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elo TOUCHSYSTEMS

Elo Touchmonitor User Guide

For 15” LCD Desktop
1522L-XXWB Series

Revision A

Elo Touchmonitor

User Guide

15" LCD Desktop

1522L-XXWB Series

Revision A

P/N E212991

Elo TouchSystems

1-800-ELOTOUCH
www.elotouch.com

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1

INTRODUCTION

Product Description

The 1522L is a retail terminal designed to present information to the operator and the customer. The 1522L is available in USB only. The 1522L functionally consists of a 15. 0” LCD main display with a touchscreen, an optional magnetic stripe reader (MSR), and a two port USB Hub . The main display element is a 15” diagonal XGA resolution (1024 x 768) LCD display. The main display consists of an LCD Display and touchscreen. 1522L is available with Surface Capacitive, AccuTouch, IntelliTouch, CarrollTouch infrared, and Acoustic Pulse Recognition (APR) touch technologies.

The MSR reads all three stripes on a standard credit card or drivers license. The credit card is read by sliding the credit card, stripe side toward the display through the MSR forward or backward. There is a USB MSR only.
The Hub provides two internal USB ports to be used by the MSR, and the touchscreen for the USB version of the 1522L. The 1522L is powered by a universal AC power source or 12 VDC from the external power source.

Detailed LCD Display Performance Requirements

15" TFT LCD Display Panel

Display Format	1024 x 768	
Display Area 15"	304.1mm(H) x 228mm(V)	
Pixel Pitch 15"	0.297mm(H) x 0.297mm(V)	
Contrast Ratio	Typical 500:1; min. 400:1	
Brightness		
AccuTouch	Typical 200 cd/m^2 ; min 160 cd/m^2 (min)	
IntelliTouch	Typical 230 cd/m^2 ; min 184 cd/m^2 (min)	
Surface Capacitive	Typical 210 cd/m^2 ; min 168 cd/m^2 (min)	
CarrollTouch Infrared	Typical 230 cd/m^2 ; min 184 cd/m^2 (min)	
APR	Typical 230 cd/m^2 ; min 184 cd/m^2 (min)	
Response Time	8.5 ms/6 ms typical, 11 ms/10 ms max	
Display Color	16.2 M colors, with frame rate control	
Vertical Viewing Angle	CR>=10	60^o(up)/60^o(down) typical
		55^o(up)/45^o(down) typical
Horizontal Viewing Angle	CR>=10	70^o(up)/70^o(down) typical
		60^o(up)/60^o(down) typical

Magnetic Stripe Reader

There is a USB MSR kit, which is sold separately. The USB version MSR is available in Keyboard emulation or HID. The MSR reads all three stripes on a standard credit card or driver's license.

Reference Standards-Conform to Applicable Standards	International Standards Organization, American National Standards Institute, California Drivers License, American Association of Motor Vehicle Administrators
Message Format	ACCII
Card Speed	3 to 50 IPS
MTBF Electronics	125,000 hrs; Head 1,000,000 passes

External Power Supply

The 1522L shall be powered by a universal AC power source or 12 VDC from external power source. The power supply shall provide the following capability:
AC power: Input voltage 85 to 265 Vac
Input frequency 47 to 63Hz
DC power: Input voltage 12 Vdc
Input line and load regulation +/-2%

CHAPTER

2

INSTALLATION AND SETUP

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

Unpacking Your Touchmonitor

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

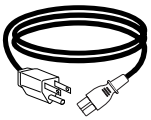
Touchmonitor

USB Cable

European Power Cable

Video Cable

Speaker Cable



Power Cable US/Canadian

CD and Quick Installation Guide

Product Overview

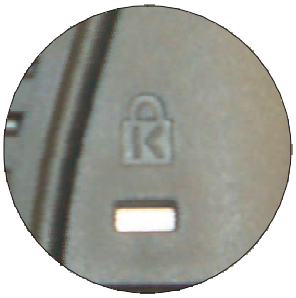
Front View

Rear View

Side View

Base Bottom View

Kensington™ Lock



The Kensington™ lock is a security device that help to prevent theft. To find out more about this security device, go to http://www.kensington.com.

