



# **TB OS/2 Driver**

## *User's Manual*

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# Chapter 1

## *Introduction*

### **Touch screens**

A touch screen is one of the most technically sophisticated yet easy-to-use input devices available today. It is a hardware device that is physically attached to the computer's monitor and can accurately sense the position of a touch. You touch the images you see on the screen, and the computer responds.

A touch screen is the most practical input device for an OS/2 application operating in a physical environment where a mouse is unsuitable (for example, public places, points of sale, and factories).

A touch screen is also an ideal tool for people with little or no computer experience. The combination of a touch screen with the OS/2 Graphical User Interface (GUI) meets these needs.

### **T2driver**

T2driver is a device driver that enables you to use a touch screen with OS/2 and any OS/2 application program. T2driver interfaces the touch screen to OS/2 as though it were a mouse and allows the touch screen to perform all the normal functions of a mouse. The only difference is that while a real mouse has two or more buttons, a touch screen emulates just one.

For program developers, T2driver exports an Application Programming Interface (API). This enables application programs to directly interact with T2driver and to control its configuration and behavior.





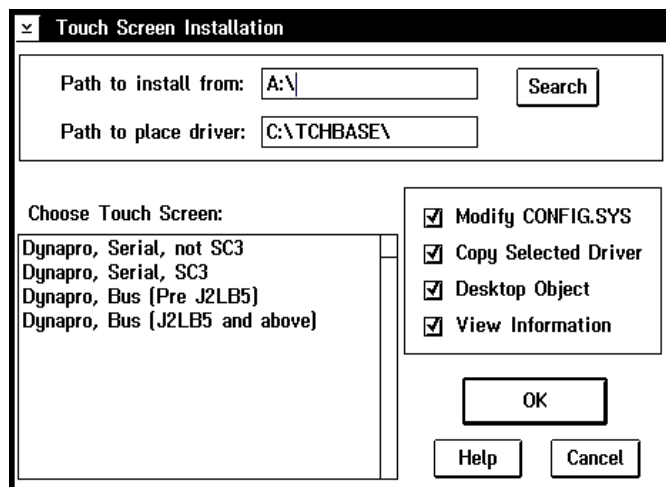
## Chapter 2

### *Getting Started*

#### Easy installation

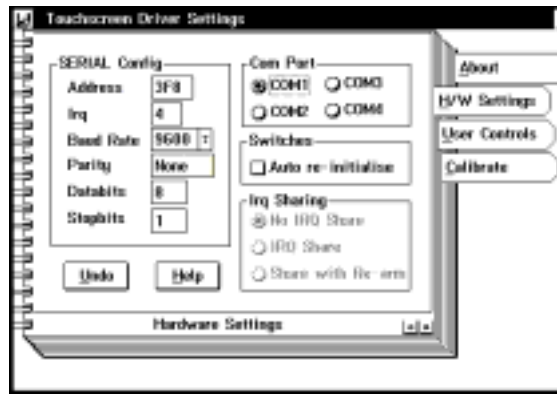
The easiest way to install T2driver is to run the T2setup program from the T2driver release diskette. Follow these steps:

1. From an OS/2 command prompt, type `a:T2setup`. The following screen appears:

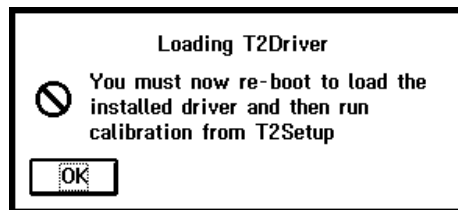


2. Scroll the list of touch screens, if necessary, to locate your touch screen type, and select it by clicking on it.
3. Click OK. Wait while T2setup copies files to your hard disk. Read the information displayed in the upper and lower information windows.

4. Click OK. The following screen appears (a slightly different screen appears for bus touch screens):



5. Select COM1 or COM2 as the com port.  
**Note:** For more advanced hardware configurations, refer to Chapter 5.
6. Exit T2setup by double clicking the mini-icon in the top left corner of the window. The following window appears, explaining that OS/2 loads device drivers only at boot time.



