

ATTACHMENT E .

- USER'S MANUAL -

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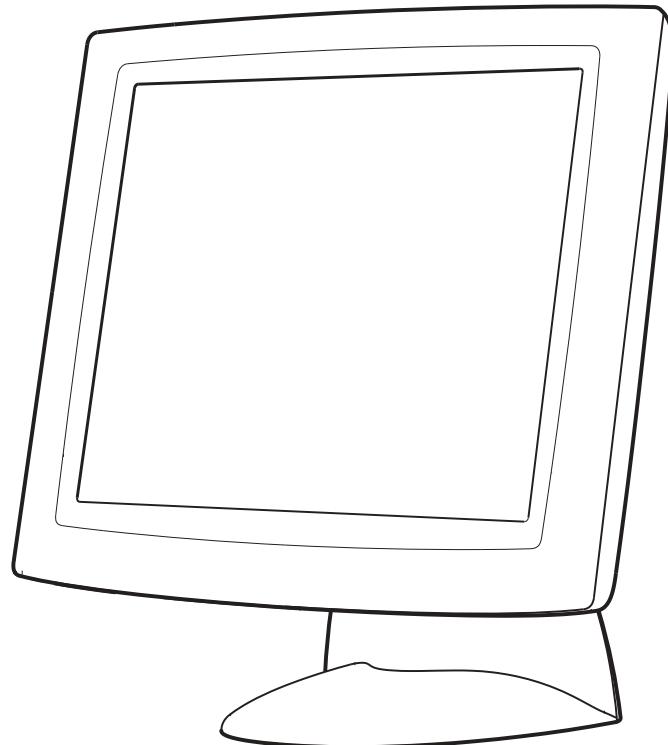


Elo Entuitive Touchmonitor

User Guide

For 19" LCD Desktop Touchmonitors
ET1925L Series

entuitive
Touchmonitors



Revision B

Elo Entuitive Touchmonitor User Guide

19" LCD Desktop Touchmonitor

ET1925L Series

entuitive
Touchmonitors

Revision B

P/N 008563

Elo TouchSystems, Inc.

1-900-ELOTOUCH
www.elotouch.com

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U.S.A.

U.S.FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT INFORMATION TO THE USER

NOTE : This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful Interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if Not installed and used in accordance with the instructions, may cause harmful Interference to radio communications.

However, there is no guarantee that interference will not occur in a particular Installation.

If this equipment does cause harmful interference to radio or television reception, Which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet of a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

Changes or modification not expressly approved by the party responsible for Compliance could void the user's authority to operate the equipment.
Connecting of peripherals requires the use of grounded shielded signal cables.

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INTRODUCTION

Congratulations on your purchase of an Elo TouchSystems Entuitive touchmonitor. Your new touchmonitor combines the reliable performance of Elo's touch technology with the latest advances in LCD display design. This combination of features creates a natural flow of information between a user and your touchmonitor.

Precautions

Follow all warnings, precautions and maintenance as recommended in this user's manual to maximize the life of your unit. See Appendix B for more information on touchmonitor safety.

About the Product

Your LCD Desktop Touchmonitor is a 19" SXGA TFT color display with the following features:

- Direct analog RGB or Digital RGB input
- 19" diagonal screen size
- 16.7 million displayable colors
- 1280 x 1024 resolution
- SXGA/XGA/SVGA/VGA/VESA/Mac compatible
- 30kHz~80kHz horizontal scan
- 56~75Hz refresh rate

- Auto adjustment capability
- High quality full screen re-scaling
- Multilingual OSD menus in six languages: English, French, German, Spanish, Italian and Japanese
- Serial or USB touch interface (USB requires Windows 98, 2000, Me and XP.)
- Built in speakers with volume, treble, bass and balance control through OSD
- Patented touch technology of Elo TouchSystems
- Power saving mode
- Stand with minimum 95° angle of tilt.
- Cable management device
- VESA flat panel monitor physical mounting interface (Both of 75 & 100mm)
- OSD and Power button lockouts
- Wall mountable with existing stand
- M5 threaded holes on bottom of stand for securing to desk or other surface, i.e. table top
- Cable strain reliefs for all cables

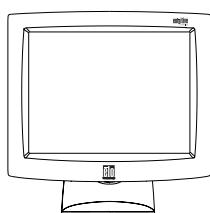
For full Product Specifications refer to Appendix C.

INSTALLATION AND SETUP

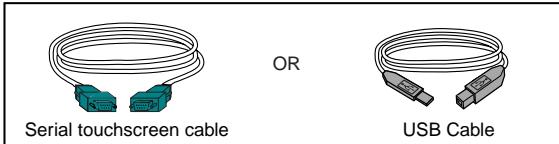
This chapter discusses how to install your LCD touchmonitor and how to install Elo TouchSystems driver software.

Unpacking Your Touchmonitor

Check that the following 10 items are present and in good condition:

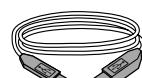


LCD Display



Serial touchscreen cable

OR



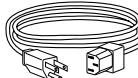
USB Cable



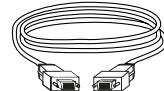
Speaker cable



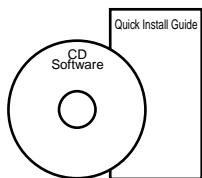
Video cable



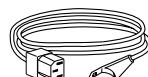
Monitor power cable
(US/Canada)



DVI-D video cable



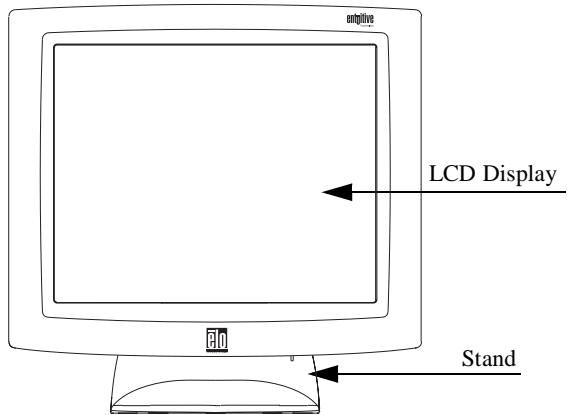
User Guide-on CD,
Quick Install Guide and software CD



