DOS and Windows drivers

Frequently Asked Questions

Why doesn't my new monitor work ("elodev not installed")?

- **Newest controllers require the –p– switch**
- **This is the most common problem, and is easy to fix**
- **See Disabling handshaking, page 12**

I get a divide by 0 run-time error — You have an old driver version; download the latest

Where can I get the latest DOS driver?

- http://www.elotouch.com/Support/Downloads/dnld_archive.asp
  - Click the + next to DOS and Windows 3.x
- Double-click the dwdsk.zip link
- Accept the license agreement
- Click the Save button
- Use the Save in drop-down to select the folder to save to
- Click the Save button

Can I run DOS in a window from Windows XP, 2000 or NT? No; see page 3

Why does the DOS window minimize when I try to run a DOS session in Windows 95/98?

- You cannot use the Windows 95/98 driver to run a full-screen DOS application; the DOS and Windows drivers must be used to run full-screen DOS applications, even under Windows 95/98. The Windows Express Install will allow touch under Windows 95/98, as well as in DOS applications.
- Touch operation in DOS under Windows 95/98 is neither guaranteed nor supported; in general, it usually works, but some systems and some programs have not worked well.

The touch cable for my new monitor required an adapter, but it still doesn't work. See page 2

How do I unzip the file?	See page 3
Where are the lines that load the drivers?	See page 6, toward the bottom
What is the driver load sequence?	See page 7
What does "some files are missing" mean?	See page 3, Unzipping the downloaded file
How do I calibrate the touchscreen?	See page 12
I've run calibration correctly but it won't "take".	See page 10
Which video mode or resolution should I use for calibration?	See page 12, Calibration, first paragraph.
Which controller should I choose when installing the driver?	Choose the 2300 serial controller – it works for all
My controller is not in the list to choose from.	Choose the 2300 serial controller – it works for all
I don't know which controller I have.	Choose the 2300 serial controller – it works for all
Can I use a USB controller?	No. DOS does not support USB.
Why don't I have a cursor?	You must have mouse.com installed – see page 10
Why can't I use the mouse in Windows?	You must have mouse.com installed – see page 10
Can I use an LCD monitor in DOS?	If your application uses any of the resolutions listed in the specifications for the monitor, it should work
Can I use a serial to USB converter?	No. USB does not work in any fashion on DOS

Frequently Asked Questions (continued) Page 2

I used a “gender changer” or adapter to get my touchmonitor to connect to my existing DOS system, but I can’t get it to work; what’s wrong?

- You have an old buss controller in your system. Buss controllers are no longer supported.
- Modern touchmonitors must be connected to a serial port. Serial ports have male pins; buss controllers have female pins. See the section below for what to do.

I’m replacing an old buss controller type touchmonitor; what do I do?

- Connect the new touchmonitor’s serial output (9 pin, 2 row female connector on the monitor) to the computer’s COM port (9 pin, 2 row male connector - either COM1 or COM2).
- You may remove and discard the old buss controller
- If you don’t have available COM ports, you may remove the old Elo buss converter and install a COM port add-on card in its place. We highly recommend Siig brand, as they always work.
- Reinstall the DOS drivers
    - Follow the directions in the driver installation section
    - Select the 2300 serial controller from the list

The DOS drivers can only be used on the following operating systems Page 3

- DOS
- Windows 3.1
- Windows 95 (not guaranteed or supported)
- Windows 98 (not guaranteed or supported)

The DOS drivers will not function properly on:

- Any Windows driver later than Windows 98
  - Windows NT
  - Windows 2000
  - Windows XP

Unzipping the downloaded file:

- NOTE! The drivers will not successfully unzip to a floppy disk (not enough disk space) – see the "specific problems" page for a work-around.
- If using Winzip:
  - Right-click Start, select Explore
  - Find the dwdsk.zip file, then double-click it
  - Click the Extract icon in the menu bar
  - Under Folders/Drives, double-click the c: drive (NEED A FOLDER NAME!)
  - Click the Extract button
  - Close the Winzip window when finished
- If using pkunzip: **pkunzip –d dwdsk.zip c:\elodos**
  - "pkunzip" invokes the unzip software
  - "-d" says to recreate all the zipped subdirectories
  - "dwdsk.zip" is the name of the file to unzip
  - "c:\elodos" says to unzip the files to the c: drive in a folder named "elodos". You do not have to use the name "elodos"
  - be sure to include the spaces and the colon character
  - The –d ensures that all subfolders will be recreated
    - ***Failure to use the –d will result in a "one or more missing files" message when you try to install the software***