USB Interface Connection

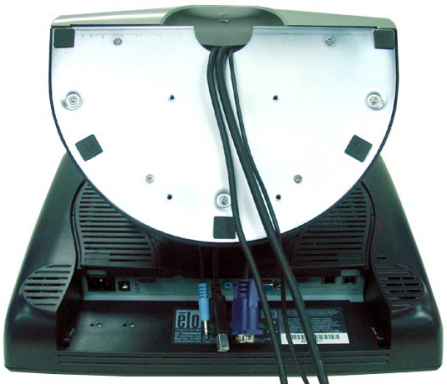
Your touchmonitor comes with only one touchscreen USB connector cable. (For Windows 2000, Me, and XP systems only.)
To set up the display, please refer to the following figures and procedures:

Remove the Cable Cover

The cables are connected at the back of the monitor.

To remove the cover, grasp the lip of the cover and pull towards you until it snaps off.

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

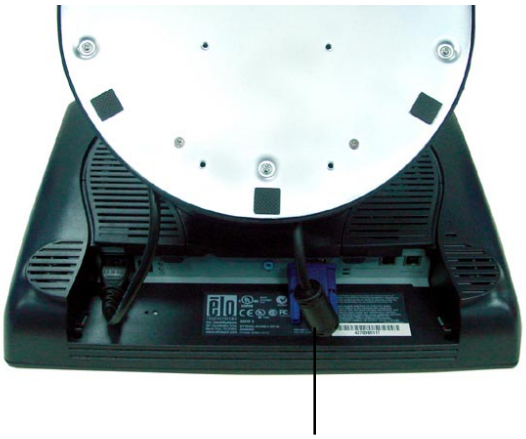


NOTE Before connecting the cables to the touchmonitor, route all the cables through the hole as shown in the picture above.

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

Power cord

Connect one end of the **power cord** to the monitor and the other end to wall. Connect the power cable to the power port in the monitor.

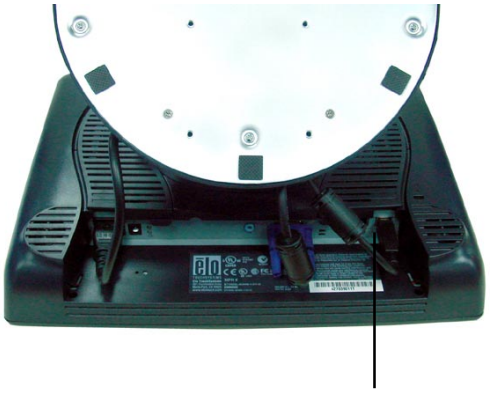


Video cable

Connect one end of the **video cable** to the rear side of computer and the other to the LCD monitor. Tighten by turning the two thumb screws clockwise to ensure proper grounding.

Speaker cable

Connect one end of the **speaker cable** to the speaker port in the computer and the other end to the port in the monitor.



USB cable

Connect one end of the **USB cable** to the rear side of the computer and the other to the LCD monitor. The left port is for the MSR, and right port is for touch.

Replace the Cable Cover

When you have attached all the cables to the monitor, gently bring all the cables toward the stand so they fit under the cover lip.
Snap the Cable cover in place over the connections.

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.

Installing the Peripheral Device Drivers

Magnetic Stripe Reader

No devices are needed.

Testing the USB MSR Keyboard Emulation

1 Plug in the device.
2 Open MS Word.
3 Slide the card through the MSR to view the data.

Testing the USB-HID Class MSR

1 On the CD, browse to **Touch Monitor Peripherals\Magnetic Stripe Card Readers\Demo.**
2 Open the **Readme.txt** and follow instructions to test the unit.

Convert MSR from HID to keyboard emulation

MSR Conversion:

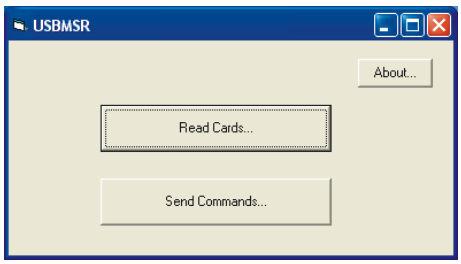
Get program @ http://www.magtek.com/support/software/demo_programs/usb_swipe_insert_reader.asp

From the CD, select Touch Monitor Peripherals. Select the ET1529 HID-KB Conversion folder, and follow the instructions in the folder.

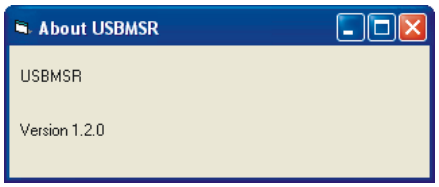
1. To convert from HID to Keyboard Emulation Mode.

