# EstiMat™

# USERS GUIDE

Part Number: 50414-1 Rev. A

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## Warranty

### Tablet

For all EstiMat tablets purchased and installed in the USA and Canada, and for which a registration card has been returned within 30 days of purchase, CalComp warrants that the tablet will be free from defects, and will meet the tablet specifications as presented by CalComp at the time of original purchase, for two years from the date of purchase. Under this warranty CalComp will, at its sole option, repair or replace this tablet which is defective or does not meet the tablet specifications. CalComp, at its sole option, may replace the defective product with a then current product having similar features and functionality as determined by CalComp. All warranty service will be performed at the CalComp digitizer factory or at a CalComp service depot. Options, upgrades, conversions, cables, accessories, and included items are covered by the same warranty as the EstiMat tablet for which they are purchased. Purchaser pays freight charges to the CalComp digitizer factory or service depot under this warranty.

If you think you have a defective tablet, call CalComp's Technical Support at 1-800-458-5888 for verification. Before returning a failed unit, you must obtain a Return Merchandise Authorization (RMA) number from Technical Support. The RMA number should be prominently displayed on the outside of the returned package and on the accompanying packing list. CalComp cannot be held responsible for any package returned without an RMA number.

Warranty does not cover: (1) consumable parts (i.e., batteries, pen tips, etc.); (2) tablets with serial numbers that cannot be read; (3) tablets which have been operated with incompatible consumable parts or accessories. Warranty will not cover damage resulting from: (1) abnormal conditions including but not limited to accidents, fire, water, etc.; (2) neglect or misuse of tablet, including punctures; (3) causes external to the tablet including but not limited to failure or fluctuation of electrical power, air conditioning, humidity control, etc.; (4) maintenance, repairs, alterations, or modifications performed by any person or entity other than CalComp.

This warranty is exclusive of all other warranties, whether expressed, implied, or statutory. CalComp does not warrant tablet for fitness for a particular purpose or merchantability. CalComp will not be liable for any special, consequential, indirect, or incidental damages, even if advised of their possibility. Some states do not allow for the exclusion or limitation of certain liabilities, so the above limitations may not apply. This warranty gives you specific legal rights, and you may also have other legal rights which vary from state to state.

## Software

CalComp warrants the physical diskettes and physical documentation enclosed herein to be free of defects in materials and workmanship for a period of 60 days from date of purchase, or 60 days from receipt from CalComp Digitizer Products Group. In the event of notification within the warranty period of such defects, CalComp Digitizer Products Group will replace the defective diskettes or documentation. This warranty is in lieu of all other warranties. The remedy for breach of this warranty shall be limited to replacement and shall not encompass any other damages.

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To the extent applicable, the above warranty shall be construed, interpreted and governed by the laws of the State of California.

## Radio Frequency Energy Notice

This equipment generates and uses radio frequency energy. If it is not installed and used properly, that is, in strict accordance with the manufacturer's instructions, it may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Part 15, FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. Operation of this equipment in a residential area may cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the computer/device with respect to the receiver.
- Move the computer/device away from the receiver.
- Plug the computer into a different outlet so that computer and receiver are on different circuits.
- Reorient or coil cables.
- Keep cursor or pen on the active area.
- If necessary, consult the dealer or an experienced radio/television technician for additional suggestions.

You may find the following booklet helpful:

"How to Identify and Resolve Radio TV Interference Problems". The booklet is available from the U.S. Government Accounting office, Washington, D.C. 20401. The stock number is 004-000-00345-4 (FCC Part 15.838b).

☞ Any cables the user adds to the device must be shielded to be in compliance with the FCC standards. Any unauthorized modification to this device could result in the revocation of the end user's authority to operate this device.

## Canada

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

*Le present appareil numerique n'emet pas bruits radioelectriques depassant les limites applicables aux appareils numeriques de Classe A prescrites dans le reglement sur le brouillage radioelectrique edicte par le Ministere des Communications du Canada.*

# Table of Contents

# 1—Introduction

Introducing EstiMat—CalComp's flexible digitizing tablet. EstiMat provides the same features as a conventional digitizer, but its lightweight, flexible design allows you to roll it up for transport or storage. Now you can obtain accurate digital information wherever the job takes you or roll up the EstiMat for storage when dedicated office space is limited. This versatility makes the EstiMat the ideal choice for estimating applications.

By placing a drawing, such as a blueprint, on the tablet's surface and tracing or digitizing specific elements of the drawing, you can easily convert these elements into accurate digital information that is input into a computer. This process is called *digitizing*. This information is then available for manipulation by estimating software applications. EstiMat can also be used in other digitizer applications like CAD and GIS, as well as a mouse in mouse supported programs.

## EstiMat Features

EstiMat was designed to deliver the same high performance of conventional graphic tablets at a lower cost. Some of its features include:

- **Flexible tablet**
  EstiMat's flexible design allows you to roll up the tablet for transport or storage.
- **Cordless pointing devices**
  Cursors and pens are available in cordless configuration for maximum productivity. Cursor options include 16-button and 4-button in both in-line and diamond layouts. Pen

options include two side/tip switch, two side/pressure switch, and two side/lite-touch switch.

- **Functional dynamics**
  Pens are available with CalComp Advanced Function Technology (AFT)—a full range of dynamic sensing capabilities including tilt, pressure and height.
- **Two orientations**
  The tablet can be used in two orientations—with the controller housing on the right or on the left, whichever is most convenient for you.
- **Configuration menu slot**
  A menu slot is located within the cursor housing for convenient storage of menu cards available with third party software packages.
- **High resolution**
  Up to 2540 lines/inch or 100 lines/mm
- **Easy installation**
  Connect the tablet to the computer and it is ready to use as a GTCO tablet. Two other pre-set configurations are provided through the Restore buttons. If you choose to install the software, an easy-to-use installation program is provided.
- **Configuration Save and Restore**
  Three factory default configurations are provided. However, you can define and save your own tablet configurations through the menu and Save buttons. The Restore buttons recall the configurations previously saved.
- **Macro record and playback**
  There are 18 user-recordable macro buttons in the surface menus and up to 16 additional user-recordable macro buttons from the cursor or pen.

## EstiMat Compatibility

EstiMat is available with an RS-232 interface. In addition to its digitizer capabilities, the tablet is hardware compatible with Microsoft mouse and Mouse Systems mouse drivers.

# How to Use This Manual

This manual provides you with the information you need to successfully install and operate EstiMat. It is designed so that important elements are easily seen. The left margin is used to highlight categories of information with headings and special notes or warnings through the use of special icons.

Notes point out information of special interest.

Cautions describe the steps you should use to preserve your work and successfully operate your equipment.

**Warnings alert you to possible danger to person or possible damage to the tablet.**

Any words printed in `computer type` are commands that you need to type at your keyboard. Words within angle brackets, < >, are names of keys you need to press. For example, <Enter> means to press the Enter key.

## Where to Find Information

The following chapter summaries will help you locate information in this manual.

**Chapter 1**, *Introduction*, provides a general overview of EstiMat and the requirements for using it.

**Chapter 2**, *Getting Started*, lists the step by step procedure for installing EstiMat.

**Chapter 3**, *Using EstiMat*, describes how to use the tablet and pointing devices.

**Chapter 4**, *Using the Menu Strip*, describes the menu strip buttons and how to use them.

**Chapter 5**, *Maintaining EstiMat*, provides information on the care of the tablet.

The appendices provide technical reference information for EstiMat and are described below.

**Appendix A**, *Troubleshooting*, provides check lists to help you solve common problems that may arise.

**Appendix B**, *Configurations*, lists the menu strip Configuration button settings for common software applications and the factory default settings.

**Appendix C**, *Specifications*, lists all specifications for EstiMat.

**Appendix D**, *Accessories*, lists tablet parts and their model numbers for ordering new or replacement items for EstiMat.

**Appendix E**, *ASCII Chart*, lists the standard ASCII characters.

A glossary and index are also provided.

# 2—Getting Started

This chapter describes how to install the EstiMat.

## Installing the EstiMat

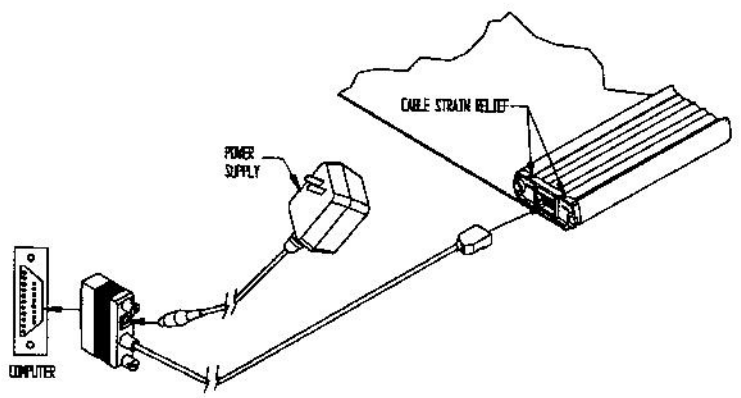


*Figure 2-1: Connecting the serial and power cables. The cable strain relief is used to hold the remaining cable length in place.*

To install EstiMat:

1. Turn off your computer.
2. Place the tablet on a large, flat surface. Make sure the surface is clear of all conductive materials. They may interfere with the electronics of the tablet.
3. Connect the serial cable to the socket on the end of the controller housing (see Figure 2-1). Connect the free end of

the serial cable to the computer's serial communication port (e.g., COM1 through COM4).