Installing the driver

Page 4

The driver must be installed from a DOS command prompt, in a true DOS environment. Either boot up in DOS or (in the case of Windows 95 or 98) shut down and restart in MS-DOS mode. This text assumes installation from a folder in the c: drive named elodos. The driver can be installed from the hard drive or any other valid drive; just be sure to specify the correct drive letter and the location of the Elo driver files.

- Get to a true DOS prompt
  - DOS system: Boot the computer normally
  - Windows 95/98: Shut down and restart in MS-DOS
- Change to the drive and directory where the unzipped Elo files are located
  - c: (for this example), followed by the ENTER key
  - cd\elodos (for this example), followed by the ENTER key
- Type install, followed by the ENTER key
- Several information screens will appear; press the ENTER key each time to continue
- Choose the installation type
  - **DOS Express Installation** enables touch only for DOS programs. The DOS demonstration program, Elodemo.exe, is also installed
  - **Windows Express Installation** enables touch for both DOS programs and Windows 3.1, 95 or 98 programs. The demonstration program, Elodemo, is *not* installed.
    - If you choose the Windows Express Installation, a DOS mouse driver will be required if you want to use the mouse in Windows. If you get a message to this effect, then you do not have a DOS mouse driver installed. If you do not install a DOS mouse driver, Elo's nomouse.com will be installed to allow touch operation. To install the DOS mouse driver:
      - Find mouse.com on your system or DOS diskettes and copy it to the root of the c: drive.
      - Edit autoexec.bat. At the top of the file, add this line:
        - c:mouse
      - Save and close autoexec.bat
  - **Selective Installation** is used to update drivers, add the DOS demonstration program or to add Windows touch functionality to a DOS-only touch installation

Installing the driver (continued)

- Choose the interface type
  - PC-Bus is an older interface type. The drivers still support PC-Bus for existing installations, but PC-bus hardware is no longer made by Elo. Serial is the only modern interface for DOS applications.
    - When you select Serial, a list of COM port options is displayed. It is recommended that you select the Scan All Serial Ports option from the list.
      - If you know the COM port, you can select it specifically from the list
      - If the COM port cannot be opened, you must resolve the problem on an operating system or system hardware level
  - A message will tell whether a touch controller was detected. If no controller was detected, you should refer to the **comdump** diagnostic section.
  - If a controller is detected, press ENTER and the driver files will be copied.
- Various prompt messages will be displayed; in general, you should press ENTER to use the default or to continue the installation.
- At the end of the installation you will be prompted to type “go” to calibrate. This will display three different sets of calibration targets to calibrate in the common video modes. Once the GO routine has been run, it cannot be run again; if the go routine is not run when prompted, it cannot be run later; if the GO routine is aborted, it cannot be re-run.
- If the GO routine is not available, run elocalib to calibrate in any video mode; see the section on calibrating the touchscreen, page 10.

Driver file names and driver call locations

- Mouse.com or nomouse.com
  - Mouse.com is the Microsoft driver that allows mouse operation in DOS. If Elo's drivers are loaded, mouse.com also enables the mouse in Windows. *This is a Microsoft file, and must be obtained from the Microsoft DOS operating system files.*
    - You can download it at http://www.bootdisk.com/readme.htm
    - Mouse.com must be called from a line in autoexec.bat
    - Mouse.com will not load if a mouse is not attached to the system
  - Nomouse.com, and Elo file, is a "stripped down" version of mouse.com that allows the touchscreen to function in the absence of a mouse. It does not display a cursor, nor does it support mouse actions.
  - Important! Elo drivers will not load unless one of these files is loaded first
- Elodev.exe
  - Elodev.exe is an Elo driver that takes raw touch controller output and formats and scales it to properly align with the video
  - Elodev passes calibration points to other Elo drivers. The calibration points are generated by an Elo utility named elocalib
  - *Elodev will not load into memory if a controller is not detected*
  - *Elodev will not load if the DSR (pin 6) and CTS (pin 9) serial handshake lines are not asserted*
    - *This can be overridden by adding the –p- flag to the elodev call*
- Monmouse.com
  - Monmouse.com is an Elo driver that takes input from elodev and formats it to generate mouse events with mouse.com (or nomouse.com)
  - *Monmouse.com will not load into memory unless either mouse or nomouse has been previously loaded*
  - *Monmouse.com will not load unless elodev has been previously loaded*
  - *Monmouse.com will not load unless elodev has been calibrated*

