

FPM-37T/S

Flat Panel Monitor with
13.8" Color TFT/DSTN Display

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FCC Class A

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with this user's manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

警告使用者

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Part No. 2002037000

1st Edition Printed in Taiwan June 1998

Packing List

Before installing your equipment, make sure that the following materials have been received:

- FPM-37T/S
- Accessory pack, including:
 - FPM-37T/S User's Manual
 - PCA-6654 User's Manual
 - PCA-6654 disks
 - PCA-6654 video display card
 - Component bag
 - Screw bag

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Additional Information and Assistance

1. Visit the Advantech web sites at **www.advantech.com** or **www.advantech.com.tw** where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.
 - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
 - e. The equipment has been dropped and damaged.
 - f. The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS MAY DAMAGE THE EQUIPMENT.**

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB(A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Wichtige Sicherheitshinweise

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen.
Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die Netzanschlussteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Verlegen Sie die Netzanschlusbleitung so, daß niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von autorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
 - a - Netzkabel oder Netzstecker sind beschädigt.
 - b - Flüssigkeit ist in das Gerät eingedrungen.
 - c - Das Gerät war Feuchtigkeit ausgesetzt.
 - d - Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
 - e - Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
 - f - Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

DISCLAIMER: This set of instructions is given according to IEC704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

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Introduction

This chapter includes:

- Introduction
- Specifications
- Flat Panel Displays
- Connectors
- Dimensions

1.1 Introduction

Advantech's FPM-37T/S series are 13.8" color TFT/DSTN LCD flat panel monitors for industrial applications. They are made small and lightweight to fit anywhere. Their aluminum front panel is compliant with NEMA 4/12 (IP52/56).

The FPM-37T/S series comes with a dedicated PCI-bus video display card. A shielded 1.8 m cable is provided for remote operation.

The flat panel monitor package includes a PCI-bus video display card and your choice of flat panel displays: color TFT or DSTN LCD. The display card supports simultaneous use of LCD panels and analog CRT monitors. A shielded 1.8 meter cable connects the FPM-37T/S and the video display card, allowing remote operation. Add an optional touchscreen to create the ultimate user interface. The FPM-37T/S's compact size and extended range allow easy placement in almost any location.

1.2 Specifications

General

- **Construction:** Heavy-duty aluminum and steel chassis
- **Front panel:** NEMA 4/12 (IP 52/56)
- **Control:** One brightness/contrast adjustment knob on rear side
- **Mounting:** Panelmount or wallmount
- **Dimensions (W x H x D):** 402 x 302 x 54 mm (15.8" x 11.9" x 2.1")
- **Weight:** 4.2 kg (9.2 lb)

Video Display Card (PCA-6654)

- **Model:** PCA-6654
- **Type:** Half-size 32-bit PCI-bus
- **Video Chip:** CHIPS 65550
- **DRAM:** On board 2 MB, frame buffer 512 KB (optional)
- **Max. Resolution:** 1024 x 768 for both flat panels and CRT displays
- **Connectors:** One MDR-26 connector for flat panel display
One DB-15 connector for CRT monitor
- **Simultaneous CRT/LCD display**
- **Power Consumption:** +5 V @ 1 A, max.

Touchscreen (Optional)

- **Type:** Analog resistive
- **Resolution:** transmission @ 75%
- **Controller:** RS-232 interface
- **Power Consumption:** +5 V @ 200 mA
- **Software drivers:** DOS, Windows 3.1/95/NT and OS/2
- **Life cycle:** 35 million touches
- **Surface:** Meets ASTM-D-1044 standard (Taber Abrasion Test)

1.3 Flat Panel Displays

Model	FPM-37T	FPM-37S
Display Type	TFT Color LCD	DSTN LCD
Size (diagonal)	13.8"	13.8"
Max. Resolution	1024 x 768	1024 x 768
Max. Colors	256 K colors	4096 colors
Viewing Angle	110°	60°
Dot Size (mm)	0.273 x 0.273	0.198 x 0.248
Luminance (cd/m2)	200	200
LCD Model	Sharp LQ14X03E or compatibles	Sharp LM14X82 or compatibles
Temperature	0 ~ 50° C	0 ~ 45° C
VR Controls	Brightness	Contrast
Simultaneous Mode	Yes	Yes
LCD MTBF	50,000 hours	50,000 hours
Backlight MTBF	25,000 hours	25,000 hours

1.4 Connectors

The following connectors are situated on the left hand side of the FPM-37T/S:

Video I/O Port (MDR-26)

This connector links the FPM-37T/S to the PCA-6654 display card. Figure 1-1 shows how to connect the MDR-26 of the PCA-6654.

Note: *The display card provides power to the FPM-37T/S; no external power is required.*

Warning: *Make sure that your display card corresponds with your choice of display!*

