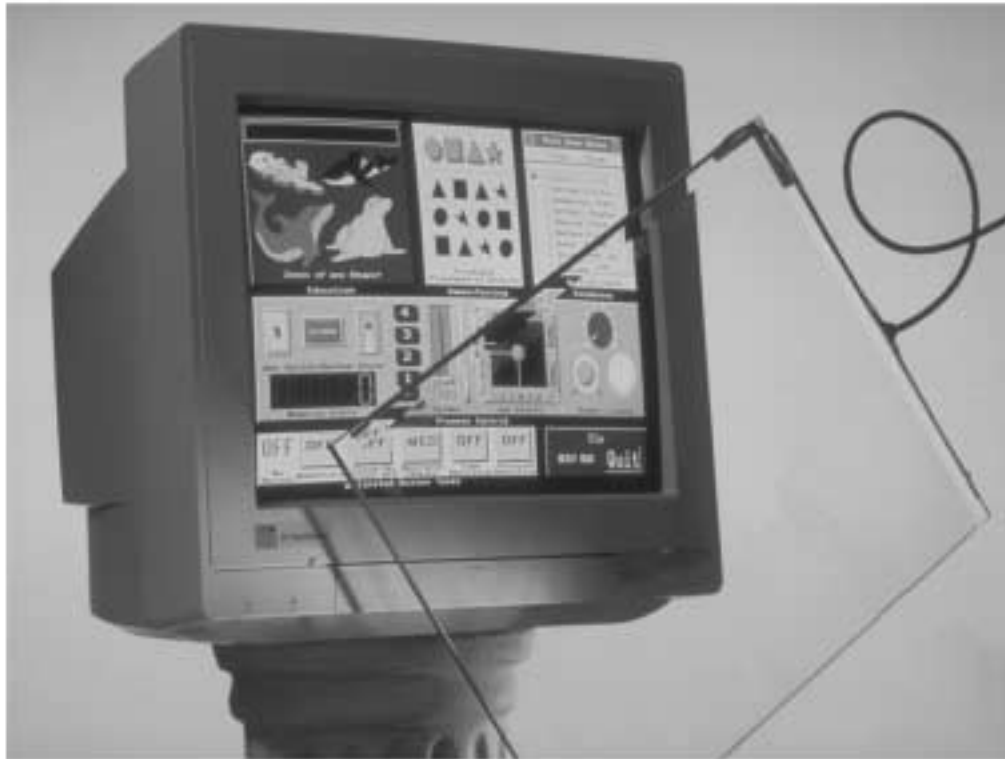


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Electronics

elo **entuitive**
TECHSYSTEMS Touchmonitors

Elo Entuitive Touchmonitor User Guide

For 21" Desktop Touchmonitors
2125C Series



Revision A

User Guide

Elo Entuitive 2125C Desktop Touchmonitor Revision A

P/N 008544

ET2125C Series Models

Elo TouchSystems, Inc.

1-800-ELO-TOUCH
www.elotouch.com

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INTRODUCTION

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

- 20-inch viewable image 0.25mm dot pitch CDT
- Supports a widerange of screen refresh rates with flicker-free picture quality.
- Plug and Play functionality automatically adjusts the monitor to its optimum performance.
- VESA DPMS (Display Power Management Signaling).
- VESA DDC1/2B compatibility.
- Patented touch technology from Elo TouchSystems.
- RS-232 or Universal Serial Bus (USB) touch interface.

INSTALLATION AND SETUP

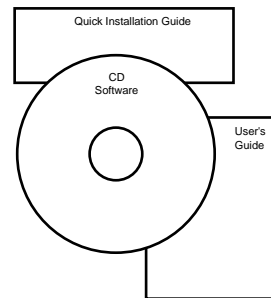
This chapter discusses how to install your CRT touchmonitor and how to install Elo TouchSystems driver software.

Unpacking Your Touchmonitor

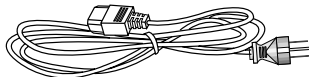
Check that the following 9 items are present and in good condition:



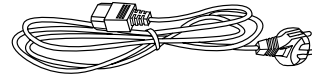
CRT Touchmonitor



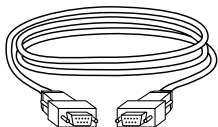
User's Guide, Quick Install Guide, and TouchTools CD-ROM



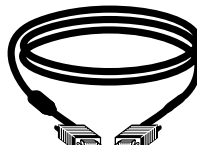
Monitor power cable (US/Canada)