The driver files are copied, by default, to a directory on drive c: named \touch. Any time you want to load an Elo driver manually or run a diagnostic such as comdump or an auxiliary routine such as calibration, you should switch to the touch directory (cd\touch ENTER).

The call lines that actually load the DOS drivers into working memory on boot are located in the autoexec.bat file. The call lines in autoexec.bat are:

(path) mouse	(typically c:\mouse\mouse)
or	
c:\touch\nomouse	(if a DOS mouse driver is not used)
c:\touch\elodev (parameters)	(serial example: c:\touch\elodev 2210, 1, 9600 -c## ## ## ## ## ##)
	(pc-bus example: c:\touch\elodev 4035, 280,5 -c## ## ## ## ## ##)
c:\touch\monmouse (parameters)	(typically c:\touch\monmouse -m6)

The -c ## ## ## ## in the ELODEV line is the calibration points. *If the calibration points are not present, ELODEV will load but monmouse will not load.* In this case, run ELOCALIB to calibrate and add the calibration points to the ELODEV line.

Driver load sequence summaries

DOS Driver Summary:

ELODEV must load and must include DOS calibration points

ELODEV will not load if a controller is not detected.
ELODEV will not load if DSR and CTS are not detected (serial) (unless -p- flag is used).
ELODEV will not be calibrated if the installation was aborted

Either mouse or nomouse must load

mouse will not load if a mouse is not attached and detected

monmouse must load

monmouse will not load unless mouse (or nomouse) is loaded.
monmouse will not load if ELODEV is not loaded
monmouse will not load if ELODEV is not calibrated for DOS

In addition, if touch is to operate in Windows, the following lines are required in the system.ini file:

[boot] section
mouse.drv=monmouse.drv

[boot description] section (this is a descriptor and is not actually required)
mouse.drv=Elo TouchSystems MonitorMouse(R) for Windows

[386Enh] section
mouse=vmmd.386

All other mouse calls must be commented out (line begins with a semicolon)

Windows calibration is done separately in the Control Panel/Touchscreen/Calibrate function.

The Windows drivers will not operate unless all the DOS drivers are properly loaded.

DOS and Windows drivers: Troubleshooting Checklist

NOTE: To correct Run Time Error 6002, Divide by Zero: Download and install the latest version of the DOS and Windows drivers

No touchscreen response

Change to the \touch directory and run **TUTORIAL**

- ♦ If the tutorial screen comes up, then all DOS drivers are loaded
  Touch "Begin Lesson"
  If response is OK: DOS calibration is correct and no IRQ conflicts exist
  If no response: IRQ conflict exists
  If response, but not at touch point: improper calibration or nonlinearity problem

- ◊ "Mouse driver not installed" error message?
  Check AUTOEXEC.BAT for mouse or nomouse call – make sure it precedes all Elo driver calls
  Check for correct path in mouse or nomouse call
  Check for mouse driver in specified directory
  Check for mouse physically attached
  (mouse.com will not install if a mouse is not connected to the system).

- ◊ "Monmouse driver not installed" error message?
  - ⇒ Run **INFO**
    - ▪ "Elodev not installed" message?
      - ⇒ Try loading ELODEV from the command line, using the correct parameters for the installed controller
        - ELODEV installed OK from command line?
          Check ELODEV command line in AUTOEXEC.BAT for errors.
        - ELODEV fails to install from command line?
          Try again, using same command, but add –p- (minus p minus)
          Loads OK? Add –p- to command line in autoexec.bat; retry
          Does not load?
          Check power to controller
          Check for correct COM port
          Run comdump and check hardware operation
    - ▪ Calibration points are all zeros?
      - ⇒ Run democal or ELOCALIB (save points in file if ELOCALIB).
        - Reboot and retry.