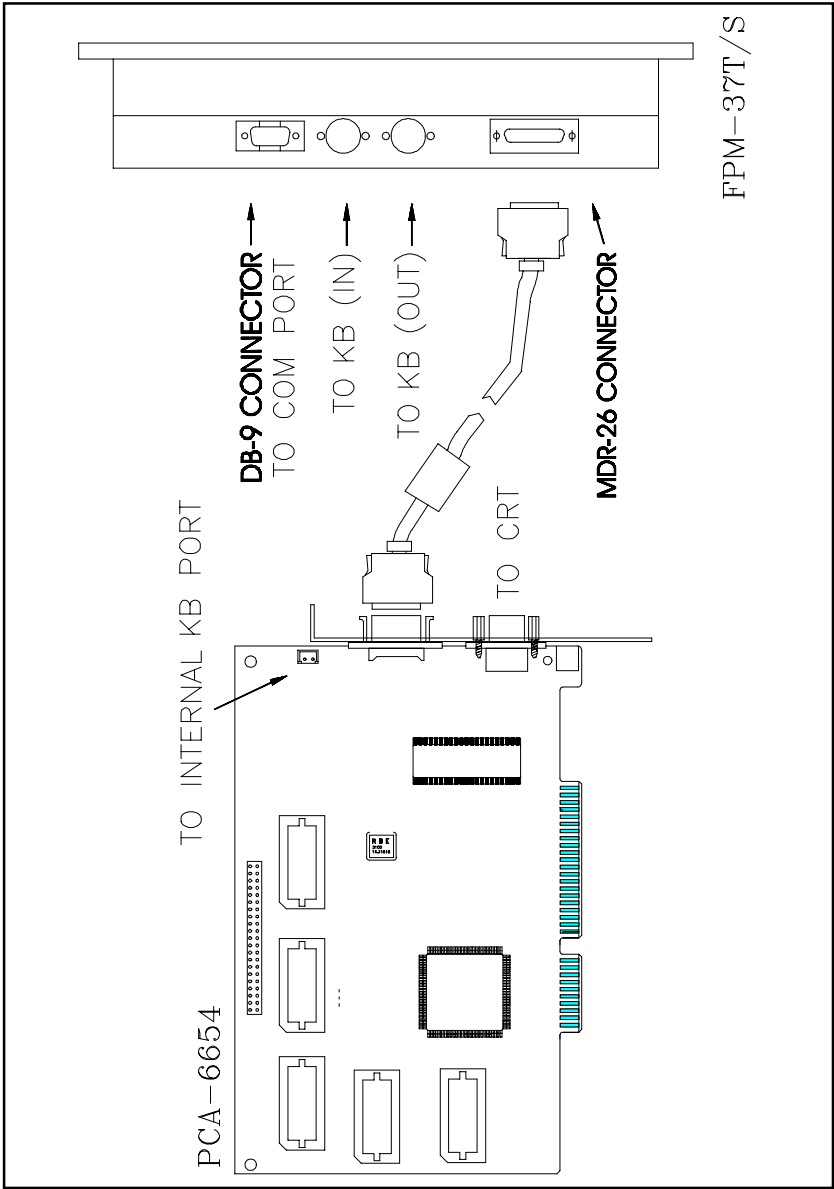


Touchscreen Connector (DB-9) (Optional)

This connector will be present only if a touchscreen is installed. It must be connected to the RS-232 port of the PC. The touchscreen cable is included with all orders which include the touchscreen option.

External Keyboard Connector

The FPM-37T/S provides an external keyboard connector to let you attach a PC/AT standard keyboard. Figure 1-1 shows the correct wiring method. Be sure the internal keyboard connector between PCA-6654 (EXT.KBD) and the CPU card (KBD) has been connected.



FPM-37T/S

Figure 1-1: Connectors

1.5 Dimensions

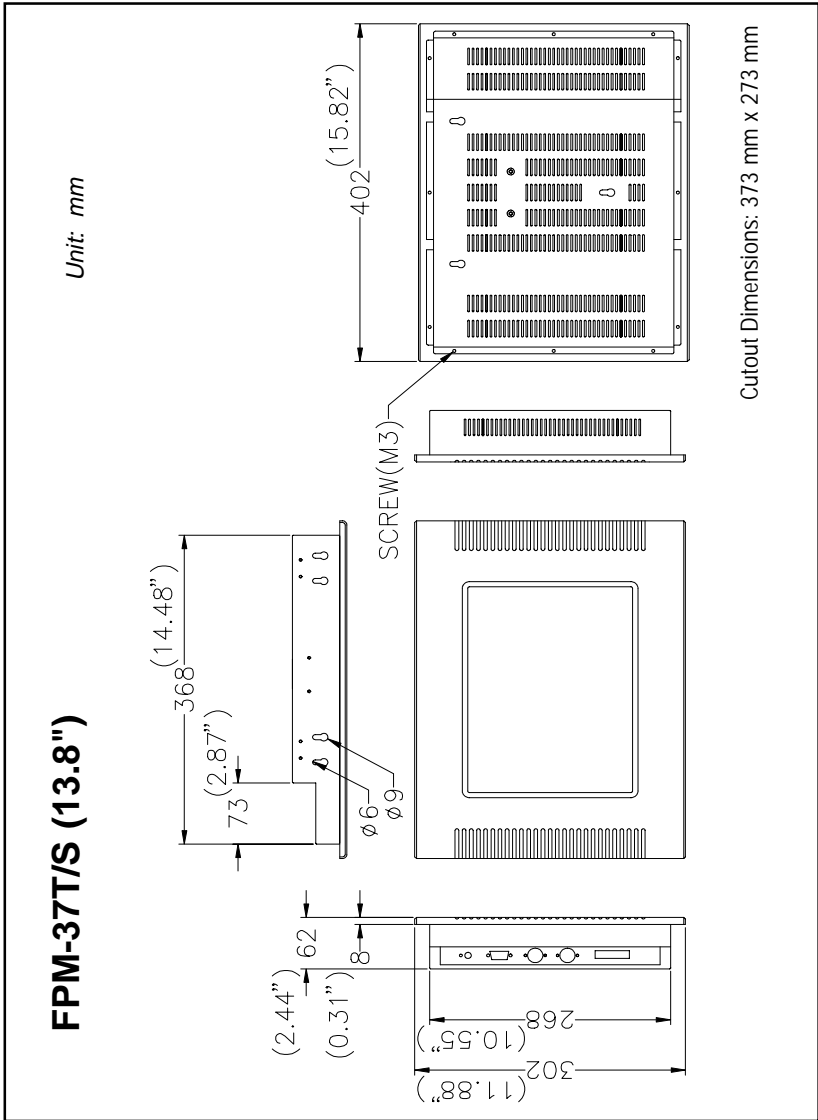


Figure 1-2: Dimensions

CHAPTER 2

System Setup

- Wall Mounting
- Panel Mounting
- Exploded Diagram

2.1 Wall Mounting

When the FPM-37T/S assembly is complete, the unit may be mounted in a panel or on a wall. Mounting brackets and fix brackets are supplied for convenient wall mounting. The screw holes are used to secure the large mounting bracket to the wall. Connect the FPM-37T/S to the bracket using the three screws included. After attaching the FPM-37T/S to the bracket, use the fix bracket to stabilize the unit.