1.1 Double click on HID MSR icon on the desktop.

The following window will appear



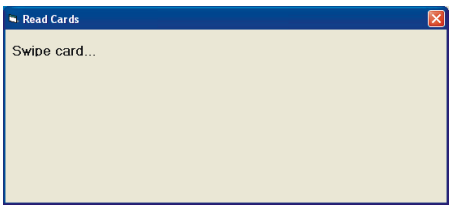
1.2 Click on About to verify version



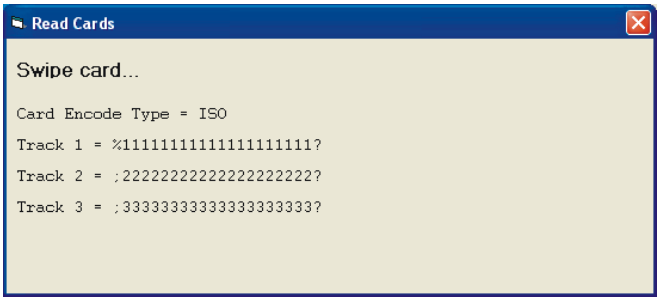
1.3 Close About dialog box.

1.4 Click on Read Cards.

1.5 This dialog will appear

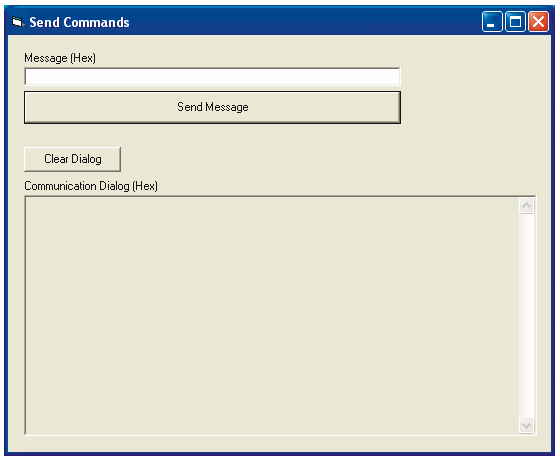


1.6 Swipe test card.



1.7 Close Read Cards dialog.

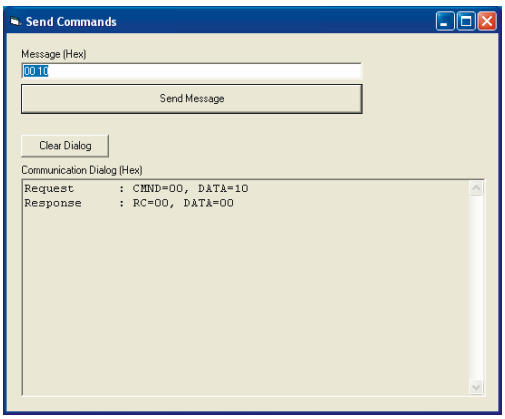
1.8 Click on Send Command. The following dialog box will appear



1.9 To send Inquiry MSR type

1.10 Type 00 10 into area under the heading Message (Hex)

1.11 Then click on Send Message.

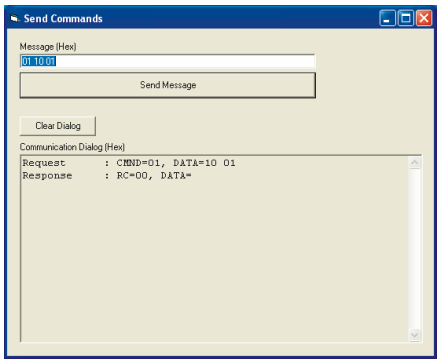


1.12 The DATA=00 means it’s USB HID.

1.13 Switch to Keyboard Emulation

1.14 Type 01 10 01 into area under the heading Message (Hex)

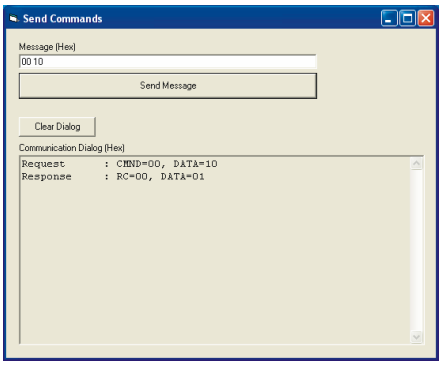
1.15 Then click on Send Message.