If the 25-pin serial cable connector does not fit the computer port (i.e., it requires a 9-pin), use the short adapter cable provided. Connect the wide, 25-pin end of the serial cable to the wide end of the adapter cable. Connect the small, 9-pin end of the adapter cable to the computer port.

4. Connect the power cable into the back of the serial cable connector. Connect the power supply end to a power outlet or power strip.

**Do not use another manufacturer's power supply for the tablet unless the voltage, polarity, and plug type match the tablet's requirements. If you plug a power supply with the wrong voltage or polarity into the tablet, the tablet will be damaged. See Appendix C for power supply specifications.**

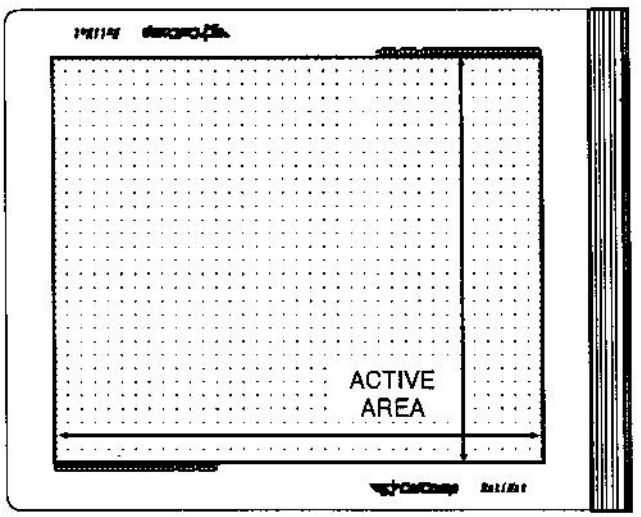


*Figure 2-2: Active area of the tablet*

5. Turn on the computer. The LED will light up.

6. Place the pointing device on the active area of the tablet and press any button to activate it. If the pointing device is within the active area of the tablet, the LED will glow steadily. If the pointing device is outside the active area of the tablet, the LED will blink.

The pointing device uses a "sleep mode" to conserve battery power. The device will go into sleep mode if a button has not been pressed for five minutes. When the pointing device is in sleep mode, the LED will flash even if the device is within the tablet active area. To reactivate the device, press any its buttons.

7. Click on the Active Menu button on the menu strip located nearest you (i.e., at the bottom of the tablet). This will activate this menu if it is not already active, and automatically adjust the orientation (i.e., axis and origin) of the tablet. This menu will remain the active menu (even if the tablet is powered down) until the Active Menu button on the opposite menu strip is digitized.

The EstiMat is now ready to use as a digitizer using the GTCO DP5 High Resolution Binary format. Two other preset formats are available through the Restore buttons. If you need to set up a different format other than the three preset formats, you can use the Configuration/Macro buttons on the menu strip (see Chapter 4) or install the CalComp Digitizer Software. If you wish to use mouse functions with the tablet, you must install the Digitizer Software (see the CalComp Digitizer Software User's Guide).

## Using the Preset Configurations

There are three factory preset digitizer configurations available with the EstiMat—GTCO DP5 High Resolution Binary, Summagraphics MM 1201, and CalComp 2000. These are stored in tablet memory areas Save 1, 2, and 3, respectively.

### GTCO DP5 High Resolution Binary

The GTCO DP5 configuration is the factory default that is available when the tablet is powered on.

If you have overwritten the Save 1 area, the configuration saved to the Save 1 area will be available with power up **not** GTCO DP5 (see Appendix B to restore a default setting that has been overwritten).

### Summagraphics MM 1201 Format

To configure the tablet for Summagraphics emulation:

1. Click on the Config/Exit button. You will hear a beep.
2. Click on the Restore 2 button. You will hear a double beep.
3. Click on the Config/Exit button again. You will hear a double beep.

This procedure activates the factory default for the Save 2 area. If you have overwritten the Save area, this procedure will call the configuration saved to the Save 2 area **not** Summagraphics MM 1201 (see Appendix B to restore a default setting that has been overwritten).

### CalComp 2000 ASCII Format

To configure the tablet for CalComp 2000 emulation:

1. Click on the Config/Exit button. You will hear a beep.
2. Click on the Restore 3 button. You will hear a double beep.
3. Click on the Config/Exit button again. You will hear a double beep.

This procedure activates the factory default for the Save 3 area. If you have overwritten the Save area, this procedure will call the configuration saved to the Save 3 area **not** CalComp 2000 ASCII (see Appendix B to restore a default setting that has been overwritten).

# 3—Using EstiMat

This chapter describes the features of the EstiMat tablet. It also describes the basic tablet operation.

## Tablet Features

The EstiMat features shown in Figure 3-1 are described below.

### Active Area

The *active area* of the tablet is the one-inch grid area. The active area receives the signals sent by the pointing device and is the area where all digitizing is performed.

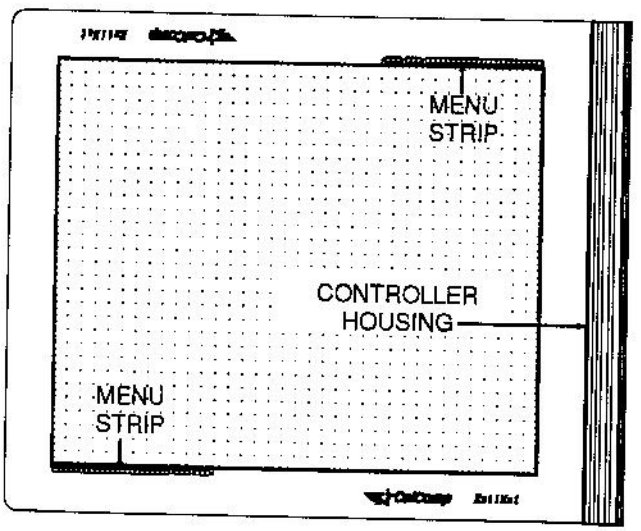


*Figure 3-1: EstiMat tablet features*

### Controller Housing

The *controller housing* is the metal casing located along the edge of the tablet. The electronics for the tablet are contained within the housing. The cable socket is located on one end panel of the housing. A menu slot is also located on the opposite end panel. Some menu cards for third party software can be inserted into this slot for convenient storage. Other features include a depression in the top of the housing to hold pointing devices and plan holder clamps along the edge of the controller.

### Menu Strips

There are two *menu strips* on the tablet to accommodate the two orientations available. The tablet can be used with the controller housing either on the left or the right. After you have decided on the orientation you wish to use, activate the menu strip that is in the lower left corner by clicking on the Active Menu button. More details about the menu strip are found in Chapter 4, "Using the Menu Strip".

### LED

The *LED*, located on the controller housing, is used to indicate both the power state and active area. When this light is on, it indicates the power is on. Also, if the light glows steadily, the pointing device is within the active area and the height sensing range of the tablet. If the device is outside the active area or height sensing range, the light flashes.

The LED also indicates the menu strip bank switch settings when the configuration mode is on. When the pointing device is placed over a Configuration/Macro button, the light turns off if the switch is off (i.e., 0), and the light glows steadily if the switch is on (i.e., 1).

## Pointing Devices

There are two main types of pointing devices available with EstiMat—the cursor and the pen. The pointing devices are cordless and utilize batteries. A special power management battery saving feature has been designed into the pointing devices. The device stays on for five minutes after a button is pressed. When not in use, the device goes into a very low current "sleep" mode. To activate the device, press any button. See Chapter 5, "Maintaining EstiMat", for information on replacing the battery.

## Cursors

The *cursor* is similar to a mouse, except that it has a lens with crosshairs attached for highly accurate digitizing. The intersection point of the crosshairs identifies what point will be digitized when using EstiMat as a digitizing tablet, or the corresponding point with the screen cursor when using EstiMat as a mouse. The crosshairs are etched on the bottom of the lens to increase accuracy. For maximum precision, look through the lens from directly over it.

The cursor has multiple buttons that are definable through your software application. The cursor can be used for accurate, detailed digitizing. Cursors available with EstiMat are:

- **4-button cursor (in-line and diamond layout)**
  The 4-button cursor has four buttons in either an in-line or diamond layout. Each cursor button has a default function assigned to it through your software application. You can also record macros to the buttons using the CalComp Digitizer Software.
- **16-Button Cursor**
  The 16-button cursor has 16 buttons numbered in a hexadecimal fashion (i.e., 0-9 and A-F). You can use the 16-button cursor the same way you use the 4-button cursor.

## Pens

The *pen* is similar in appearance to a ball-point pen. The pen tip has a built-in switch that can be used as a mouse button (Button 0). The pen can be used for rapid sketching and menu selection, as well as digitizing. The pen options are:

- **Two side/tip switch**
  The two side/tip switch pen uses a pen tip that exhibits a tactile click when it is pressed. The pen tip is generally the "select" button (Button 0), the lower side switch is Button 1, and the upper side switch is Button 2. All switches are defined through your software application.
- **Two side/pressure tip**
  CalComp Advanced Function Technology (AFT) provides pressure sensitive pens that allow you to communicate variable data by changing the pressure applied to the pen tip. To take advantage of this feature, the software application you use must support the AFT data. The software assigns values to the pressure levels and uses this data to

vary such parameters as line width and color. AFT also provides pens sensitive to tilt and height.