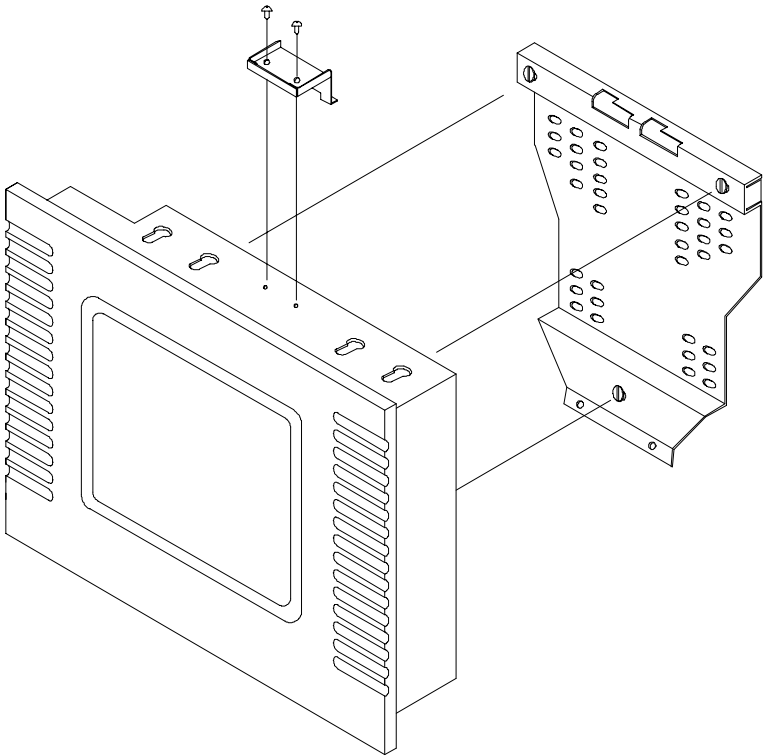


Figure 2-1: Wall mounting

2.2 Panel Mounting

A cutout can be made to accommodate panel mounting. Four panel-mount brackets are included with the FPM-37T/S. Slide the unit backwards into the panel opening. Attach the four mounting brackets by inserting the screws into the keyhole slots on the flat panel monitor cover. Use the screws to secure the brackets to the cover. Tighten to secure the front panel monitor against the back panel.

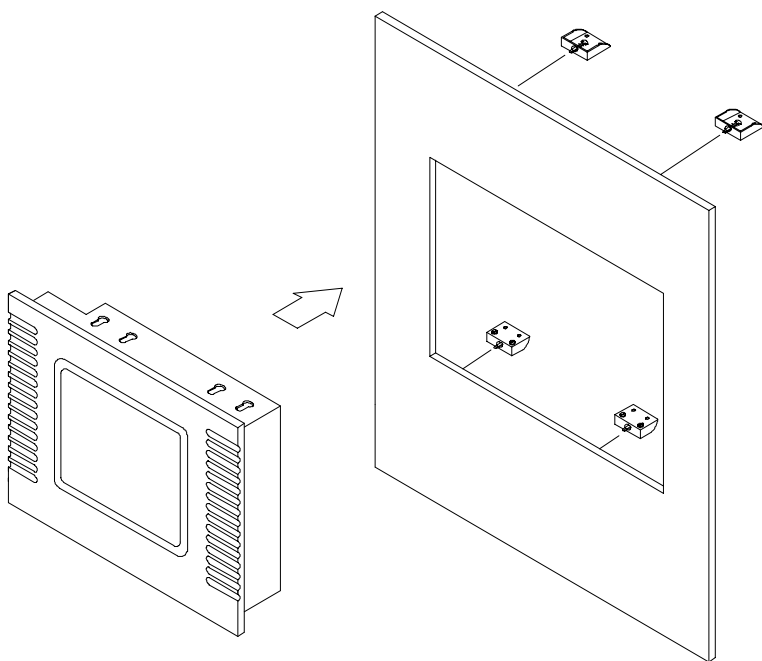


Figure 2-2: Panel mounting

2.3 Exploded Diagram

Remove the six screws as shown, then lift the rear panel from the unit. Internal components are as shown below:

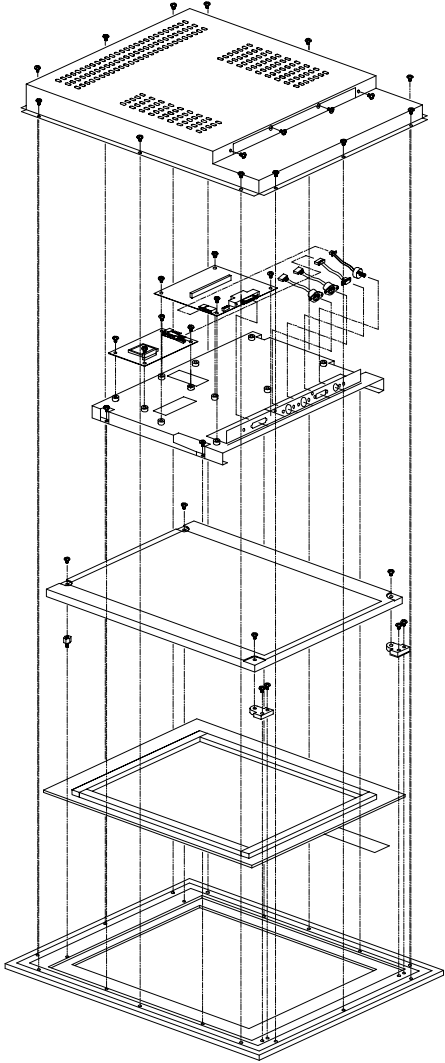


Figure 2-3: Exploded diagram

Touchscreen Driver Installation

- Introduction
- Windows 95
- Windows 3.1 and DOS
- Windows NT
- OS/2 (MonitorMouse)

A.1 Introduction

Before you attempt to install the touchscreen driver, you should carefully read the instructions in the relevant "read me" file stored in the installation CD-ROM. The file path for the instructions in the CD-ROM is:

D:\monmouse\

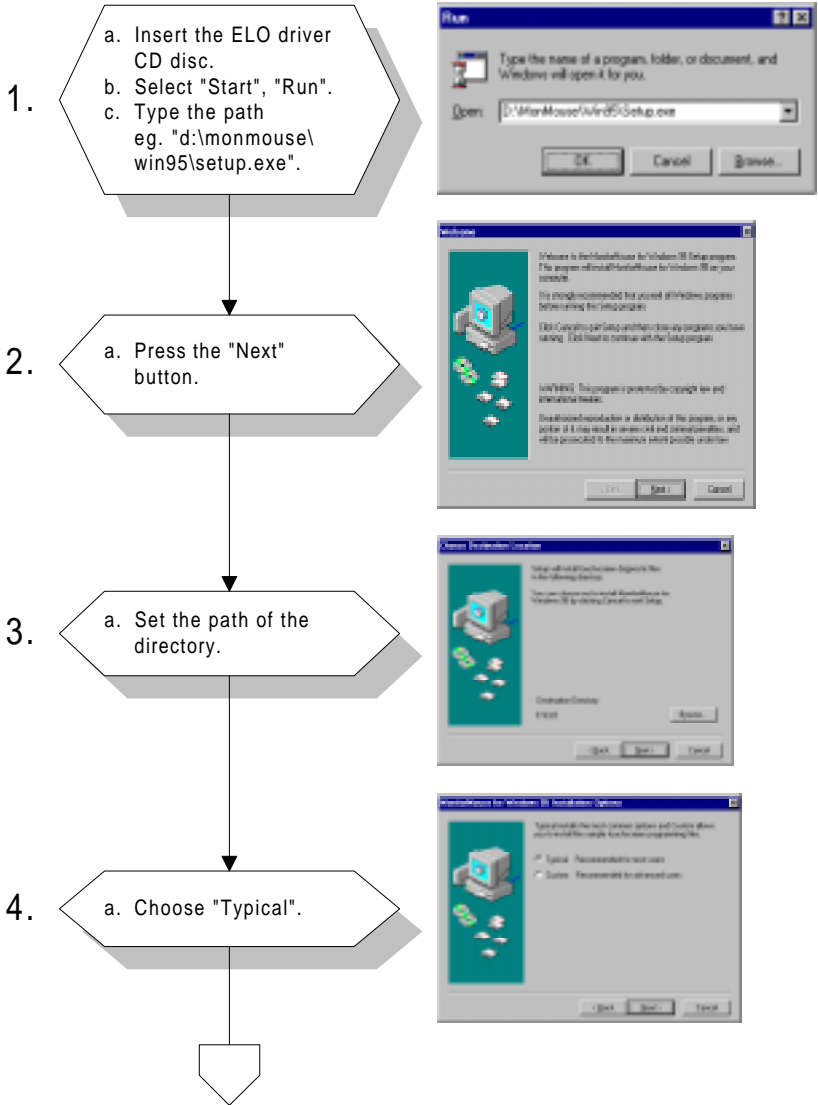
This is where you will find instructions for Win 95, DOS 3.1, Win NT, and OS/2.