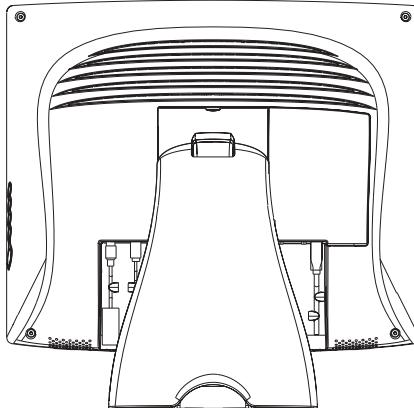
European monitor
power cable

Product Overview

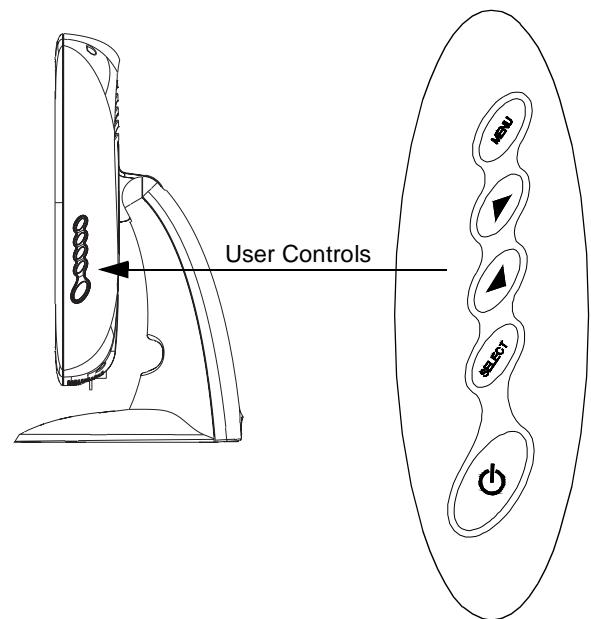
Main Unit



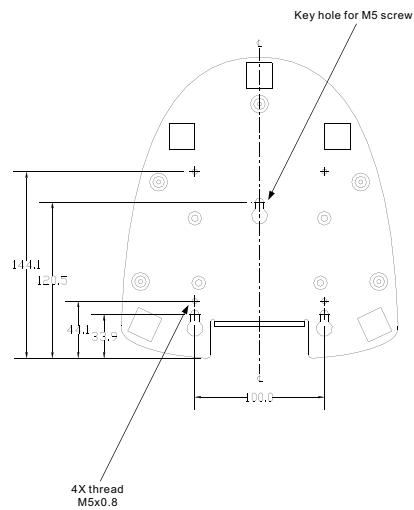
Rear View



Side View



Base Bottom View



Touch Interface Connection

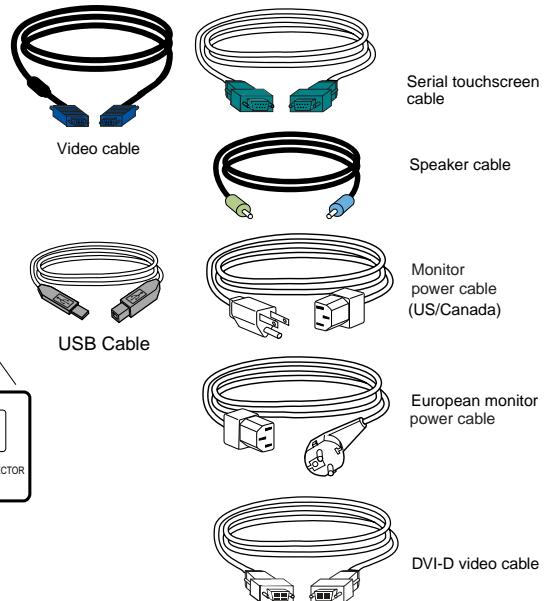
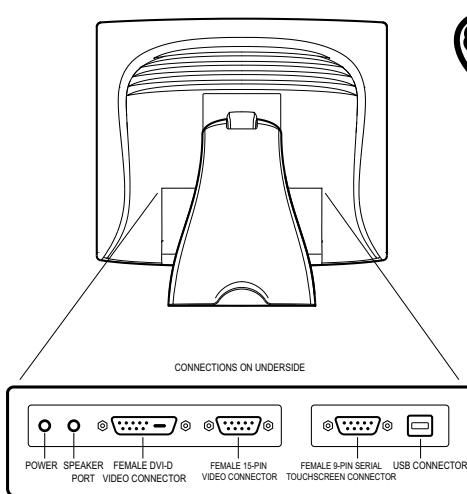
Your touchmonitor comes with one of the following touchscreen connector cables: **Serial** (RS-232) cable *or* **USB** cable. (For Windows 98, 2000, Me and XP systems only.)

To set up this display, please refer to the following figures and procedures:

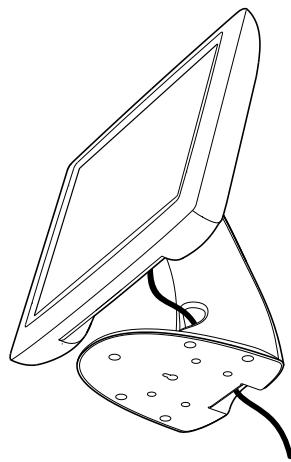
Serial or USB Connection

The following illustrations guide you step by step in connecting your touchmonitor using a serial or USB cable connection

CAUTION Before connecting the cables to your touchmonitor and PC, be sure that the computer and the touchmonitor are turned off.

