

# Elo Entuitive Touchmonitor User Guide

For 15" LCD Kiosk Touchmonitor



**Version 1.0**

**DOC# SW500090**

**P/N 008521**

**1500L Series**

**Models**

ET1545L-6SWA-1

ET1545L-6UWA-1

ET1545L-8SWA-1

ET1545L-8UWA-1

**Elo TouchSystems, Inc.**

**1-800-ELOTOUCH**

**[www.elotouch.com](http://www.elotouch.com)**





# ***Elo Entuitive Touchmonitor User Guide***

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Version 1.0*

## *1500L Series Models*

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*ETL1545L-6UWA-1*

*ETL1545L-8SWA-1*

*ETL1545L-8UWA-1*





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# Chapter 1

## Introduction

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Congratulations on your purchase of an Elo TouchSystems Entuitive LCD touchmonitor. Your new high-resolution 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 Kiosk Touchmonitor is a 15.1" XGA TFT color display with the following features:

- ☐ Direct analog RGB input
- ☐ 15.1" diagonal screen size
- ☐ 16.7 million displayable colors
- ☐ 1024 x 768 resolution
- ☐ XGA/ SVGA/ VGA/ VESA/ Mac/ NEC PC-98 compatible
- ☐ 24~60kHz horizontal scan
- ☐ 56~75Hz high refresh rate
- ☐ Auto adjustment capability
- ☐ High quality full screen re-scaling
- ☐ Multilingual OSD menus in four languages: English, German, Spanish, and Japanese

- ☐ VESA DDC 1/2B data communication
- ☐ VESA DPMS power saving
- ☐ VESA flat panel monitor physical mounting interface (75mm)

For full Product Specifications refer to Appendix C.



## Chapter 2

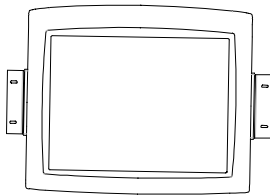
# Installation and Setup

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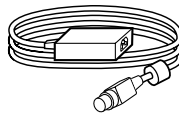
This chapter discusses how to install your LCD touchmonitor and how to install Elo TouchSystems driver software.

## Unpacking Your Touchmonitor

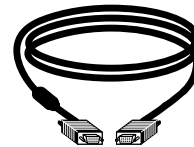
Check that the following 11 items are present and in good condition:



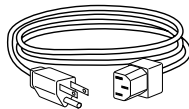
LCD Display



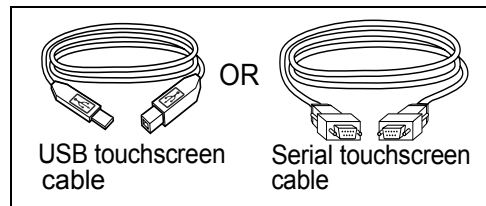
Brick power supply



Video cable

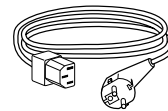


Monitor power cable (US/Canada)

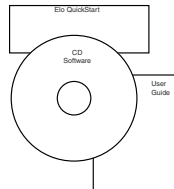


USB touchscreen cable

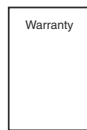
Serial touchscreen cable



European monitor power cable



User's Guide, Quick Start Guide and software CD



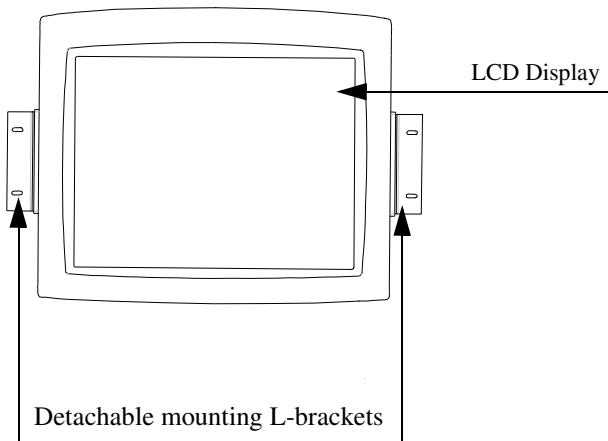
Warranty Card



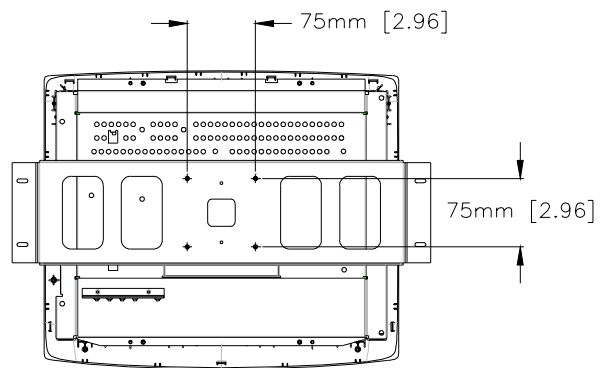
Mounting L brackets (2)

## Product Overview

### Main Unit

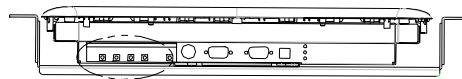


### Rear View



## Side View

User Controls



See Detail A



MENU



DOWN



UP



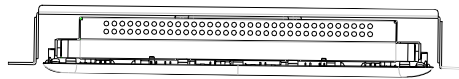
SELECT



POWER

Detail A

## Bottom View



## Attaching the L-Brackets

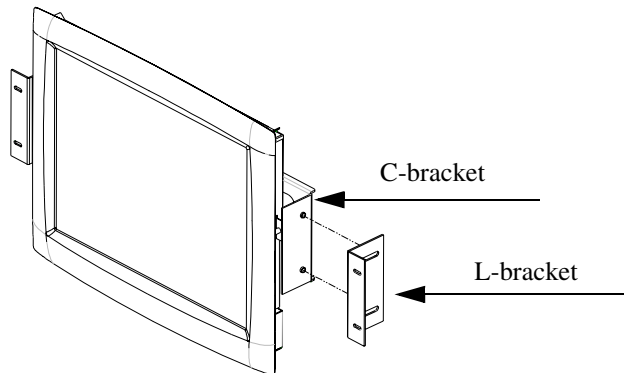
Depending on your mounting scheme, use the L-brackets or the VESA 75mm standard holes located on the back of the kiosk monitor. See page 15 for VESA mounting information.