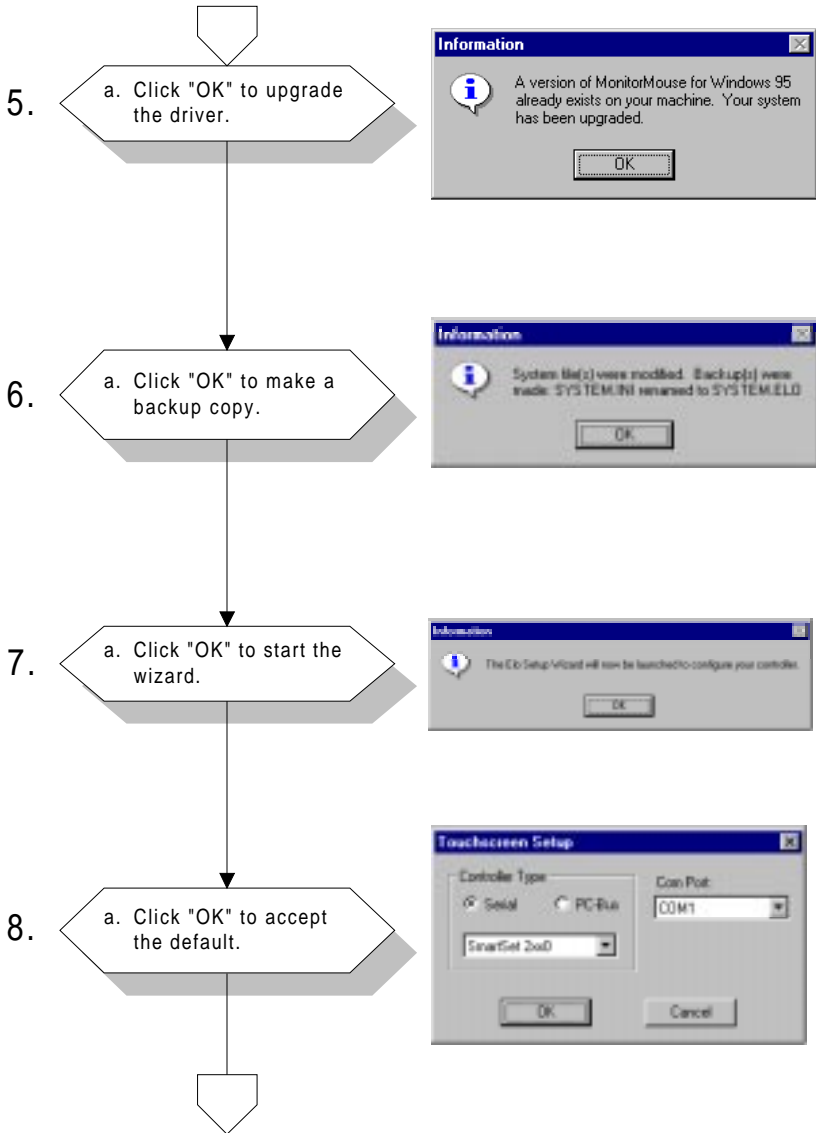
Note 1: The touchscreen driver must be installed from the CD-ROM supplied. The CD-ROM drive is designated as "D" throughout this chapter.

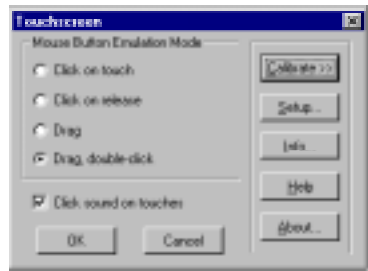
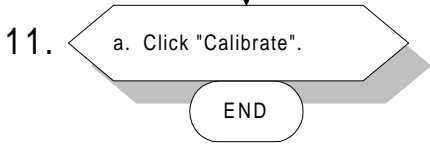
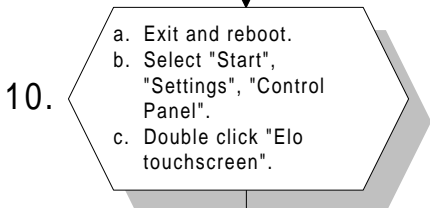
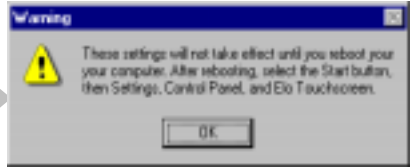
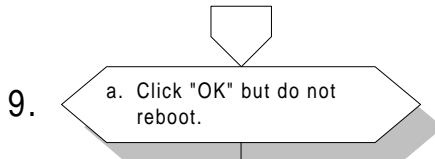
Note 2: The installation instructions assume that the touchscreen is connected to COM1, and that the mouse is connected to and set for COM2. Both of these configurations are factory pre-settings.

Note 3: The following illustrations of windows are examples only. You must follow this manual's flowchart instructions, and pay attention to the instructions which then appear on your screen.

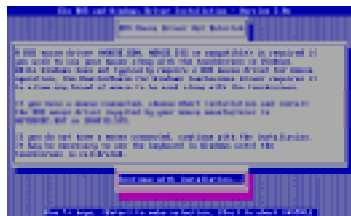
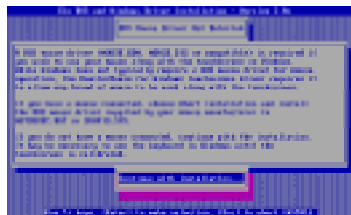
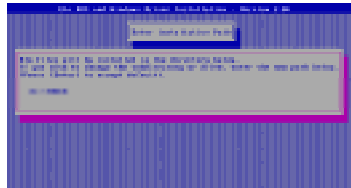
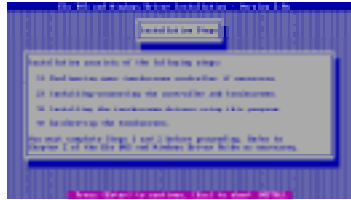
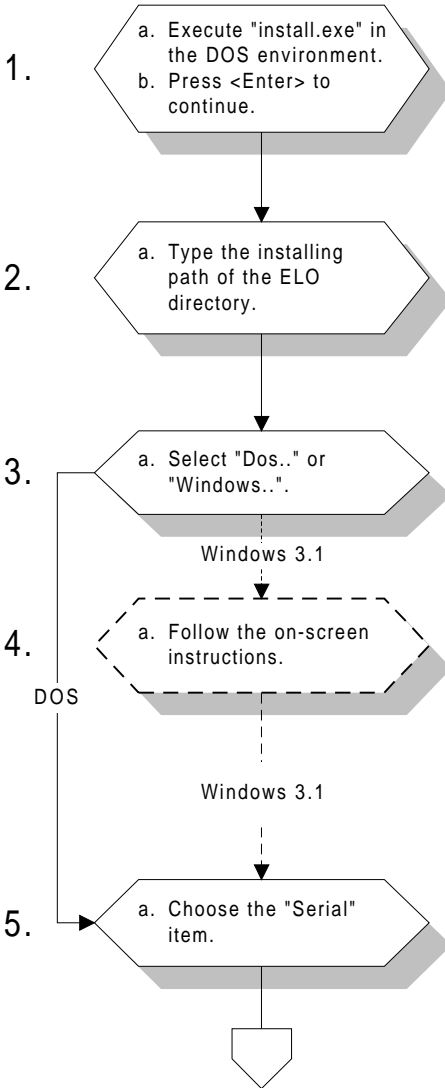
A.2 Windows 95

