

# **Summagraphics® ADB Interface**

## **User's Guide**

for the Summagraphics® Large  
Tablet Series including:  
Microgrid III  
Summagrid III  
Summagraphics LCL  
Microgrid II

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#### Document Ordering Number

84-6004-006

#### Radio Frequency Interference (RFI)

The Summagraphics ADB interface generates and uses radio frequencies. If not installed and used in strict accordance with Summagraphics's instructions, the interface could interfere with your radio or television reception.

The Summagraphics ADB interface has been tested and found to perform within the Class B limits for a computing device according to the specifications in Subpart J, Part 15 of the Federal Communications Commission (FCC) Rules. The interface design provides reasonable protection against RFI in a residential installation. However, keep the following in mind:

- Only Summagraphics accessories and options sold for use with the interface may be used.
- Summagraphics Corporation is not responsible for radio or television interference caused by unauthorized modification of the equipment.
- Compliance with Class B specifications does not guarantee that interference will not occur in a particular installation. So, if a problem arises, try one or more of the following measures:
  1. Re-orient the radio or TV antenna.
  2. Move your computer equipment away from the radio or TV.
  3. Plug your equipment and the radio or TV into separate outlets, so that they're on different branch circuits.

If necessary, consult a radio or television dealer or technician. You may also find the booklet *How to Identify and Resolve Radio-TV Interference Problems* helpful. It was prepared by the FCC and is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock No. 004-000-00345-4.

#### Other Certifications

The Summagraphics ADB interface is certified by UL, CSA, and TUV. West German EMI Compliance, Class B, General Permit: The unit is shielded against radio interference in accordance with the provisions of Vfg 1046/1984. The German Postal Services have been advised that this device is being put on the market and that they have been given the right to inspect the series for compliance with the regulations. This equipment has been tested concerning compliance with the relevant RFI protection requirements both individually and on system level (to simulate normal operating conditions). However, it is possible that these RFI requirements are not met under certain unfavorable conditions in other installations. It is the user who is responsible for compliance of his or her particular installation. **WARNING: COMPLIANCE WITH APPLICABLE REGULATIONS DEPENDS ON THE USE OF SHIELDED CABLES. IT IS THE USER WHO IS RESPONSIBLE FOR PROCURING THE APPROPRIATE CABLES.**

Hiermit wird bescheinigt, dass der Summagraphics ADB interface in Übereinstimmung mit den Bestimmungen der Vfg 1046/1984 funktionsfähig ist. Der deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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## **About this Book**

This book provides the information you need for installing and using the Summagraphics ADB interface with your large format Summagraphics tablet. This book provides information for the following tablets: Microgrid III, Summagrid III, Summagraphics LCL, and Microgrid II.

## **Did You Get Everything?**

If you have a Summagrid III, Summagraphics LCL, or Microgrid II, your ADB kit will contain the following:

- ADB adapter box
- tablet cable
- ADB cable
- Summagraphics ADB Utilities diskette
- this user's guide
- software change request form (inside this book)

If you have a Microgrid III, your ADB kit will contain the following:

- ADB interface cable
- Summagraphics ADB Utilities diskette
- this user's guide

If something is missing, contact the dealer where you purchased the kit.

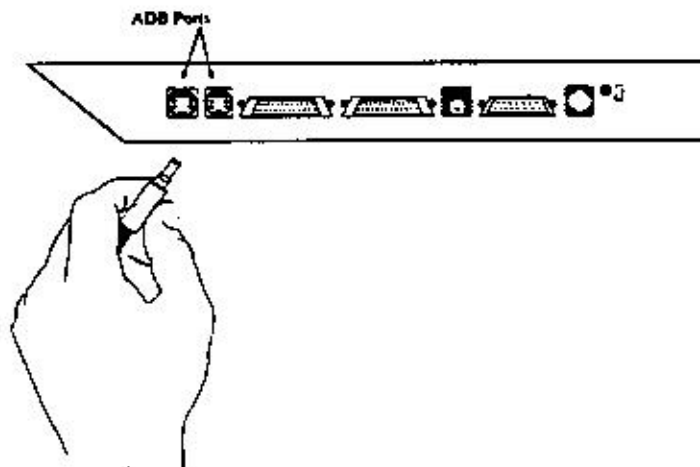
## ADB Interface For The Microgrid III

Below are the steps for installing and configuring your Microgrid III for use with the ADB interface.

1. Install and configure your Microgrid III as described in Chapter 2 of the *Microgrid III User's Manual*. Make sure your Microgrid is configured to the default tablet settings, listed below.