**Note:** *You will need a screwdriver to attach the L-brackets.*

Your kiosk touchmonitor comes with a mounting bracket (C-bracket) attached at the back. Included are two L-brackets (and four screws) that attach to both ends of the C-bracket for additional mounting options.

To attach the L-brackets:

1. Lay the monitor face down.
2. Place the long end of the L-bracket against the end of the mounting C-bracket. Line up the two holes of the L-bracket with the two holes of the C-bracket. See the illustration below.



3. Place two screws in the holes and with the screwdriver, screw them in to secure the bracket.
4. Repeat steps 2 and 3 to attach the other L-bracket to the other side of the mounting bracket.

# Touch Interface Connection

*Note: Your interface cables may have been pre-connected to your monitor at the factory.*

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

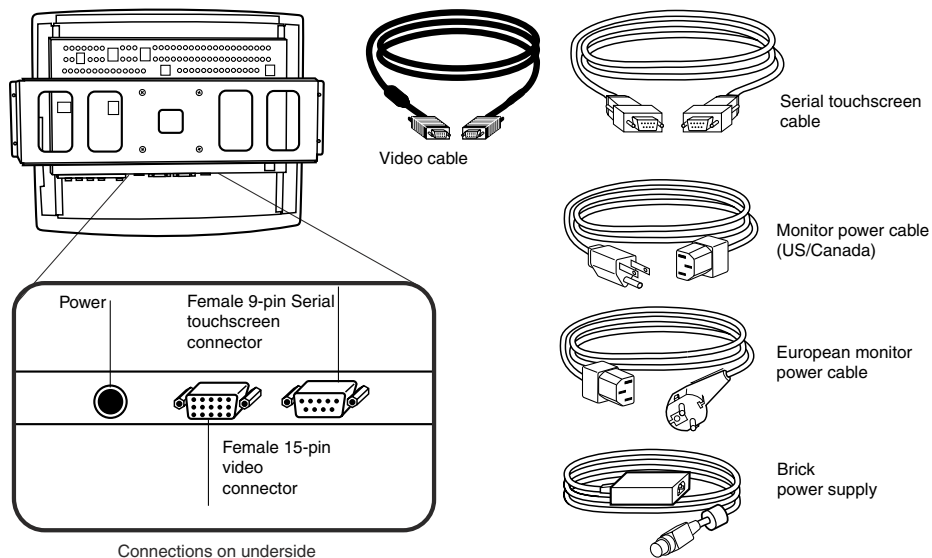
To setup this display, please refer to the following figures and procedures:

## Serial Connection

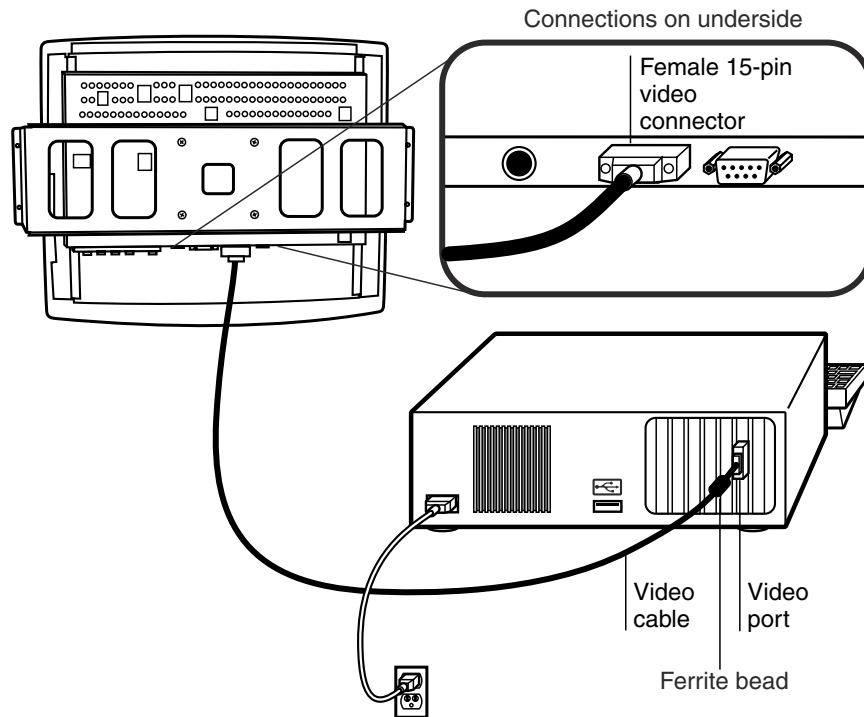
The following illustrations guide you step by step in connecting your touchmonitor using a serial cable connection.