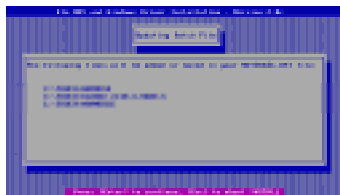
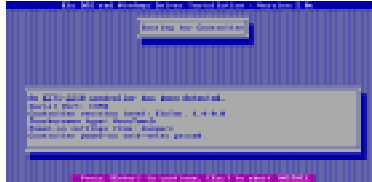
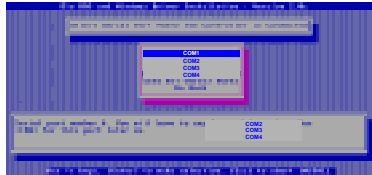
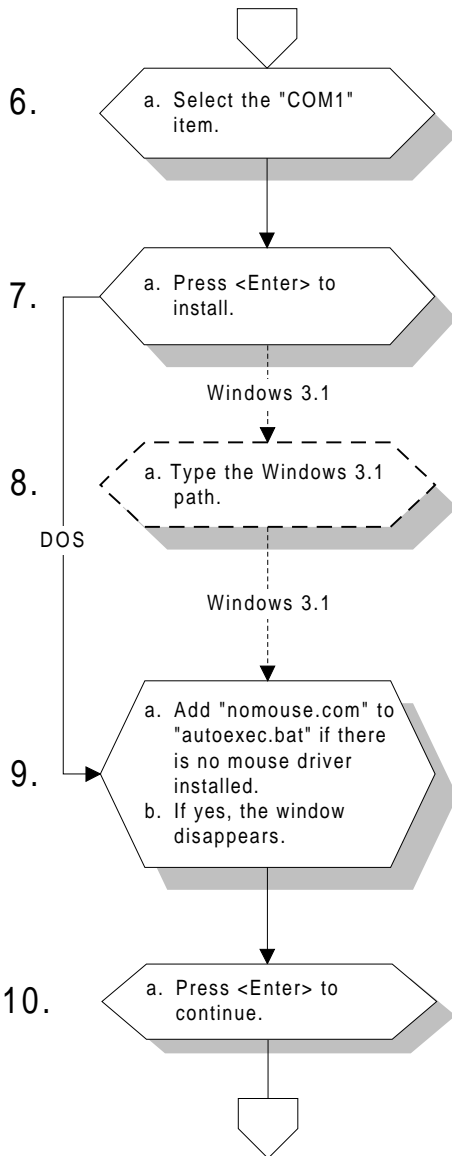


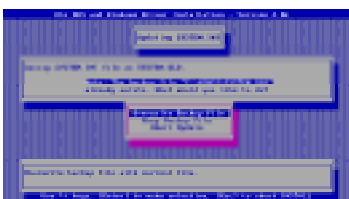
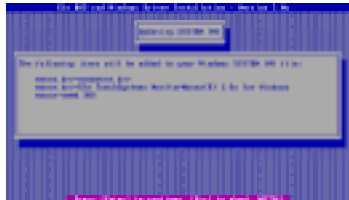
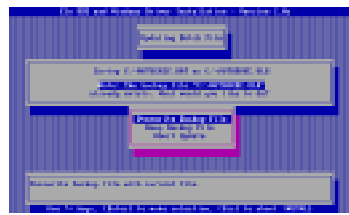
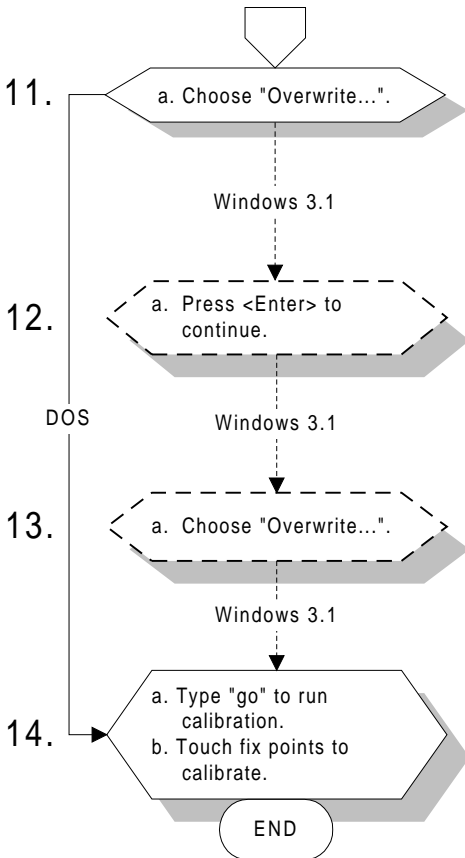