1.16 Send inquiry MSR type

1.17 Type 00 10 into area under the heading Message (Hex)

1.18 Then click on Send Message.

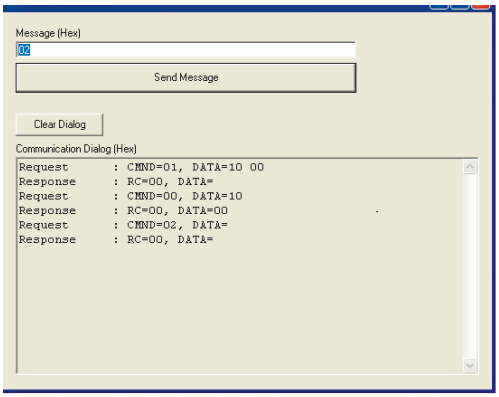


1.19 The DATA=01 means its USB Keyboard Emulation.

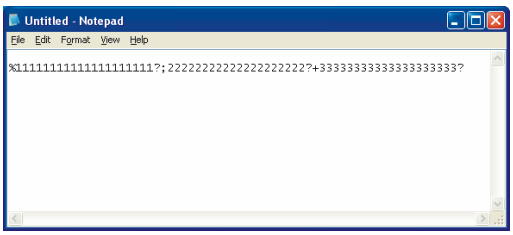
1.20 You must now reset the MSR by sending the command 02.

1.21 Type 02 into area under the heading Message (Hex)

1.22 Then click on Send Message.



1.23 Double click on 'The KB MSR 'Test icon in the desktop and slide the test c card. The following icon will appear



1.24 Done.

Installing the Touch Driver Software

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

- Windows XP
- Windows 2000
- Windows Me
- Windows 98
- Windows 95
- Windows NT 4.0
- CE 2.x, 3.0, 4x
- Windows XP Embedded
- Windows 3.x
- MS DOS
- OS/2

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

Your Elo USB 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 section for driver installation instructions.

Installing APR USB Touch Driver for Windows XP

Insert the ELO APR CD-ROM in your computer's CD-ROM driver.
Follow the directions on the screen to complete the APR 2.0 driver setup for your version of Windows.

1 Click **Start** > **Run.**
2 Click the **Browse** button to locate the SW600117.exe program on the CD-ROM.
3 Click **Open**, then **OK** to run SW600117.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 XP, Windows 2000, Me and 98

1 Insert the Elo CD-ROM in your computer's CD-ROM drive.
If Windows XP, Windows 2000,Windows 98, or Windows Me 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 XP, Windows 2000,Windows 98, or Windows Me does not start the Add New Hardware Wizard:

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

1 Insert the Elo CD-ROM in your computer's CD-ROM drive. If the AutoStart feature for your CD-ROM drive is active, the system automatically detects the CD and starts the setup program.

2 Follow the directions on the screen to complete the driver setup for your version of Windows. If the AutoStart feature is not active:

  1 Click **Start** > **Run**.

  2 Click the **Browse** button to locate the EloCd.exe program on the CD-ROM.

  3 Click **Open**, then **OK** to run EloCd.exe.

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

CHAPTER

3

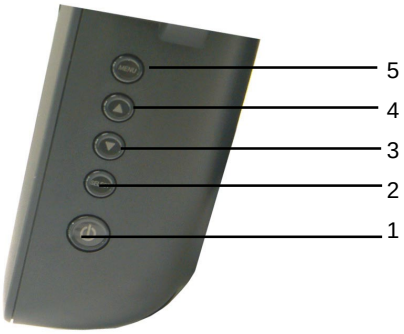
OPERATION

About Touchmonitor Adjustments

Your touchmonitor will unlikely require adjustment. Variations in video output and application may require adjustments to your touchmonitor to optimize the quality of the display. For best performance, your touchmonitor should be operating in its native resolution, which is 1024 x 768 at 60-75 Hz. 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. To restore factory set up, choose it from the OSD. See page 3-26.

LCD Function Key



	Controls	Function
1	**Power Switch**	Turns the display system power **on** or **off**.
2	**Select**	Displays the OSD menus on the screen and used to input the OSD control options on the screen.
3	▼	Adjusts the decreasing value of the selected OSD control option.
4	▲	Adjusts the increasing value of the selected OSD control option.
5	**Menu**	Menu display and menu exit.

Controls and Adjustment

OSD Lock/Unlock

You are able to lock and unlock the OSD feature. The monitor is shipped in the unlocked position.

To lock the OSD:

1 Press the Menu button and ▲ button simultaneously for 2 seconds. A window will appear displaying “OSD Unlock”. Continue to hold the buttons down for another 2 seconds and the window toggles to “OSD Lock”.