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

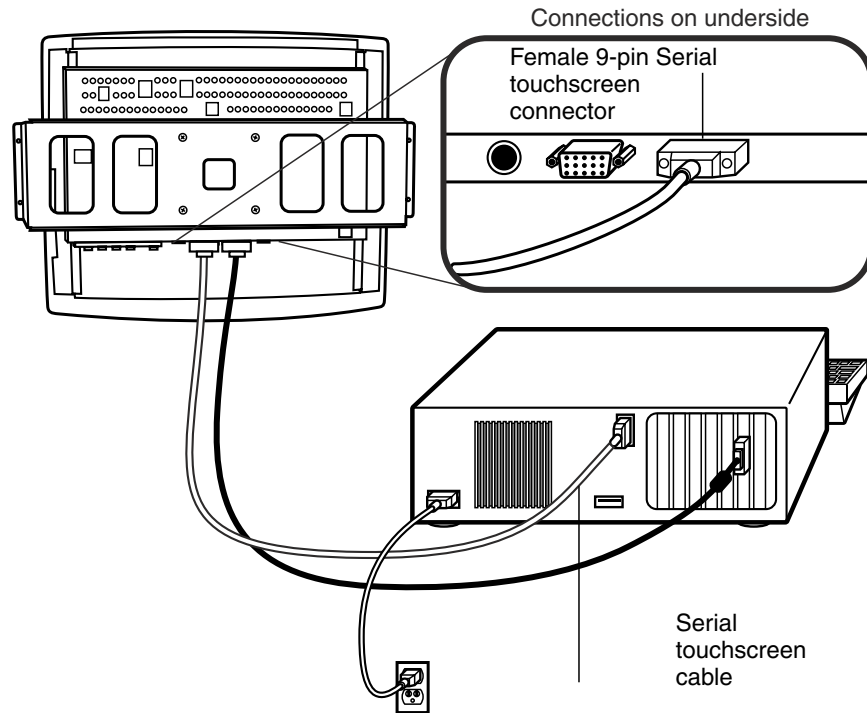


## STEP 1-Connecting the Video Cable



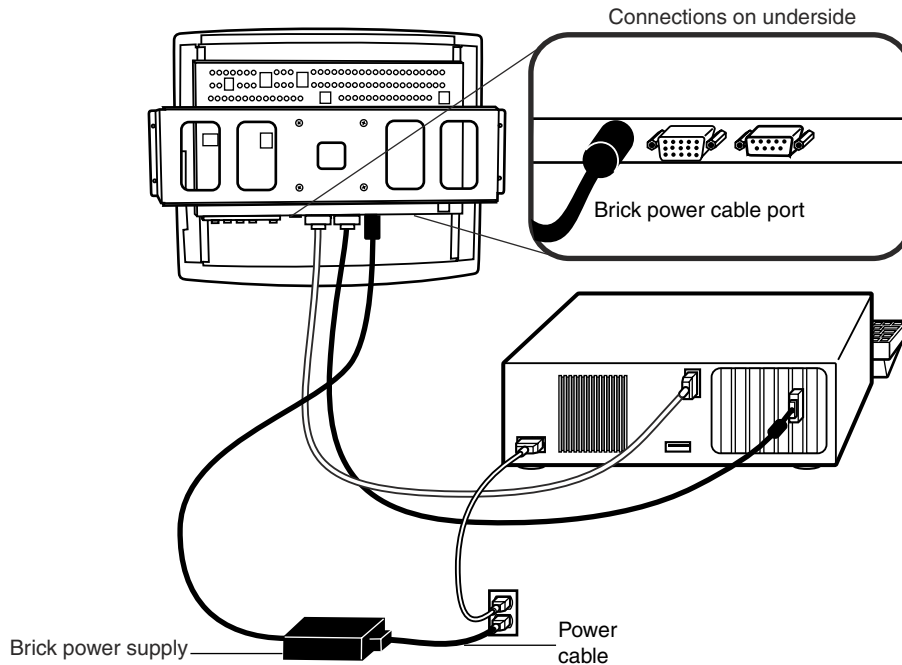
- ☐ Connect the 15-pin video cable (the ferrite bead end) to the video port on your PC.
- ☐ Connect the other end of the video cable to the video connector on your touchmonitor.
- ☐ Secure the cable to your touchmonitor and PC by turning the screws on the connector clockwise.

## STEP 2-Connecting the Serial Touchscreen Cable



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

## STEP 3-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 supply into the power port on the touchmonitor.

*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 (three-pronged) AC electrical outlet.*

- ☐ Power on your PC then your touchmonitor. After a brief pause the picture should appear.



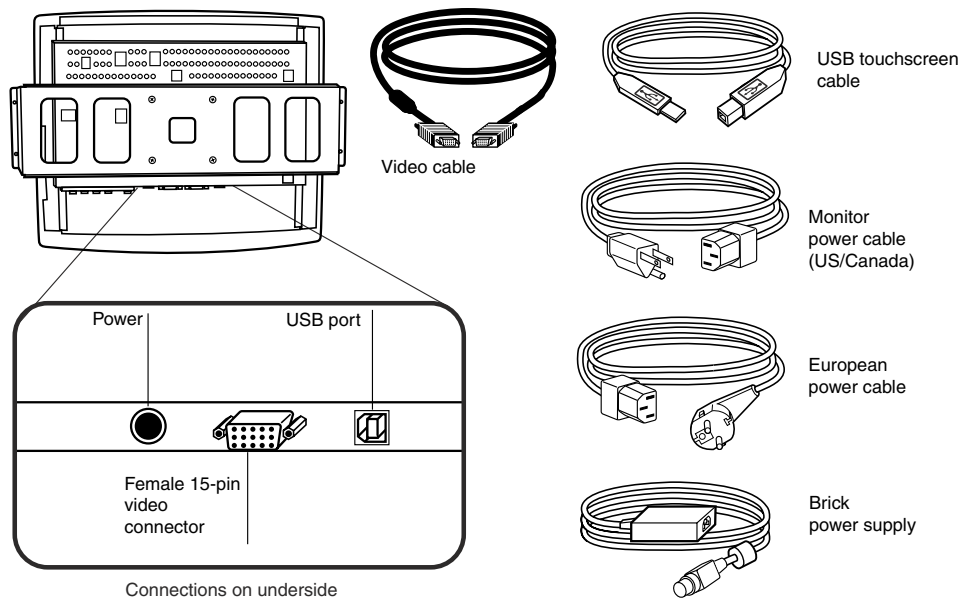
## USB Connection

**Note:** A USB connection can only be used if your PC is running Windows 98 or Windows 2000.

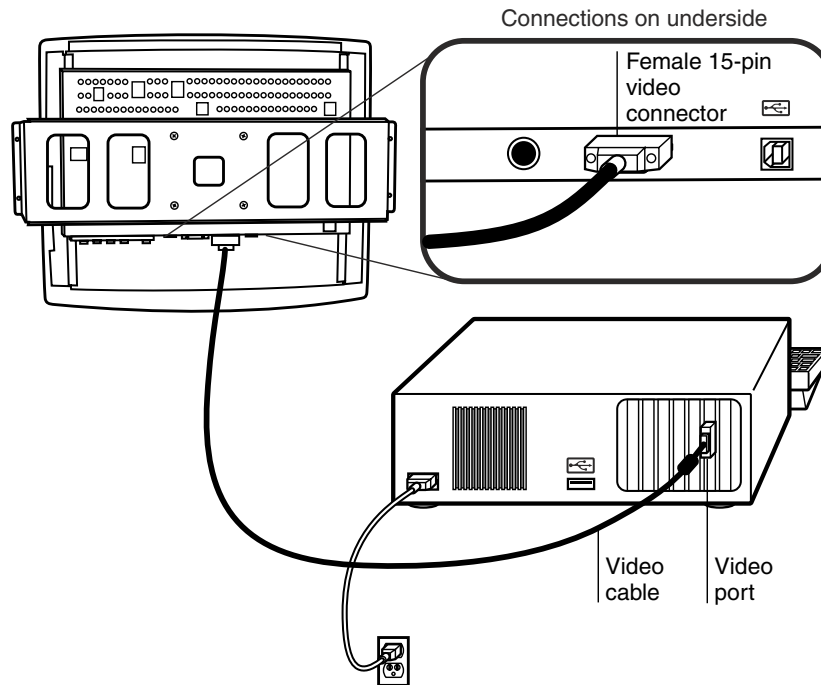
The following illustrations guide you step by step in connecting your touchmonitor using a USB cable connection.