- **Two side/lite-touch tip**
  The two side/lite-touch tip pen is called lite-touch because the pen tip switch exhibits no tactile click or travel when it is pressed, much like an actual writing pen. This pen also uses the pen tip as the select button (Button 0). The two side switches are used as Button 1 (bottom) and Button 2 (top). They are defined through your software application.

## Using the Pointing Devices

Once you have installed the tablet, you can use your EstiMat by moving the pointing device about the surface of the tablet. The pointing device sends a signal to the tablet. Beneath the tablet surface are conductors that receive the signals. The tablet electronics read the signals and determine (with a very high degree of accuracy) the location of the pointing device, and determine which button was pressed on the pointing device.

### Tablet Modes

A digitizer can be used for both absolute and relative positioning. *Absolute positioning* means locations on the tablet are mapped in reference to an origin. If the tablet is in absolute mode and is used in conjunction with a software application that uses a screen cursor, the screen cursor will always move to the same coordinate position on the screen as represented by the cursor or pen location on the tablet. More specifically, when you move the pointing device to the lower left corner of the tablet, the screen cursor moves to the lower left corner of the screen.

The absolute mode is used for digitizing drawings and plans.

*Relative positioning* is the same as mouse mode. The movement of the screen cursor reflects the direction and distance that the mouse has moved. However, if the screen cursor is in the upper left corner of the screen and you pick up the pointing device and place it in the upper right corner of the tablet, the screen cursor does not move (assuming the pointing device was moved out of height

range). Relative positioning allows you to move the screen cursor across the full width of the screen while the mouse stays in a small area on the tablet.

Relative positioning is not acceptable for digitizing drawings and plans.

## Operating Modes

The operating mode sets the conditions that must be met before the tablet sends information to the computer. Operating modes can be either automatically set using the Digitizer Software or user selected through the menu strip. See the Digitizer Software User's Guide and Chapter 4 for more information on selecting modes.

The prompt and increment modes work in conjunction with other modes.

### Prompt

The computer must send a prompt character to the tablet before a data point transmits. Prompting can operate with any mode except Mouse.

### Point

The tablet sends one data point each time the pen tip or a cursor button is pressed.

### Run

The tablet sends data points continuously regardless of the status of the cursor button or pen tip. This mode is also called stream by some manufacturers.

### Line

The tablet sends data points as long as the pen tip or cursor button is pressed, and adds one point when the pen or button is released.

### Track

The tablet sends data points as long as the pen tip or cursor button is pressed. This mode is also called Switch Stream by some manufacturers.

### Increment

Increment can be used with Line, Run, or Track. Data points are sent only if the cursor has moved the required increment distance and has satisfied Line, Run, or Track mode requirements, or there has been a change in the button state.

### Mouse

Mouse mode emulates Microsoft and Mouse Systems mouse drivers. Data constantly transmits when the cursor or pen is on the active area.

### Delta

The data output represents the change in the cursor's position since sending the last point, rather than the absolute position of the cursor on the tablet. Delta is unique to the Summagraphics MM 1201 format.

### Grid Update

Grid Update is similar to the Increment mode. However, new data points transmit only for the axis that has satisfied the require increment distance. The other axis sends the last value that fulfilled the distance requirements. Grid Update is unique to the Summagraphics MM 1201 format.

# Using the Menu Strip

The menu strip allows you to configure the EstiMat tablet manually. EstiMat comes with three preset configurations (see Save and Restore descriptions below). However, these configurations can be changed or customized using the menu strip or CalComp Digitizer Software. The menu strip can also be used to playback macros. Macros can only be recorded using the Digitizer Software.

## Menu Button Definitions

The menu strip is located in two different locations on the EstiMat tablet to accommodate the two orientation options available. The menu strip is composed of:

- Config/Exit button
- Active Menu button
- 3 Bank buttons
- 18 Configuration/Macro buttons
- 3 Save buttons
- 3 Restore buttons

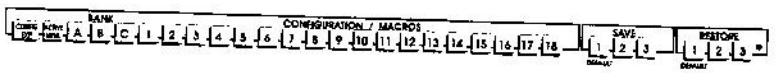


*Figure 4-1: Menu strip buttons—from left to right, Config/Exit, Active Menu, Bank buttons, Configuration/Macro buttons , Save buttons, and Restore buttons.*

To activate a button on the menu strip, position the pointing device (i.e., pen tip or cursor crosshairs) over the button, then press any key on the pointing device. This method will be referred to as a "click" from now on.

## Config/Exit Button

The Config/Exit button activates the configuration mode for the menu strip. You must click on this button before you can change the Configuration/Macro button settings. After you click on the Config/Exit button, the LED on the menu strip turns on. You will hear a beep. The configuration mode will stay on until you click the Config/Exit button again to turn off the configuration mode. You will hear a double beep.

## Active Menu Button

The Active Menu button activates the menu strip you wish to use. The tablet can be used with the controller housing placed on the left or the right of the user. There are two menu strips on the tablet to accommodate the two orientation options available. If the tablet is rotated, the origin location (usually in the lower left corner) must be relocated. After you have decided on the orientation you wish to use, you must click on the Active Menu button in the menu strip that is in the lower left corner of the tablet. This action will not only define which menu you will be using, but will also relocate the origin of the tablet.

## Bank Buttons

There are three Bank buttons (A, B, and C) that you can access when the configuration mode is active. You must click on a Bank button before you can change the setting at a Configuration button. If the menu strip is in configuration mode, you can determine which bank you are in by positioning the pointing device over one of the bank buttons. The LED glows steadily if the bank is active, and turns off if the bank is inactive.

## Configuration/Macro Buttons

The Configuration/Macro buttons are the buttons numbered 1-18 on the strip. The Configuration buttons are stored in three banks and can be accessed if the menu strip is in configuration mode (i.e., Config/Exit button is activated). Each button can only have two settings—on (a 1 value) or off (a 0 value). The tablet options assigned to the Configuration buttons are found in Appendix B.

The Macro buttons are accessed when the configuration mode is off, and can only be defined through the Digitizer Software.

## Save Buttons

There are three memory banks where the Configuration button settings can be saved. These memory banks have factory default settings assigned to them. You may use the factory default settings or reconfigure the tablet to suit your needs and then save the settings to one of the memory banks by using the Save buttons. The Save buttons can only be accessed when the Config/Exit button is active. To save a new setting, follow the steps described earlier under Config/Exit, except before clicking the Config/Exit button when finished, click one of the Save buttons. If you configure the tablet and do not save the settings, they will be lost when you power off the tablet.

### Save 1

This button saves the current selections to the first memory bank (default). The default settings are activated with each power up or when you click on the Restore 1 button. We recommend you save the program settings you use most often as the default. *The factory default setting for Save 1 is GTCO DP5 High Resolution.*

### Save 2

This button saves the current selections to the second memory bank. To use these settings, click on the Restore 2 button. *The factory default setting for Save 2 is Summagraphics MM 1201 Binary.*

### Save 3

This button saves the current selections to the third memory bank. To use these settings, click on the Restore 3 button. *The factory default setting for Save 3 is CalComp 2000 ASCII.*

## Restore Buttons

The Restore buttons activate the memory banks of the tablet. To access a Restore button:

1. Click on the Config/Exit button.
2. Click on the appropriate Restore button. You will hear a double beep.
3. After the beep ends, the tablet will be set to the new setting.

## Configuring the Tablet

The following steps summarize how to configure your EstiMat from the menu strip. See Appendix B for configuration button options and menu strip configuration settings for commonly used software applications.

1. Click on the Config/Exit button. The configuration light turns on and you hear a beep.
2. Click on one of the bank buttons (i.e., Bank A, B, or C).
3. Determine the Configuration button settings for the selected bank by positioning the pointing device over each of the Configuration buttons you want to examine for that bank The LED turns off if the configuration button has a 0 value and glows steadily if the button has a 1 value. Click on the button to change the setting, if needed.
4. Repeat steps 2 and 3 for the remaining banks as required.
5. Once you have completed the settings for the Configuration buttons, click on one of the Save buttons to save the settings to a memory bank. **This step may be omitted, but the settings will be only temporary for the current session and will be lost when the tablet is powered off.**
7. Click on the Config/Exit button. You will see the configuration light turn off and hear a double beep.

# 5 Maintaining EstiMat

Follow these precautions at all times to avoid damage to the tablet:

- Always use the tablet on a flat surface.
- Do not move the tablet unless you first disconnect the serial cable and roll up the tablet.
- Do not crease or dent the tablet. Creases or dents in the tablet will void your warranty.
- Do not use sharp objects, like compasses or knives, on the tablet. Cuts or punctures in the tablet will void your warranty.
- Do not use the tablet surface for any purpose other than digitizing.

## Cleaning the Tablet

To clean the tablet's surface, use mild soap and water. Use a soft, non-abrasive cloth to clean dust from the tablet surface. Hardened dirt may be removed with a cloth dampened in soapy water.

**Abrasive cleaners, acrylic or lacquer paint thinners, and cleansers with an acetone or solvent base, such as MDC or EDC, should not be used on the tablet surface. They will damage the surface. Do not clean pencil lines with a soft cleanser or pencil eraser. This may create an undesirable shiny spot on the tablet's surface that cannot be removed.**

## Transporting and Storing the Tablet

EsitMat can be easily transported by rolling up the tablet and placing it in its container. To roll up the tablet:

1. Remove all material from the tablet.
2. Disconnect the power cable from the cable connector and outlet.
3. Disconnect the serial cable from the controller housing and the computer.
4. Roll the tablet around the removable center core of the container with the printed side of the tablet toward the inside.
5. Insert the rolled tablet into the container.
6. Place the accessories into the center of the container core. Close the container.