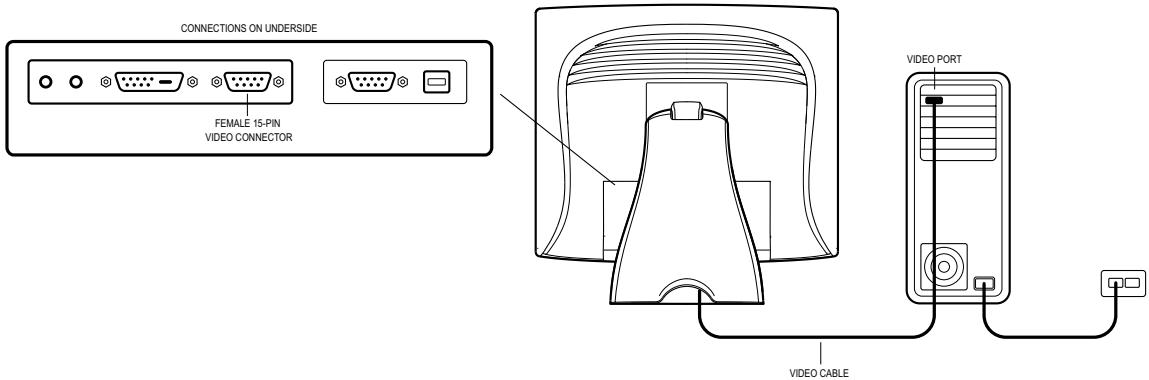


STEP 1-Routing the Cables



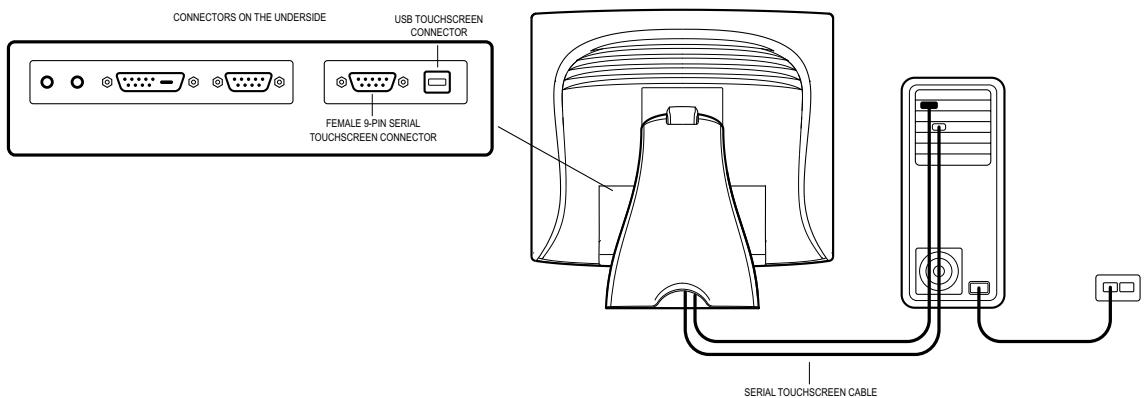
- Feed the cables through the cable port holes. Do not remove the rear cover.

STEP 2-Connecting the Video Cable



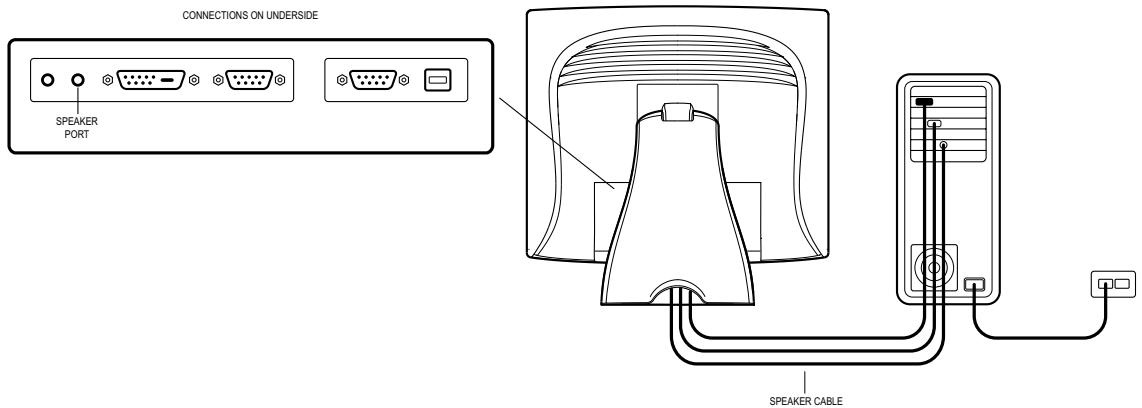
- Tilt the screen up and back to access the connection ports.
- Connect the 15-pin video cable (the ferrite bead end) or 24-pin DVI-D cable to the video port on your PC.
- Connect the other end of the video cable to the video connector on your touchmonitor by routing the cable through the hole in the stand.
- Secure the cable to your touchmonitor and PC by turning the screws on the connector clockwise.

STEP 3-Connecting the Serial or USB Touchscreen Cable



- Connect the female end of the serial (RS-232) cable to the serial port on your PC, or connect the USB touchscreen cable to the USB touchscreen connector on the back of your touchmonitor.
- Connect the male end of the cable to the serial touchscreen connector on your touchmonitor, or connect the other end of the USB touchscreen cable to your PC.
- Secure the cable to your touchmonitor and PC by turning the screws on the connector.

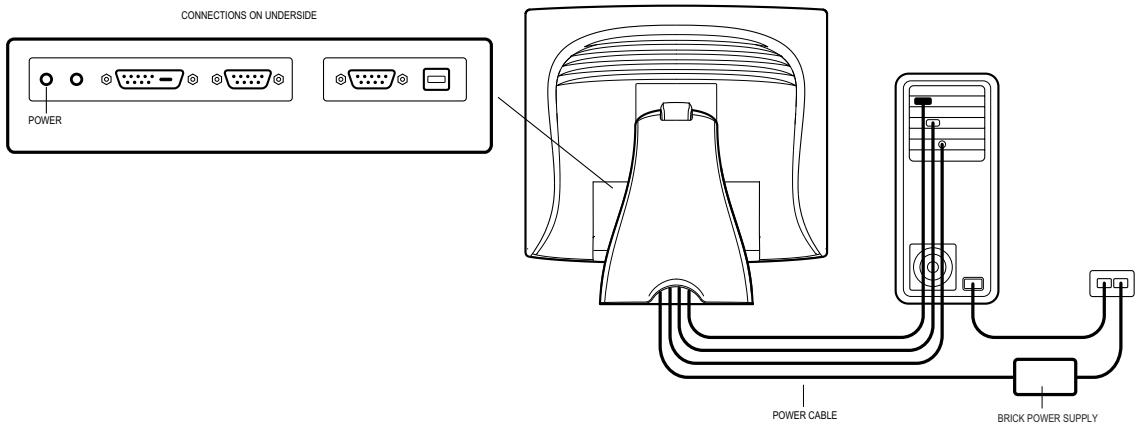
STEP 4-Connecting the Speaker Cable



NOTE: If you do not wish to connect the speaker cable, go to step 5.

- Connect the light blue end of the speaker cable to the light blue speaker port of the monitor (audio in).
- Connect the lime (light green) end of the speaker cable to the lime speaker port on the computer (audio out).

STEP 5-Connecting the Power Cable



Depending on where you live, you will use either the European or US/Canadian power cable.

- Connect the female end of the power cable to the Brick power supply.
- Connect the Brick power cable into the power port on the touchmonitor.
- Route the cable through the cable management channel.

NOTE: To protect your equipment against risk of damage from electrical surges in the power line, plug the touchmonitor's power cord into a surge protector, and then connect the surge protector to a grounded AC electrical outlet.