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

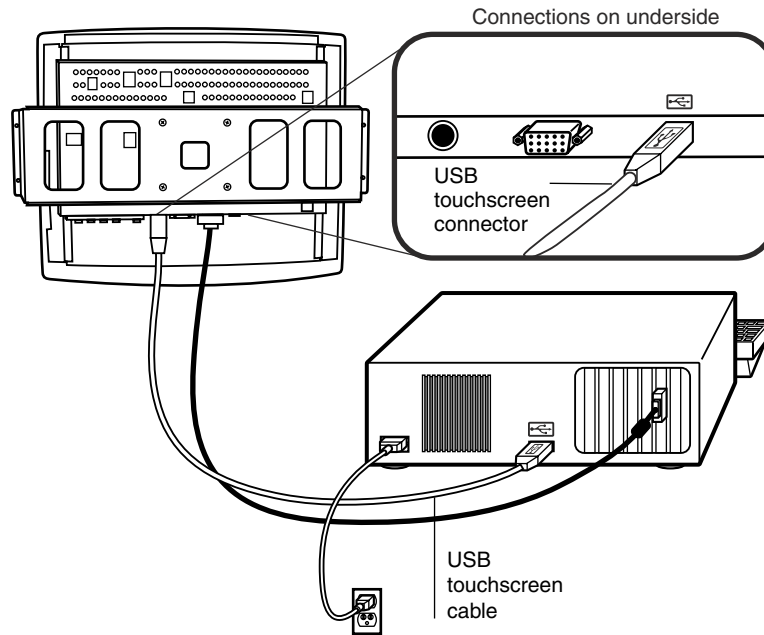


## STEP 1-Connecting the Video Cable



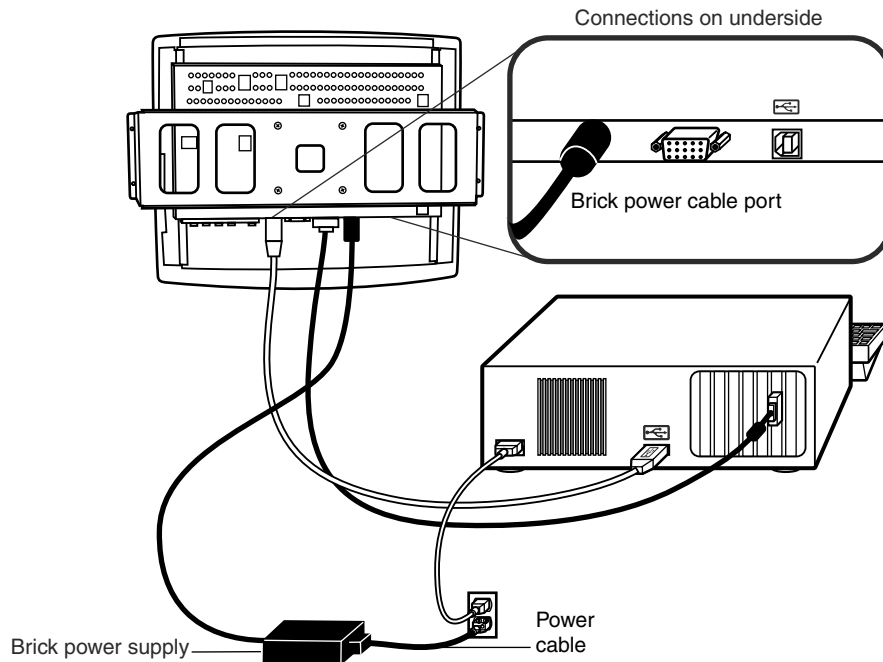
- ☐ Connect the 15-pin video cable (the ferrite bead end) to the video port on your PC.
- ☐ Connect the other end of the video cable to the video connector on your touchmonitor.
- ☐ Secure the cable to your touchmonitor and PC by turning the screws on the connector clockwise.

## STEP 2-Connecting the USB Touchscreen Cable



- ❑ **Connect the USB touchscreen cable to the USB touchscreen connector on the touchmonitor.**
- ❑ **Connect the other end of the USB cable to your PC.**
- ❑ **The touchscreen cable connectors should fit snugly into the connectors on your touchmonitor and PC.**

## STEP 3-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.

*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 (three-pronged) AC electrical outlet.*

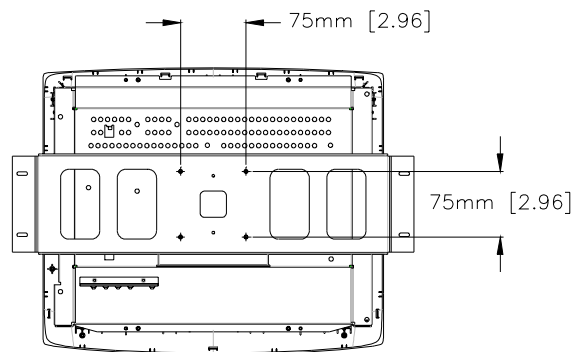
- ☐ Power on your PC then your touchmonitor. After a brief pause the picture should appear.

## 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 kiosk touchmonitor comes with a VESA standard mounting bracket (C bracket) attached at the back. Included are two sliders (L brackets) that attach to both ends of the C bracket for additional mounting options. Your touchmonitor conforms to the VESA Flat Panel Monitor Physical Mounting Interface (FPMPMI™) 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 following companies provide VESA mounting devices compatible with your touchmonitor:.

Ergotron  
800-888-8458  
651-681-7600  
[www.ergotron.com](http://www.ergotron.com)

Innovative Office Products  
800-524-2744  
610-253-9554  
[www.innov-office-prod.com](http://www.innov-office-prod.com)

GCX  
800-228-2555  
707-773-1100  
[www.gcx.com](http://www.gcx.com)

MRI  
800-688-2414  
[www.mediarecovery.com](http://www.mediarecovery.com)

## 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 2000
- ☐ Windows 98
- ☐ Windows 95
- ☐ Windows NT 4.0
- ☐ Windows 3.x
- ☐ MS-DOS 2.x or later

Additional drivers and driver information for other operating systems (including OS/2, Macintosh and Linux) are available on the Elo TouchSystems web site at [www.elotouch.com](http://www.elotouch.com).