7. Click OK, close down OS/2, and re-boot your machine. When you have re-booted, the touch screen driver will be active but will require calibration.
8. To calibrate, start T2setup by double clicking its icon, located at the top left corner of the desktop. Select the calibrate option and touch the two points as requested. See Chapter 3 for further details on calibration.

## Manual installation

The procedure for manually installing T2driver is described below for the benefit of advanced users.

---

**Important** 3M Dynapro recommends that the manual installation procedure be attempted only by advanced users and by users who have a very unusual configuration of OS/2. 3M Dynapro recommends that all other users choose the easy installation method described above.

---

1. Copy the following files from the distribution diskette to your \OS2 directory:

**T2driver.xxx**

where xxx is the touch screen type number

**T2setup.exe**

**T2setup.hlp**

**T2driver.lst**

2. Modify your OS/2 config.sys file as follows, substituting xxx with your touch screen type number:

Add the line

**DEVICE=C:\OS2\T2DRIVER.xxx**

*before* the line **DEVICE=C:\OS2\MOUSE.SYS**

3. Add the following to the MOUSE.SYS line:

**STYPE=T2DRIVR\$**

4. Reboot your computer to load T2driver.

### Examples of manual installation

**Example 1: Manual installation for Microsoft mouse:** If you have a Microsoft mouse, you should have the following lines relating to pointing devices:

**DEVICE=C:\OS2\MDOS\VMOUSE.SYS**

**DEVICE=C:\OS2\POINTDD.SYS**

**DEVICE=C:\OS2\T2DRIVER.xxx**

**DEVICE=C:\OS2\MOUSE.SYS STYPE=T2DRIVR\$**

**Example 2: Manual installation for Logitech mouse:** If you have a Logitech mouse, you should have the following lines relating to pointing devices:

**DEVICE=C:\OS2\MDOS\VMOUSE.SYS**

**DEVICE=C:\OS2\POINTDD.SYS**

**DEVICE=C:\OS2\PCLOGIC.SYS**

**DEVICE=C:\OS2\T2DRIVER.xxx**

**DEVICE=C:\OS2\MOUSE.SYS TYPE=PCLOGIC\$**

**STYPE=T2DRIVR\$**

### Notes on manual installation

- The STYPE=parameter is an undocumented feature of MOUSE.SYS which specifies a secondary pointing device.
- You may rename the appropriate T2driver.xxx to T2driver.sys, if you prefer.
- T2driver must appear in config.sys before mouse.sys.
- If the COM device driver is used, it must be loaded *after* any serial mouse or touch driver.

- The spelling of T2DRIVR\$ on the MOUSE.SYS line is not in error. Device names may only be 8 characters and by convention end with a \$. The device T2DRIVR\$ name must be spelled correctly for mouse.sys to connect to T2driver.

## Using T2driver without a mouse

If no mouse is attached, T2driver may be the primary pointing device, as follows:

```
DEVICE=C:\OS2\MDOS\VMOUSE.SYS
DEVICE=C:\OS2\POINTDD.SYS
DEVICE=C:\OS2\T2DRIVER.xxx
DEVICE=C:\OS2\MOUSE.SYS TYPE=T2DRIVR$
```

## OS/2 system setup

The mouse settings program in the OS/2 system setup folder contains a couple of mouse configurations which may usefully be altered when working with a touch screen.

The mouse double click speed on the timings page of the mouse settings program can be altered to increase the time allowed between mouse clicks when generating a double click. This is often necessary when using a touch screen, but also depends on the button mode chosen (see later).

The mappings page of the mouse settings program controls which actions on the OS/2 desktop are controlled by each of the two mouse buttons. Because a touch screen can only emulate one button or the other, it may be appropriate to change some of these mappings.

## Hardware installation

For some types of touch screen, T2driver has specific requirements for the controller switch settings and, where specified, these must be set accordingly.

The T2driver hardware configuration settings must match the settings on the hardware itself in either of the following situations:

- The touch screen is connected to a serial port other than COM1.
- A bus controller touch screen is set to a port address or IRQ other than the defaults given in Chapter 7.