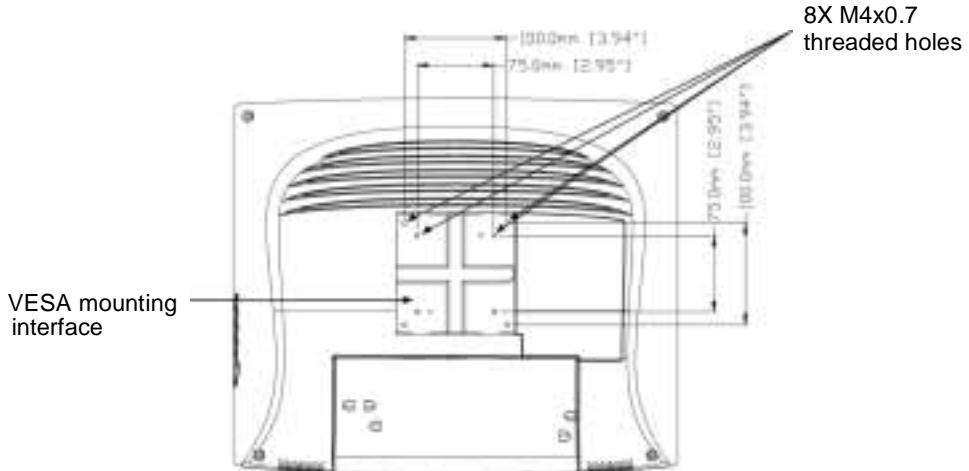
Optimizing the LCD Display

To ensure the LCD display works well with your computer, configure the display mode of your graphic card to make it less than or equal to 1024 x 768 resolution, and make sure the timing of the display mode is compatible with the LCD display. Refer to Appendix A for more information about resolution. Compatible video modes for your touchmonitor are listed in Appendix C.

VESA Mount on Your Touchmonitor

Your touchmonitor conforms to the VESA Flat Panel Monitor Physical Mounting Interface (FPM PMI™) Standard which defines a physical mounting interface for flat panel monitors, and corresponding standards for flat panel monitor mounting devices, such as wall and table arms. The VESA mounting interface is located on the back of your touchmonitor and is shipped pre-connected to the base.

You can also use the existing stand for wall mounting. For mounting dimensions, go to www.elotouch.com/products/displcds.asp and under Model, click on Elo Entuitive 1825L/1827L. Click on drawing MS500231.



NOTE: The above drawing displays the VESA mounting interface after the removal of the mounting cover and base.

Accessing the VESA Mounting Interface

If you want to convert your desktop monitor to a wall mount or kiosk monitor, follow the steps below to access the VESA mounting interface.

NOTE: You will need a screwdriver for the following steps.

- 1 Remove the back cover of the stand by pulling forward on the bottom cut-out.
- 2 Carefully lay the monitor face down. At the top of the mounting screw cover there are two slots. With a screwdriver, pry open the mounting screw cover. The cover fit is tight so remove it carefully.
- 3 When you remove the mounting screw cover, you will see four screws. Remove the screws to mount your monitor. Refer to the drawing on page 18.

The following companies provide VESA mounting devices compatible with your touchmonitor:

Ergotron
800-888-8458
651-681-7600
www.ergotron.com

GCX
800-228-2555
707-773-1100
www.gcx.com

Innovative Office Products
800-524-2744
610-253-9554
www.innov-office-prod.com

MRI
800-688-2414
www.mediarecovery.com

Mounting the Base

You can also mount your touchmonitor by using the keyholes in the base of the stand. These keyholes provide easy slide on mounting. You can also bolt your touchmonitor to a tabletop or other flat surface. Please refer to Appendix C for location and dimension of the mounting holes.

Installing the Driver Software

Elo TouchSystems provides driver software that allows your touchmonitor to work with your computer. Drivers are located on the enclosed CD-ROM for the following operating systems:

- Windows XP
- Windows 2000
- Windows Me
- Windows 98
- Windows 95
- Windows NT 4.0

Additional drivers and driver information for other operating systems are available on the Elo TouchSystems web site at www.elotouch.com.

Refer to the appropriate following section for driver installation instructions.

Installing the Serial Touch Driver

Installing the Serial Touch Driver for Windows XP, Windows 2000, Me, 95/98 and NT 4.0

NOTE: For Windows 2000 and NT 4.0 you must have administrator access rights to install the driver.

- 1 Insert the Elo CD-ROM in your computer's CD-ROM drive.
- 2 If the AutoStart feature for your CD-ROM drive is active, the system automatically detects the CD and starts the setup program.
- 3 Follow the directions on the screen to complete the driver setup for your version of Windows.
- 4 If the AutoStart feature is not active:
 - 5 Click **Start > Run**.
 - 6 Click the **Browse** button to locate the EloCd.exe program on the CD-ROM.
 - 7 Click **Open**, then **OK** to run EloCd.exe.
 - 8 Follow the directions on the screen to complete the driver setup for your version of Windows.

To install Windows 2000 and Windows XP, you must use the "update driver" method; you will not find a setup.exe file within the download.

Installing the Serial Touch Driver for MS-DOS and Windows 3.1

You must have a DOS mouse driver (MOUSE.COM) installed for your mouse if you wish to continue using your mouse along with your touchmonitor in DOS.

To install Windows 3.x and MS-DOS from Windows 95/98, follow the directions below:

- 1 Insert the Elo CD-ROM in your computer's CD-ROM drive.
- 2 From DOS, type d:\EloDos_W31 to change to the correct directory on the CD-ROM (your CD-ROM drive may be mapped to a different drive letter).
- 3 Type install and press **Enter** to start the installation.
- 4 Align the touchscreen.

You must have already completed Steps 1 and 2 before proceeding. Refer to Chapter 2 of the Elo DOS and Windows Driver Guide as necessary for additional installation information.

To run the INSTALL program:

- 1 Type INSTALL at the DOS prompt in the directory containing the driver install files.
- 2 INSTALL asks you to select the software to install. Then choose d:\EloDos_W31 from the displayed list.
- 3 INSTALL also asks you for the paths to use during installation, or you may use its defaults. INSTALL creates directories as necessary, and warns you if they exist.

If you are updating your software, you may wish to specify the paths containing the earlier versions, and overwrite the obsolete files. All executable programs are upward compatible. For a list of differences from each previous version of the drivers, be sure to select "Differences from Previous Versions" during the installation process.

INSTALL updates your AUTOEXEC.BAT file with the drivers you select. INSTALL makes a copy of your original AUTOEXEC.BAT file, called AUTOEXEC.OLD. If you already have Elo driver commands in your AUTOEXEC.BAT file, they will be commented out.

When INSTALL is finished, it leaves a file called GO.BAT in the subdirectory you specified. GO loads the touchscreen driver, runs the calibration program ELOCALIB, and gives you some final instructions.