	1	2	3	4	5	6	7	8
SET 1	ON	OFF	OFF	ON	ON	ON	OFF	OFF
SET 2	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
SET 3	ON	ON	OFF	OFF	OFF	ON	ON	OFF

2. Next, connect the Microgrid III to your Macintosh computer. The ADB kit comes with a ten foot ADB cable. Plug either end of the cable into an ADB port on the Microgrid III controller. The controller has two ADB ports; plug the cable into either of the ADB ports.



Plug the other end of the cable into one of the computer's ADB ports.

3. Power up the Microgrid III as described in Chapter 2 of the *Microgrid III User's Manual*.
4. Turn on the computer. Your tablet is now up and running with the ADB interface. Note that the tablet comes up in 'mouse mode'. For the Microgrid to be in 'tablet mode', you must install the Summagraphics ADB tablet driver, which is described on page 10 of this manual.

## ADB Interface For The Summagrid III

### 1. Configure the Summagrid III.

Assemble the tablet as described in its installation guide, except as noted below.

Using the instructions in the Summagrid III User's Manual, configure the tablet as follows:

- 9600 baud
- even or odd parity
- two stop bits
- Echo off
- Proximity Transmission on, 'always transmit'
- 1000 lpi fixed resolution
- binary format
- Stream Mode on
- UIOF format

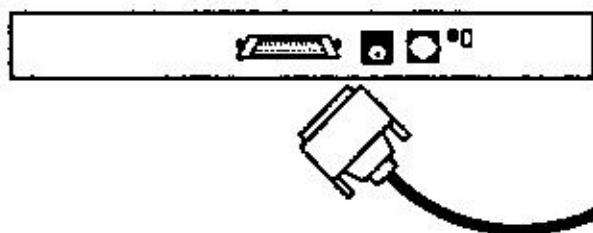
#### Summagrid III DIP Switch Settings:

	1	2	3	4	5	6	7	8
Set A	on	off	off	on	on	on	off	off
Set B	off	on	on	off	off	on	off	off
Set C	on	on	off	on	*	*	*	*

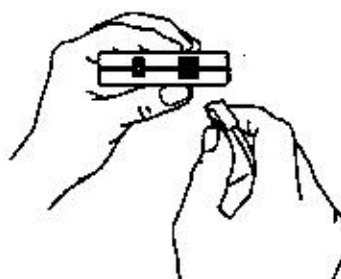
\* factory set

### 2. Connect the tablet to the ADB adapter box.

The ADB kit contains a PC cable with a 25-pin D connector and a phone connector. Plug the 25-pin D connector of the PC cable into the RS-232 port on your Summagrid III controller.



Plug the phone connector into the 'TABLET' socket on the ADB adapter box.

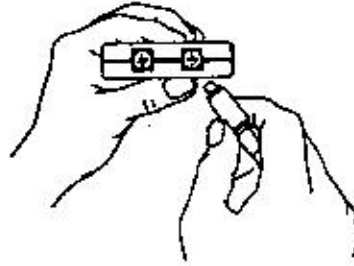


3. Connect the ADB adapter box to the computer.

The adapter box has two ports, labelled with the ADB icon:



Plug either end of the ADB cable into one of the two ports.



Plug the other end of the cable into one of the system's ADB ports. There are two ports on the keyboard and two ports on the Macintosh.

4. Start the tablet.

Start the tablet as described in its installation guide.

5. Start the computer.

Turn on the computer. The light on the ADB adapter box is lit, indicating that it is receiving power from the computer. (Although the ADB adapter box contains a power port, it receives power from the Macintosh directly. The tablet receives its power from the external power supply.)

At this time, the tablet is working with your computer, but it is in 'mouse mode'. For it to be in 'tablet mode', install the tablet driver, described later.

## ADB Interface For The Summagraphics LCL

1. Configure the Summagraphics LCL.

Assemble the tablet as described in its installation guide, except as noted below.

Using the instructions in the Summagraphics LCL User's Manual, configure the tablet as follows:

- 9600 baud
- even or odd parity
- two stop bits
- Echo off
- Proximity Transmission on, 'always transmit'
- 1000 lpi fixed resolution
- binary format
- Stream Mode on
- UIOF format

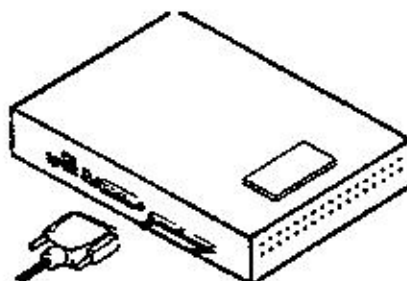
### Summagraphics LCL DIP Switch Settings:

	1	2	3	4	5	6	7	8
Set A	on	off	off	on	on	on	off	off
Set B	off	on	on	off	off	on	off	off
Set C	on	on	off	on	*	*	*	*

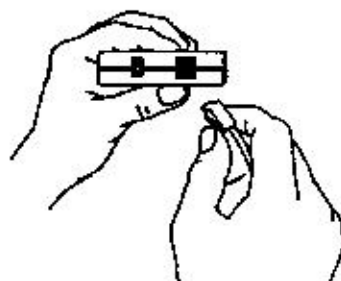
\* factory set

2. Connect the tablet to the ADB adapter box.

The ADB kit contains a PC cable with a 25-pin D connector and a phone connector. Plug the 25-pin D connector of the PC cable into the RS-232 port on your Summagraphics LCL controller.