Your Elo touchmonitor is plug-and-play compliant. Information on the video capabilities of your touchmonitor is sent to your video display adapter when Windows starts. If Windows detects your touchmonitor, follow the instructions on the screen to install a generic plug-and-play monitor.

Refer to the appropriate following section for driver installation instructions.

## Installing the Serial Touch Driver

### Installing the Serial Touch Driver for Windows 2000, 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.

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 touch.exe program on the CD-ROM.
3. Click **Open**, then **OK** to run touch.exe.
4. Follow the directions on the screen to complete the driver setup for your version of Windows.

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

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:\EloDW 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:\EloDW 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 align the touchscreen within Windows 3.1 with the Touchscreen Control Panel.

## Installing the USB Touch Driver

### Installing the USB Touch Driver for Windows 98 and Windows 2000

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

If Windows 98 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 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 touch.exe program on the CD-ROM.
3. Click **Open**, then **OK** to run touch.exe.
4. Follow the directions on the screen to complete the driver setup for your version of Windows.

# Chapter 3

## Operation

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### About Touchmonitor Adjustments

Your touchmonitor will likely require adjustment. Variations in video output and application will require you to adjust your touchmonitor to optimize the quality of the display.

For best performance, your monitor should be operating in native resolution, that is 1024 x 768 at 60-75 MHz. Use the Display control panel in Windows to choose 1024 x 768 resolution.

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

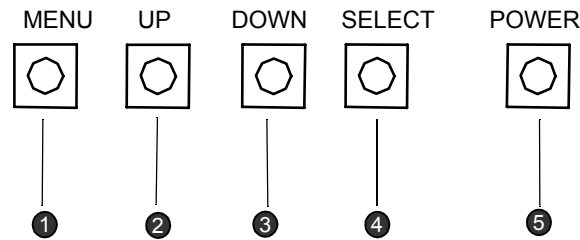
All adjustments you make to the controls are automatically memorized. This feature saves you from having to reset your choices every time you unplug or power your touchmonitor off and on. If there is a power failure your touchmonitor settings will not default to the factory specifications.

### Using the On-Screen Display 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. Press the UP and DOWN buttons at the same time to enable/disable the OSD functions***

# Side Bezel Buttons



|   | Control                    | Function   |
|---|----------------------------|--|
| 1 | Menu                       | Displays the OSD menus.  |
| 2 | Brightness Plus/<br>Plus   | 1. Increases the brightness of the display image.<br>2. Increases value of the adjustment items.   |
| 3 | Brightness Minus/<br>Minus | 1. Decreases the brightness of the display image.<br>2. Decreases value of the adjustment items.   |
| 4 | Select/Auto                | Select- To select the adjustment items from the OSD menus.<br><br>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             | Press the Up and Down buttons at the same time to enable/disable the OSD functions. OSD menu default is enabled.                               |

## Auto Adjustment

Auto Adjustment automatically optimizes a number of video characteristics such as, vertical, horizontal, size and positioning as well as, contrast and tracking settings. This is accomplished by analyzing the dynamic characteristics of the video adapter board in the host PC. (This is not to be confused with the factory reset option.)

To Auto-adjust the video screen:

1. Press the **Select** button and the Auto Adjustment menu will display.

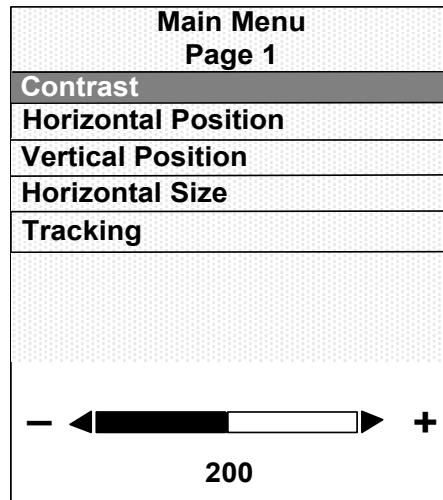
| Auto Adjustment                |
|--------------------------------|
| <b>YES: Press "AUTO" again</b> |
| <b>NO: Press other buttons</b> |

2. Press the **Select** button again. If Auto-adjust does not provide a satisfactory image, use the following procedure. It is highly recommended to make adjustments in the exact order listed:

## First OSD Menu

To access the first OSD menu:

1. Press the **Menu** button to display the on-screen menu and to select between the Main Menus.
2. Choose the adjustment items by pressing the **Select** button.
3. Adjust the value of the adjustment items by pressing the Up or Down button.
4. The OSD menus have a pre-set time delay in which the on-screen menus will automatically disappear.



## Contrast

The contrast function allows you to adjust the image crispness. Contrast adjusts the difference between black and white shades.

To adjust the contrast:

1. Highlight the Contrast menu option by pressing the Select button. A Contrast gauge will display. The gauge will indicate a numeric value which will change as you increase or decrease the contrast.
2. Adjust the contrast by pressing the **Up** or **Down** button.

## Horizontal Position

The horizontal position function allows you to adjust the horizontal image position.

To adjust the horizontal position:

1. Highlight the Horizontal Position option by pressing the **Select** button. The Horizontal Position gauge will display.

2. By using the **Up** or **Down** buttons adjust the horizontal position to center the displayed image. Assure that both leftmost and rightmost vertical sides are clearly displayed and the widest possible image is obtained and is fully centered.

## Vertical Position

The vertical position function allows you to adjust the vertical image position.

To adjust the vertical position:

1. Highlight the Vertical Position option by pressing the **Select** button. The Vertical Position gauge will display.
2. By using the **Up** or **Down** buttons adjust the vertical position to center the image from top to bottom.

## Horizontal Size

The horizontal size function changes the display data frequency to match the frequency of your graphic card. If you experience the vertical flickering bar, use this function to make an adjustment.

To adjust the horizontal size:

1. Highlight the Frequency option by pressing the **Select** button.
2. By using the **Up** or **Down** buttons adjust the horizontal size.

## Tracking

The tracking function synchronizes the signal timing of the display to that of the graphic card. If you experience an unstable flickering image, use this function to make an adjustment.

To adjust the tracking:

1. Highlight the Tracking option by pressing the **Select** button.
2. By using the **Up** or **Down** buttons adjust the tracking.