Power Lock/Unlock

You are able to lock/unlock the power feature. The monitor is shipped in the unlocked position.To lock the power:

1 Press the Menu button and the ▼ simultaneously for 2 seconds. A window for another 2 seconds and the window toggles to —”Power Lock“.

OSD Menu Functions

To display the OSD Menu press the **Menu** button.

1 Press the ▲ button or ▼ button to select the different OSD control option.

2 When the function you want to change is displayed, press the **Select** button.

To adjust the Value of the function:

1 Pressing the ▲ button increases the value of the selected OSD control option.

2 Pressing the ▼ button decreases the value of the selected OSD control option.

After adjusting the values, the monitor will automatically save the changes.

NOTE: The OSD screen will disappear if no input activities are detected for 45 seconds.

OSD Control Options

Brightness

• Background luminance of the LCD panel is adjusted.

Contrast

• Adjusts the contrast or the values of color gain (red, green or blue).

Sharpness

• The sharpness can be adjustable.

Phase

• Adjusts the phase of the dot clock.

Auto Adjust

• Clock system auto adjustment (under 5 seconds).

OSD Left/Right

• The OSD screen is moved horizontally right and left.

OSD Up/Down

• The OSD screen is moved vertically up and down.

Clock

• Adjusts the ratio of dividing frequency of the dot clock.

Color Temperature

• Sets R, G, B gain.

Current Input

• The frequency of the horizontal/vertical synchronizing signal under the input indicated. (This information is under the Auto Adjust icon)

OSD Position

• Allows the OSD indicator position to be selected.

Language

• Select the language used for the OSD menu from among English, French, German, Spanish and Japanese.

Recall Defaults

• All data copy from factory shipment data.

OSD Timeout

• Adjusts time for OSD menu to disappear.

Input Video Select

• Select D-SUB analog, DVI digital signal.

Volume

• To increase or decrease the sound level.

Power-Save (No Input)

- The LCD panel background is cut when there is no signal input (AC line power consumption of 4w or less).

Power LED Display & Power Saving

General Power Saving Mode

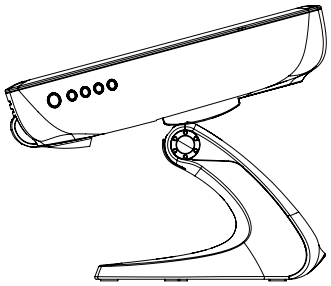
When the power switch is **on**, this LED light is green.
The LED indicates the different power status with altered LED colors when the monitor operates in different modes (see following table).

Mode	Power Consumption	Indicator
On	30w max.	Green
Sleep	4w max.	Orange
Off	2w	NO

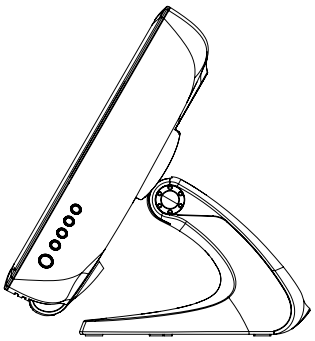
We recommend switching the monitor off when it is not in use for a long period of time.

Display Angle

For viewing clarity, you can tilt the LCD forward up 67 to 90 degrees.



Tilt 15° from vertical



Tilt 30° from vertical

CAUTION In order to protect the LCD, be sure to hold the base when adjusting the LCD, and take care not to touch the screen.

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. Elo Technical Support numbers are listed on the last page of this manual.

Solutions to Common Problems

Problem	Suggestion(s)
The monitor does not respond after you turn on the system.	Check that the monitor's Power Switch is on. Turn off the power and check the monitor's power cord and signal cable for proper connection.
Characters on the screen are dim	Refer to the *Controls and Adjustments* section to adjust the brightness.
The screen is blank	During operation, the monitor screen may automatically turn off as a result of the Power Saving feature. Press any key to see if the screen reappears.Refer to the *Controls and Adjustments* section to adjust the brightness.
OSD or power buttons don't work	Check to see that they are not locked out. See page 3-25.
"Out of Range" display	check to see of the resolution or vertical frequency of your computer is higher than that of the LCD display.Reconfigure the resolution of your computer to make it less than or equal to 1024 x 768. 1024 x 768 is optimal. See Appendix A for more information on resolution.
Touch doesn't work	Make sure cable is securely attached at both ends.