Plug the phone connector into the "TABLET" socket on the ADB adapter box.

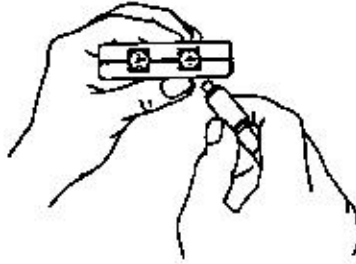


3. Connect the ADB adapter box to the computer.

The adapter box has two ports, labelled with the ADB icon:



Plug either end of the ADB cable into one of the two ports.



Plug the other end of the cable into one of the system's ADB ports. There are two ports on the keyboard and two ports on the Macintosh.

4. Start the tablet.

Start the tablet as described in its installation guide.

5. Start the computer.

Turn on the computer. The light on the ADB adapter box is lit, indicating that it is receiving power from the computer. (Although the ADB adapter box contains a power port, it receives power from the Macintosh directly. The tablet receives its power from the external power supply.)

At this time, the tablet is working with your computer, but it is in 'mouse mode'. For it to be in 'tablet mode', install the tablet driver, described later.

## ADB Interface For The Microgrid II

### 1. Configure the Microgrid II

Assemble the tablet as described in its installation guide, except as noted below.

Using the instructions in the Microgrid II Technical Reference and Installation Guide, configure the tablet as follows:

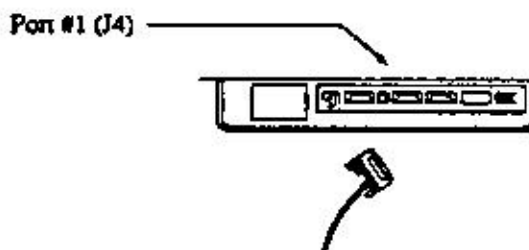
- 9600 baud
- even or odd parity
- two stop bits
- Echo off
- Proximity Transmission on, 'always transmit'
- Grid Diagnostics off, 'no prompts to host'
- 1000 lpi fixed resolution
- binary format
- Stream Mode on

Microgrid DIP Switch Settings:

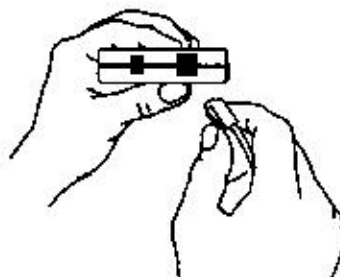
	1	2	3	4	5	6	7	8
DIP Switch 1 (SW1)	on	off	off	on	on	off	on	off
DIP Switch 2 (SW2)	off	on	off	on	on	on	on	on

### 2. Connect the tablet to the ADB adapter box.

The ADB kit contains a cable with a 25-pin D connector and a phone connector. Plug the D connector into Port 1 (J4) on the Microgrid controller.



Plug the phone connector into the "TABLET" socket on the ADB adapter box.

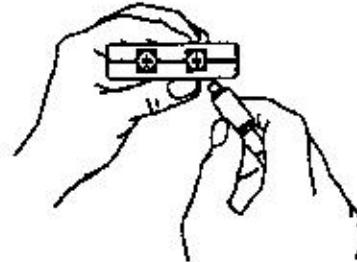


3. Connect the ADB adapter box to the computer.

The adapter box has two ADB ports, labelled with the ADB icon:



Plug either end of the ADB cable into one of the two ports.



Plug the other end of the cable into one of the system's ADB ports. There are two ports on the keyboard and two ports on the Macintosh.

4. Start the tablet.
5. Start the computer.

Start the tablet as described in its installation guide.

Turn on the computer. The light on the ADB adapter is lit, indicating that it is receiving power from the computer. (Although the ADB adapter box contains a power port, it receives power from the Macintosh directly. The tablet receives its power from the external power supply.)

At this time, the tablet is working with your computer, but it is in 'mouse mode'. For it to be in 'tablet mode', install the tablet driver, described later.