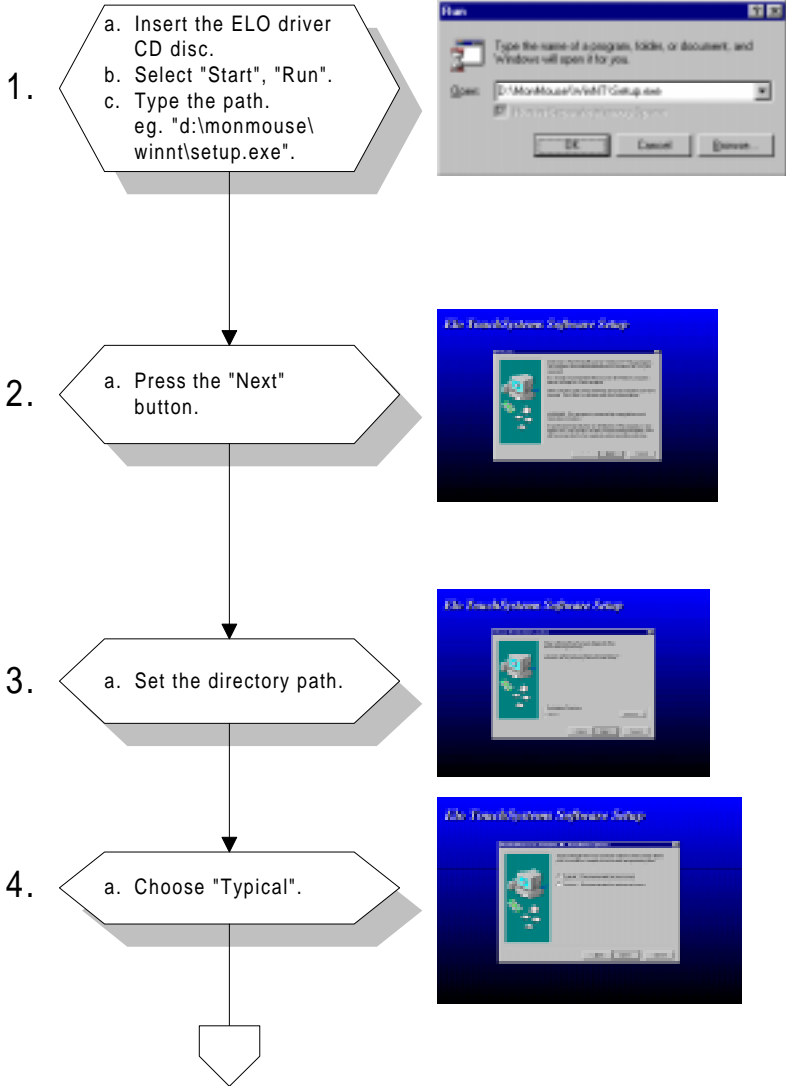
A.3 Windows 3.1 and DOS

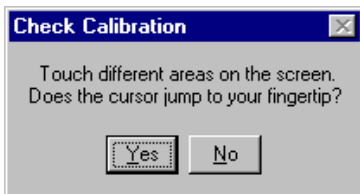
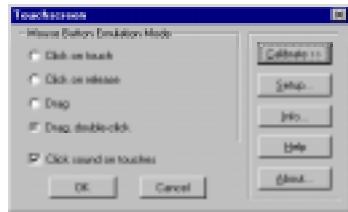
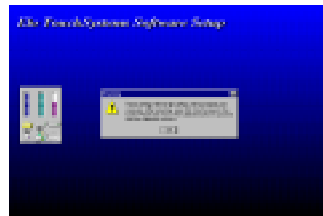
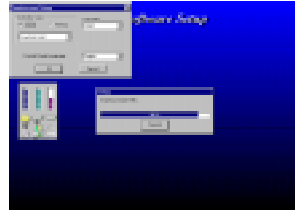
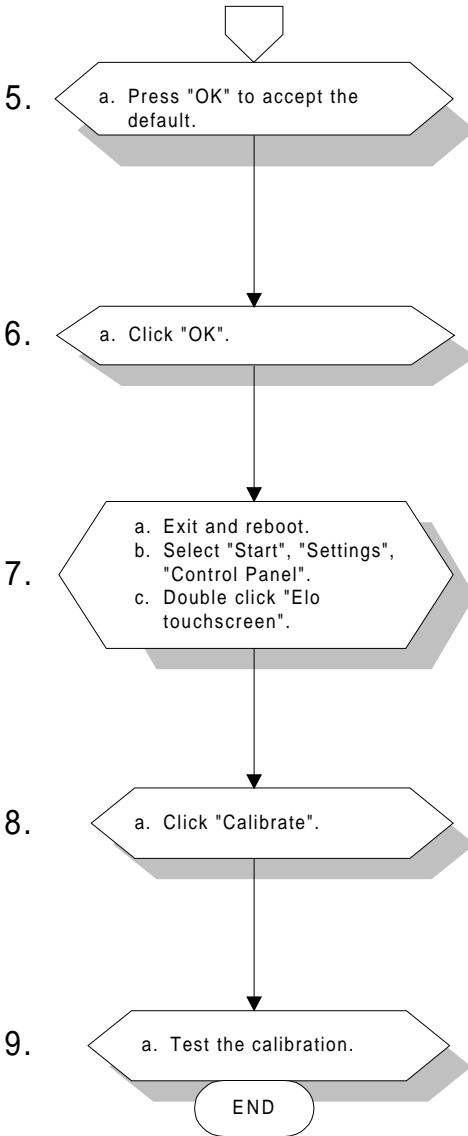






A.4 Windows NT





A.5 OS/2 (MonitorMouse)

BEFORE YOU BEGIN

First be sure OS/2 is installed and operating properly with your mouse. As you will be modifying the CONFIG.SYS file, it is best to have the OS/2 installation disks or a bootable DOS disk readily available. This way, any problems in CONFIG.SYS which cause the system not to boot can be corrected by rebooting from the disk(s).