## Second OSD Menu

To access the second OSD menu:

1. Highlight any of the menu options in the first OSD menu then press the **Menu** button.

The menu below will display:

| Main Menu<br>Page 2                           |  |
|---|--|
| Display Mode                                  |  |
| OSD Off-Time                                  |  |
| Language                                      |  |
| Text-Graphic                                  |  |
| Reset   |  |
|   |  |
| 1024 x 768<br>HF = 60Hz (+)<br>VF = 75 Hz (+) |  |

## Display Mode

The display mode shows the display resolution, horizontal scan frequency, vertical scan frequency and vertical refresh of the current mode.

To adjust the Display Mode:

1. Highlight the Display Mode option then press the **Select** button.
2. By using the **Up** or **Down** buttons adjust the display mode.

## OSD Off-Time

The OSD off time function allows you to set the time delay before the on-screen menus are deactivated.



To set the time delay:

1. Highlight the OSD Off-Time option then press the **Select** button. A gauge will display allowing you to choose an increment of time in which the on-screen menu will be deactivated.
2. By using the **Up** or **Down** buttons adjust the time delay.

## Language

You are able to change the language of all menu items. The language choices are English, German, Spanish, and Japanese.

To change the language:

1. Highlight the Language menu option then press the **Select** button.
2. By using the **Up** or **Down** buttons choose the language you want.

## Text-Graphic

*Note: This option is not available on this unit.*

## Reset

The reset option returns the display parameters of the current mode to its factory default settings.

To reset the default settings:

1. Highlight the Reset option then press the **Select** button.



# Chapter 4

## 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.                   | Check that all the I/O and power connectors are properly connected as described in Chapter 2.<br>Make sure the pins of the connectors are not crooked or broken.   |
|   | Test power supply by trying different cables, a different wall outlet or plug another appliance into the outlet.   |
|   | Make certain the video cable is properly connected and that it is not damaged. Check for bent pins on the cable connectors.  |
|   | Ensure that your computer and video card are properly configured. (Consult video card documentation.)  |
| Partial image or incorrectly displayed image. | Check to see if the resolution of your computer is higher than that of the LCD display.<br>Reconfigure the resolution of your computer to make it less than or equal to 1024 x 768. See Appendix A for more information on resolution. |
| Image has vertical flickering line bars.      | Use "Tracking" to make an adjustment.<br>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 "Tracking" to make an adjustment.  |
| Image is scrolling                            | Make sure the VGA signal cable (or adapter) is well connected.<br>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.   |



# Appendix A

## Native Resolution

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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 1024 x 768 for the XGA-15 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    | 15" LCD                                    |
|----------------|--|
| 640x480 (VGA)  | <i>Transforms input format to 1024x768</i> |
| 800x600 (SVGA) | <i>Transforms input format to 1024x768</i> |
| 1024x768 (XGA) | <i>Displays in Native Resolution</i>       |

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:

|             |                  |
|-------------|------------------|
| <b>VGA</b>  | <i>640x480</i>   |
| <b>SVGA</b> | <i>800x600</i>   |
| <b>XGA</b>  | <i>1024x768</i>  |
| <b>SXGA</b> | <i>1280x1024</i> |
| <b>UXGA</b> | <i>1600x1200</i> |

## Appendix A : Native Resolution

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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 45 column and 26 row of the input video is in 45 column and 26 row 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 in the 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.

## Appendix B

# Touchmonitor Safety

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



Protect your touchmonitor from extremely low or high temperatures.



Keep your touchmonitor dry. Do not wash it with a wet cloth or pour fluid into it.



Check your touchmonitor for condensation. If condensation develops, do not power your touchmonitor on until the condensation evaporates.



Protect your touchmonitor from being bumped or dropped.



Keep your touchmonitor away from dust, sand, and dirt.



Keep your touchmonitor away from humid environments.

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 three-prong safety ground 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.

## Cleaning Your Touchmonitor

Before you clean your touchmonitor (and PC), prevent damage to your touchmonitor (and PC) by powering off the computer system and disconnecting the touchmonitor from the AC outlet. After you finish cleaning, make sure the touchmonitor is completely dry before you reconnect the cables and power it on. Do not apply liquid or aerosol spray cleaners directly on the screen or cabinet. Do not use any type of abrasive pad, alkaline cleaner, scouring powder or solvent (such as alcohol or benzine) to clean your touchmonitor. Avoid getting liquids inside your touchmonitor. If liquid does get inside, have a qualified service technician check it before you power it on again.



## **Screen**

Remove dust and dirt by wiping the touchscreen with a soft, clean, lint-free cloth. Moisten a soft cloth with an ammonia-based glass cleaner and use it to remove fingerprints and smudges.

## **Cabinet**

Clean the touchmonitor cabinet with a soft cloth slightly moistened with a mild detergent solution. Rinse the cloth with clear water, wring it dry, and wipe the cabinet to remove any detergent residue.



# Appendix C

## Technical Specifications

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### Compatibility Modes

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

| Mode                   | Resolution | H. Frequency (kHz) | V. Frequency (Hz) |
|------------------------|------------|--------------------|-------------------|
| IBM & VESA VGA         | 640 x 350  | 31.47              | 70.09             |
| IBM & VESA VGA         | 640 x 400  | 31.47              | 70.09             |
| IBM & VESA VGA         | 720 x 400  | 31.47              | 70.09             |
| IBM & VESA VGA         | 640 x 480  | 31.47              | 59.94             |
| IBM & VESA VGA         | 640 x 480  | 37.86              | 72.81             |
| IBM & VESA VGA         | 640 x 480  | 37.50              | 75.00             |
| VESA VGA               | 800 x 600  | 35.16              | 56.25             |
| VESA VGA               | 800 x 600  | 37.88              | 60.32             |
| VESA VGA               | 800 x 600  | 48.08              | 72.19             |
| VESA VGA               | 800 x 600  | 46.88              | 75.00             |
| VESA VGA               | 800 x 600  | 48.36              | 60.00             |
| VESA VGA               | 800 x 600  | 56.48              | 70.07             |
| VESA VGA               | 800 x 600  | 60.02              | 75.03             |
| Apple Macintosh LC 13" | 640 x 480  | 34.97              | 66.61             |
| Apple Macintosh II 13" | 640 x 480  | 35.00              | 66.67             |
| Apple Macintosh 16"    | 832 x 624  | 49.73              | 74.55             |
| Apple Macintosh 19"    | 1024 x 768 | 60.24              | 75.02             |
| NEC FC-98 series       | 640 x 400  | 24.83              | 56.42             |
| NEC FC-98 series       | 640 x 400  | 31.47              | 70.01             |
| NEC FC-98 series       | 640 x 480  | 31.47              | 59.94             |