## Installing the Tablet Driver

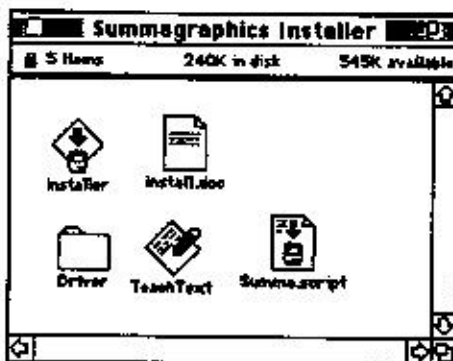
In order for the SummaSketch tablet to communicate with your software application, your system must contain a driver. A driver is a program that collects tablet data and converts it into information that can be read, understood, and used by your application. The Summagraphics ADB driver is found on the Summagraphics ADB Utilities diskette that comes with your tablet.

Before installing this software, remove all old versions of Summagraphics drivers, installers, and utilities from your startup disks. To remove an old driver, locate the "SummaTablet" control panel file in the SYSTEM folder or the Control Panel folder located within the System folder and drag the "SummaTablet" control panel to the trash.

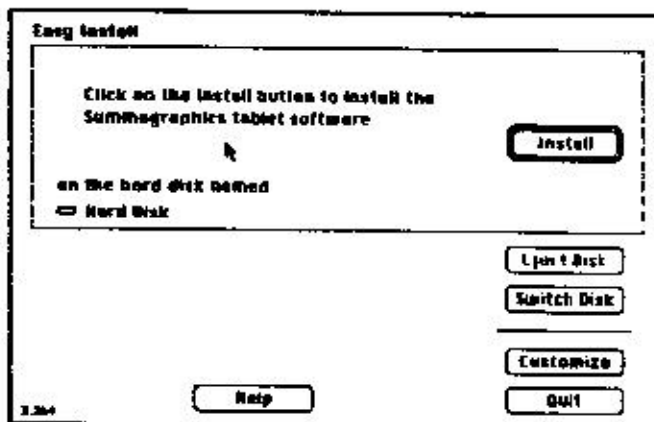
**Note:** Driver removal or installation involves changing system resources. Some virus protection programs may try to prevent this, therefore it is recommended that you temporarily turn off any virus protection software before removal or installation of the driver.

To install the driver:

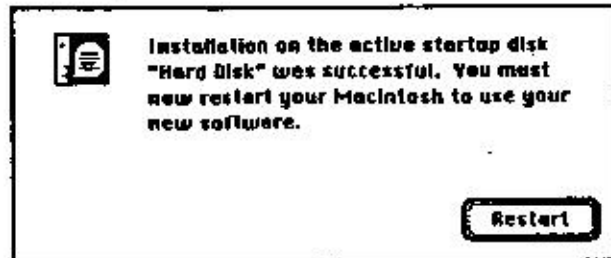
1. Insert the Summagraphics ADB Utilities diskette into your disk drive. The following window opens:



2. Double-click on the "Installer" icon. The "Easy Install" dialog box appears.



3. Click on the "Install" button to install the driver. If you wish to install the driver on a disk other than your startup disk, click on the "Switch Disk" button first to select the appropriate disk drive, then click on "Install".
4. When the driver installation is complete, the following screen appears:



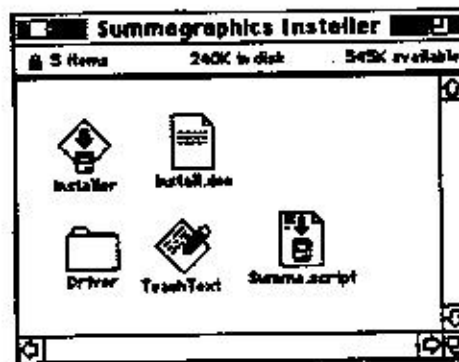
5. Confirm that the tablet is turned on, then click on the "Restart" Button to restart your system.

The tablet is now running under the driver. You install the driver only once. Thereafter, when you start the computer, it automatically comes up in tablet mode. (You can still switch between tablet and mouse mode with the SummaTablet Control Panel utility.)

## Removing the Tablet Driver

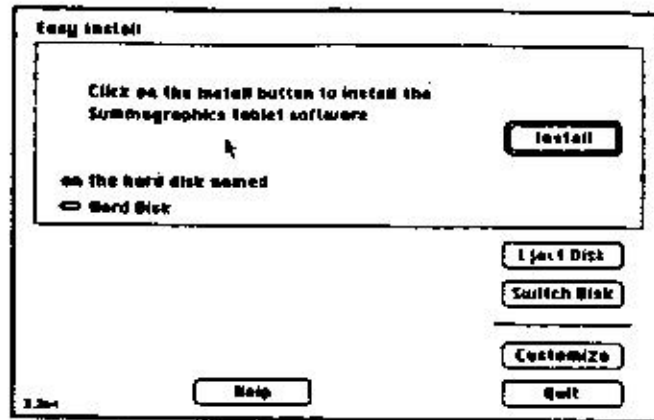
If you should need to remove the driver from your system, follow the steps listed below.