Refer to Chapter 7 for details.



## Chapter 3

### *Calibration*

#### Overview

Calibration enables the software to accurately align touches with the mouse cursor. The procedure involves touching two displayed points, which the software then stores in a file known as the calibration file.

This procedure usually needs to be performed only once, as part of the initial software installation. After the initial calibration, it should need to be repeated only if

- there is a change in the alignment of the touch screen with the visual image
- the data file is deleted for some reason

#### How to calibrate

To perform calibration, follow these steps.

1. Run the T2setup program by double clicking its icon and selecting the calibration option.
2. Click the calibrate button, then follow the prompts to touch the first point and then the second point.  
T2setup will update the driver calibration and save it in a file called T2calib in the \OS2 directory. This file is read by T2driver each time OS/2 starts up.

With the touch screen working and correctly calibrated, touching the screen should move the mouse cursor immediately to the point of the touch, and the cursor should follow your finger as you slide it around the screen.

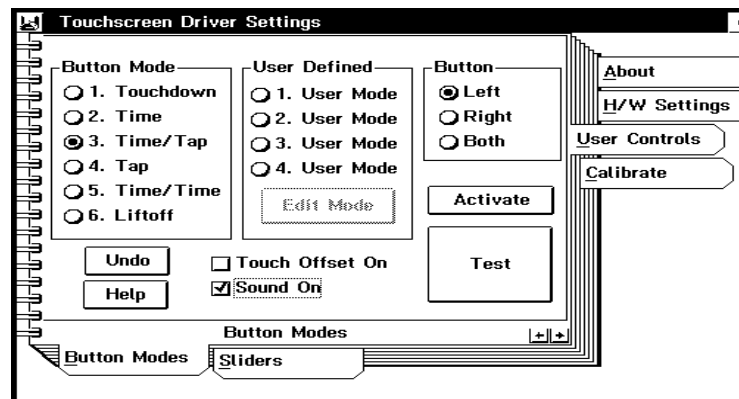


## Chapter 4

### *Configuration*

A number of configuration options affect the operational characteristics of the touch screen and enable you to tailor it to your precise needs. Most of the configuration options can be established or amended using the supplied control program, T2setup.

Most of the options are listed in the User Controls section of the program, as illustrated below.

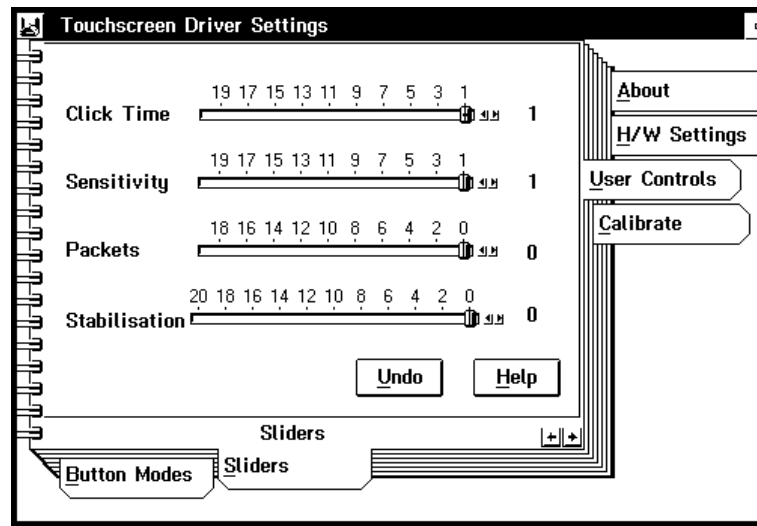


When you want to change the configuration, you can press

- the Activate button to immediately apply your changes
- the Test button to test how the button responds to touches
- the Undo button to reverse any changes you have made

Closing down T2setup by double clicking the mini-icon at the top left corner of the window offers you the choice of saving your changes (Yes), discarding your changes (No), or returning to the program (Cancel).