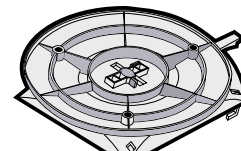
European power cable



Serial touchscreen cable



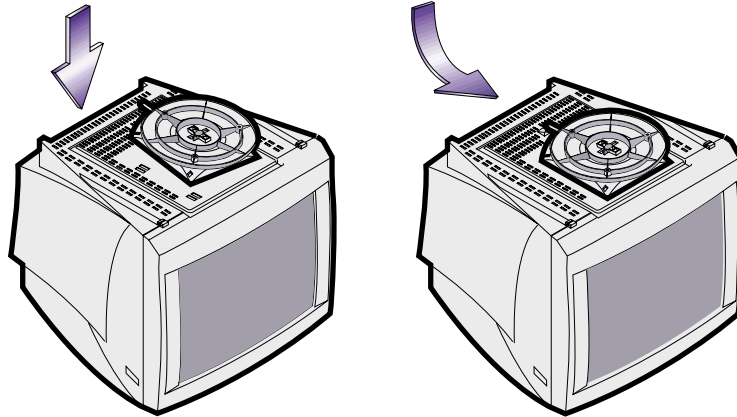
Video cable



Base

Getting Started

Installing the Base



- Carefully turn the touchmonitor upside-down.
- Place the base against the bottom of the monitor so that the base fasteners are aligned with appropriate slots.
- Push the base towards the front of the monitor until the latch locks into position.
- Carefully turn the touchmonitor right-side up.

Selecting a Suitable Location

- Place the monitor at least 12 inches from other electrical or heat-emitting equipment and allow at least 4 inches on each side for ventilation.
- Place the monitor in a position where no light shines or is reflected directly on the screen.
- To reduce eye strain, avoid installing the display unit against a bright background such as a window.
- Position the monitor so the top of the screen is no higher than eye level.
- Position the monitor directly in front of you at a comfortable reading distance.

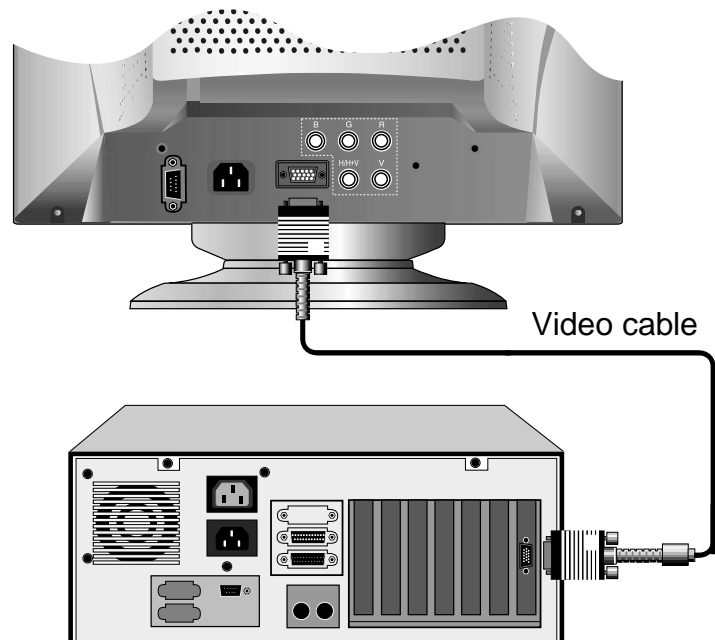
Connecting Your Touchmonitor

Your touchmonitor comes with a Serial (RS-232) touchscreen connector cable.

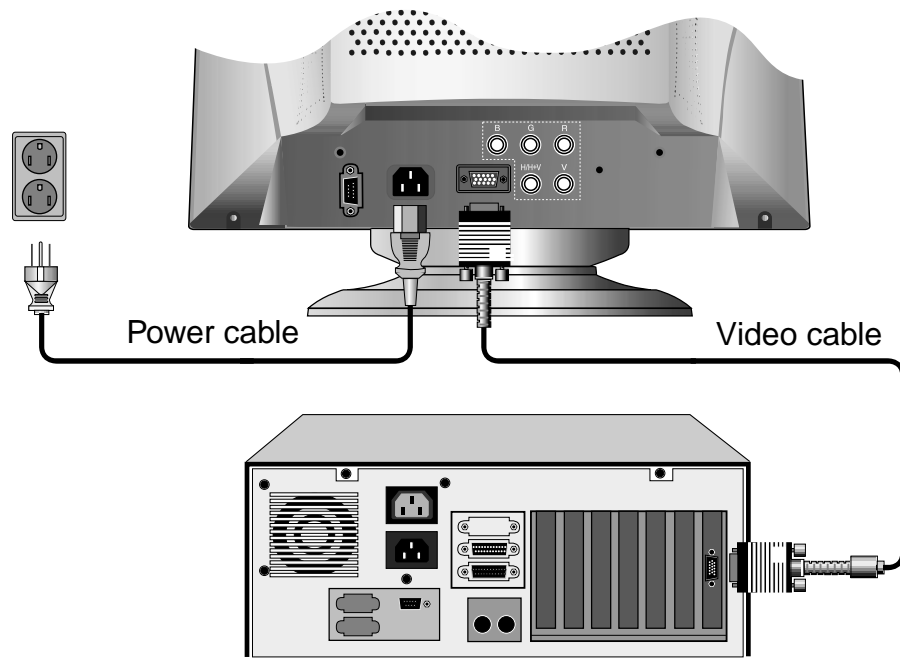
IMPORTANT:



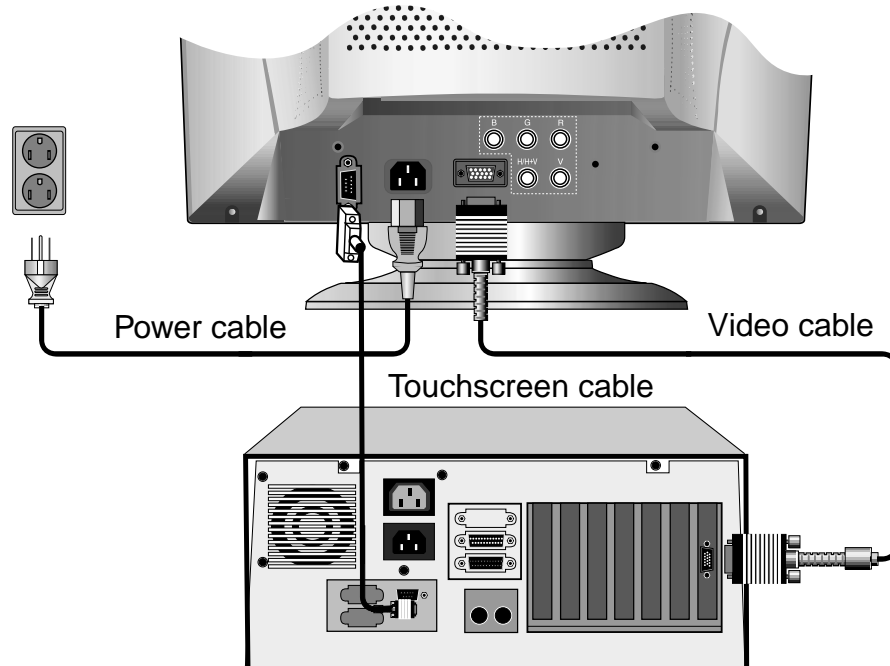
Before connecting the cables to your touchmonitor and PC, be sure that the computer and touchmonitor are turned off.



- 1 Connect one end of the video cable to the video connector on your PC and the other end of the cable to the video connector on your monitor. Secure the cable by turning the screws on the connector.



- 2** Connect the power cable to the AC connector on your touchmonitor. 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.



- 3** Connect the touchscreen cable. Connect one end to the appropriate port on the back of your PC. Connect the other end of the cable to the touchscreen connector on your touchmonitor. The touchscreen cable connectors should fit snugly into the connectors on your touchmonitor and PC.



- 4 Power on your monitor using the Soft power switch and check that the power LED is on, then power on your PC. If not, repeat steps 2, 3, and 4, or refer to Chapter 4, Troubleshooting.
- 5 After a brief pause the picture should appear. If necessary, adjust the front panel controls according to your personal preference (see Chapter 3).
- 6 Insert the Elo TouchTools CD-ROM in your computer's CD-ROM drive to install the appropriate touchscreen driver software. Follow the directions starting on the next page to install the driver software.

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 Me
- Windows 98
- Windows 95
- Windows NT 4.0

Additional drivers and driver information for other operating systems (including MS DOS, Windows 3.x, OS/2, Macintosh and Linux) are available on the Elo TouchSystems web site at 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 for 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.

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.

Installing the USB Touch Driver for Windows 2000, Windows Me and Windows 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.
- 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.

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.

About Touchmonitor Adjustments

By design, your Elo Entuitive touchmonitor should not require any adjustments. The factory settings will give you optimum video results with most standard PC video display adapters.

However, after connecting your touchmonitor you can further optimize the settings to meet your requirements by following the directions in this chapter.

All adjustments you make to the controls are automatically memorized, so you do not need to reset your choices every time you unplug your touchmonitor or power it off and on. If there is a power failure your touchmonitor settings will not default to the factory specifications.