DOS and Windows drivers: Troubleshooting (continued) Page 9

⇒ To confirm proper calls and AUTOEXEC.BAT load sequence, use the Step-by-Step boot option - press the F8 function key when "Starting MS-DOS" (or Windows) is displayed during boot-up (or, you can repeatedly tap the key during boot-up). This will either result in the message, "MS-DOS will prompt you to confirm each CONFIG.SYS command" or will give you a list of options. If yo uget the list of options, select "Step by step confirmation." Hit the Y key to step through all the CONFIG.SYS commands. Hit the Y key in responds to the "Process AUTOEXEC.BAT?" prompt. Hit the Y key to step through the autoexec lines. Confirm that either nomouse or a mouse driver loads (check the response line after the call is executed when you hit the Y key). Confirm that ELODEV loads (note any error messages). Confirm that monmouse loads (note any error messages).

⇒ Make sure that the mouse or nomouse driver loads first, elodev loads next and monmouse loads last.

⇒ Make sure that the touch driver calls are placed before the WIN call.

Incorrect/Erratic operation

⇒ Check mouse driver version (Microsoft: 8.2 preferred; Logitech: 6.2 preferred).

- To confirm bad mouse driver, try nomouse instead of mouse. If touch operates OK with nomouse, the mouse driver must be updated.
- NOTE! mouse 9.01 will cause extremely erratic mouse operation if not properly installed.

⇒ For Windows no-touch problems (if all DOS drivers are loaded per above)

- Install Monitormouse for Windows
  - Run INSTALL again
  - Select Selective Installation
  - Arrow down to Monitormouse for Windows
  - Press ENTER to check the check box
  - Arrow down to Continue and press ENTER.
- Make sure the touchscreen is calibrated for Windows operation.
  - Use the calibration function in the Control Panel Touchscreen applet.
- Check the Windows touchscreen and mouse driver calls in the SYSTEM.INI file

Specific problems

Error message: Controller not detected

- Possible cause: No power to touchmonitor or touchmonitor not connected to a COM port
- Possible cause: The COM port you specified is not the one that the touch system is connected to. Comdump can help you if you are using COM1 or COM2 (also COM3 or 4, but not as easily). See http://www.elotouch.com/support/webtech/comdump.asp
- Possible cause: Handshake lines are not being detected. See the section on disabling handshaking, page 12.

Why don't I have a cursor arrow?

- Mouse.com must be installed.
- You can download it here: http://www.bootdisk.com/readme.htm
- Put it in the root directory, then add the following line to autoexec.bat:
  - C:\mouse
- Reboot the machine.

What happened - I installed the DOS touch drivers and now I don't have a mouse in Windows.

- When using the DOS drivers with Windows, the DOS mouse driver, mouse.com, replaces the standard Windows mouse driver.
- You can download mouse.com here: http://www.bootdisk.com/readme.htm
- Put it in the root directory, then add the following line to autoexec.bat:
  - C:\mouse
- Reboot the machine.

I've run elocalib correctly, but it won't stay calibrated

- Locate all instances of the elograph.cal file
  - Dir elograph.cal /s
- Delete all instances of elograph.cal
- Run elocalib again and save the points

I can't unzip the driver to a floppy

- The file is too large to unzip to a floppy. Here is a work-around:
  - unzip all the files to a hard disk
  - delete the pkunzip.exe file from the unzipped files
  - select all the remaining files and folders
  - right-click on the selected files, select Send to, select the a: drive
  - allow the files to copy

Specific problems (continued) Page 11

The calibration points are not stored to my autoexec.bat or to the startup file that I use

When you press the S key in elocalib to save the points, it displays the default name of the file to save the points in: elograph.cal. This file should always be used unless you are specifically "doing your own thing" and know exactly what you want to do. The "update autoexec" file prompt displays c:\autoexec as the default. If you know that your autoexec file is located somewhere other than the root of the C: drive, or if you are using an alternate startup file, simply change the name or location of the filename as appropriate. Updating the autoexec or other startup file insures that the computer will start with the touchscreen calibrated in the video mode that you have selected. However, any time the video mode is changed, the touchscreen driver automatically accesses the elograph.cal file to see if calibration coordinates are available for the selected video mode; if so, those calibration values are used. The elograph.cal file should be in the \touch directory and it should be the only copy of elograph.cal on the computer system.