1. Insert the Summagraphics ADB Utilities diskette into your disk drive. The following window opens:

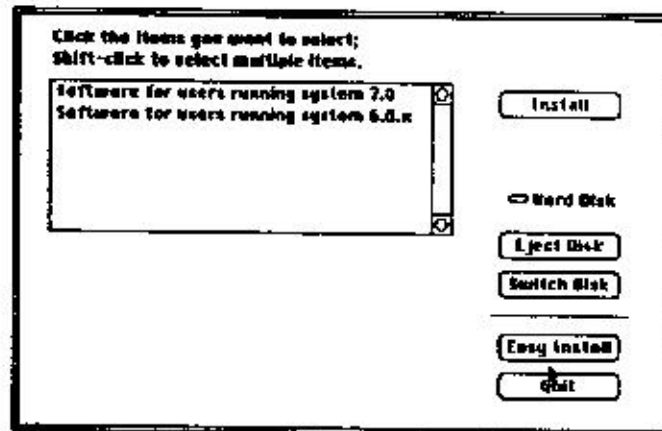


## Removing the Tablet Driver (cont.)

2. Double-click on the "Installer" icon. The "Easy Install" dialog box appears.



3. Next, click on the "Customize" button. The following screen appears.

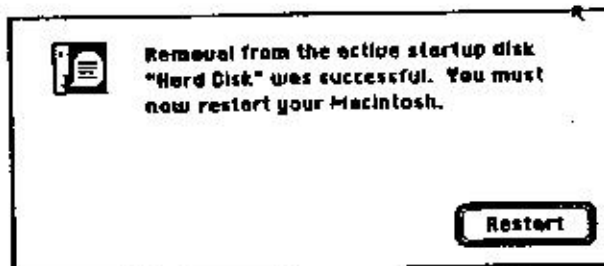


Highlight the items that you wish to remove by clicking on them.

4. Press the Option key on your keyboard. Notice that the "Install" button changes to read "Remove".

## Removing the Tablet Driver (cont.)

5. While holding down the option key, click on "Remove". When the driver removal is complete, the following screen appears:



6. Click on the "Restart" button to restart your system.






## Changing the Tablet Set-Up

The tablet is shipped to you in the following default set-up:

- Mode: tablet mode
- Orientation: landscape (applicable only for users with rectangular tablets)
- Mouse button: Button 1
- Units: inches
- Offset: X = 1 inch, Y = 1 inch
- PixScale: X = 72, Y = 72 pixels per inch
- Screen: 1 (applicable only for users using multiple monitors)

You may change the default set-up options. All changes are saved, and each time you restart the system, the tablet will automatically return to these operating characteristics, until you change them again. To change the tablet set-up options:

Select the Control Panel option from the Apple menu. The Control Panel screen is displayed. Click on the SummaTablet icon. The tablet set-up options are now displayed. Each set-up option is described on the next page.

SummaTablet		
<b>Mode</b> <input checked="" type="radio"/> Tablet <input type="radio"/> Mouse	<b>PixScale (pixels per inch)</b> X = 72  Y = 72 	
<b>Orientation</b> <input type="radio"/> Landscape <input type="radio"/> Portrait	<b>Offset (inches)</b> X = 1.0  Y = 1.0  <input checked="" type="radio"/> inches <input type="radio"/> mm	
<b>Mouse Button</b> <input type="radio"/> Button 1 <input type="radio"/> Button 2 <input checked="" type="radio"/> 1 & 2	<b>Origin on Screen *</b> 1 	<div style="border: 1px solid black; padding: 5px; text-align: center; width: fit-content; margin: 0 auto;">DK</div>
		Version 2.0

**Tablet Mode (or Absolute Mode)**

In tablet mode, coordinates are measured from the tablet's origin. Each point on the tablet maps to its unique counterpart on the screen. Because there is a direct correlation between tablet and screen, tablet mode is ideal for tracing and drawing.

**Mouse Mode (or Relative Mode)**

In mouse mode, the tablet tracks like a mouse. The screen pointer only tracks when the stylus/cursor is moving. The main uses of mouse mode are pointer steering, clicking, dragging, etc. (Refer to the Macintosh manual for details about mouse functions.)

**Orientation**

Orientation only applies to tablets with rectangular active areas. Landscape is a horizontal orientation. Portrait is a vertical orientation. The default orientation is landscape.

**Units**

You can choose the units of measure to be inches or millimeters. The default is inches.

**Viewport**

The viewport is the area of the tablet that is directly correlated, or mapped, to the computer screen. Viewport only applies when the tablet is in tablet mode.