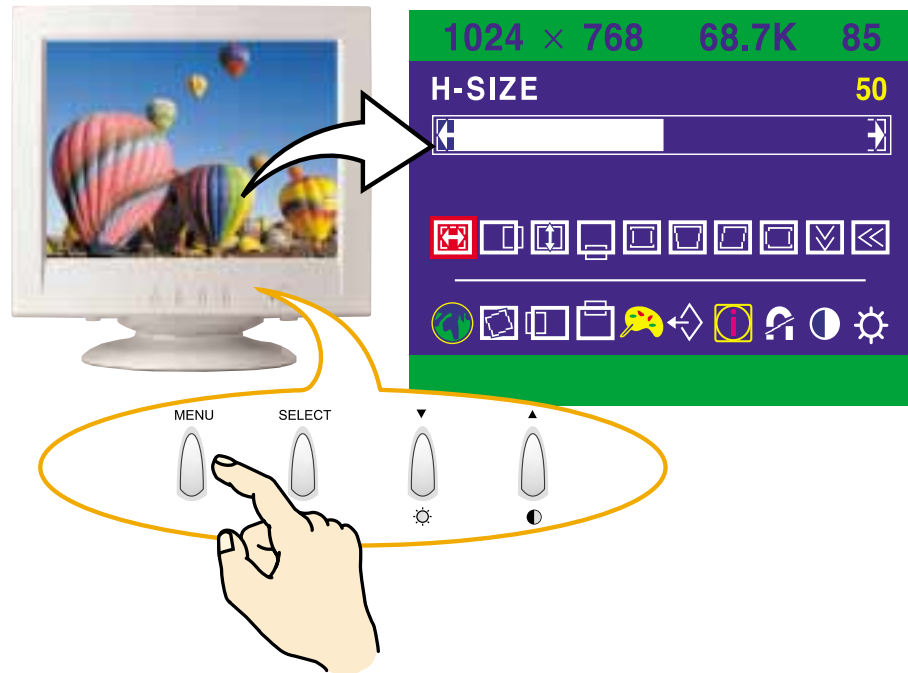
IMPORTANT:



Do not remove the CRT touchmonitor cover. The touchmonitor uses high voltages, and the metal edges inside the touchmonitor cover are sharp. Removing the touchmonitor cover voids the warranty.

Touchmonitor Controls

You can adjust the screen display by using the buttons located below the screen.



Using the On Screen Display (OSD)

- 1 Push the **MENU** button to access the OSD. The resolution and frequency are displayed at the top of the menu for your information.
- 2 Push the ▲ or ▼ button to choose the item you want to adjust. The selected item is highlighted.
- 3 Push the **SELECT** button to adjust the highlighted item.
- 4 Push the ▲ or ▼ button to adjust the selection.
- 5 Push the **SELECT** button to return to the previous menu if you are in a submenu.

The display unit automatically saves the new settings in 3 to 4 seconds after your last adjustments and the menu disappears. You can also push the **MENU** button to make the menu disappear.



Brightness

Use the ▲ button to select the brightness adjustment.

Adjust with ▲ or ▼ button.



Contrast

Use the ▲ button to select the brightness adjustment.

Adjust with ▲ or ▼ button.

Locking/Unlocking the OSD Functions

You are able to lock the OSD functions if you do not want them to be changed.
















To lock the OSD functions:

- 1 Press the power button to turn the monitor off.
- 2 Press the power button on and press the Menu key for 2 or 3 seconds or until you see the green LED on the power button. The factory OSD menu window will appear.
- 3 Use the ▲ or ▼ button to select the OL option.
- 4 Press the Select button to highlight the Locked option on the menu.
- 5 Press the power button to turn the monitor off then turn it back on.

To unlock the OSD functions:

- 1 Press the power button to turn the monitor off.
- 2 Press the power button on and press the Menu key for 2 or 3 seconds or until you see the green LED on the power button. The factory OSD menu window will appear.
- 3 Use the ▲ or ▼ button to select the OL option.
- 4 Press the Select button to highlight the Unlocked option on the menu.
- 5 Press the power button to turn the monitor off then turn it back on.