Store the tablet in its container in an upright position. Do not place heavy weights on the case. Do not exceed storage temperature or humidity limits of the EstiMat specifications listed in Appendix C.

## Replacing Batteries

The pointing devices require four 1.4 volt, size 13 hearing aid batteries. The batteries for the cursor are held in a battery pack. The pens do not use the battery pack; the hearing aid batteries are placed directly inside the pen housing.

**Do not use ZINC AIR batteries as replacement batteries. They will corrode the electronics of the pointing device.**

### Cursor

Follow the steps below to replace the batteries in the cordless cursor (see Figure 5-1).

1. Place the cursor face down in the palm of your hand. Use a Phillips screwdriver to remove the two screws located on the bottom of the cursor. Remove the cursor base.

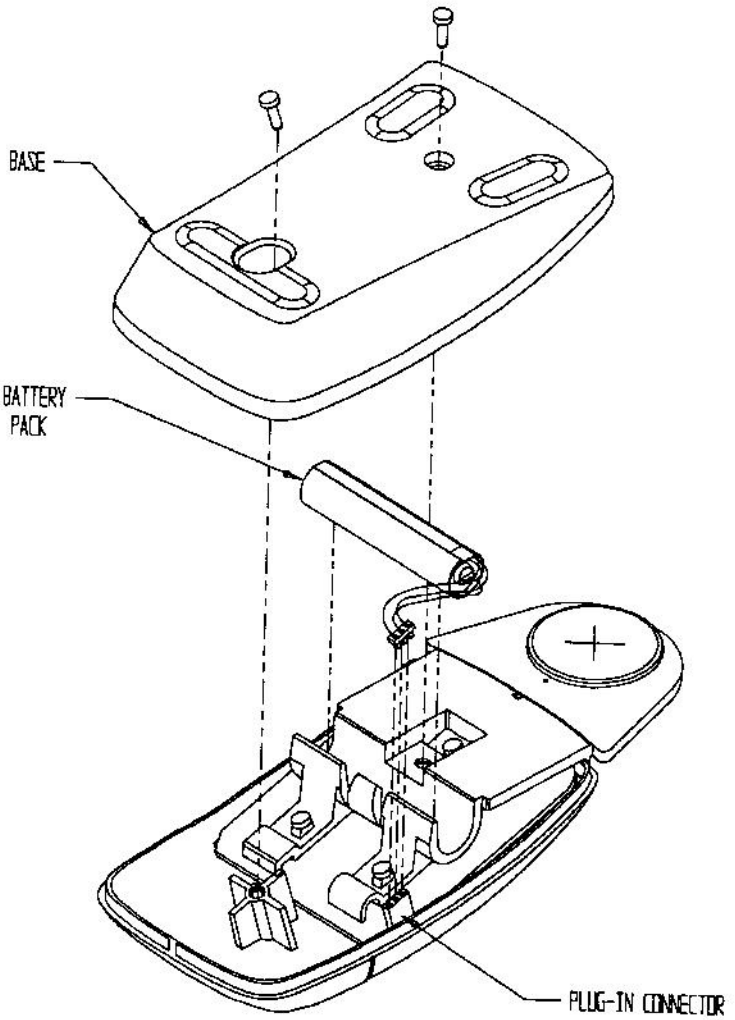


*Figure 5-1: Replacing the battery in the cursor*

2. Gently lift the black battery plug-in connector (see Figure 5-2) from the white socket taking care not to pull on the wires. Remove the battery pack from the housing.

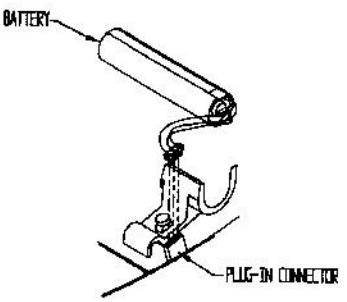


*Figure 5-2: Plug-in connector*

3. To open the battery pack, lift up on the long tab located at the end of the pack (see Figure 5-3). Replace the batteries in the pack, making sure the polarity of the batteries match the markings on the connector strip.

4. To close the pack, hook the short tab into the end slot of the pack as shown in Figure 5-3. Snap the long tab closed.

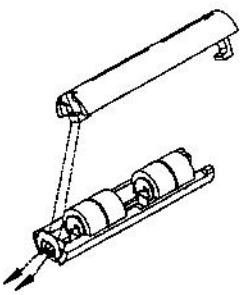

*Figure 5-3: Battery pack*

5. Replace the battery pack by sliding it into the housing and gently pushing the battery plug-in connector into the white socket taking care not to bend the wires.

6. Reposition the cursor base. Check that the battery pack wires are inside the cursor housing. Replace the screws with the Phillips screwdriver.

## Pen

Follow the steps below to replace the batteries in the pens—two side/tip switch, two side/pressure switch, or two side/light touch switch pens (see Figure 5-4).

1. Unscrew the pen cap. Hold the pen from the bottom and gently lift up the pen cover to expose the batteries.
2. Remove the old batteries from the battery case. Place the new batteries in the battery case. The pen uses four batteries. Two spare batteries can be stored in the pen housing.
3. Replace the pen cover then screw the pen cap onto the pen.

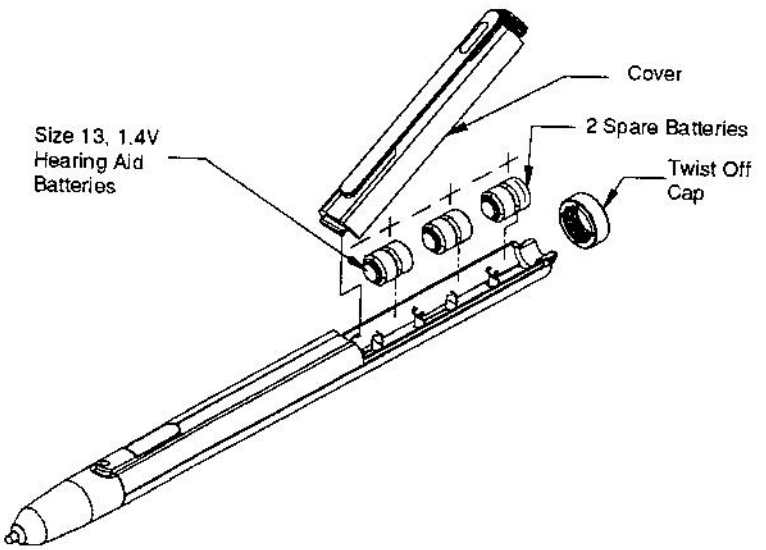


*Figure 5-4: Replacing the batteries in the pen*

# Returning for Repair

If you think you have a defective tablet, call CalComp's Technical Support at (800)458-5888 for verification. Before returning a failed unit, you must obtain a Return Merchandise Authorization (RMA) number from Technical Support. The RMA number should be prominently displayed on the outside of the returned package and on the accompanying packing list. Any tablets received without a Return Authorization Number are returned to the sender immediately. CalComp cannot be held responsible for any package returned without an RMA number.

## Repacking for Shipment

Whenever you ship electronic equipment, try to ship it in its original packing materials.

To pack EstiMat:

1. Disconnect all cables from the tablet.
2. Because packing materials are static-charged, you should ship the cursor or any extra electronics boards inside approved anti-static plastic bags.
3. Return the tablet and all the accessories to their proper compartments within the tablet carton.
4. Close the tablet carton.
5. If you are shipping the tablet or accessories to a CalComp Service Center for repair, attach a tag to the equipment with the following information:
   - Model number
   - Serial number
   - Maintenance contract number (if applicable)
   - Return Authorization Number
   - Detailed description of the problem

# Troubleshooting

## How to Get Help

We want your experience with EstiMat to be a successful one. If you have a problem, please follow the steps below.

1. Reread the manual to verify you have performed the correct steps.

2. Read this appendix to check if a solution to your problem is provided. Review the check lists provided below. Specific problems are listed along with their possible causes and solutions in Table A-1. Keep in mind that the problem may be your computer, your display, or your software instead of the tablet.

3. If you still have a problem, call CalComp Technical Support at (800)458-5888 (in the U.S. or Canada) or fax us at (602)948-5508. Outside the U.S. or Canada, contact your local CalComp office or dealer. Please have the following information available before you call:
   - Description of the problem
   - Name and version of software package you are using
   - Type of computer you are using
   - EstiMat serial number*
   - EstiMat part number*

*Serial number, part number, and date of manufacture are located on the label at the back of the tablet.

- Date of manufacture*
- Type of pointing device you are using

4. Be at your computer when you call.

## CalComp's Bulletin Board

CalComp's bulletin board covers helpful hints, technical notes, and new product information. You can access the bulletin board with your modem by calling (714)821-2359. To access the bulletin board, set your modem with the following parameters:

- 1200 or 2400 baud
- 8 data bits
- 1 stop bit
- No parity

## Tablet Check List

- ❒ Digitize the Active Menu button on the lower left menu strip to reset the operating mode and orientation of the tablet.
- ❒ Is the tablet power supply plugged into the serial cable and into a live outlet?
- ❒ Does the LED glow solid when the pointing device is in the active area?
  Does it blink when the pointing device is out of the active area? If the LED doesn't glow solid when the pointing device is in the active area, press any button on the pointing device to activate it. If the LED still doesn't glow, you may need to replace the batteries or try another pointing device.