Selecting the Sliders option displays the following window of additional controls:



The following controls in the Button Modes and Sliders windows are described in detail:

- Button modes (pre-defined and user-defined)
- Touch offset
- Button
- ClickTime
- Sensitivity
- Stabilization
- Sound

## Button modes

The method used to simulate button presses and releases depends on which button mode is configured. The default is button mode 3, Time/Tap mode.

There are six pre-defined modes, which are quick and easy to configure, and four user-defined modes which offer greater flexibility, but require slightly more time to set up.

### Pre-defined button modes

The pre-defined button modes operate as follows:

**Button mode 1: Touchdown mode.** The mouse cursor is moved to the point of the touch, then the button is immediately pressed. You can then slide your finger around with the button held down. The button is released when you remove your finger from the screen.

**Button mode 2: Time mode.** The mouse cursor is moved to the point of the touch, but the button is not pressed. You can then slide around with the button not pressed. Any time you hold your finger stationary



for about half a second, the button is pressed and a beep sounds. Once pressed, you can slide around with the button pressed. The button is only released when you remove your finger from the screen.

**Button mode 3: Time/Tap mode.** Mode 3 is similar to mode 2, but double clicks are possible. After holding your finger stationary to generate a button press, you quickly lift your finger off the screen and then immediately touch it again. A second button press is generated immediately at the same location as the first one and another beep sounds.

**Button mode 4: Tap mode.** The mouse cursor is moved to the point of the touch, but the button is not pressed. Button presses are generated by quickly lifting your finger off the screen and then touching it again within a short time. Double clicks are achieved by doing this twice.

**Button mode 5: Time/Time mode.** Mode 5 is similar to mode 3, except the second press is achieved by holding your finger stationary for another half second after the first beep.

**Button mode 6: Liftoff mode.** The mouse cursor is moved to the point of the touch, but the button is not pressed. When you lift your finger off the screen, the button is pressed and then immediately released again. Double clicks can be achieved by quickly touching the screen and lifting off again.

### User-defined button modes

T2setup allows you to define, save and recall up to four user-defined button modes. These button modes allow you to specify the touch triggers that simulate mouse button events.

Initially, the four user-defined button modes are undefined. To define a button mode, select one and press the Edit Mode button. The Set User Defined Mode screen appears.

Set User Mode 1	
Down 1:	Touchdown
Up 1:	Immediate
Down 2:	Immediate
Up 2:	Liftoff
Down 3:	Touchdown
Up 3:	Liftoff
<div> <div>Help</div> <div> None  Immediate  Touchdown  Liftoff  Time  Tap </div> </div>	

You must now define the touch triggers that cause each of six possible button events. The six button events are:

Touch trigger	Button event
Down1	The first mouse button press. Defines the touch triggers required to stimulate a first button press.
Up1	The first mouse button release. Defines the touch event required to stimulate releasing the button.
Down2:	The second mouse button press (for double clicks). Defines the touch trigger, if any, that will stimulate another button press if that trigger occurs within the time specified by the ClickTime option (in other words, the actions required to generate a double click).
Up2	The second mouse button release. The second mouse button press (for double clicks). Defines the touch trigger, if any, that will stimulate another button press if that trigger occurs within the time specified by the ClickTime option (in other words, the actions required to generate a double click).
Down3	Subsequent mouse button presses
Up3	Subsequent mouse button releases

The description of ClickTime, later in this chapter, further describes the significance of first, second, and subsequent clicks.

The touch triggers that can be assigned to each of the six mouse events are:

Touch trigger	Mouse events
None	Mouse event will never occur. To prevent double clicks or subsequent clicks.
Immediate	Mouse event will occur immediately. To generate the mouse event immediately it becomes possible.
Touchdown	Mouse event will occur when a finger makes initial contact with the screen.
Liftoff	Mouse event will occur when a finger breaks contact with the screen. A finger lift always causes the mouse button to be released if it is pressed.
Time	Mouse event will occur on stationary touch. The duration of a stationary touch is defined by the ClickTime option (ClickTime is described later in this chapter).
Tap	Mouse event will occur when a finger lifted from the screen is followed by a re-touch within the amount of time defined by ClickTime (ClickTime is defined later in this chapter).  Note: A click generated by a tap will occur at the point of the finger liftoff, not at the point of the re-touch.