OSD Adjustments


H. Size		Adjusts the horizontal size of the entire screen image.
H. Position		Adjusts the horizontal position of the entire screen image.
V. Size		Adjusts the vertical size of the entire screen image.
V. Position		Adjusts the vertical position of the entire screen image.
Pincushion		If the vertical sides of the picture curve in or bulge out, you can correct the distortion by using the pincushion adjustment.
Trapezoid		If the picture is wider at the top or at the bottom, you can correct the distortion by using the trapezoid adjustment.
Parallel		If the sides of the screen image are tilted, you can correct the distortion by using the parallel adjustment.
Pin Balance		If the sides of the picture are bowed to the right or the left, you can correct the pin cushion balance by using this adjustment.
V. Moire		Clears vertical moire if a series of concentric circles or arcs appear on your screen.
H. Moire		Clears horizontal moire if a series of concentric circles or arcs appear on your screen.
Top Corner		If the top corner sides of the picture curve in or bulge out, you can correct the top corner distortion by using this adjustment.
Bottom Corner		If the bottom corner sides of the picture curve in or bulge out, you can correct the top corner distortion by using this adjustment.
H. Linearity		If either the left or right side of the picture is out of proportion from the other, you can correct this by using the horizontal linearity adjustment.
V. Linearity		If either the top or bottom side of the picture is out of proportion with the center, you can correct this by using the vertical linearity adjustment.
BNC/D-Sub (Option)		Press the Select button to select the signal source (BNC or D-Sub).


Purity **PR** If the primary colors like white, blue or red display some areas or dots showing different colors, you can correct this by using the purity adjustment.


H. Convergence **HC** If shadows appear around text or graphic images, you can remove them by using the horizontal convergence adjustment.


V. Convergence **VC** If shadows appear around text or graphic images, you can remove them by using the vertical convergence adjustment.

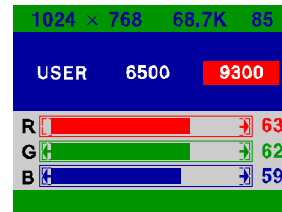
Language  You can select the language in which adjustment menus are displayed. The following languages are available; English, German, French, Italian, Spanish, Swedish, Finnish, Danish, and Portuguese.

Rotation  If the entire screen image is tilted, you can correct the distortion by using the rotation adjustment.


OSD H. Position  Adjusts the OSD menu's horizontal position on the screen.


OSD V. Position  Adjusts the OSD menu's vertical position on the screen.

Color Control  Color temperature affects the tint of the image. With lower color temperature the image turns reddish and with higher temperatures bluish.



There are three color setting available: 9300K, 6500K, or USER. With the USER setting you can set individual values for red, green, and blue.

Recall  If you operate your display unit in a factory preset mode, this function deletes adjustments you made for size, position and shape, and restores the properties which have been set in the factory. If you operate your display unit in user mode, this function has no effect except that the contrast will be reset to the maximum value and the brightness to the cut-off level.

Information  Information shows horizontal and vertical sync polarity of current timing set.

External magnetic fields may cause distortion or discoloration in the picture. Demagnetizing takes place automatically when the display unit is switched on, and the unit normally maintains faultless color purity during operation.

Degauss



If you have tilted, swiveled or moved the display unit, you can perform demagnetization. During the process the picture is distorted for a few seconds. After demagnetization, the color impurities have disappeared if caused by stray magnetic fields.

Do not use the degauss feature more than once every half hour or the degauss function will not work.

Brightness



Adjusts the brightness of the screen.

Contrast



Adjusts the contrast of the screen.

NOTE: Moire is an interface pattern that makes the screen seem to have faint lines. A picture that is rastered or consists of small repeating figures is sensitive to moire interference. Strong colors are also liable to intensify moire. The moire pattern on the screen does not affect the printout of the image.

TROUBLESHOOTING

Problem	Suggestion (s)
No picture.	<p>Your touchmonitor may not be getting power. Make certain that your power strip is plugged into the wall socket and that the PC and touchmonitor are plugged in and powered on.</p> <p>Test the power supply by trying different cables or a different wall outlet, or by plugging another appliance into the outlet.</p> <p>The touchmonitor might be in standby mode. Push one of the keyboard keys. Check that the keyboard is properly connected to the computer.</p> <p>Ensure that your computer and video card are properly configured (consult the video card documentation).</p>
Touchmonitor does not enter power management mode.	<p>The video signal from the computer does not comply with VESA DPMS standard. Either the computer or the graphics adapter is not using the VESA DPMS power management function.</p>
Screen flickers	<p>The screen may seem to flicker when the refresh rate is less than 75Hz. See the list of recommended modes in Appendix C, page 27.</p>
Color defects	<p>If your color is not uniform, degauss the touchmonitor as described in Chapter 3, page 15, and make sure that the touchmonitor is at least 12 inches from any other electrical equipment.</p>
Picture appears to be ghosting.	<p>Make certain there is a good connection between the touchmonitor and the computer.</p>
Picture is not centered.	<p>Read about adjusting your touchmonitor picture and make the appropriate adjustments.</p>
Picture appears “washed out”.	<p>Readjust your brightness and contrast settings.</p>

Problem	Suggestion (s)
Picture not present or severely distorted.	Verify that your video display adapter settings are formatted for the correct resolution and vertical refresh rates.
Duplicated images	A problem with your graphics adapter or touchmonitor. Contact your service representative.
Touch doesn't work.	Check to make sure the touchscreen cable is securely attached at both ends.