CHAPTER

A

NATIVE RESOLUTION

The native resolution of a monitor is the resolution level at which the LCD panel is designed to perform best. For the Elo LCD touchmonitor, the native resolution is 1024 x 768 for the 15” 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	15.0" LCD
640 x 480 (VGA)	Transforms input format to 1024 x 768
800 x 600 (SVGA)	Transforms input format to 1024 x 768
1024 x 768 (XGA)	Display in native resolution

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

VGA	**640 x 480**
SVGA	**800 x 600**
XGA	**1024 x 768**

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

CHAPTER

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 Turn off the product before cleaning.

3 Your new touchmonitor is equipped with a three-wire, grounding power cord. The power cord plug will only fit into a grounded outlet. Do not attempt to fit the plug into an outlet that has not been configured for this purpose. Do not use a damaged power cord. Use only the power cord that comes with your Elo TouchSystems touchmonitor. Use of an unauthorized power cord may invalidate your warranty.

4 The slots located on the sides and top of the touchmonitor case are for ventilation. Do not block or insert anything inside the ventilation slots.

5 It is important that your touchmonitor remains dry. Do not pour liquid into or onto your touchmonitor. If your touchmonitor becomes wet do not attempt to repair it yourself.

Care and Handling of Your Touchmonitor

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

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

CHAPTER

C

TECHNICAL SPECIFICATIONS

Display Modes

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

Item	Resolution	Type	H. Scan(KHz)	V. Scan(Hz)	Pol.
1	640 x 350	VGA	31.469	70.087	+ /
2	720 x 400	VGA	31.469	70.087	- / +
3	640 x 480	VGA	31.469	59.940	- /
4	640 x 480	VESA72	37.861	72.809	-/
5	640 x 480	VESA75	37.500	75.000	-/
6	800 x 600	SVGA	35.156	56.250	+/+
7	800 x 600	SVGA	37.879	60.317	+/+
8	800 x 600	VESA72	48.077	72.188	+/+
9	800 x 600	VESA75	46.875	75.000	+/+
10	1024 x 768	XGA	48.363	60.004	-/-
11	1024 x 768	XGA	56.476	70.069	-/-
12	1024 x 768	VESA75	60.023	75.029	+/+

Touchmonitor Specifications

Model		**1522L**
LCD Display		15.0” TFT Active Matrix Panel
Display Size		304.1(H) x 228(V) mm
Pixel Pitch		0.297(H) x 0.297(V) mm
Display Mode		VGA 640 x 350 (70 Hz)
		VGA 720 x 400 (70 Hz)
		VGA 640 x 480 (60 / 72 / 75 Hz)
		SVGA 800 x 600 (56 / 60 / 72 / 75Hz)
		XGA 1024 x 768 (60 / 70 / 75Hz)
Native		XGA 1024 x 768
Contrast Ratio		500 : 1 (typical); min. 400:1
Brightness		
AccuTouch		Typical 200 cd/m$^{2;}$ min. 160 cd/m^2
IntelliTouch		Typical 230 cd/m$^{2;}$ min. 184 cd/m^2
CarrollTouch Infrared		Typical 230 cd/m$^{2;}$ min. 184 cd/m^2
Surface Capacitive		Typical 210 cd/m$^{2;}$ min. 168 cd/m^2
Acoustic Pulse Recognition (APR)		Typical 230 cd/m$^{2;}$ min. 184 cd/m^2
Response Time Rise/Fall		8.5/6 ms typical, 11 ms/10 ms max.
Display Color		16.2M colors, with frame rate control
Viewing Angle	CR>=10	(L/R)= -70^o/+70^o (typical), (U/D) -60^o/+60^o (typical)
Input Signal	VGA Analog Video	R.G.B. Analog 0.7V peak to peak
	Sync	TTL Positive or Negative, Composite Sync, Sync on green
Signal Connector		15 Pin D-Sub
Front Control		Power on / off , Menu,▲ ,▼ , Select
OSD		Contrast, Brightness, H/V-Position, Recall default,
		Color Temperature, Volume, Sharpness,
		Phase, Clock OSD H/V position, OSD Time, Auto Adjust,
		OSD Language, Input Select
Plug & Play		DDC 2B
Touch Panel (optional)		AccuTouch, IntelliTouch, Surface Capacitive, CarrollTouch, APR
Power		Input: AC 85-265V, 47-63Hz, or DC 12V/4A (max.)
Operating Conditions	Temp	0ºC ~ 40ºC (41ºF ~ 95ºF)
	Humidity	20% ~ 80% (No Condensation)
		Altitude To 12,000 Feet
Dimensions (HxWxD)		354 x 286 x 265mm
Weight (Net)		20.1lbs., monitor weight 16.2 lbs.
Certifications	EMC	CE, C-Tick, FCC, VCCI(Class B)
	Safety	CB, CE, cULus, S(Argentina), Semko S Mark