To assign a touch trigger to a mouse event, select the pick button next to an event, then the touch trigger you want to assign to it from the picklist which drops down.

As a bare minimum, you need to assign triggers to the Down1 and Up1 events. Close the Set User Mode window by double clicking the mini-icon at the top left corner of the window. The Button Modes window will appear.

The use of user-defined button modes is best explained by examples. In the notation that follows, a Button Mode is defined by specifying the six button events: Down1, Up1, Down2, Up2, Down3, Up3.

The pre-defined Button Modes 1 to 6 are defined as follows:

Mode	Definition
Mode 1	touchdown, liftoff, touchdown, liftoff, touchdown, liftoff
Mode 2	time, liftoff, none, none, none, none
Mode 3	time, liftoff, tap, liftoff, none, none
Mode 4	tap, liftoff, tap, liftoff, tap, liftoff
Mode 5	time, time, immediate, liftoff, none, none
Mode 6	liftoff, immediate, liftoff, immediate, liftoff, immediate

### Other examples of user-defined button modes

The following examples give an idea of the many other modes which can be created:

- Touchdown, immediate, none, none, none, none.

This generates an instantaneous single click (down and up) when the screen is touched. It is not possible to drag the mouse cursor with the button pressed.

- Touchdown, immediate, immediate, immediate, none, none.

This generates two instantaneous clicks (down, up, down, up) when the screen is touched. It is not possible to drag the mouse cursor with the button pressed.

- Time, immediate, immediate, liftoff, none, none.

This generates a double click when a touch is stationary for ClickTime. The button remains down until the finger is lifted off the screen, so it is possible to drag the cursor with the button down.

- Liftoff, immediate, tap, liftoff, none, none.

This generates a single click (down and up) when the finger is lifted off the screen, and a second click if the screen is re-touched within ClickTime. Then the button will remain down until the finger is again lifted off the screen.

- Time, time, immediate, time, immediate, time.

This generates a continuous sequence of button presses as long as the finger is stationary.

- Touchdown, immediate, immediate, immediate, immediate.

*Not recommended!* Continuous, never ending, button presses will be generated on first touching the screen. In fact, T2driver will go into a tight loop, continuously pressing and releasing the button, and no other processing will be possible.

## Touch offset

Normally, the cursor is directly underneath your finger. This is usually desirable, but can be inconvenient in some circumstances. Touch Offset can be very useful in applications where you need to be able to see clearly the precise position of the cursor.

With Touch Offset on, the cursor is offset directly above your finger by 10% of the height of the screen, except at the top and bottom, where it converges with your finger as you approach the edge.

## Button

Normally, the left button is simulated, although a configuration option allows the right button, or both buttons at once, to be simulated instead.

## ClickTime

ClickTime is a time interval that T2driver uses for a number of purposes. It is defined as a number of T2driver clock interrupts, there being 18.2 interrupts per second. The default value of ClickTime is 9, which corresponds to about half a second. Smaller ClickTime values correspond to shorter times, and larger values correspond to a longer times.

### Functions of ClickTime

ClickTime has three functions:

- ClickTime helps define a Time touch event. For example, in Time mode (button mode 2), ClickTime controls the length of time you need to hold your finger stationary to generate a button press.
- ClickTime helps define a Tap touch event. For example, in Tap mode (button mode 4), ClickTime defines the length of time within which you must re-touch the screen after lifting off in order to generate a button press.
- ClickTime distinguishes between first, second, and subsequent clicks, allowing each to be assigned to different types of touch event.

For example, after the first click is generated in Time/Tap mode (button mode 3), T2driver expects a tap event to generate a second click, but only if it occurs within ClickTime. After ClickTime, a tap will be ignored since T2driver will then be expecting a first press again, and will only respond to a time event. Similarly, after a second click and within ClickTime, T2driver expects the event defined for a subsequent button press, if any. After ClickTime, it will again start looking for the event defined for a first button press.