**Offset**

The Offset is the location of the viewport's upper left corner. It is measured from the upper left corner of the tablet active area. Offset and viewport are described in the next section, "Mapping the Screen to the Tablet - - the Viewport." Offset is expressed in the selected unit of measure, inches or millimeters.

**PixScale**

PixScale is the number of screen pixels the pointer moves for each inch (mm) or stylus/cursor movement on the tablet. When the tablet is in mouse mode, PixScale controls the pointer speed. When the tablet is in tablet mode, PixScale controls the viewport size. PixScale's relationship to viewport is described in the next section, "Mapping the Screen to the Tablet - - the Viewport."

**Mouse Button**

Mouse button lets you select which switch on the pointing device you wish to use as your mouse button. If you are using the two-button stylus, you may select the tip switch (button 1), the barrel switch (button 2), or both.

Barrel Switch  
(Button 2)

Tip Switch  
(Button 1)

If you are using the four-button cursor, you may select cursor switch 1 (button 1), cursor switch 2 (button 2), or both.

Button 1

Button 2

If you are using the sixteen-button cursor, you may select cursor switch 1 (button 1), cursor switch 2 (button 2), or both.

Button 1

Button 2

**OK**

When you're finished making selections, click OK. OK implements and saves the changes. If you do not wish to implement the changes, click the "close box" in the upper-left hand corner of the Control Panel window. The "close box" closes the utility, leaving the set-up unaltered.

**Origin on Screen #**

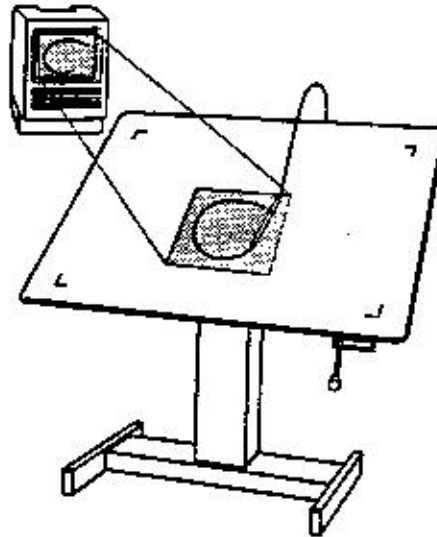
This set-up option is for Macintosh II systems with two or more monitors. It allows you to select the screen on which the tablet origin will be located. Screen numbering is obtained from another Control Panel utility called Monitors. (This utility is supplied by Apple; refer to your Apple user's manuals for further information on using multiple monitors.)

When using multiple monitors, the first step is to position the multiple screens within the Monitors utility and restart the system. Next, you must enter the SummaTablet Control Panel utility and click OK. This updates your Control Panel utility and implements any changes made while in the Monitors utility. Finally, you map your tablet to the screen using the PixScale and Offset options

*Note: You must update the SummaTablet Control Panel utility after making changes in the Monitors utility. Simply click on OK while in the SummaTablet Control Panel utility to update this set-up option.*

## Mapping the Screen to the Tablet – the Viewport

Viewport only applies when the tablet is in tablet mode. The viewport is the area of the tablet that is directly correlated, or mapped, to the computer screen. This direct mapping of tablet and screen is what gives you the ability to trace or draw with precision.



When you move the stylus/cursor inside the viewport, the pointer tracks with it. When you move the stylus/cursor out of the viewport, the pointer stops at the screen edge.

### The Default Viewport

The default viewport is:

PixScale: X = 72 screen pixels per tablet inch  
Y = 72 screen pixels per tablet inch

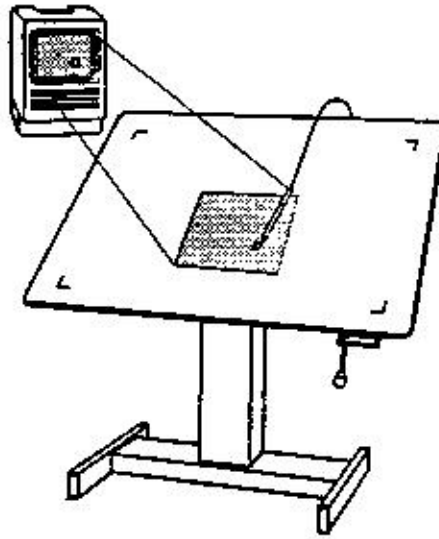
Offset: X = 1.0 inch from left edge of tablet active area  
Y = 1.0 inch from top edge of tablet active area

## How to Change the Viewport

### PixScale

You define the viewport size and shape with the PixScale function. You define the viewport location with the Offset function. Both of these options are found in the Control Panel, under the SummaTablet icon. You can access the Control Panel at anytime and change the tablet set-up options without closing the application you are currently working on.