If you are using Windows 3.1, you will also calibrate the touchscreen within Windows 3.1 with the Touchscreen Control Panel.

Installing the USB Touch Driver

Installing the USB Touch Driver for Windows XP, Windows 2000, Me and 98

- 1 Insert the Elo CD-ROM in your computer's CD-ROM drive.

If Windows 98, Windows Me or Windows 2000 starts the Add New Hardware Wizard:

- 2 Choose **Next**. Select "Search for the best driver for your device (Recommended)" and choose **Next**.
- 3 When a list of search locations is displayed, place a checkmark on "Specify a location" and use **Browse** to select the \EloUSB directory on the Elo CD-ROM.
- 4 Choose **Next**. Once the Elo TouchSystems USB touchscreen driver has been detected, choose **Next** again.
- 5 You will see several files being copied. Insert your Windows 98 CD if prompted. Choose **Finish**.

If Windows 98, Windows Me or Windows 2000 does not start the Add New Hardware Wizard:

NOTE: For Windows 2000 you must have administrator access rights to install the driver.

- 1 Insert the Elo CD-ROM in your computer's CD-ROM drive.

If the AutoStart feature for your CD-ROM drive is active, the system automatically detects the CD and starts the setup program.

- 2 Follow the directions on the screen to complete the driver setup for your version of Windows.

If the AutoStart feature is not active:

- 1 Click **Start > Run**.
- 2 Click the **Browse** button to locate the EloCd.exe program on the CD-ROM.
- 3 Click **Open**, then **OK** to run EloCd.exe.
- 4 Follow the directions on the screen to complete the driver setup for your version of Windows.

To install Windows 2000 and Windows XP, you must use the "update driver" method; you will not find a setup.exe file within the download.

OPERATION

About Touchmonitor Adjustments

Your touchmonitor will unlikely require adjustment. Variations in video output and application may require adjustments to your touchmonitor to optimize the quality of the display.

For best performance, your touchmonitor should be operating in native resolution, that is 1280 x 1024 at 80k-75 Hz. Use the Display control panel in Windows to choose 1280 x 1024 resolution.

Operating in other resolutions will degrade video performance. For further information, please refer to Appendix A.

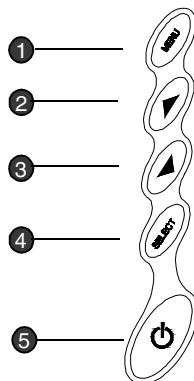
All adjustments you make to the controls are automatically memorized. This feature saves you from having to reset your choices every time you unplug or power your touchmonitor off and on. If there is a power failure your touchmonitor settings will not default to the factory specifications.

Using the On-Screen Display (OSD) Menus

All adjustments are made by using the on-screen display (OSD) menus. All menu items can be selected by using the buttons on the side bezel.

NOTE: OSD menu default is enabled.

Side Bezel Buttons



	Control	Function
①	 MENU	Menu Display/Exits the OSD menus.
②		Brightness/ Plus/Clockwise 1. Adjust brightness of the OSD. 2. Increase value of the adjustment item. 3. Select item clockwise.
③		MUTE/Minus Counter-clockwise 1. Enable/Disable MUTE functions. 2. Decrease value of the adjustment item. 3. Select item counter-clockwise.
④	 SELECT	Select- To select the adjustment items from the OSD menus. Auto- To activate the “Auto Adjustment” function to obtain an optimum image.
⑤		Power Switch Switches on/off the power of your touchmonitor.
	Enable/Disable	1. Press the Menu and buttons at the same time and hold for two seconds to enable/disable the OSD lock functions. OSD menu default is enabled. 2. Press the Menu and buttons at the same time and hold for two seconds to enable/disable the power lock function.

OSD Menu Function



Function	Symbol	Process
Contrast	◐	Controls the picture contrast
Auto Contrast		Automatically selects an appropriate contrast setting for the picture.
Brightness	☀	Controls the picture brightness.
Left/Right	◀▶	Controls the horizontal position.
Up/Down	↑↓	Controls the vertical position.
Recall defaults	⌂	Recall factory settings of the image parameters.
Color Temperature	🌡	In this menu you can select one of the default color temperatures 6500°K, 9300°K. Press the OSD button ▶ or ▲ or set color values individually using the "USER" option. To define the color values individually, select the "USER" option. You can switch between the setting options for R/G/B (red, green and blue foreground) using the OSD direction button. Select and specify the desired value by using the OSD button.

Information

Displays the current graphics mode.

**DSUB Analog/
DVI Digital**

Select the connection for the display: DSUB Analog (15-pin connector) or DVI Digital (24-pin connector). In this way you can connect your monitor to 2 computers (by simultaneously using both connectors) and switch between displays.

Clock

Controls the horizontal image size.

Phase

Controls the vertical and horizontal fine tuning.

Additional Color Settings**SATURATION**

Adjusts color intensity.

HUE

Adjusts color tint.

FLESH TONE

Adjusts the color so faces appear natural.

OSD Left/Right

Adjusts the horizontal position of the OSD menu.

OSD Up/Down

Adjusts the vertical position of the OSD menu.

OSD Timeout

Determines how long (in seconds) the OSD menu waits before closing automatically after no action has been performed.

Auto Adjust

Automatically selects the optional settings for image parameters (brightness, contrast, image position, phase etc).

Language

Selection of the OSD menu language: English, French, Italian, German, Spanish, Japanese.

Volume

Adjusts the volume of the monitor speakers.

Treble

Controls the treble of the monitor speakers.

Bass

Controls the bass of the monitor speakers.

Balance

Controls the balance between the left and right monitor speakers.

TROUBLESHOOTING

If you are experiencing trouble with your touchmonitor, refer to the following table. If the problem persists, please contact your local dealer or our service center.

Solutions to Common Problems

Problem	Suggestion(s)
No image appears on screen.	<p>Check that all the I/O and power connectors are properly connected as described in Chapter 2.</p> <p>Make sure the pins of the connectors are not crooked or broken.</p> <p>Test power supply by trying different cables, a different wall outlet or plug another appliance into the outlet.</p> <p>Make certain the video cable is properly connected and that it is not damaged. Check for bent pins on the cable connectors.</p> <p>Ensure that your computer and video card are properly configured. (Consult video card documentation.)</p>
“Out of Range” display	<p>Check to see if the resolution of your computer is higher than that of the LCD display.</p> <p>Reconfigure the resolution of your computer to make it less than or equal to 1280 x 1024. See Appendix A for more information on resolution.</p>
OSD/Power buttons don't respond	See page 3-20 for OSD enable/disable.