*Serial number, part number, and date of manufacture are located on the label at the back of the tablet.

- ❒ Are all cable connections tight?
  Power cable to serial cable?
  Serial cable to tablet?
  Serial cable to computer? Check that the cable is in the correct serial port specified in the application software.
- ❒ Are the tablet's configuration parameters set for values the software expects?
- ❒ Are any of the connector cables or receptacles damaged? Check for bent pins, cut insulation, and loose wires.

## Computer Check List

- ❒ Is the computer plugged into a live outlet?
  Did you turn on the computer?
- ❒ Does the computer work with any software? Try one of your other programs. If the computer has a diagnostic diskette, use it.
- ❒ Was the software installed correctly?
  Does the software require you to install a security device or enter a security code before it runs?
- ❒ Does the serial port (COM) work? The only way to test the port without special equipment is to reinstall something that has worked in the past and test if it still works.
- ❒ Did you reset or power down the computer? During reset and power on, the computer can send meaningless characters out the serial port and this can disable the tablet. Reset the tablet again.

## Software Check List

### Does the tablet work with some software?

If your tablet currently works with some software packages, you know that the tablet, serial port, and computer and display work.

- ❒ Even if the software you're trying to install supports the same tablets as the software that is working, it does not always mean that you can use the same tablet settings. The

output format may be the same, but the communications protocol, resolution, operating mode, and data rate may be different. Check your software's requirements.

- ❒ Call the software manufacturer. Perhaps the software has a problem with another component of your system. Does the software require you to install a security device before it will work?

**Did the software work in the past?**

If the software worked with the tablet in the past, then the problem lies with the new configuration.

- ❒ Check all the connectors. Is the tablet still plugged into the same port? Then reset the tablet by unplugging and replugging the power supply and restart the software.
- ❒ Have you installed any new software or hardware? Remove it from your system and see if the problem goes away.
- ❒ Did you move any cables or remove the software security device?
  Did the new software alter your AUTOEXEC.BAT file?
- ❒ Have you updated the software or its drivers?
- ❒ Did you reinstall the software, perhaps after a problem with your hard drive? Double check your installation procedure and the driver you selected.
- ❒ Reinstall the software from its master diskettes. The program files may have been corrupted.

## Troubleshooting Chart

Table A-1 lists common EstiMat problems, their causes, and their solutions.

**Table A-1: Troubleshooting Chart**

| Problem | Cause | Solution |
|---|---|---|
| Screen cursor moves in opposite direction of tablet cursor, or digitized coordinates seem reversed. | Upper right menu strip is active. | Digitize Active Menu button on lower left menu strip. |
| Tablet does not respond | Cable is connected to the wrong serial port of the computer. | Move cable to correct serial port. |
| | Menu strip is in configuration mode. | Digitize the Active Menu button on the lower left menu strip to reset. |
| Unable to use the entire tablet surface | Incorrect format selected. | Check your selections in the menu strip. |
| | Incorrect resolution selected. | Check the resolution setting for the tablet. |
| Frozen display screen crosshairs | Cursor or pen is in "sleep" mode. | Press any button to activate the device. |
| | Tablet plugged into the wrong connector in the back of the computer. | Check that the serial cable is connected to the serial port on the computer. |
| | Tablet not powered correctly. | Check that the power cable is installed correctly. |
| | Battery low in pointing device. | Replace battery in pointing device. |

**Table A-1 Troubleshooting Chart**

| Problem | Cause | Solution |
|---|---|---|
| Screen crosshairs appear to shake or jitter | Tablet is set too close to the screen monitor. | Move the tablet farther away from the screen. |
| | Tablet's frequency setting may conflict with the display. | Call Technical Support. |
| Keyboard will not respond. | Operating parameters are set incorrectly. | Remove pen or cursor from active area and recheck the tablet settings. |

# Appendix B—Configurations

## Configuration Button Definitions

When you use the menu strip to configure your tablet, use the following tables to determine which options the Configuration buttons define. Table B-1 defines the tablet options for Bank A, Table B-2 defines the tablet options for Bank B, and Table B-3 for Bank C.

A combination of Configuration buttons can define one tablet option. For example, Buttons 1 and 2 define the operating mode for the tablet. Operating mode options are:

- Line = 00
- Point = 01
- Track = 10
- Run = 11

If your software application requires point mode, then you would set Button 1 to 0 (off) and Button 2 to 1 (on), making up the 01 setting for point mode.

**Table B-1 Configuration Button Functions, Bank A**

| **Operating Mode** | **Button 1** | **Button 2** |
|---|---|---|
| Line | 0 | 0 |
| Point | 0 | 1 |
| Track | 1 | 0 |
| Run | 1 | 1 |
| **Increment** | **Button 3** | **Button 4** |
| None | 0 | 0 |
| 1 | 0 | 1 |
| 5 | 1 | 0 |
| 10 | 1 | 1 |
| **Prompt Mode** | **Button 5** | |
| On | 1 | |
| Off | 0 | |
| **Data Rate** | **Button 6** | **Button 7** | **Button 8** |
| CalComp 2000<br>1 pps | 0 | 0 | 0 |
| 5 pps | 0 | 0 | 1 |
| 10 pps | 0 | 1 | 0 |
| 20 pps | 0 | 1 | 1 |
| 40 pps | 1 | 0 | 0 |
| 75 pps | 1 | 0 | 1 |
| 100 pps | 1 | 1 | 0 |
| 125 pps | 1 | 1 | 1 |

**Table B-1. Configuration Button Functions, Bank A**

| Data Rate (cont.) | Button 6 | Button 7 | Button 8 |
|---|---|---|---|
| Summagraphics MM ASCII | | | |
| 7 pps | X* | 1 | 1 |
| 20 pps | X | 1 | 0 |
| 50 pps | X | 0 | 1 |
| 100 pps | X | 0 | 0 |
| Summagraphics MM binary | | | |
| 7 pps | X | 1 | 1 |
| 25 pps | X | 1 | 0 |
| 75 pps | X | 0 | 1 |
| 150 pps | X | 0 | 0 |

*X = setting can be either 0 or 1

| Resolution | Button 9 | Button 10 | Button 11 |
|---|---|---|---|
| 200 lpi | 0 | 0 | 1 |
| 254 ipi | 0 | 1 | 0 |
| 400 lpi | 0 | 1 | 1 |
| 500 lpi | 1 | 0 | 0 |
| 508 lpi | 1 | 0 | 1 |
| 1000 lpi | 1 | 1 | 0 |
| 1270 lpi | 1 | 1 | 1 |
| 2540 lpi | 0 | 0 | 0 |

**Table B-1. Configuration Button Functions, Bank A**

| Format # | Name | Button 12 | Button 13 | Button 14 | Button 15 | Button 16 |
|---|---|---|---|---|---|---|
| 0 | CC 2000-A | 0 | 0 | 0 | 0 | 0 |
| 1 | CC Wedge | 0 | 0 | 0 | 0 | 1 |
| 2 | CC 2000 Spc | 0 | 0 | 0 | 1 | 0 |
| 3 | MM 1201-A | 0 | 0 | 0 | 1 | 1 |
| 4 | CC 9100-1 | 0 | 0 | 1 | 0 | 0 |
| 5 | CC 9100-2 | 0 | 0 | 1 | 0 | 1 |
| 6 | CC 9100-3 | 0 | 0 | 1 | 1 | 0 |
| 7 | CC 9100-4 | 0 | 0 | 1 | 1 | 1 |
| 8 | MM 1105-A | 0 | 1 | 0 | 0 | 0 |
| 9 | GTCO DP5-A | 0 | 1 | 0 | 0 | 1 |
| 10 | Kurta IS ONE #4 | 0 | 1 | 0 | 1 | 0 |
| 11 | GTCO MD7-A | 0 | 1 | 0 | 1 | 1 |
| 12 | Hitachi-A | 0 | 1 | 1 | 0 | 0 |
| 13 | HiPad-A | 0 | 1 | 1 | 0 | 1 |
| 14 | Hitachi-A Sign | 0 | 1 | 1 | 1 | 0 |
| 15 | MM 1105-A | 0 | 1 | 1 | 1 | 1 |
| 16 | MM 1105-A! | 1 | 0 | 0 | 0 | 0 |
| 17 | Wacom-A | 1 | 0 | 0 | 0 | 1 |
| 18 | Reserved | 1 | 0 | 0 | 1 | 0 |
| 19 | Mac Serial | 1 | 0 | 0 | 1 | 1 |
| 20 | CalComp AFT | 1 | 0 | 1 | 0 | 0 |
| 21 | Wacom-B | 1 | 0 | 1 | 0 | 1 |
| 22 | CC Format 22 | 1 | 0 | 1 | 1 | 0 |