PixScale is the number of screen pixels the pointer moves for each inch (mm) of stylus/cursor movement on the tablet. For example, an X pixscale of 72 is:



PixScale lets you:

- accommodate a wide variety of computer screen resolutions
- enlarge or reduce screen images relative to the tablet. For example, one inch on the tablet can equal two inches on the screen. One inch on the tablet can equal 1/2-inch on the screen.

PixScale is measured in the selected unit of measure, inches or millimeters. The defaults are X = 72 ppi, Y = 72 ppi (pixels per inch).

PixScale (pixels per inch)

X = 72 

Y = 72 

Two scroll bars control pixscale. Each click on an arrow changes the pixscale by 1 pixel. Each click in the grey area changes the pixscale by 5 pixels. To make large changes, drag the scroll box.

The minimum pixscale is 1 ppi. The maximum pixscale is 1000 ppi. These are extremes. It would be unlikely that you would use them. A pixscale of one means that moving the stylus/cursor one inch on the tablet would only move the pointer one pixel. A pixscale of 1000 means that moving the stylus/cursor one inch on the tablet would move the pointer 1000 pixels.

The best way of learning about PixScale is to experiment with it. Six scenarios appear below that demonstrate the most common situations. But first, here are some hints:

- If the screen resolution is specified as the total number of pixels along the axis, then you need to convert it to pixels per inch (mm). For example, if the screen resolution is:

X resolution = 512 pixels  
Y resolution = 342 pixels

And, the screen axes are:

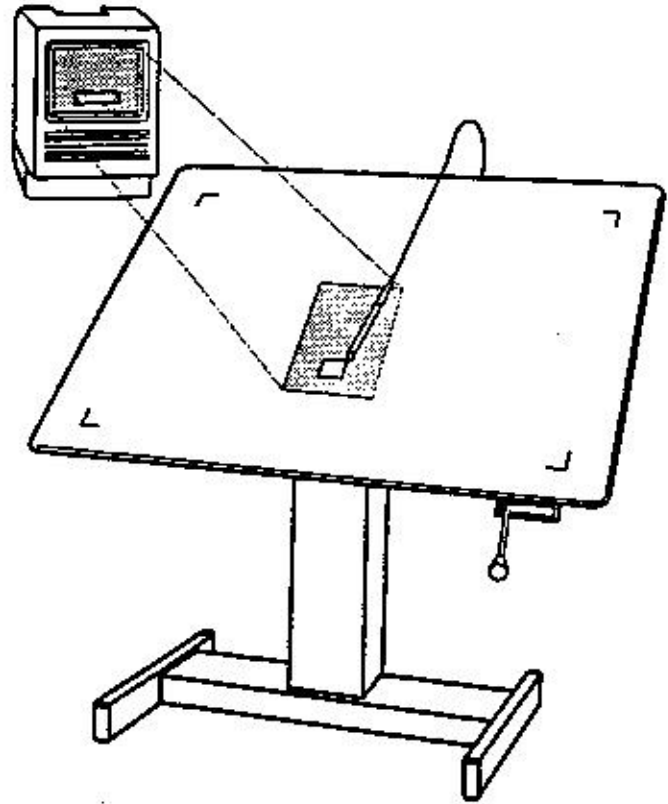
X axis is 7 1/8 inches long  
Y axis is 4 3/4 inches long

Then, the conversion is:

512 pixels ÷ 7 1/8 inches = 72 pixels per inch  
342 pixels ÷ 4 3/4 inches = 72 pixels per inch

- Again, in the case where the screen resolution is specified as the total pixel count along an axis, there is something else to be careful of. Are the pixel counts for the maximum screen dimensions or for only the "active" portion of the screen? For example, the standard Macintosh screen has a resolution of 512 pixels along the X axis; 342 pixels along the Y axis. These resolutions *do not* correspond to the maximum screen dimensions, but only to the "active" area of the screen — the desktop.

- For tablet images and screen images to have the same relative appearance, the viewport must have the same aspect ratio as the screen active area. Aspect ratio is the relationship of height to width, or Y axis to X axis. If the ratio is different, the screen images are distorted. For example:



**Scenario 1: You want the standard Macintosh screen (72 pixels per inch) mapped one-to-one with the tablet viewport**

Use the set-up defaults: X pixscale = 72, Y pixscale = 72.

**Scenario 2: The X and Y screen resolutions are 68 pixels per inch. You want a one-to-one mapping of the screen and tablet.**

Use X pixscale = 68, Y pixscale = 68.

**Scenario 3: The screen resolutions are X = 80 ppi, Y = 90 ppi. You want a one-to-one mapping of the screen and tablet.**

Use X pixscale = 80, Y pixscale = 90.