Disabling handshaking (required for latest Elo controllers) Page 12

When the elodev driver attempts to load, it wants to see DSR (pin 6) and CTS (pin 8) asserted high; if it does not detect these assertions, the driver does not load. The driver can be forced to load by disabling handshaking. Follow this procedure:

- Get to a DOS command prompt
- Change to the root directory
  - cd\ <ENTER>
- type edit autoexec.bat <ENTER>
- Find the elodev command line (typical elodev lines are shown below)
  - elodev 2210, 1, 9600, -c565 4322 56 4123 255 0
  - elodev 2310, 2, 9600
- Add a space, then a dash, the letter p and another dash
  - elodev 2210, 1, 9600, -c565 4322 56 4123 255 0 **-p-**
  - (for uncalibrated monitors it will look like this): elodev 2310, 2, 9600 **–p-**
- Save and exit
  - ALT-F, S, then ALT-F, X
- Reboot the machine
- Run elocalib and calibrate in the desired resolution
- Reboot the machine

Calibrating the touchscreen in DOS

You must calibrate the touchscreen for all video modes that your applications use. Consult your applications' documentation to determine these video resolutions. If you do not know which resolution to calibrate for, you may calibrate for all available resolutions. All resolutions available from your video card will be listed in the video resolution list displayed by elocalib.

- Get to a DOS command prompt
- Change to the touch directory
  - cd\touch <ENTER>
- Type elocalib <ENTER>
- List of video modes/resolutions is displayed
  - Arrow keys step through the list
  - ENTER key selects highlighted mode/resolution
- Press the C key to calibrate
  - Touch the upper left target; target jumps to lower right
  - Touch the lower left target; target jumps to upper right
  - Touch the upper right target
- Repeat to select additional video modes
- When desired modes have been calibrated, press the S key to save the points
- Press the Y key to select the default and the ENTER key to save the points
- Press the Y key to select the default and the ENTER key to update autoexec.bat

Calibrating in Windows: Open the Elo Touchscreen applet in Control Panel

Additional Elo DOS utilities and their uses: Page 13

COMDUMP

Comdump tests the basic hardware functionality for serial controllers. See http://www.elotouch.com/support/webtech/comdump.asp

TOUCHES

Touches displays touch coordinates and is useful for determining whether elodev is calibrated or not. Unlike comdump, touches uses elodev. Therefore, if elodev is calibrated, touches will display the touch coordinates in 80 column by 25 row format. If elodev is not calibrated, touches will display raw touch data.

Raw data: ELODEV not calibrated. Column/row data: ELODEV is calibrated

INFO

Gives parameters for the controller and other parameters. Best feature: Tells if elodev is not installed. Next best feature: Displays 0's for calibration if elodev is not calibrated.

TUTORIAL

A brief tutorial for touch operation. Best feature: If it runs, a mouse (or nomouse) driver and all Elo drivers are loaded and calibrated; if not, tells if mouse or monmouse drivers are not installed.

ELOCALIB

Allows calibration of touch for all available video modes under DOS.

- Use arrow keys to move through the video mode list
- Press the ENTER key to select the video mode
- Press the C key to calibrate
- Touch the upper left target; press the lower right target; press the upper right target
- Repeat the above operations to select and calibrate in other video modes
- Press the S key to save the calibration points
- Touch Yes or press Y
- Press ENTER to save to the elograph.cal file
- Touch Yes or press Y to update the calibration points in the elodev command line
- Press ENTER to save to the autoexec.bat file
    - NOTE! You must do the autoexec update to calibrate elodev; the machine must be rebooted to calibrate elodev