IntelliTouch Touchscreen Specifications

Mechanical	
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). Equates to less than ±1%.
Touchpoint Density	More than 100,000 touchpoints/in2 (15,500 touchpoints/cm2).
Touch Activation Force	Typically less than 3 ounces (85 grams).
Surface Durability	Surface durability is that of glass, Mohs' hardness rating of 7.
Expected Life Performance	No known wear-out mechanism, as there are no layers, coatings, or moving parts. IntelliTouch technology has been operationally tested to more than 50 million touches in one location without failure, using a stylus similar to a finger.
Sealing	Unit is sealed to protect against splashed liquids, dirt, and dust.
Optical	
Light Transmission (per ASTM D1003)	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. Clear surface: Excellent, with no noticeable degradation. Antiglare surface: 6:1 minimum.
Gloss (per ASTM D2457 using a 60-degree gloss meter)	Antiglare surface: Curved: 60 ± 20 gloss units or 75 ± 15 gloss units.
Environmental	
Chemical Resistance	The active area of the touchscreen is resistant to all chemicals that do not affect glass, such as: Acetone Toluene Methyl ethyl ketone Isopropyl alcohol Methyl alcohol Ethyl acetate Ammonia-based glass cleaners Gasoline Kerosene Vinegar
Electrostatic Protection (per EN 61 000-4-2, 1995)	Meets Levels 4 (15kV air/8 kV contact discharge)

CarrollTouch Infrared Touchscreen Specifications

Mechanical	
Input Method	Finger or gloved hand activation
Electrical	
Positional Accuracy	Typical centroid accuracy: 2 mm with 1 mm STD error
Resolution	Touchpoint density is based on controller resolution of 4096 x 4096
Touch Activation Force	No minimum touch activation force is required
Controller	Board: Serial (RS232) or USB 1.1
Optical	
Light Transmission	Glass overlay: 92% per ASTM D1003-92 Environmental
Chemical Resistance	Glass overlays: The touch active area of the touchscreen is resistant to 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. Polycarbonate bezel: around perimeter of display has some sensitivity to hydrocarbons.
Durability	
Surface Durability	Glass filter option: Surface durability is that of glass, Mohs' hardness rating of 7.

Acoustic Pulse Recognition Specifications

Mechanical	
Input Method	Finger, finger nail, gloved hand, or stylus activation
Electrical	
Position Accuracy	1% max. error
Resolution Accuracy	Touchpoint density is based on controller resolution of 4096 x 4096
Touch Activation Force	Typically 2 to 3 ounces (55 to 85 grams)
Controller	Board: USB 1.1
Optical	
Light Transmission	90%+/-5%
Environmental	
Chemical resistance	The touch activation area of the touchscreen is resistant to 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
Durability	
Surface Durability	Surface durability is that of glass, Mohs' hardness rating of 7
Expected Life	No known wear-out mechanism, as there are no layers, coatings, or moving parts. APR technology has been operationally tested to more than 50 million touches in one location without failure, using a stylus similar finger.