### Second button presses and ClickTime

Note that second button presses — the second click of a double click — are forced by T2driver to occur at exactly the same location as the first click. This has an interesting, and sometimes confusing, implication in Touchdown mode (button mode 1).

In an application such as a calculator, Touchdown mode is ideal for simulating the buttons of a real calculator. However, two successive clicks on two different buttons within ClickTime would be treated by T2driver as a double click on the first button, which is incorrect in this situation. The solution is to reduce ClickTime to, say, 1, since it serves no purpose in this case.

## **Sensitivity**

The Sensitivity option specifies the time interval required to register a finger lift, and uses the same units as the ClickTime option. The default varies depending on the touch screen model, but is the smallest value required to make the touch screen usable, typically 1, 2, or 3. In some cases you may wish to increase this time so that any momentary loss of contact when sliding around is ignored.

## **Stabilization**

The Stabilization option sets the number of touch coordinates from the hardware which are averaged to produce stabilized values. The default varies depending on the touch screen model, but is commonly 0 (i.e., no stabilization), 2, or 3. This value may be increased if the cursor appears jittery. Specifying a higher than necessary value causes the cursor to be unnecessarily delayed in following your finger around the screen.

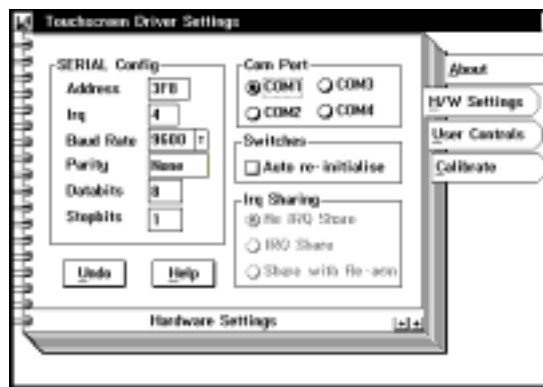
## **Sound**

The Sound on/off option enables or disables the beep which accompanies simulated button presses.

## Chapter 5

### *Hardware Configuration*

Selecting the H/W Settings option of T2setup displays the Hardware Settings screen:



The options in this window allow the configuration of the software to work with the touch screen hardware.

---

**Important**     Hardware settings must be set correctly for your hardware configuration or the touch screen will not work.

---

### **Standard COM port configurations**

In most cases, the touch screen will be connected to either a standard COM1 port or a standard COM2 port. In these cases, all that is required is to select the appropriate port. The correct port address and IRQ will be assigned automatically.

## Non-standard COM port configurations

The default port addresses and IRQs assumed for the COM ports are:

COM Port	Address	IRQ
1	3F8	4
2	2F8	3
3	3E8	5
4	2E8	2

Other configurations can be set by specifying the port address and IRQ explicitly. Note that OS/2 does not allow devices to use IRQ 2. The port address is specified as a hexadecimal.

## Communications parameters

T2driver chooses defaults for Baud Rate, Parity, Databits and Stopbits that

- are the only ones supported by the touch screen, or
- will be automatically recognized by the touch screen, or
- can be used with the switch settings defined in Chapter 7. You may wish to change the communications parameters to support different switch settings, or to reduce the communications overhead.

## Bus touch screens

For touch screen controllers that plug directly into the PC bus, only the port address and IRQ need to be specified if the jumper or switch settings do not match the defaults given in Chapter 7.

## Activating the new configuration

Pressing the Undo button reverses any changes you have made. Closing down T2setup by double clicking the mini-icon at the top left corner of the window offers you the choice of saving your changes (Yes), discarding your changes (No), or returning to the program (Cancel).

Changes to the hardware configuration cannot be activated immediately. You must re-boot your system for them to take effect.

The Automatic re-initialization and IRQ-sharing options are not currently supported and are inactive at this time.