**Table B-1 Configuration Button Functions, Bank A**

| Format (cont.) # Name | Button 12 | Button 13 | Button 14 | Button 15 | Button 16 |
|---|---|---|---|---|---|
| 23 CC HiRes | 1 | 0 | 1 | 1 | 1 |
| 24 Kurta Ser.1#2 | 1 | 1 | 0 | 0 | 0 |
| 25 GTCO LoRes-B | 1 | 1 | 0 | 0 | 1 |
| 26 Kurta Ser.1#3 | 1 | 1 | 0 | 1 | 0 |
| 27 Hitachi HiRes | 1 | 1 | 0 | 1 | 1 |
| 28 CC 2000-B | 1 | 1 | 1 | 0 | 0 |
| 29 MM 1201-B3 | 1 | 1 | 1 | 0 | 1 |
| 30 MM 1201-B | 1 | 1 | 1 | 1 | 0 |
| 31 MicroGrid II-B | 1 | 1 | 1 | 1 | 1 |

| Line Feed | Button 17 |
|---|---|
| None | 0 |
| Add | 1 |

| Data Bits | Button 18 |
|---|---|
| 7 | 0 |
| 8 | 1 |

**Table B-2 Configuration Button Functions, Bank B**

| Baud Rate | Button 1 | Button 2 | Button 3 |
|---|---|---|---|
| 19200 | 0 | 0 | 0 |
| 9600 | 0 | 0 | 1 |
| 4800 | 0 | 1 | 0 |
| 2400 | 0 | 1 | 1 |
| 1200 | 1 | 0 | 0 |
| 600 | 1 | 0 | 1 |
| 300 | 1 | 1 | 0 |
| 150 | 1 | 1 | 1 |
| **Parity** | **Button 4** | **Button 5** | **Button 6** |
| None | 1 | X* | X |
| Mark | 0 | 1 | 1 |
| Space | 0 | 1 | 0 |
| Even | 0 | 0 | 1 |
| Odd | 0 | 0 | 0 |

*X = setting can be either 0 or 1

| Pen Drive Frequency | Button 7 |
|---|---|
| Low | 0 |
| High | 1 |
| **MM or 2000 Commands** | **Button 8** |
| Use commands | 0 |
| Do not use commands | 1 |

**Table B-2 Configuration Button Functions, Bank B**

| **Use ESC on 9x00 Commands** | **Button 9** | | |
|---|---|---|---|
| Do not use ESC | 0 | | |
| Must use ESC | 1 | | |
| **Pen Click** | **Button 10** | | |
| No click on first pen down | 0 | | |
| Click on first pen down | 1 | | |
| **Pressure Pen Data** | **Button 11** | | |
| Off | 0 | | |
| Enable | 1 | | |
| **Height Data** | **Button 12** | | |
| Off | 0 | | |
| Enable | 1 | | |
| **Pen Tilt Data** | **Button 13** | | |
| Off | 0 | | |
| Enable | 1 | | |
| **Pen Tilt Correction** | **Button 14** | | |
| Off | 0 | | |
| Enable | 1 | | |
| **Mouse Emulation** | **Button 15** | **Button 16** | |
| No mouse | 0 | 0 | |
| Mouse Systems | 0 | 1 | |
| Microsoft | 1 | 1 | |

| Table B-2 Configuration Button Functions, Bank B | | | |
|---|---|---|---|
| **High/Low Proximity** | **Button 17** | | |
| High | 0 | | |
| Low | 1 | | |
| **CTS Line Enable** | **Button 18** | | |
| Off | 0 | | |
| On | 1 | | |

**Table B-3 Configuration Button Functions, Bank C***

| Tablet Rotation** | Button 1 | Button 6 |
|---|---|---|
| Tablet in default postion (origin at lower left corner) | 0 | 0 |
| Rotated 90° clockwise | 0 | 1 |
| Rotated 180° clockwise | 1 | 1 |
| Rotated 270° clockwise | 1 | 0 |
| **Remove CR on ASCII formats** | **Button 2** | |
| Enable | 1 | |
| Disable | 0 | |
| **Change tilt data to pressure data** | **Button 5** | |
| Enable | 1 | |
| Disable | 0 | |

*Reserved buttons on this bank are: 3, 4, and 7–18.
X=setting can be either 0 or 1
**Used independently of Active Menu button.

## Recommended Menu Strip Configurations

Table B-4 lists the recommended menu strip configurations for common software applications.

**Table B-4 Recommended Menu Strip Configurations**

| Application | Configuration | | Menu Strip Button Settings (1-18) | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Save 1** (Factory default) | GTCO DP5 High Resolution Binary | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 100 | 000 | 001 |
| **Save 2** (Factory default) | Summagraphics MM 1201 Binary | A | 100 | 001 | 001 | 001 | 111 | 011 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **Save 3** (Factory default) | CalComp 2000 ASCII | A | 010 | 001 | 110 | 010 | 000 | 010 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **ANVIL 5000** | 96,n,8,1, Format #2 | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| 4-button cursor, 12" & 18" tablets | 96,o,8,1, Format #3 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| 12" and 18" tablets | 96,e,7,1, Format #1 | A | 110 | 000 | 110 | 011 | 110 | 001 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **ARCINFO** | CalComp 9100 | A | 010 | 001 | 111 | 100 | 011 | 001 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| 16-button cursor | GTCO Digi-Pad 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **Atlas Draw** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **AutoCAD** | ADI | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| 16-button cursor | GTCO Digi-Pad 5/5a 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| 12" and 18" tablets | Numonics 2200 | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| | CalComp 9100 Series | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| 4-button cursor, 12" tablet | Summagraphics MM 1201 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **C&G Survey** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 000 |

Table B-4 Recommended Menu Strip Configurations

| Application | Configuration | Menu Strip Button Settings (S1-S6) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **C&G Survey** | GTCO DP5, High Res | A | 110 | 011 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **CableCAD** | CalComp 2000-A | A | 111 | 001 | 001 | 100 | 000 | 010 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **CADKEY** 16-button cursor | GTCO DP5, High Res 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 001 | 100 | 000 | 000 |
| 4-button cursor, 12" & 18" tablets | Summagraphics MM Series | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **CADVANCE** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 011 | 001 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| | GTCO DP5, High Res | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **CasCAD II** | Summagraphics Bitpad 2 | A | 110 | 001 | 110 | 011 | 111 | 101 |
| | | B | 001 | 000 | 000 | 000 | 000 | 000 |
| **CIVILSOFT** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| 16-button cursor | GTCO Digi-Pad 5/5a 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **COGO-PC** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **DesignCAD** | Summagraphics MM 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| 16-button cursor (2D) | GTCO DP5 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 000 |
| 16-button cursor (3D) | GTCO DP5 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 000 |
| **DiGICAD** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **DIGITIZE** | CalComp 9100 | A | 010 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |

| Digitizer | Configuration | Tablet Side Button Settings (Hex) | | | | | |
|---|---|---|---|---|---|---|---|
| **Dr. Halo III** 4-button cursor | Summagraphics MM 1201, 12", 18" 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| 16-button cursor | GTCO Large Pad 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **Drafix CAD (no 44x60")** | Numonics 2200 | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| 4-button cursor, 12" & 18" tablets | SummaSketch (MM) 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **DRAWBASE** | CalComp 2500 | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **EasyCAD 2** | CalComp 9100 Series | A | 110 | 101 | 111 | 100 | 010 | 010 |
| | | B | 001 | 001 | 000 | 000 | 000 | 000 |
| 16-button cursor | GTCO DP5 Digi-Pad 16B | A | 110 | 101 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 000 |
| **EasyDiJ** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 010 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **FastCAD** (no 44x60") | Numonics 2200 (no 44x60") | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 000 |
| 4-button cursor | SummaSketch 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| | CalComp 9100 | A | 110 | 101 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 000 |
| **Freelance** 4-button cursor, 12" & 18" tablet | Summagraphic 12", 18", 4B | A | 110 | 001 | 001 | 001 | 111 | 011 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **GeneriCAD** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 011 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| 16-button cursor | GTCO Digi-Pad 16B | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |

**Table B-4: Recommended Menu Strip Configurations**

| Application | Configuration | Menu Strip Button Settings (1–8) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4-button cursor | Summagraphics MM Series 4B | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **Lumena** | Wacom ASCII | A | 110 | 001 | 101 | 001 | 000 | 101 |
| | | B | 001 | 100 | 111 | 010 | 000 | 001 |
| | CalComp 2000 Binary | A | 110 | 001 | 110 | 001 | 110 | 001 |
| | | B | 001 | 100 | 000 | 010 | 000 | 001 |
| **MapInfo** | CalComp 9100 | A | 010 | 001 | 111 | 100 | 011 | 011 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| Small format tablets | CalComp 2000 Binary | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| Large format tablets | CalComp 2000 ASCII | A | 110 | 001 | 111 | 100 | 011 | 000 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **Measure Master** | GTCO DP5 ASCII | A | 010 | 001 | 111 | 100 | 100 | 111 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **Medusa** | Hitachi-A | A | 010 | 001 | 100 | 010 | 110 | 000 |
| | | B | 001 | 000 | 000 | 100 | 000 | 001 |
| | Hitachi-A Sign | A | 010 | 001 | 100 | 010 | 111 | 000 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **MicroCADAM** 4-button cursor, 12" & 18" tablet | Summagraphic MM 12",18" 4B | A | 110 | 000 | 010 | 101 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **MicroStation** | CalComp 9000/9100 | A | 110 | 001 | 111 | 100 | 010 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| 16-button cursor | GTCO Digi-Pad 16B Large Format | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **Mirage** | Summagraphics MM ASCII | A | 100 | 000 | 001 | 000 | 001 | 111 |
| | | B | 001 | 000 | 000 | 000 | 000 | 000 |
| **PacSOFT** | CalComp 9100 | A | 010 | 001 | 111 | 100 | 011 | 000 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |

**Table B-4. Recommended Menu Strip Configurations**

| Application | Configuration | | Menu Strip Button Settings | | | | | |
|---|---|---|---|---|---|---|---|---|
| **PC Paintbrush IV Plus** 4-button cursor | GTCO Sketchmaster | A | 100 | 000 | 011 | 001 | 111 | 001 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **Personal Designer** | Kurta | A | 110 | 001 | 000 | 011 | 110 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **Personal Machinist** | Kurta | A | 110 | 001 | 110 | 011 | 110 | 001 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **Point Line CADD** | CalComp 9100 | A | 110 | 001 | 101 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 000 |
| **Sigma-Scan** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 001 | 000 | 000 | 000 | 001 |
| **SmartCAM** | Kurta Series III | A | 110 | 001 | 111 | 101 | 011 | 101 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| **Targa Plus Tips** | Summagraphics MM 1201 Binary | A | 100 | 001 | 001 | 001 | 000 | 011 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |
| **Timberline** | CalComp 9100 | A | 010 | 001 | 111 | 100 | 011 | 000 |
| | | B | 001 | 100 | 000 | 000 | 000 | 001 |
| | Summagraphics MM 1201 Binary | A | 010 | 001 | 111 | 101 | 111 | 000 |
| | | B | 011 | 000 | 000 | 000 | 000 | 000 |
| **Ventura Publisher** | Mouse Systems Mouse | A | 000 | 001 | 000 | 000 | 000 | 000 |
| | | B | 000 | 000 | 000 | 000 | 000 | 100 |
| **VersaCAD** | CalComp 9100 | A | 110 | 001 | 111 | 100 | 010 | 000 |
| | | B | 001 | 000 | 000 | 000 | 000 | 001 |

# C—Specifications

## Factory Default Settings

Table C-1 Factory Default Settings

| Setting | Save 1 | Save 2 | Save 3 |
|---|---|---|---|
| **Mode** | Run | Track | Point |
| **Baud Rate** | 9600 | 9600 | 9600 |
| **Data Bits** | 8 | 8 | 7 |
| **Parity** | None | Odd | Even |
| **Data Rate** | 125 pps | 150 pps | 125 pps |
| **Resolution** | 1000 lpi | 500 lpi | 200 lpi |
| **Output Format** | Format 23 | Format 30 | Format 0 |
| **Emulation** | GTCO DP5 High Resolution Binary | Summagraphics MM 1201 Binary | CalComp 2000 ASCII |

## Design Specifications

Table C-2 Design Specifications

| Feature | Description |
|---|---|
| Resolution | Variable up to 2540 lpi, 100 lpmm |
| Sensing Height | > .5" (12 mm) |
| Output Rate | 100 pps |
| Frequency | 57600 Hz<br>61440 Hz |

## Electrical Specifications

Table C-3 Electrical Specifications

| Feature | Description |
|---|---|
| Power Source | Wall mount power supply plugged into the serial cable |
| Input Voltage | 12 to 17 VDC |
| Current Draw | 200 mA |

EstiMat requires a 2.1mm monoplug connector with an outside ring of +12 volts @ 200mA, and a negative inside diameter.

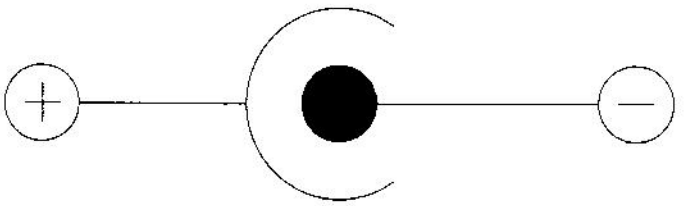

*Figure C-1: DC Power Connector, schematic diagram*

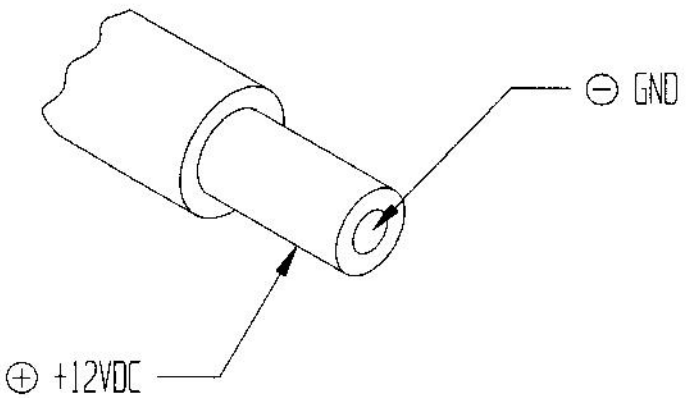


*Figure C-2: DC Power Connector, physical diagram*

# Communications Specifications

EstiMat uses asynchronous serial RS-232C transmission with RS-232C/CCITT V.24 signals. The host end of the cable is standard. The figure below contains pin out diagrams of the connectors.

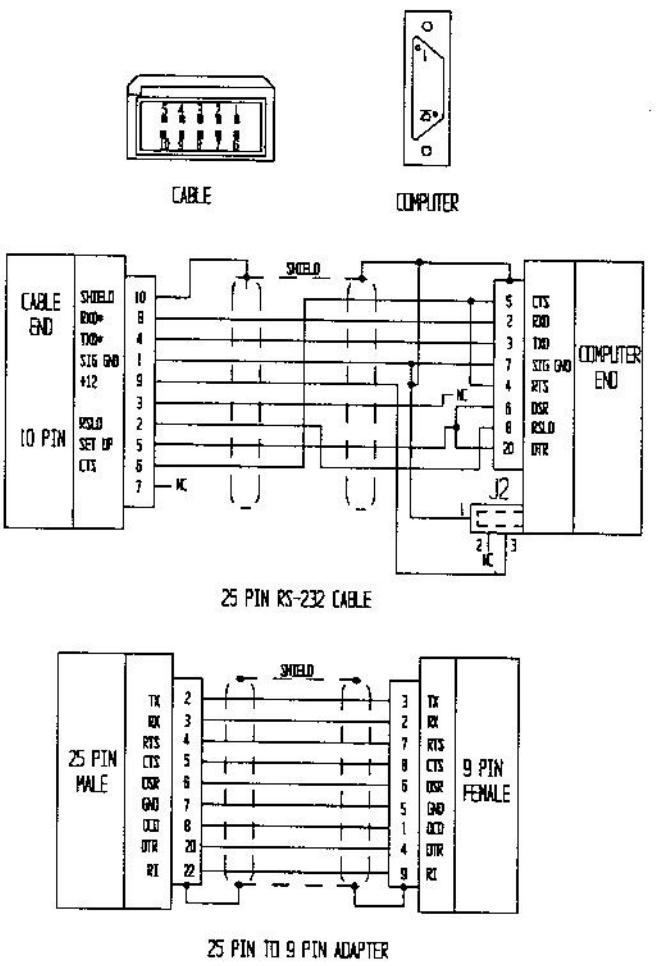


*Figure C-3: Pin identification*

## Regulatory Specifications

Table C-4 Regulatory Specifications

| Feature | Description |
|---|---|
| Safety | UL1950, EN60950 pending |
| Electromagnetic | FCC Class A, DOC Class A |

## Environmental Specifications

Table C-5 Environmental Specifications

| Feature | Description |
|---|---|
| Operating Temperature | 50° to 104°F (10° to 40°C) |
| Storage Temperature | -67° to 167°F (-55° to 75°C) |
| Humidity Range | 0% to 75%, non-condensing |
| Operating Altitude | Up to 15,000 ft. (4,572m) ASL |
| Storage Altitude | Up to 50,000 ft. (15,244m) ASL |
| ESD Requirements | 3kv (direct)<br>6kv (indirect) |

## Physical Specifications

Table C-6 Physical Specifications

| Model | Active Area | Height | Outside Dimension | Weight |
|---|---|---|---|---|
| **33364** | 30 x 36"<br>(762 x 914mm) | 0.1"<br>(2.54mm)<br>1.25" at housing | 43 x 35"<br>(1092.2 x 889mm) | 6-7 lbs.<br>(2.7-3.2 kg) |

# Appendix D—Accessories

The following table lists the EstiMat parts and order numbers. To order any of the items listed, contact your CalComp reseller or call (800)458-5888 and ask for Customer Assistance.