# Touchmonitor Specifications

*Note: All specifications are subject to change.*

## 15" LCD Touchmonitor (ET15-XXWA-1) Specifications

|                              |  |   |
|------------------------------|--|---|
| <b>Display Type</b>          | Active matrix, thin film transistor (TFT), liquid crystal display              |   |
| <b>Size</b>                  | 15-inch diagonal<br>304.1 x 228.1 mm useful screen area                        |   |
| <b>Pixel Format</b>          | 1024 x 768   |   |
| <b>Touchscreen</b>           | 0.125-inch IntelliTouch and SecureTouch, anti-glare<br>Surface wave technology |   |
| <b>Colors</b>                | 16 million with dithering  |   |
| <b>Display Brightness</b>    | IntelliTouch: 185 cd/m <sup>2</sup> typical                                    | SecureTouch: 170 cd/m <sup>2</sup> typical  |
| <b>Back-light Lamp Life</b>  | 40,000 hours at full brightness typical  |   |
| <b>Viewing Angle</b>         | <b>Horizontal</b><br><b>Vertical</b>   | +/-60 or 120 degrees total<br>+/-60 or 120 degrees total                                      |
| <b>Contrast Ratio</b>        | 200:1 typical  |   |
| <b>Display Response Time</b> | 20 ms rise, 30 ms delay typical  |   |
| <b>Environmental</b>         | <b>Operating Temp</b><br><b>Storage Temp</b><br><b>Humidity</b>                | 0°C to 45°C<br>-25°C to +60°C<br>80% non-condensing   |
| <b>Mechanical</b>            | <b>Weight</b><br><br><b>Size</b>   | 16 lbs. maximum approx. weight for IntelliTouch and SecureTouch<br>See drawings on next page. |
| <b>Electrical</b>            | <b>Input Video</b><br><b>Input Power</b><br><b>Power Dissipation</b>           | VGA/SVGA/XGA analog video<br>100-240 VAC, 50/60 Hz.<br>Universal                              |
| <b>Agencies</b>              | <b>Safety &amp; EMC</b>  | UL, cUL and TUV<br>FCC-B, CE, and C-Tick  |

## IntelliTouch Touchmonitor Specifications

|  |  |
|--|--|
| <b>Mechanical</b>                                    |  |
| Positional Accuracy                                  | Standard deviation of error is less than 0.080 in. (2.03 mm).<br>Equates to less than $\pm 1\%$ .  |
| Touchpoint Density                                   | More than 100,000 touchpoints/in <sup>2</sup> (15,500 touchpoints/cm <sup>2</sup> ).   |
| 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.<br>See IntelliTouch Ultra Product Manual for details.  |
| <b>Optical</b>                                       |  |
| Light Transmission (per ASTM D1003)                  | 92%  |
| 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.<br>Clear surface: Excellent, with no noticeable degradation.<br>Antiglare surface: 6:1 minimum. |
| Gloss (per ASTM D2457 using a 60-degree gloss meter) | Clear surface: N/A<br>Antiglare surface: Curved: $60 \pm 20$ gloss units or $75 \pm 15$ gloss units.   |

## Appendix C : Technical Specifications

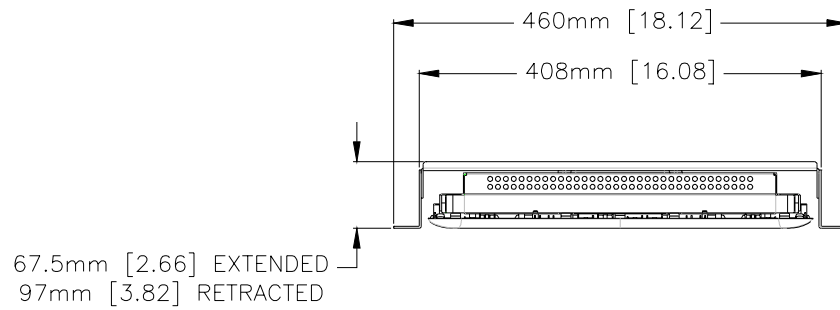
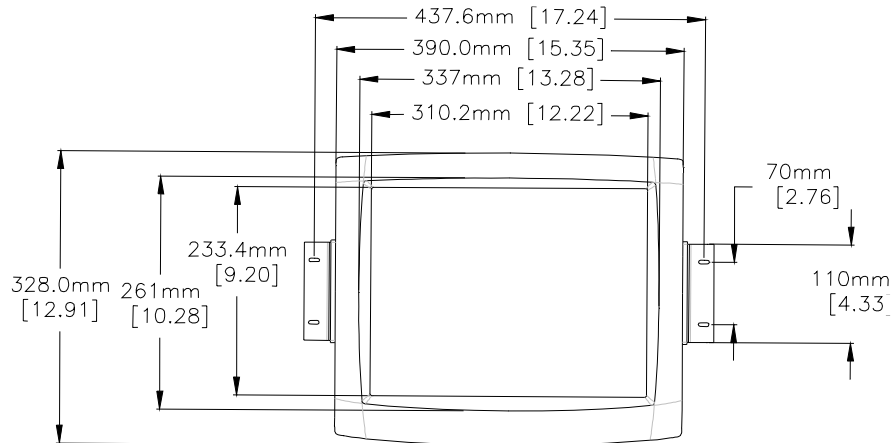
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| <b>Environmental</b>                                     |   |
|--|---|
| Chemical Resistance                                      | <p>The active area of the touchscreen is resistant to all chemicals that do not affect glass, such as:</p> <ul style="list-style-type: none"> <li>Acetone</li> <li>Toluene</li> <li>Methyl ethyl ketone</li> <li>Isopropyl alcohol</li> <li>Methyl alcohol</li> <li>Ethyl acetate</li> <li>Ammonia-based glass cleaners</li> <li>Gasoline</li> <li>Kerosene</li> <li>Vinegar</li> </ul> |
| Electrostatic Protection<br>(per EN 61 000-4-2,<br>1995) | Meets Level 4 (15 kV air/8 kV contact discharges).  |