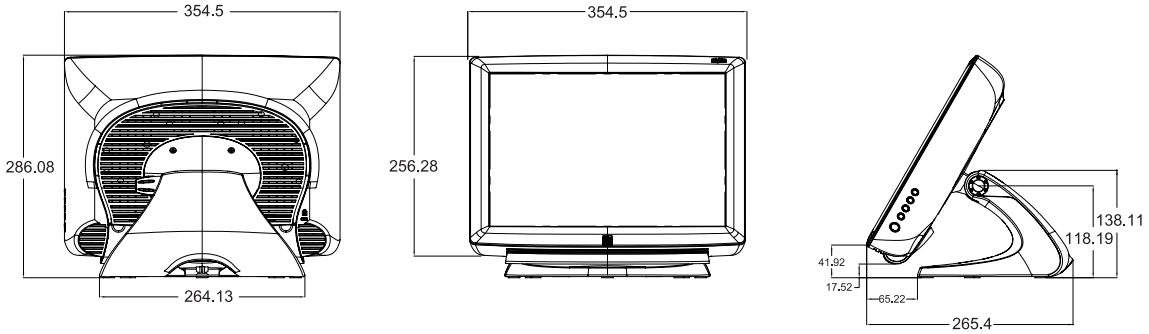
AccuTouch Touchmonitor Specifications

Mechanical	
Construction	Top: Polyester with outside hard-surface coating with clear or antiglare finish. Inside: Transparent conductive coating. Bottom: Glass substrate with uniform resistive coating. Top and bottom layers separated by Elo-patented separator dots.
Positional Accuracy	Standard deviation of error is less than 0.080 in. (2.03 mm). This equates to less than ±1%.
Touchpoint Density	More than 100,000 touchpoints/in2 (15,500 touchpoints/cm2).
Touch Activation Force	Typically less than 4 ounces (113 grams).
Surface Durability	Meets Taber Abrasion Test (ASTM D1044), CS-10F wheel, 500 g. Meets pencil hardness 3H.
Expected Life	AccuTouch technology has been operationally tested to greater than
Performance	35 million touches in one location without failure, using a stylus similar to a finger.
Optical	
Light Transmission (per ASTM D1003)	Typically80% at 550-nm wavelength (visible light spectrum).
Visual Resolution	All measurements made using USAF 1951 Resolution Chart, under 30 X magnification, with test unit located approximately 1.5 in. (38 mm) from surface of resolution chart. Antiglare surface: 6:1 minimum.
Haze (per ASTM D1003)	Antiglare surface: Less than 15%.
Gloss (per ASTM D2457)	Antiglare surface: 90 ± 20 gloss units tested on a hard-coated front surface.

Surface Capacitive Touchscreen Specifications

Mechanical		
Input method	Finger	
Glass Thickness	0.118" / 3.0 mm nominal. (Glass only, not including tape, wires and/or solder if used)	
Electrical		
Positional Accuracy	Reported touch coordinates are within 1.5% of true position (based on viewing area dimensions)	
Resolution	Touchpoint density is based on controller resolution of 4096 x 4096	
Controller	Controller board size of 2.1" x 3.3" (5.4 x 8.4 cm), with auto-detect function for Serial (RS232) and USB 1.1 connection	
Optical	Up to 85% per ASTM D1003	
Environmental		
Temperature	Touchscreen	Operating: –15°C to 70°C
		Storage: –50°C to 85°C
	Controller	Operating: 0°C to 65°C
		Storage: –25°C to 85°C
Relative Humidity	Operating/Storage: 10% to 90% RH, noncondensing	
Chemical Resistance	Water, ammonia, isopropyl alcohol, and similar non-abrasive cleaners	
Agency Approvals	UL, cUL, TUV, CE, FCC Class A & B, CISPR B	
Sealability	Can be sealed to meet NEMA 4 and 12 and IP 65 standards	
Durability		
Surface Durability	Anti-glare hardcoat cannot be scratched using any stylus with Mohs rating equal to or less than 6. Tested in the laboratory to withstand over 160 million (mechanically simulated) touches without noticeable degradation.	

15” LCD Touchmonitor(1522L-XXXB-1-XX-G) 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 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 Industrie 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 2006/95/EC.

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.

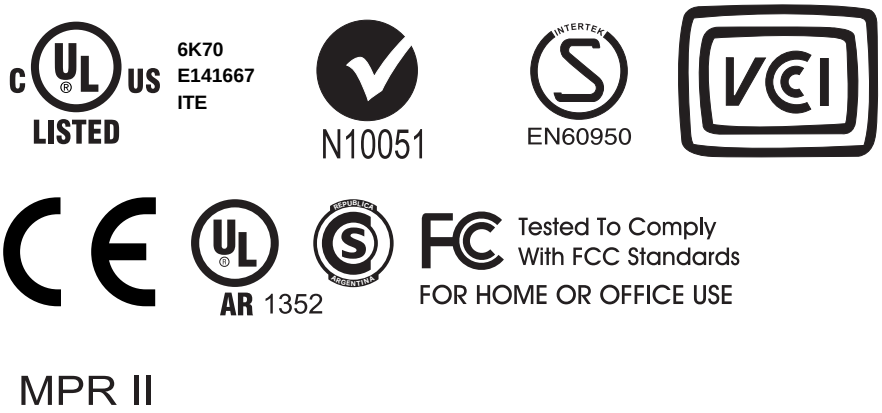
iii) Reorient the affected receiver's antenna.

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. (Un-terminated 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.



"The application of this monitor is restricted to special controlled luminous screen surface trend to reflect annoying light of lamps and sunlight. To avoid these reflections the monitor should not be positioned in front of a window or directed to luminaries. The monitor is in compliance with Reflection Class III according to ISO 13406-2"

This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

CAUTION:
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer’s instructions.

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. With the exception of the negotiated warranty periods; the warranty for the touchmonitor and components of the product is 3 years.

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

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

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

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

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

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