Table D-1 Options and Accessories

| | | |
|---|---|---|
| **Tablets** | **Model** | **Description** |
| | 33364 | 30 x 36" active area |
| **Pointing Devices** | **Model** | **Description** |
| | T211 | 4-button cursor, in-line layout |
| | T213 | 4-button cursor, diamond layout |
| | T212 | 16-button cursor |
| | T222 | Two side/tip switch pen |
| | T224 | Two side/pressure tip pen |
| | T226 | Two side/lite-touch tip pen |
| **Accessories** | **Model** | **Description** |
| | P1 | Power supply, 100/110V |
| | P2 | Power supply, 220/240V |
| | I311 | I/O cable, female connector |
| | I313 | 9-pin connector |
| | I641 | Pointing device batteries |
| | I411 | User's Guide |

# Appendix E—ASCII Chart

| BITS b7 b6 b5 / b4 b3 b2 b1 | 0 0 0 | 0 0 1 | 0 1 0 | 0 1 1 | 1 0 0 | 1 0 1 | 1 1 0 | 1 1 1 |
|---|---|---|---|---|---|---|---|---|
| | CONTROL | | NUMBERS SYMBOLS | | UPPERCASE SYMBOLS | | LOWERCASE SYMBOLS | |
| 0 0 0 0 | 0 NU NUL 0 | 20 DL DLE 16 | 40 Sp 32 | 60 0 48 | 100 @ 64 | 120 P 80 | 140 ` 96 | 160 p 112 |
| 0 0 0 1 | 1 SH SOH 1 | 21 D1 DC1 17 | 41 ! 33 | 61 1 49 | 101 A 65 | 121 Q 81 | 141 a 97 | 161 q 113 |
| 0 0 1 0 | 2 SX STX 2 | 22 D2 DC2 18 | 42 " 34 | 62 2 50 | 102 B 66 | 122 R 82 | 142 b 98 | 162 r 114 |
| 0 0 1 1 | 3 EX ETX 3 | 23 D3 DC3 19 | 43 # 35 | 63 3 51 | 103 C 67 | 123 S 83 | 143 c 99 | 163 s 115 |
| 0 1 0 0 | 4 ET EOT 4 | 24 D4 DC4 20 | 44 $ 36 | 64 4 52 | 104 D 68 | 124 T 84 | 144 d 100 | 164 t 116 |
| 0 1 0 1 | 5 EQ ENQ 5 | 25 NK NAK 21 | 45 % 37 | 65 5 53 | 105 E 69 | 125 U 85 | 145 e 101 | 165 u 117 |
| 0 1 1 0 | 6 AK ACK 6 | 26 SY SYN 22 | 46 & 38 | 66 6 54 | 106 F 70 | 126 V 86 | 146 f 102 | 166 v 118 |
| 0 1 1 1 | 7 BL BEL 7 | 27 EB ETB 23 | 47 ' 39 | 67 7 55 | 107 G 71 | 127 W 87 | 147 g 103 | 167 w 119 |
| 1 0 0 0 | 10 BS 8 | 30 CN CAN 24 | 50 ( 40 | 70 8 56 | 110 H 72 | 130 X 88 | 150 h 104 | 170 x 120 |
| 1 0 0 1 | 11 HT 9 | 31 EM 25 | 51 ) 41 | 71 9 57 | 111 I 73 | 131 Y 89 | 151 i 105 | 171 y 121 |
| 1 0 1 0 | 12 LF A | 32 SB SUB 26 | 52 * 42 | 72 : 58 | 112 J 74 | 132 Z 90 | 152 j 106 | 172 z 122 |
| 1 0 1 1 | 13 VT B | 33 EC ESC 27 | 53 + 43 | 73 ; 59 | 113 K 75 | 133 [ 91 | 153 k 107 | 173 { 123 |
| 1 1 0 0 | 14 FF C | 34 FS 28 | 54 , 44 | 74 < 60 | 114 L 76 | 134 \ 92 | 154 l 108 | 174 \| 124 |
| 1 1 0 1 | 15 CR D | 35 GS 29 | 55 - 45 | 75 = 61 | 115 M 77 | 135 ] 93 | 155 m 109 | 175 } 125 |
| 1 1 1 0 | 16 SO E | 36 RS 30 | 56 . 46 | 76 > 62 | 116 N 78 | 136 ^ 94 | 156 n 110 | 176 ~ 126 |
| 1 1 1 1 | 17 SI F | 37 US 31 | 57 / 47 | 77 ? 63 UNL | 117 O 79 | 137 _ 95 UNT | 157 o 111 | 177 DT 127 DEL RUBOUT |

(on some keyboards or systems)

**KEY**

# Glossary

### Accuracy

The similarity of a distance measured by the tablet with the actual distance. When we specify that the accuracy of a tablet is +/-.010 inches, we mean that every point in the active area is within .010 inches of where it should be.

### Active Area

The area on the tablet surface intended for digitizing.

### ASCII

Abbreviation for American Standard Code for Information Interchange. Appendix E contains a chart of the ASCII character codes.

### Baud Rate

The rate of speed that data flows between a host computer and the digitizer. It is the number of bits transmitted per second. The lower the baud rate, the slower the speed.

### Beep

The tablet beep is an audible noise used to communicate specified events to the user. If an error is detected on power up, there will be a beep regardless if this option is enabled or disabled.

### Bit

The basic unit of information in the binary system—either 0 or 1.

### Button

A portion of the tablet surface available to the user for tablet configuration. Also a switch on the cursor or pen used to input data.

### Button Click

An option that allows the user to enable/disable the audible click when the cursor or pen is pressed.

### Byte

A group of eight bits that acts as a single unit of information.

### Coordinate Pair

A pair of numbers representing a unique point on the digitizer surface, usually the distance across and up from the tablet origin.

### CR

The ASCII carriage return character usually added to the end of the X,Y coordinate pairs sent by the tablet (ASCII formats).

### Cursor

1. A pointing device used to select specific points on the tablet surface. 2. A symbol displayed on the screen marking where the next action will take effect or where the next character typed from the keyboard will appear.

### Data Bits

Each transmission contains 7 or 8 data bits.

### Data Rate

The number of coordinate pairs (X,Y) the tablet sends to the computer per second.

### Default

A value, action or setting that a computer system assumes, unless the user gives an explicit instruction to the contrary.

### Default Settings

Preset software/firmware parameters that activate at power up until changed by the user.

### ESC Commands

The 9x00 command set precedes each command with ESC.

### Echo

Incoming characters that are repeated to the sender.

### Format

The form in which data is sent from the tablet.

### Frequency

The rate at which signals are repeated. EstiMat has a high frequency of 61.44 KHz and a low frequency of 57.6 KHz.

### Halt Mode

The tablet accepts commands but transmits no data until a new mode is selected.

### Handshake

An option that allows you to enable/disable the CTS/RTS line enable.

### Height

See Proximity.

### Highlight

To make something visually distinct. Highlighting is accomplished by inverting the display.

### Increment Modes

This mode is used with other operating modes. Data points are sent only if the cursor has moved the required increment distance in either the X or Y direction and has satisfied the requirements of the operating mode. These increment distances are set separately for each axis.

### Jitter

A repeatability error of short duration caused by electrical noise.

### Keystroke

A key or key combination that you assign to a macro. When pressed, it triggers the playback of the macro.

### LED

Abbreviation for light-emitting diode. The power and configuration lights on the tablet are LED's.

### Line Mode

The tablet sends coordinate data points continuously, while the pen tip or a cursor button is depressed, and one additional point when the pen tip or cursor button is released.

### Line Feed

Optional character added to the end of an output format that causes the printer to move to the next line, or causes a line to be added on the display screen.

### LPI

Abbreviation for line per inch. English unit of measurement for resolution measuring the number of separate, distinguishable locations that may be found within the distance of one inch.

### LPmm

Abbreviation for lines per millimeter. Metric unit of measurement for resolution measuring the number of separate, distinguishable locations that may be found within the distance of one millimeter.

### Macro

1. A user-defined command that tells an application to carry out a series of commands when you type the macro. 2. A recorded sequence of characters and commands, identified by a name and possibly triggered by a keystroke.

### Margin

Area surrounding the active area on the tablet. The digitizer does not transmit accurate coordinate pairs if the pen or cursor is placed in this region.

### Margin Data

Data sent from the margin area of the tablet.

### Menu Active

An option that allows the user to enable/disable the menu strip. When disabled, the Config/Exit button on the menu strip cannot be accessed.

### Mode

The conditions that must be met before the tablet sends information to the computer.

### One Byte Commands

An option that allows the user to enable/disable the use of the CalComp 2000 or Summagraphics MM commands sets.

### Origin

The point on the tablet which is designated as point (0,0), relative to a grid of conductors positioned in the horizontal (X) and vertical (Y) directions.

### Output Format

The system of characters used by EstiMat for outputting data.

### Parameters

The special modes and settings used by the EstiMat system, such as baud rate, parity, etc. These modes may be entered and changed by the user at any time.

### Parity

A type of error detection where a bit is inserted into every character the digitizer transmits. The status of the parity bit confirms that the data was not altered during transmission.

### Point Mode

The digitizer transmits one coordinate data point when a cursor button or the pen tip is depressed.

### Pointing Device

The device used to digitize; it may be either a cursor or pen.

### Pressure Data

Data output from the pressure pen.

### Prompt Mode

The digitizer transmits one coordinate pair each time the computer sends a prompt character to the unit.

### Proximity

The greatest distance above the active area that the pointing device can be raised and still be sensed by the tablet.

### RAM

Abbreviation for Random Access Memory, a specific type of memory used by the computer.

### Resolution

The distance increment that the tablet outputs in lines/inch or lines/mm.

### ROM

Abbreviation for Read Only Memory, a specific type of memory used by the computer.

### Run Mode

The digitizer transmits coordinate data points continuously, regardless of the status of the cursor buttons or the pen tip.

### Serial Transmission

Data transmission protocol where each bit of the data character is sent one at a time over a single circuit. This system saves on transmission circuitry, but is usually slower than parallel transmission.

### Stop Bits

1 or 2 stop bits transmit with each data byte. They mark a completed transmission.

### Tilt Correction

An option that allows for tilt correction in the pressure pen.

### Tilt Data

An option that allows output of tilt data in the pressure pen.

### Toggle

Switch the current state between two available states.

### Track Mode

The digitizer transmits coordinate data points continuously, but only while the cursor button or pen tip is depressed.

### X Direction

The horizontal direction across the face of the tablet.

### Y Direction

The vertical distance up and down the face of the tablet.

# Index

## I



## L



## M