## Chapter 6

### *T2driver.INI*

#### Configuration syntax of T2driver.INI

All the T2driver configuration options are stored in a text file called T2driver.ini, located in the \OS2 directory. A number of additional configuration parameters are available in this file that are not supported by the T2setup program. You may alter the T2driver configuration by editing this file using a text editor.

The syntax of the entries follows. All entries are shown with their default values, followed by the valid range of values:

Keyword	Default	Possible values
ButtonMode	3	0 - 6
The following six entries are only processed if ButtonMode=0		
ButtonDown1	0	0,1,2,4,8,16,32,64
ButtonUp1	0	0,1,2,4,8,16,32,64
ButtonDown2	0	0,1,2,4,8,16,32,64
ButtonUp2	0	0,1,2,4,8,16,32,64
ButtonDown3	0	0,1,2,4,8,16,32,64
ButtonUp3	0	0,1,2,4,8,16,32,64
Offset	Off	On, Off
Button	Left	Left, Right, Both
ClickTime	9	1 - 20
Sensitivity	1	1 - 20
Stabilization	0	0 - 20

Keyword	Default	Possible values
Sound	On	On, Off
PacketsToIgnore	0	1 - 20
ExtraInit	-	Up to 25 hex characters
Portrait	Off	On, Off
ComPort	1	1, 2, 3, 4
Address	3F8	0 - FFFF
Interrupt	4	1 - 15
Baud	9600	1200,2400,4800,9600
Parity	N	N, O, E
DataBits	8	7, 8
StopBits	1	1, 2
Initializes	On	On, Off
UserMode1		0,1,2,4,8,16,32,64 (x6)
UserMode2		0,1,2,4,8,16,32,64 (x6)
UserMode3		0,1,2,4,8,16,32,64 (x6)
UserMode4		0,1,2,4,8,16,32,64 (x6)
CurrentUserMode		1 - 4

## PacketsToIgnore

PacketsToIgnore specifies a number of coordinate packets to ignore before sensing a touchdown. The default value is zero.

PacketsToIgnore can be useful in touchdown mode, where the touchdown position is the position of the button click. If the touch screen takes a few packets to stabilize on the correct position, this parameter can be used to ignore the first few inaccurate packets.

## ExtraInit

ExtraInit specifies up to 25 hexadecimal characters to be sent to the touch screen after the completion of normal initialization. This feature is only supported on serially connected touch screens which support received commands.

## Portrait

Portrait transposes the X and Y axes to enable the touch screen to be used with a portrait mode display driver.

## Initialize

If set to Off, the Initialize parameter prevents T2driver from performing its touch screen initialization procedure at OS/2 load time.

## User-defined button modes

The touch triggers for the user-defined button modes are defined by numbers, as follows:

Number definition	Touch trigger	Description
0	None	Mouse event will never occur
1	Immediate	Mouse event will occur immediately
2	Touchdown	Mouse event will occur on touchdown
4	Liftoff	Mouse event will occur on liftoff
8	Time	Mouse event will occur on stationary touch
16	Tap	Mouse event will occur on tapping the screen

An even greater range of possibilities is available here than in the control program: Touch events can be “*or*’ed” by adding their configuration numbers together. For example, the value 24 (8 + 16) would define a trigger of Time *or* Tap.

The default BaudRate, Parity, DataBits and StopBits depend on the touch screen controller.





# Chapter 7

## *Switch Settings and Hardware Notes*

While some of our touch screen controllers use on-board switches to control touch modes and communications parameters, others do not. Where T2driver requires specific switch settings these are listed below.

For our PC bus type controllers, the factory settings of I/O address and IRQ are the default. Alternative settings may be used, so long as T2driver is notified using T2driver.ini.