Monitor Warning Messages

Message	Suggestion
Error message: OUT OF RANGE	The graphics adapter is set for a refresh rate or a line frequency that is too high. Select another display mode with lower frequencies as directed by your video card vendor.
Self diagnostics message: NO SIGNAL	This message indicates that the signal is missing or faulty. Check that the signal cable connector is properly connected and that the connection pins are not bent or damaged. If the connector is loose, tighten the connector screws. Check that the PC is powered on.



TOUCH TECHNOLOGY

Touchscreens: An Overview

Typically, users communicate with computers by using a mouse, a keyboard, or a combination of the two. Users who are not keyboard-literate or mouse-savvy can become frustrated with how long human-to-computer interactions take.

Computer literacy is learned. This is complicated by the fact that using a keyboard or a mouse is neither intuitive nor natural for most people. Touchscreens cut out the learning curve by eliminating keyboard/mouse intermediaries and allowing a natural flow of information to develop between a user and a computer.

When a user wants to access information or perform a function on a computer with a touchscreen installed, a touch quickly and accurately does the job that once required complicated keyboard interactions or precise mouse movements.

A frustrating experience with a computer during a transaction can create dissatisfaction for your customer. Touchscreens help eliminate unpleasant transactions by creating a natural flow of information that enhances your product or service. Touchscreens speed up user/computer interactions. People get what they want faster and are more satisfied with the process.

IntelliTouch Touchscreens

IntelliTouch uses Elo's patented surface wave technology to provide superior image clarity, stable drift-free operation, and a durable surface that is unaffected by scratches. With IntelliTouch you get fast, accurate response to soft stylus stimulation (finger, gloved hand, pencil eraser) that is also sensitive to pressure.

For example, a customer in a department store could scroll through a product catalog by increasing or decreasing pressure on an icon. IntelliTouch's pressure sensitivity increases the intuitive nature of a user/touchscreen interaction by allowing for increased selectivity.

An IntelliTouch touchscreen is a great choice for point-of-information or public access applications such as the following:

- Point-of-information kiosks
- Vending
- Electronic catalogs
- In-store locators
- Gaming and lottery
- Banking/financial transactions
- Ticket sales
- Interactive education
- Multimedia demonstrations

AccuTouch Touchscreens

Elo's patented five-wire resistive technology makes AccuTouch products unmatched for durability and accuracy. Touch an AccuTouch screen with a finger, gloved hand, stylus, fingernail, or even a credit card, and you'll receive a fast, accurate response—every time. The surface of an AccuTouch touchscreen is scratch-resistant and can withstand spills and other types of wear and tear that often occur in heavy-usage environments.

An AccuTouch touchscreen is best used for clerk- or employee-activated applications such as:

- Industrial process control
- Medical equipment
- Point-of-sale terminals
- Transportation

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 Setup, and Chapter 3, Operation.

- 1** To reduce the risk of electric shock, follow all safety notices and never open the touchmonitor case.
- 2** Your new touchmonitor is equipped with a three-wire, grounding power cord. The power cord plug will only fit into a three-pronged 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.
- 3** The slots located on the sides and top of the touchmonitor case are for ventilation. Do not block or insert anything to the ventilation slots.
- 4** 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 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 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.
- During transportation of the monitor, the swivel base *must* be removed.



REGULATORY INFORMATION

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 or damage to the equipment, or may pose a fire hazard if the limitations are exceeded.

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

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

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

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

3) If there are any questions about the installation prior to connecting the equipment to mains power, contact a qualified electrician or the manufacturer.

Emissions and Immunity Information

A) Notice to Users in the United States: This equipment has been tested and found to comply with Part 15 Class B of FCC Rules for digital devices. 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 has been tested and found to comply with Class B radio noise emission limits as established by the Radio Interference Regulations of Industrie Canada for digital devices.

C) Notice to Users in the European Union: This equipment has been tested and found to comply with the Class B requirements of CE marking for Information Technology Equipment as required by: Low Voltage Directive 73/23/ECC and standard EN 60950; EMC Directive 89/336/ECC, and per standard EN 55022.

