### 3.10.1. Enable PenMount Gesture

PenMount Gesture is disabled by default. To enable it, please click on the icon, and choose “Gesture Setting” from the pop up menu.




















All the options are disabled at first, please click on the “Enable” checkbox to enable PenMount gesture.



### 3.10.2. PenMount Gesture Types

The table below lists the supported gesture types and corresponding actions. When installing the device as a mouse, PenMount supports 16 types of gestures, when installing as a digitizer, however, PenMount only supports a subset of them, and lets the system flicks gestures handle them.

Gesture	Default Action	Mouse Mode	Digitizer Mode
	Page Up	<input type="radio"/>	
	Page Down	<input type="radio"/>	
	Backward (Left Arrow)	<input type="radio"/>	

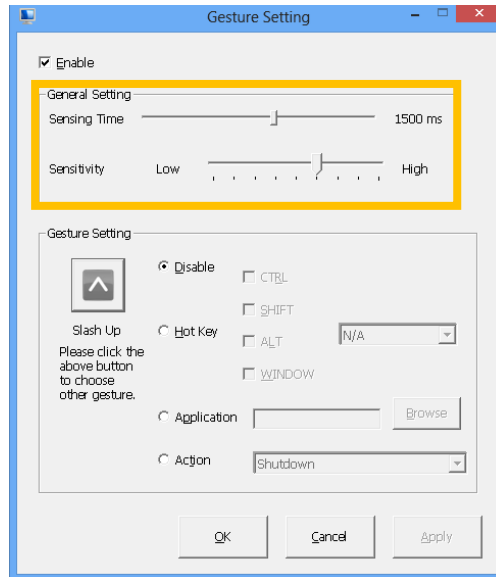
	Forward (Right Arrow)	<input type="radio"/>	
	Copy (Ctrl + C)	<input type="radio"/>	
	Paste (Ctrl + V)	<input type="radio"/>	
	Undo (Ctrl + Z)	<input type="radio"/>	
	Delete	<input type="radio"/>	
	Zoom in ([Pad] +)	<input type="radio"/>	<input type="radio"/>
	Zoom out ([Pad] -)	<input type="radio"/>	<input type="radio"/>
	Rotate Counter Clockwise (Ctrl + L)	<input type="radio"/>	<input type="radio"/>
	Rotate Clockwise (Ctrl + K)	<input type="radio"/>	<input type="radio"/>
	Open On-Screen Keyboard (Execute OSK.EXE)	<input type="radio"/>	<input type="radio"/>
	Save Document (Ctrl + S)	<input type="radio"/>	<input type="radio"/>
	Close Program (Alt + F4)	<input type="radio"/>	<input type="radio"/>

### 3.10.3. Configuring PenMount Gesture

The PenMount Gesture Settings Dialog box allows users to change the sensitivity of gesture recognition and the action types of a gesture.

### 3.10.3.1. General Settings

Users can set up the sensing time and sensitivity from the general settings section.



- Sensing Time

The PenMount gesture starts recognizing a gesture when pen down occurs, and stops after a period of time or pen up. This period of time is adjustable from 500 ms to 2500 ms. The longer the sensing time, the easier a gesture will be recognized, but it also increase the chance for misrecognition.

- Sensitivity

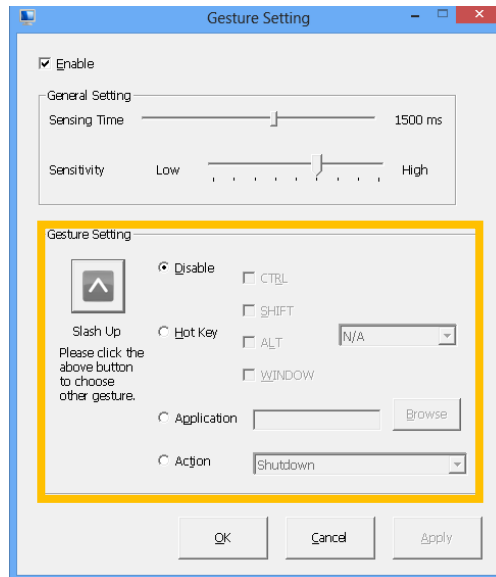
The gestures supported are directional. When sensitivity is set to low, PenMount uses stricter rules for recognizing gestures. Increasing the sensitivity make it easier to generate a gesture action, but also increase the chances for misrecognition.

### 3.10.3.2. Individual Gesture Settings

The gesture settings section provides actions changes for each gesture. To choose a target action, please click on the gesture icon, and choose one from the dialog box:



Gesture icons in blue indicate that the gesture is currently enabled and grey icons indicate that the gesture is disabled.



There are four types of gesture actions available.

- **Disable**  
Disable the gesture.
- **Hot Key**  
Send a combination of key events when gesture is recognized.
- **Application**  
Launch a program when gesture is recognized.
- **Action**  
Run a predefined action when gesture is recognized. The supported actions are listed below.

Action Types	Description
Shutdown	Shutdown the system
Send Right Mouse Click	Sends a right mouse click to the foreground application
Send Middle Mouse Click	Sends a middle mouse click to the foreground application
Mouse Scroll Forward	Sends a mouse wheel scroll forward event to the foreground application
Mouse Scroll Backward	Sends a mouse wheel scroll backward event to the foreground application
Disable Touch Function	Disable mouse events from touch
Enable Touch Function	Enable mouse events from touch

### 3.10.4. Using System Gestures

The Flicks gestures are unidirectional gestures happening in a very short time. They are supported in Windows Vista and Windows 7 for touch devices. In Windows 8, however, only pen devices support flicks gestures.

Their sensitivity and actions are adjustable in the control panel. Setting the sensitivity to “Relaxed” makes it easier for a flicks gesture to be recognized.