**Scenario 4: Enlarging a tablet image ... you want the screen image to be twice the size of the tablet image.**

If the screen resolutions were X = 72 ppi, Y = 72 ppi, use X pixscale = 144, Y pixscale = 144.

**Scenario 5: Reducing a tablet image ... you want the screen image to be half the size of the tablet image.**

If the screen resolutions were X = 72 ppi, Y = 72 ppi, use X pixscale = 36, Y pixscale = 36.

**Scenario 6: You want the entire tablet active area mapped to the screen. In other words, the viewport covers the entire tablet active area.**

Be aware that any time you map two dissimilar objects to each other, the screen image will be distorted. An example of this is mapping the screen (a rectangle) to a square tablet. If, however, this is what you want to do, here is how:

**Example:**

X axis  
Y axis

total pixels of screen active area ÷ length of tablet active area = pixscale value

512 pixels ÷ 12 inches = 42.666 ... round to next higher whole number = 43 ppi

342 pixels ÷ 12 inches = 28.5 ... round to next higher whole number = 29 ppi

If your screen resolution is specified in pixels per inch (mm): first, multiply the number of pixels per inch by the screen axis length; then, do the above computation.

## Offset

### Careful – You Can Define the Viewport Right Off the Tablet

The offset is the location of the viewport's upper left corner. It is measured from the upper left corner of the tablet active area.

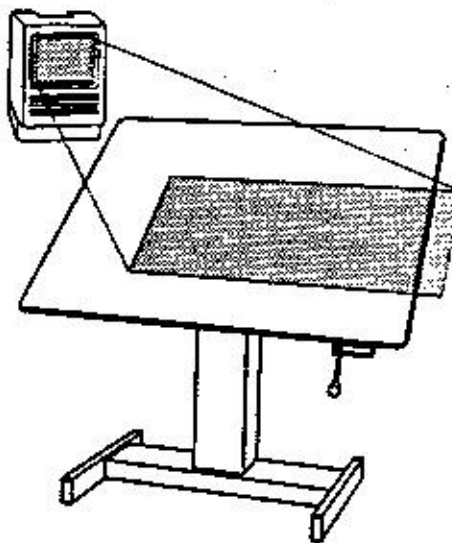
Offset is measured in the selected unit of measure, inches or millimeters. The defaults are X = 1-inch, Y = 1-inch.

Two scroll bars control offset. Each click on an arrow changes the offset by 0.1 inch (mm). Each click in the grey area changes the offset by 0.5 inch (mm). To make large changes, drag the scroll box.

#### Offset (inches)

X = 1.0   
Y = 1.0 

The maximum offset is the lower right corner of the tablet. Be careful! The maximum offset places the viewport off the tablet entirely. To get out of this predicament, use the mouse to readjust the offset. PixScale and Offset give you total flexibility. Enough to let you define part or all of the viewport off the tablet. For example:



In this case, the part of the screen corresponding to the overhang is not accessible with the stylus/cursor. One or more of the following remedies fixes the problem:

- Reduce the size of the viewport by increasing the PixScale value.
- Reduce the offset value with the Offset function.

## Screen Pointing vs. Application Control

The Summagraphics ADB interface box and driver conform to the Apple ADB digitizing tablet specifications and Tablet Memory Structure.

These ADB specifications allow application software to utilize additional operating parameters that are different from the standard Control Panel set-up options.

Many applications require these additional parameters, and take direct control of the tablet including modification of PixScale and Offset, and control of the mouse screen pointer. Therefore, you do not need to modify these options through the Control Panel. If the application controls the operating parameters, and you change them through the Control Panel, unexpected results may occur.

Most applications will restore the parameters to those in effect before it began. However, if you notice unexpected behavior after leaving an application, simply open the Control Panel and adjust the set-up options.

**Software  
Change Request**

If you have problems with the drivers/utilities software or suggestions for improving it, please fill in this form and return it to:

Summagraphics Corporation  
60 Silvermine Road  
Seymour, Connecticut 06483-3907 U.S.A.

Attn: Sales Support

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Product Name: \_\_\_\_\_ Model: \_\_\_\_\_

Product Serial (bar code) Number: \_\_\_\_\_

Date of Purchase: \_\_\_\_\_

Place of Purchase: \_\_\_\_\_

Diskette part number: \_\_\_\_\_

Software name: \_\_\_\_\_ Version: \_\_\_\_\_

Is the problem repeatable?  Yes  No

Did you receive an error ID? ID number? \_\_\_\_\_

Describe the problem in detail. Include such details as a list of the hardware and the version of your operating system: \_\_\_\_\_  
\_\_\_\_\_  
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If you have a workaround for the problem, please describe it also:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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