Image has vertical flickering line bars.	Use “Phase” to make an adjustment. Check and reconfigure the display mode of the vertical refresh rate of your graphic card to make it compatible with the LCD display.
Image is unstable and flickering	Use “CLOCK” to make an adjustment.
Image is scrolling	Make sure the VGA signal cable (or adapter) is well connected. Check and reconfigure the display mode of the vertical refresh rate of your graphic card to make it compatible with the LCD display.
Touch doesn't work	Make sure cable is securely attached at both ends.



NATIVE RESOLUTION

The native resolution of a monitor is the resolution level at which the LCD panel is designed to perform best. For the Elo LCD touchmonitor, the native resolution is 1280 x 1024 for the SXGA-18.1 inch size. In almost all cases, screen images look best when viewed at their native resolution. You can lower the resolution setting of a monitor but not increase it.

Input Video	19" LCD
640x480 (VGA)	Transforms input format to 1280x1024
800x600 (SVGA)	Transforms input format to 1280x1024
1024x768 (XGA)	Transforms input format to 1280x1024
1280x1024 (SXGA)	Displays in Native Resolution

The native resolution of an LCD is the actual number of pixels horizontally in the LCD by the number of pixels vertically in the LCD. LCD resolution is usually represented by the following symbols:

VGA	640x480
SVGA	800x600
XGA	1024x768
SXGA	1280x1024
UXGA	1600x1200

As an example, a SVGA resolution LCD panel has 800 pixels horizontally by 600 pixels vertically. Input video is also represented by the same terms. XGA input video has a format of 1024 pixels horizontally by 768 pixels vertically. When the input pixels contained in the video input format match the native resolution of the panel, there is a one to one correspondence of mapping of input video pixels to LCD pixels. As an example, the pixel in column 45 and row 26 of the input video is in column 45 and row 26 of the LCD. For the case when the input video is at a lower resolution than the native resolution of the LCD, the direct correspondence between the video pixels and the LCD pixels is lost. The LCD controller can compute the correspondence between video pixels and LCD pixels using algorithms contained on its controller. The accuracy of the algorithms determines the fidelity of conversion of video pixels to LCD pixels. Poor fidelity conversion can result in artifacts in the LCD displayed image such as varying width characters.

B

TOUCHMONITOR SAFETY

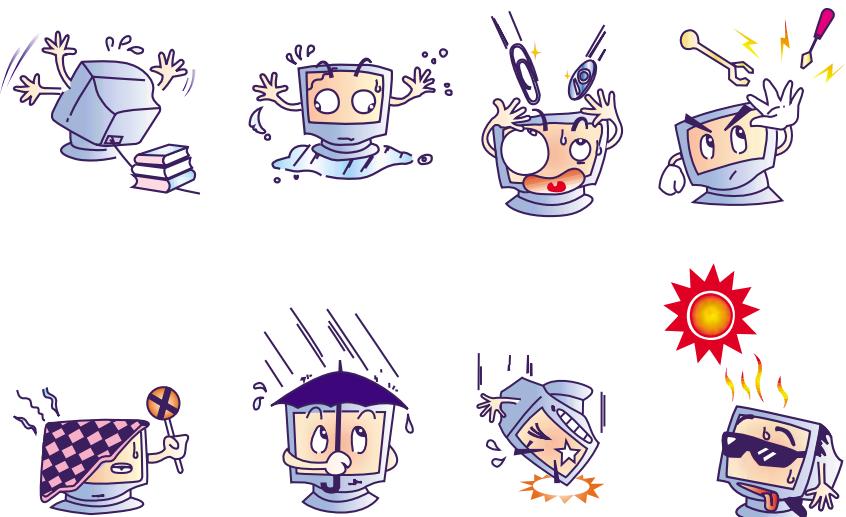
This manual contains information that is important for the proper setup and maintenance of your touchmonitor. Before setting up and powering on your new touchmonitor, read through this manual, especially Chapter 2 (Installation), and Chapter 3 (Operation).

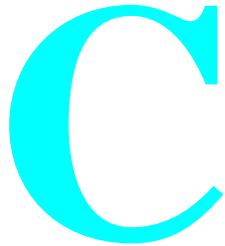
- 1 To reduce the risk of electric shock, follow all safety notices and never open the touchmonitor case.
- 2 Turn off the product before cleaning.
- 3 Your new touchmonitor is equipped with a 3-wire, grounding power cord. The power cord plug will only fit into a grounded outlet. Do not attempt to fit the plug into an outlet that has not been configured for this purpose. Do not use a damaged power cord. Use only the power cord that comes with your Elo TouchSystems Touchmonitor. Use of an unauthorized power cord may invalidate your warranty.
- 4 The slots located on the sides and top of the touchmonitor case are for ventilation. Do not block or insert anything inside the ventilation slots.
- 5 It is important that your touchmonitor remains dry. Do not pour liquid into or onto your touchmonitor. If your touchmonitor becomes wet do not attempt to repair it yourself.

Care and Handling of Your Touchmonitor

The following tips will help keep your Elo Entuitive touchmonitor functioning at the optimal level.

- To avoid risk of electric shock, do not disassemble the brick supply or display unit cabinet. The unit is not user serviceable. Remember to unplug the display unit from the power outlet before cleaning.
- Do not use alcohol (methyl, ethyl or isopropyl) or any strong dissolvent. Do not use thinner or benzene, abrasive cleaners or compressed air.
- To clean the display unit cabinet, use a cloth lightly dampened with a mild detergent.
- Avoid getting liquids inside your touchmonitor. If liquid does get inside, have a qualified service technician check it before you power it on again.
- Do not wipe the screen with a cloth or sponge that could scratch the surface.
- To clean the touchscreen, use window or glass cleaner. Put the cleaner on the rag and wipe the touchscreen. *Never* apply the cleaner directly on the touchscreen.