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:

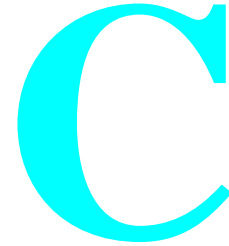
- a) Use only the provided I/O cables to connect this digital device with any computer.
- b) To ensure compliance, use only the provided manufacturer-approved line cord.
- c) The user is cautioned that changes or modifications to the equipment not expressly approved by the party responsible for compliance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





TECHNICAL SPECIFICATIONS

NOTE: All specifications are subject to change.

Touchmonitor Specifications

21" Touchmonitor Specifications

Picture Tube	21" (20" diagonal viewable image), 0.25mm dot pitch, anti-static, anti-glare, and TCO treatment coated.
Maximum Resolution	1600 x 1200@85Hz
Deflection Frequency	Horizontal: 30-107kHz Vertical: 50-150Hz
Maximum Video Input Bandwidth	261 MHz
Display Area*	Factory Setting: approx. 380mm x 285mm
Input Signal	R.G.B. Analog, 15 pin D-sub, BNC optional
Input Voltage	100-240 VAC, 3.0A
Display Colors*	Analog input; unlimited colors
Power Consumption	120 watts (typical)
Power Management	Compliant with VESA DPMS signaling method.
Plug and Play Compatibility	Compliant with VESA DDC 1/2B standards.
CRT Life	Average operational CRT life is 12,000 hours to half brightness.

*Dependent on video controller/card used.

21" Touchmonitor Specifications

On-Screen Adjustments	H/V POSITION, H/V SIZE, PINCUSHION, TRAPEZIOD, PARALLEL, PIN BALANCE, H/V MOIRE, TOP CORNER, BOTTOM CORNER, H/V LINEARITY, BNC/D-SUB (OPTION), PURITY, H/V CONVERGENCE, LANGUAGES, ROTATION, OSD H/V POSITION, COLOR CONTROL, RECALL, INFORMATION, DEGAUSS, BRIGHTNESS, CONTRAST
Safety Regulations	UL, cUL, DHHS, TÜVGS
EMI	TCO95, FCC Class B, (FCC Class A for models without touch controllers), CE
Ergonomics	ZH1/618:10.80; DIN EN 2941-3:1993 ISO/DIS 9241-7,-8:1986; Anti-glare screens: Part 7 class 1. Clear screens: Part 7 class 3.
Monitor Dimensions	500mm (W) x 495mm (H) x 484mm (D)
Net Weight (without touchscreen)	13.7kg unpacked, 16.7kg packed
Ambient Temperature	Operating: 0°C - 40°C Storage: -20°C - 65°C
Humidity	Operating: 20%-95% Storage: 10%-95%

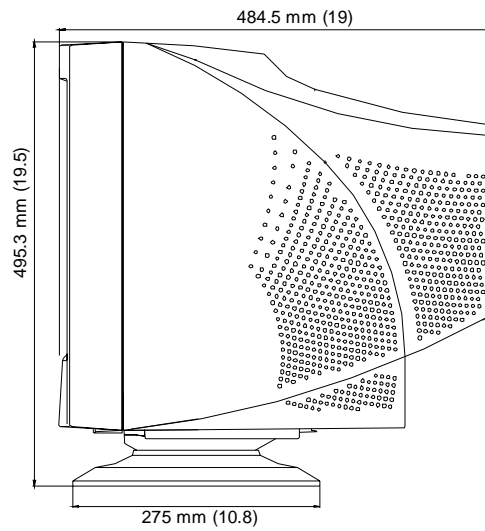
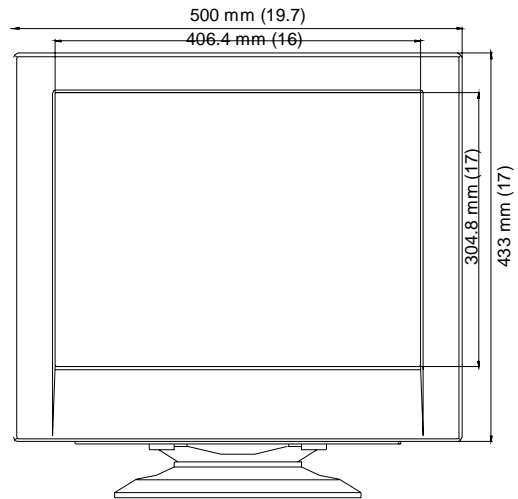
Table C.1 IntelliTouch Touchmonitor Specifications