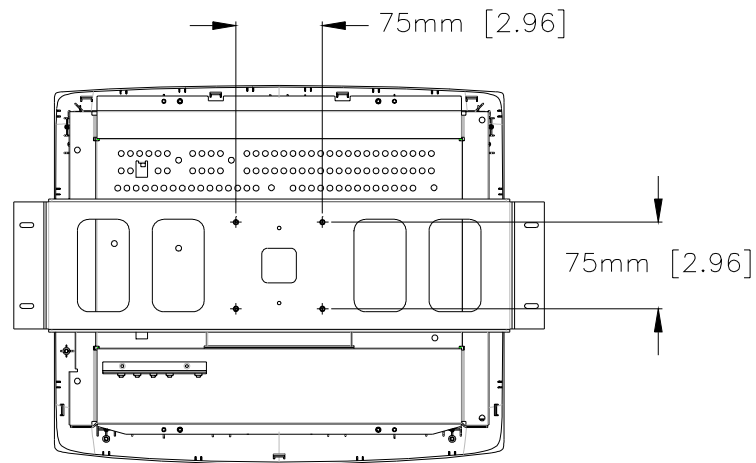
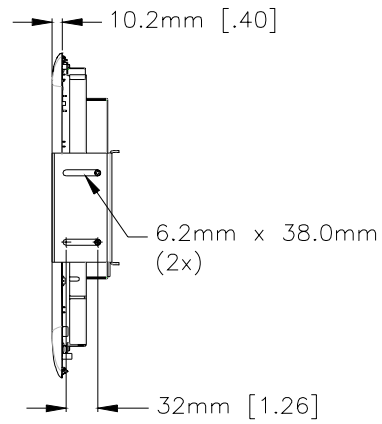
## SecureTouch Touchmonitor Specifications

|  |   |
|--|---|
| <b>Mechanical</b>                                    |   |
| 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 <sup>2</sup> (15,500 touchpoints/cm <sup>2</sup> ).  |
| 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.                                  |
| <b>Optical</b>                                       |   |
| Light Transmission (per ASTM D1003)                  | 92%   |
| 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.<br>Clear surface: Excellent, with no noticeable degradation.<br>Antiglare surface: 6:1 minimum.      |
| Gloss (per ASTM D2457 using a 60-degree gloss meter) | Clear surface: N/A<br>Antiglare surface: Curved: $60 \pm 20$ gloss units or $75 \pm 15$ gloss units.  |
| <b>Environmental</b>                                 |   |
| Chemical Resistance                                  | The active area of the touchscreen is resistant to all chemicals that do not affect glass, such as:<br>Acetone<br>Toluene<br>Methyl ethyl ketone<br>Isopropyl alcohol<br>Methyl alcohol<br>Ethyl acetate<br>Ammonia-based glass cleaners<br>Gasoline<br>Kerosene<br>Vinegar |
| Electrostatic Protection (per EN 61 000-4-2, 1995)   | Meets Level 4 (15 kV air/8 kV contact discharges).  |

## 15" LCD Touchmonitor (ET15-XXWA-1) Dimensions









## Regulatory Information

### I. Electrical Safety Information:

A) Compliance is required with respect to the voltage, frequency, and current requirements indicated on the manufacturer's label. Connection to a different power source than those specified herein will likely result in improper operation, damage to the equipment or pose a fire hazard if the limitations are not followed.

B) There are no operator serviceable parts inside this equipment. There are hazardous voltages generated by this equipment which constitute a safety hazard. Service should be provided only by a qualified service technician.

C) This equipment is provided with a detachable power cord which has an integral safety ground wire and 3-prong connector intended for connection to a grounded safety outlet.

1) Do not substitute the cord with other than the provided approved type. Under no circumstances use an adapter plug to connect to a 2-wire outlet as this will defeat the continuity of the grounding wire.

2) The equipment requires the use of the ground wire as a part of the safety certification, modification or misuse can provide a shock hazard that can result in serious injury or death.

3) Contact a qualified electrician or the manufacturer if there are questions about the installation prior to connecting the equipment to mains power.

### II. Emissions and Immunity Information

A) Notice to Users in the United States: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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.

B) Notice to Users in Canada: This equipment complies with the Class B limits for radio noise emissions from digital apparatus as established by the Radio Interference Regulations of Industry Canada.

C) Notice to Users in the European Union: Use only the provided power cords and interconnecting cabling provided with the equipment. Substitution of provided cords and cabling may compromise electrical safety or CE Mark Certification for emissions or immunity as required by the following standards:

This Information Technology Equipment (ITE) is required to have a CE Mark on the manufacturer's label which means that the equipment has been tested to the following Directives and Standards:

This equipment has been tested to the requirements for the CE Mark as required by EMC Directive 89/336/EEC indicated in European Standard EN 55 022 Class B and the Low Voltage Directive 73/23/EEC as indicated in European Standard EN 60 950.

D) General Information to all Users: This equipment generates, uses and can radiate radio frequency energy. If not installed and used according to this manual the equipment may cause interference with radio and television communications. There is, however, no guarantee that interference will not occur in any particular installation due to site-specific factors.

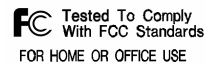
1) In order to meet emission and immunity requirements, the user must observe the following:

- a) Use only the provided I/O cables to connect this digital device with any computer.
- b) To ensure compliance, use only the provided manufacturer's approved line cord.
- c) The user is cautioned that changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2) If this equipment appears to cause interference with radio or television reception, or any other device:

- a) Verify as an emission source by turning the equipment off and on.
- b) If you determine that this equipment is causing the interference, try to correct the interference by using one or more of the following measures:
  - i) Move the digital device away from the affected receiver.
  - ii) Reposition (turn) the digital device with respect to the affected receiver.
  - iii) Reorient the affected receiver's antenna.
  - iv) Plug the digital device into a different AC outlet so the digital device and the receiver are on different branch circuits.
  - v) Disconnect and remove any I/O cables that the digital device does not use. (Unterminated I/O cables are a potential source of high RF emission levels.)
  - vi) Plug the digital device into only a grounded outlet receptacle. Do not use AC adapter plugs. (Removing or cutting the line cord ground may increase RF emission levels and may also present a lethal shock hazard to the user.)

If you need additional help, consult your dealer, manufacturer, or an experienced radio or television technician.



# 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

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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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*Check out Elo's Web site!*

***www.elotouch.com***

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***Get the latest...***

- ***Product information***
  - ***Specifications***
  - ***News on upcoming events***
  - ***Press releases***
  - ***Touchscreen drivers (downloadable)***
- 

***Getting in Touch with Elo***

*To find out more about Elo's extensive range of touch solutions, visit our Web site at [www.elotouch.com](http://www.elotouch.com) or simply call the office nearest you:*

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you, call 888-FAX-ME-ELO*