TECHNICAL SPECIFICATIONS

Compatible Video Modes

Your Elo Entuitive touchmonitor is compatible with the following standard video modes:

Mode	Resolution	H. Frequency(kHz)	V. Frequency(Hz)
VGA	720 x 350	31,470	70
VGA	720 x 400	31,470	70
VGA	640 x 480	31,470	60
MAC	640 x 480	35,000	75
VESA	640 x 480	37,860	72
VESA	640 x 480	37,500	75
VESA	800 x 600	35,160	56
VESA	800 x 600	37,880	60
VESA	800 x 600	46,880	75
VESA	800 x 600	48,080	72
MAC	832 x 624	49,720	75
SUN	1024 x 768	52,450	65
VESA	1024 x 768	48,360	60
VESA	1024 x 768	56,480	70
VESA	1024 x 768	60,020	75
SXGA	1280 x 1024	64,000	60
SXGA	1280x 1024	80,000	75
SXGA	1152x 864	67,500	75
SXGA	1280x 960	60,000	60

Touchmonitor Specifications

Table C.1 19" LCD Touchmonitor (ET192XL-XXxA*) Specifications

Display Type	Active matrix, thin film transistor (TFT), liquid crystal display	
Size	19.0-inch diagonal 359.040 x 287.232 mm useful screen area	
Pixel Format	1280 x 1024	
Touchscreen	0.125-inch IntelliTouch and AccuTouch, anti-glare IntelliTouch or AccuTouch	
Colors	16 million with dithering	
Display Brightness	IntelliTouch: 210 cd/m ² Max.	AccuTouch: 188 cd/m ² Max.
Back-light Lamp Life	40,000 hours at 50% brightness typical	
Viewing Angle	Horizontal	-85~85 or 170 degrees total
	Vertical	-85~85 or 170 degrees total
Contrast Ratio	400:1 typical	
Display Response Time	16 ms (tr) /7 ms (tf)	
Environmental	Operating Temp	10°C to 40°C
	Storage Temp	-20°C to +60°C
	Humidity	80% non-condensing AT 95% IT
Mechanical	Weight	28 lbs. maximum approx. weight for IntelliTouch and AccuTouch
	Size	See drawings on page C-34.
Electrical	Input Video	VGA/SVGA/XGA/SXGA analog or digital video
	Input Power	Main Adapter:100-240VAC,50/60Hz /LCD:12VDC 4A
	Power Dissipation	Universal
Speakers	8 ohms, 2 watt per speaker	
Agencies	cULus, TUV-GS, TUV-AR/S, CB FCC-B, CE, VCCI, C-Tick, VCCI	

Table C.2 IntelliTouch Touchmonitor Specifications

Mechanical	
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). Equates to less than $\pm 1\%$.
Touchpoint Density	More than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²).
Touch Activation Force	Typically less than 3 ounces (85 grams).
Surface Durability	Surface durability is that of glass, Mohs' hardness rating of 7.
Expected Life Performance	No known wear-out mechanism, as there are no layers, coatings, or moving parts. IntelliTouch technology has been operationally tested to more than 50 million touches in one location without failure, using a stylus similar to a finger.
Sealing	Unit is sealed to protect against splashed liquids, dirt, and dust.
Optical	
Light Transmission (per ASTM D1003)	90%
Visual Resolution	All measurements made using USAF 1951 Resolution Chart, under 30X magnification, with test unit located approximately 1.5 in (38 mm) from surface of resolution chart. Clear surface: Excellent, with no noticeable degradation. Antiglare surface: 6:1 minimum.
Gloss (per ASTM D2457 using a 60-degree gloss meter)	Antiglare surface: Curved: 60 ± 20 gloss units or 75 ± 15 gloss units.

Environmental

Chemical Resistance

The active area of the touchscreen is resistant to all chemicals that do not affect glass, such as:

Acetone
Toluene
Methyl ethyl ketone
Isopropyl alcohol
Methyl alcohol
Ethyl acetate
Ammonia-based glass cleaners
Gasoline
Kerosene
Vinegar

Electrostatic Protection (per EN 61 000-4-2, 1995)

Meets Level 4 (15 kV air/8 kV contact discharges).

Table C.3 AccuTouch Touchmonitor Specifications

Mechanical

Construction

Top: Polyester with outside hard-surface coating with clear or antiglare finish.

Inside: Transparent conductive coating.

Bottom: Glass substrate with uniform resistive coating. Top and bottom layers separated by Elo-patented separator dots.

Positional Accuracy

Standard deviation of error is less than 0.080 in. (2.03 mm). This equates to less than $\pm 1\%$.

Touchpoint Density

More than 100,000 touchpoints/in² (15,500 touchpoints/cm²).

Touch Activation Force

Typically less than 4 ounces (113 grams).

Surface Durability

Meets Taber Abrasion Test (ASTM D1044), CS-10F wheel, 500 g. Meets pencil hardness 3H.

Expected Life Performance

AccuTouch technology has been operationally tested to greater than 35 million touches in one location without failure, using a stylus similar to a finger.

Optical

Light Transmission (per ASTM D1003)

Typically 75% at 550-nm wavelength (visible light spectrum).

Visual Resolution

All measurements made using USAF 1951 Resolution Chart, under 30 X magnification, with test unit located approximately 1.5 in. (38 mm) from surface of resolution chart.

Antiglare surface: 6:1 minimum.

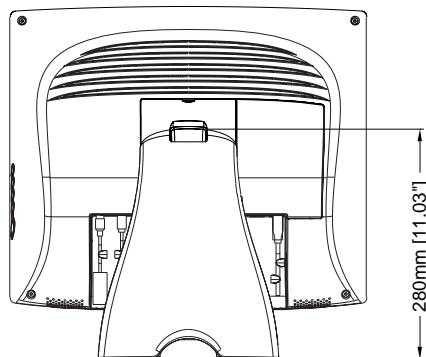
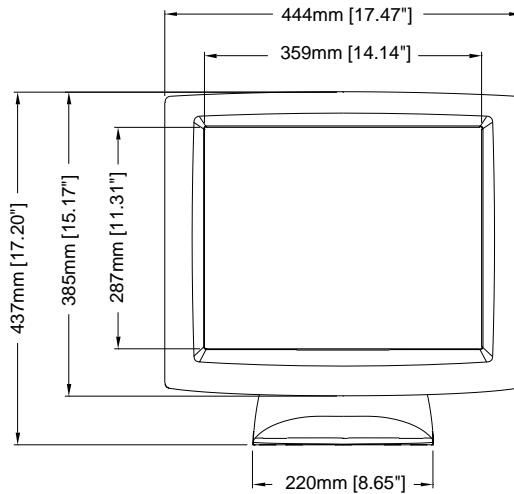
Haze (per ASTM D1003)

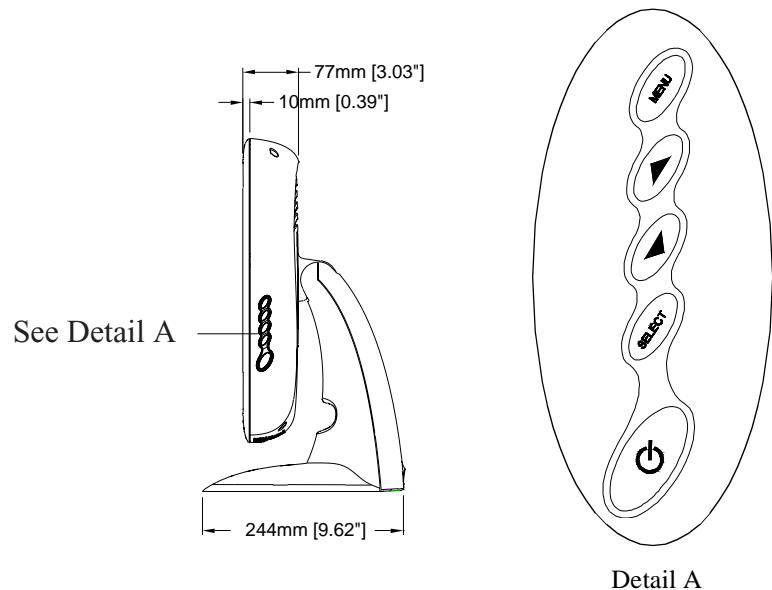
Antiglare surface: Less than 15%.