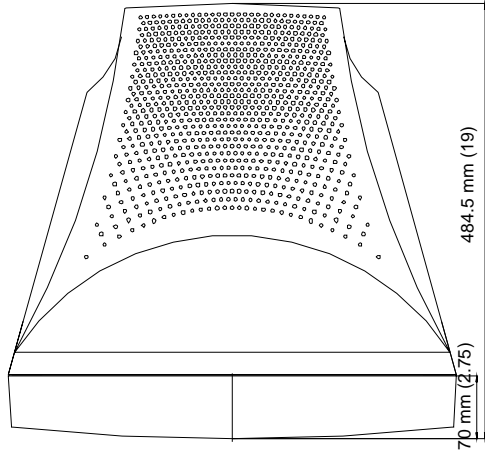
Mechanical	
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). Equates to less than $\pm 1\%$.
Touchpoint Density	More than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²).
Touch Activation Force	Typically less than 3 ounces (85 grams).
Surface Durability	Surface durability 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. See IntelliTouch Product Manual for details.
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)	Clear surface: N/A 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).
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.

Table C.2 AccuTouch Touchmonitor Specifications

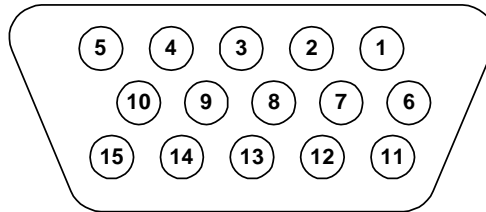
Mechanical	
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). This equates to less than $\pm 1\%$.
Touchpoint Density	More than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²).
Touch Activation Force	Typically less than 4 ounces (113 grams).
Surface Durability	Meets 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. Clear surface: N/A Antiglare surface: 6:1 minimum.
Haze (per ASTM D1003)	Clear surface: Less than 1.5%. Antiglare surface: Less than 15%.
Gloss (per ASTM D2457)	Clear surface: N/A Antiglare surface: 90 ± 20 gloss units tested on a hard-coated front surface.
Environmental	
Chemical Resistance	The active area of the touchscreen is resistant to the following chemicals when exposed for a period of one hour at a temperature of 21°C: Acetone Methylene chloride Methyl ethyl ketone Isopropyl alcohol Hexane Turpentine Mineral spirits Unleaded gasoline Diesel fuel Motor oil Transmission fluid Antifreeze

21" CRT Touchmonitor Dimensions





Signal PINOUT for 21" Monitor



PIN Number	Signal
1	Red video
2	Green video
3	Blue video
4	Ground
5	*VGA card detection (GND)
6	Red return
7	Green return
8	Blue return
9	+5 V
10	Sync return
11	Ground
12	SDA (Serial Data)
13	Horizontal Sync
14	Vertical Sync
15	SCL (Serial Clock)

*Pin 5, self-test pin shall be grounded when signal connector is plugged in.

Power Consumption

The touchmonitor comes with a power-saving feature that controls its power consumption. This feature complies with both the EPA's Energy Star requirements and European NUTEK/TCO's power management guidelines. It also conforms to the Display Power Management System (DPMS) power-down signaling method approved by the Video Electronics Standard Association (VESA).

21" Monitor		
Mode	LED	Power consumption (W)
Normal	Green	<=120
Standby	Green/Orange blinking (1 sec.)	<=10
Suspend	Green/Orange blinking (0.5 sec.)	<=10
Off	Orange	<=5
Soft Power Switch Off	Not illuminated	<=1

NOTE: The power button does not disconnect the display unit from the mains. The only way to isolate the display unit completely from the mains supply is to unplug the mains cable.

Preset Timing Table

Your Elo Entuitive touchmonitor has 11 preset timing modes. The following are modes preset as factory defaults:

No.	Resolution	Horizontal Frequency	Refresh Rate
1	720x400	31.5 kHz	70 Hz
2	640x480	31.5 kHz	60 Hz
3	640x480	63.7 kHz	120 Hz
4	800x600	53.7 kHz	85 Hz
5	1152x864	67.5 kHz	75 Hz
6	1024x768	68.7 kHz	85 Hz
7	1024x768	81.8 kHz	100 Hz
8	1280x1024	79.9 kHz	75 Hz
9	1280x1024*	91.9 kHz	85 Hz
10	1600x1200	93.8 kHz	75 Hz
11	1600x1200	106.3 kHz	85 Hz

*Recommended primary mode

Setting the Refresh Rate

To set the refresh rate for Windows 98:

- 1 Access the Control Panel in Windows (Start > Settings > Control Panel).
- 2 Double click on Display.
- 3 Click the Settings tab.
- 4 Click the Advanced button.
- 5 Click on Adapter and select 85 Hz from the list.
- 6 Click on Apply to set the selected value.

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. See relevant specification sheet for touchmonitors.

Seller makes no warranty regarding the model life of monitors. Seller's suppliers may at any time and from time to time make changes in the monitors 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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Users should independently evaluate the suitability of the product for their application.



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