### **3M Dynapro serial (not SC3)**

J1	Touch
J2	9600

### **3M Dynapro bus (pre-J2LB5)**

J2	Touch mode
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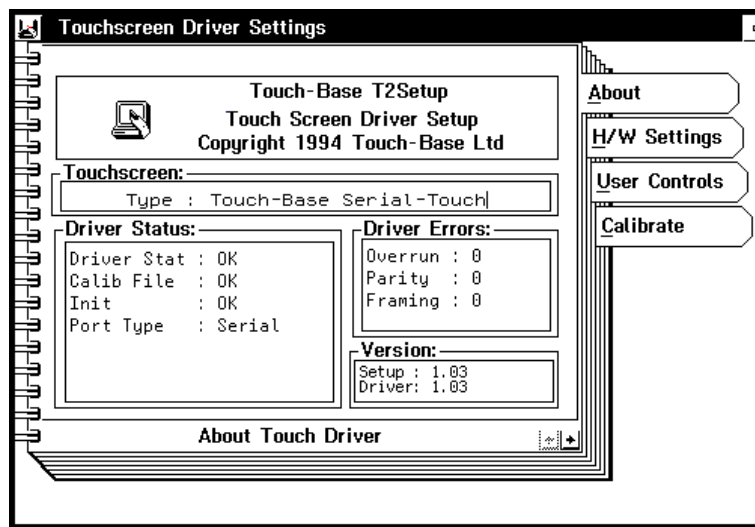


# Chapter 8

## *Troubleshooting and Technical Support*

### Troubleshooting

The About Touch Driver window of T2setup shows, among other things, the initialization status and whether calibration is valid for the installed T2driver:



If the initialization status is anything other than OK, please read on.

If the calibration status is anything other than OK, this represents the error encountered when T2driver attempted to access the calibration data - try re-calibrating. If the communications errors are anything other than zero, please read on.

In case of difficulty, the following checks should be made before contacting technical support:

<b>Problem</b>	<b>Troubleshooting strategy</b>
<ul style="list-style-type: none"><li>• No cursor movement when touch screen touched</li></ul>	<ul style="list-style-type: none"><li>• Check that the touch screen has power, and that its communication cable is connected to the computer</li><li>• Check that you selected the correct driver for your touch screen when you installed T2driver.</li><li>• Check that any required switch settings, if any, are set as specified in Chapter 7.</li><li>• For bus cards, check that the address and IRQ set on the card matches the configuration specified in T2setup.</li><li>• For serial touch screens check that T2driver is configured for the correct serial port number. For COM3, COM4, and bus controller touch screens, check that the port address and IRQ are configured to match the hardware switch or jumper settings.</li><li>• Always check for port address or IRQ conflicts with other cards in the system.</li></ul>
<ul style="list-style-type: none"><li>• Cursor moves, but incorrectly</li></ul>	<ul style="list-style-type: none"><li>• Check that you have calibrated — and that T2driver still has access to — the T2calib calibration file in the OS/2 directory.</li><li>• If you have re-installed T2driver for a different type of touch screen, you will need to re-calibrate.</li></ul>
<ul style="list-style-type: none"><li>• Difficulties with double clicks</li></ul>	<ul style="list-style-type: none"><li>• Ensure that OS/2 mouse double click speed is set to slow, as described in Chapter 2.</li><li>• If you have set high values for ClickTime or Sensitivity, try reducing them. You may have set the T2driver settings for ClickTime or Sensitivity to time intervals so great that two clicks take longer than the time allowed by the OS/2 DoubleClickSpeed setting.</li></ul>



## How to contact technical support

If you are still unable to resolve your problem, please collect the following information before contacting 3M Dynapro:

- Your name, company name, telephone number and fax number
- T2driver version number
- Touch screen part number
- Touch controller model
- Touch screen controller switch settings, if any
- OS/2 version number
- Description of computer (make, model, architecture, processor, speed, adapters, peripherals)
- Listing of the T2driver.ini file
- Listing of the config.sys file
- Detailed description of the problem
- The exact text of any error messages

3M Dynapro offers telephone support for T2driver on an as-available basis at no extra charge. Contact 3M Dynapro at:

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<b>Telephone:</b>	888-222-9214 or 414-365-3555
<b>Fax:</b>	414-365-1133 Attn: Technical Support
<b>E-mail:</b>	dtftech@dynapro.com Subject: Technical support

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3M Dynapro simplifies interaction between people and technology by designing and manufacturing world-class touch products, from touch screen components to touch computers, terminals, and monitors.

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