Gloss (per ASTM D2457)

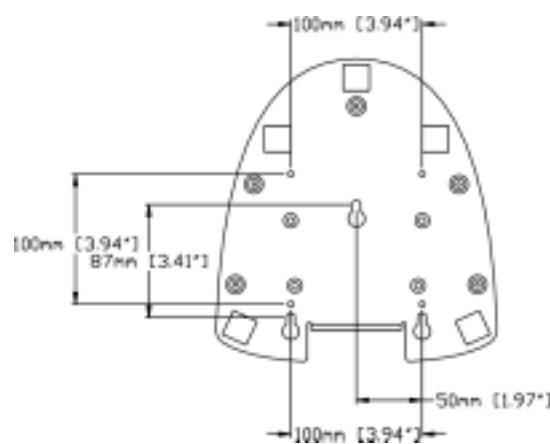
Antiglare surface: 90 ± 20 gloss units tested on a hard-coated front surface.

19" LCD Touchmonitor (ET192XL-XXxA*) Dimensions





Detail A



WARRANTY

Except as otherwise stated herein or in an order acknowledgment delivered to Buyer, Seller warrants to Buyer that the Product shall be free of defects in materials and workmanship. The warranty for the touchmonitors and components of the product are: 3 years monitor, 10 years IntelliTouch screen, 5 years Accu- Touch screen, 5 years Controller.

Seller makes no warranty regarding the model life of components. Seller's suppliers may at any time and from time to time make changes in the components delivered as Products or components.

Buyer shall notify Seller in writing promptly (and in no case later than thirty (30) days after discovery) of the failure of any Product to conform to the warranty set forth above; shall describe in commercially reasonable detail in such notice the symptoms associated with such failure; and shall provide to Seller the opportunity to inspect such Products as installed, if possible. The notice must be received by Seller during the Warranty Period for such product, unless otherwise directed in writing by the Seller. Within thirty (30) days after submitting such notice, Buyer shall package the allegedly defective Product in its original shipping carton(s) or a functional equivalent and shall ship to Seller at Buyer's expense and risk.

Within a reasonable time after receipt of the allegedly defective Product and verification by Seller that the Product fails to meet the warranty set forth above, Seller shall correct such failure by, at Seller's options, either (i) modifying or repairing the Product or (ii) replacing the Product. Such modification, repair, or replacement and the return shipment of the Product with minimum insurance to Buyer shall be at Seller's expense. Buyer shall bear the risk of loss or damage in transit, and may insure the Product. Buyer shall reimburse Seller for transportation cost incurred for Product returned but not found by Seller to be defective. Modification or repair, of Products may, at Seller's option, take place either at Seller's facilities or at Buyer's premises. If Seller is unable to modify, repair, or replace a Product to conform to the warranty set forth above, then Seller shall, at Seller's option, either refund to Buyer or credit to Buyer's account the purchase price of the Product less depreciation calculated on a straight-line basis over Seller's stated Warranty Period.

THESE REMEDIES SHALL BE THE BUYER'S EXCLUSIVE REMEDIES FOR BREACH OF WARRANTY. EXCEPT FOR THE EXPRESS WARRANTY SET FORTH ABOVE, SELLER GRANTS NO OTHER WARRANTIES, EXPRESS OR IMPLIED BY STATUTE OR OTHERWISE, REGARDING THE PRODUCTS, THEIR FITNESS FOR ANY PURPOSE, THEIR QUALITY, THEIR MERCHANTABILITY, THEIR NONINFRINGEMENT, OR OTHERWISE. NO EMPLOYEE OF SELLER OR ANY OTHER PARTY IS AUTHORIZED TO MAKE ANY WARRANTY FOR THE GOODS OTHER THAN THE WARRANTY SET FORTH HEREIN. SELLER'S LIABILITY UNDER THE WARRANTY SHALL BE LIMITED TO A REFUND OF THE PURCHASE PRICE OF THE PRODUCT. IN NO EVENT SHALL SELLER BE LIABLE FOR THE COST OF PROCUREMENT OR INSTALLATION OF SUBSTITUTE GOODS BY BUYER OR FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES.

Buyer assumes the risk and agrees to indemnify Seller against and hold Seller harmless from all liability relating to (i) assessing the suitability for Buyer's intended use of the Products and of any system design or drawing and (ii) determining the compliance of Buyer's use of the Products with applicable laws, regulations, codes, and standards. Buyer retains and accepts full responsibility for all warranty and other claims relating to or arising from Buyer's products, which include or incorporate Products or components manufactured or supplied by Seller. Buyer is solely responsible for any and all representations and warranties regarding the Products made or authorized by Buyer. Buyer will indemnify Seller and hold Seller harmless from any liability, claims, loss, cost, or expenses (including reasonable attorney's fees) attributable to Buyer's products or representations or warranties concerning same.

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USA
Elo TouchSystems, Inc.
6500 Kaiser Drive
Fremont, CA 94555-3613
(800) ELO-TOUCH (800-356-8682)
Tel 510-739-5016
Fax 510-790-0627
eloinfo@elotouch.com

Germany
Elo TouchSystems GmbH & Co. KG
Haidgraben 6
D-85521 Ottobrunn
Germany
Tel +49(89)60822-0
Fax +49(89)60822-150
elosales@elotouch.com

Belgium
Elo TouchSystems
Diestsesteenweg 692
B-3010 Kessel-Lo
Belgium
Tel +32(16)35-2100
Fax +32(16)35-2101
elosales@elotouch.com

Japan
Touch Panel Systems K.K.
Sun Homada Bldg. 2F
1-19-20 Shin-Yokohama,
Kanagawa 222-0033
Japan
Tel +81(45)478-2161
Fax +81(45)478-2180
www.tps.co.jp

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TOUCHSYSTEMS