Five steps are required when installing MonitorMouse for OS/2:

Step 1 - Configure your Controller

Step 2 - Copy the Software

Step 3 - Modify CONFIG.SYS

Step 4 - Install the Touchscreen Control Panel

Step 5 - Calibrate the Touchscreen

STEP 1 - CONFIGURE YOUR CONTROLLER

Verify your controller configuration. Elo typically ships touchscreen controllers preconfigured for use with Elo software, including MonitorMouse for OS/2. Configuration requires setting switches and/or installing jumpers that determine controller operating parameters. You will need these parameters when you install the MonitorMouse for OS/2 driver software. For controller installation instructions, refer to the IntelliTouch Product Manual or the AccuTouch Product Manual.

STEP 2 - COPY THE SOFTWARE

The following files are on the MonitorMouse for OS/2 disk:

!READ.ME!	Text file containing any additions or changes made after this manual was printed.
MONMOU01.SYS	Touchscreen driver for serial touchscreen controllers on PC bus systems.
MONMOU02.SYS	Touchscreen driver for serial touchscreen controllers on Micro Channel systems.
MONMOU03.SYS	Touchscreen driver for PC bus and Micro Channel touchscreen controllers.
ELOCAL2.EXE	Touchscreen control panel software program used to calibrate the touchscreen and to select options.
ELOCAL2.DLL	Used by ELOCAL2.EXE.
ELOCAL2.HLP	Help file for ELOCAL.EXE.
ELO.BMP	Elo desktop wallpaper.
@6253.ADF	Description file for the E271-2202 Micro Channel touchscreen controller.
COMDUMP.EXE	DOS program for testing serial touchscreen controllers.
BUSSTAT.EXE	DOS program for testing PC bus touchscreen controllers.
SAWDUMP.EXE	DOS program for testing IntelliTouch touchscreen controllers.

Create a subdirectory on your hard disk and copy the files into it. For example:

```
CD \
```

```
MD ELO
```

```
COPY A:*. * ELO
```

International versions of the touchscreen control panel software program are included in subdirectories on the MonitorMouse for OS/2 disk. Replace ELOCAL2.DLL and ELOCAL2.HLP on your hard disk with the versions from the appropriate subdirectory.

STEP 3 - MODIFY CONFIG.SYS

MonitorMouse for OS/2 is installed by commands in CONFIG.SYS. Use your system editor to make these changes. In general, the changes are as follows:

1. Comment-out the existing DEVICE command(s) for your mouse.
2. Add a DEVICE command for the appropriate MonitorMouse for the OS/2 touchscreen driver immediately after the commented-out DEVICE commands(s).
3. Add a new DEVICE command for MOUSE.SYS.

The order of the DEVICE commands is important. Other changes may be required depending on your hardware configuration and version of OS/2.

Serial Touchscreen Controller on PC Bus System

Change your CONFIG.SYS file as follows:

```
Rem C:/OS2\MOUSE.SYS {Flags}
```

```
Device=c:\elo\monmou01.sys <controller>, <COM  
port>,<baud rate>
```

```
Device=c:\os2\mouse.sys stype=elomou$ {Flags - keep  
same as above}
```

Where:

<controller> is:

2300 for the IntelliTouch E281-2300 serial controller.

4002 for the IntelliTouch E281{A}-4002 serial controller.

2210 for the AccuTouch E271-2210 serial controller.

140 for the AccuTouch E271-140 serial controller.

<COM port> is:

the number of the COM port where the serial output of the touchscreen controller is connected.

<baud rate>

matches the switch or jumper settings on the controller.

Example MonitorMouse for OS/2 DEVICE command:

```
Device=c:\elo\monmou01.sys 2210,1,9600
```

No Mouse

If you do not wish to have a mouse connected, change the “styp=elomou\$” flag to “type=elomou\$” on the DEVICE=MOUSE.SYS command.

Disabling the COM Drivers

If your system COM ports are being used by the touchscreen and mouse, REM out the DEVICE=COM.SYS and DEVICE=VCOM.SYS commands (if present) in CONFIG.SYS. This prevents the COM drivers from displaying a message saying the COM port is unavailable.

If only the touchscreen is using a COM port, move the DEVICE=COM.SYS and DEVICE=VCOM.SYS commands before the DEVICE=MONMOU02.SYS command in CONFIG.SYS. Then add the flag (<COM Port>,0,0) to COM.SYS, where <COM Port> is the same as on the DEVICE=MONMOU01.SYS command. For example:

```
Device=c:\os2\com.sys (1,0,0)
```

STEP 4 - INSTALL THE TOUCHSCREEN CONTROL PANEL

The touchscreen control panel software program, ELOCAL2.EXE, is a presentation manager application for calibrating the touchscreen and setting various options.

Add the \ELO\ELOCAL2.EXE program to the System Setup folder and label the icon "Touchscreen". This is accomplished as follows:

1. Open the OS/2 System folder, then System Setup.
2. Open the Templates folder.
3. Drag the Program template with the right mouse button into the System Setup folder. A Settings notebook will be displayed.
4. Enter "C:\ELO\ELOCAL2.EXE" as the path and file name. Enter "C:\ELO" as the working directory.
5. Select the "General" tab. Change the Title to "Touchscreen".
6. Close the notebook.

See your OS/2 documentation for detailed instructions on installing new applications.

STEP 5 - CALIBRATE THE TOUCHSCREEN

Double-click the Touchscreen icon with the mouse (as the touchscreen may not be calibrated yet), or use the keyboard if the mouse is not connected. You may also run ELOCAL2.EXE from an OS/2 Window prompt.

Select "Calibrate" and follow the on-screen instructions. After calibrating, the touchscreen will work like the mouse. The DEVICE=MONMOUxx command in CONFIG.SYS is updated with the new calibration points (-c flag). The calibration points are then set automatically each time the system is started. Recalibration should only be necessary after moving or resizing the video image, or after changing either the touchscreen, controller, or monitor.

Close the touchscreen control panel.

