



* Shown with optional peripherals

Touchmonitor User Guide

1529L 15" LCD Desktop Touchmonitor, 3000 series
(Optional Magnetic Stripe Reader, Barcode Scanner,
Customer Display and Biometric available)



Our commitment. Your advantage.

Elo Touchmonitor User Guide

15" LCD Desktop

1529L

Revision F

P/N 008603E

Elo TouchSystems.

**1-800-ELOTOUCH
www.elotouch.com**

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INTRODUCTION

Product Description

The 1529L is a retail terminal designed to present information to the operator and the customer. The 1529L is available in serial and USB versions or combo touch monitor. The 1529L consists of a 15.0" LCD main display with a touchscreen and the following optional peripherals: customer display, vacuum fluorescent display (VFD) Customer Display, fingerprint reader, barcode scanner, credit card reader, and a 6 port USB (USB version only) Hub. The main display element is a 15.0 inch diagonal XGA resolution (1024 x 768) LCD display. The main display will consist of an LCD Display and touchscreen. Four types of touchscreens can be selected in the 1529L as options. They are AccuTouch, Intellitouch, and carrollTouch and Acoustic Pulse Recognition.

The fingerprint reader translates illuminated images of fingerprints into digital code for further software processing, e.g. enrollment (fingerprint registration) and verification (authentication of registered users). The fingerprint reader uses the SEIR method and CMOS image sensor to capture high contrast, high resolution fingerprint images. A series of algorithms extracts minutiae data from the image, mapping the distinguishing characteristics of fingerprint ridge ends, splits, dots, and arches. To identify or verify a fingerprint, a proprietary matching algorithm compares the extracted minutiae points from the input fingerprint on the optical module to a previously stored sample. The entire matching process takes roughly one second. There is a fingerprint reader available in the USB version of the 1529L.

The credit card reader 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 credit card reader forward or backward. There is a USB credit card reader only.

The Hub provides 4 internal USB ports to be used by the credit card reader, the fingerprint reader or barcode scanner, the touchscreen, and the customer display. The hub also supplies two USB ports to the outside of the back of the 1529L for external use. The hub is only used by the USB version of the 1529L. The 1529L is powered by a universal AC power source or 12 VDC from external power source.

The barcode scanner comes in two different configurations. The first is a high-end omni-directional scanner, which is also capable of reading 2-D barcodes. And the second is a lower cost, yet efficient, 1-D scanner. Both scanners run on a USB interface.

Detailed LCD Display Performance Requirements

15 inch 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 | 400:1 typical |
| Brightness | |
| LCD | 350 cd/m ² (Typical) |
| AccuTouch | 280 cd/m ² (Typical) |
| IntelliTouch | 322 cd/m ² (Typical) |
| CarrollTouch | 322 cd/m ² (Typical) |
| Surface Capacitive | 298 cd/m ² (Typical) |
| Acoustic Pulse Recognition | 322 cd/m ² (Typical) |
| Accutouch Transmission | 82% typical |
| IntelliTouch Transmission | 92% typical |
| IR Touchscreen Transmission | 92% typical |
| Surface Capacitive Transmission | 84% typical |
| Acoustic Pulse Recognition | 92% typical |
| Response Time | Tr=4 msec/Tf=12msec typical |
| Display Color | 16.2 million colors, 6 Bit with dithering |
| Vertical Viewing Angle | Typical Vertical Viewing Angle: 60deg(looking down)/40 deg(lookingup) @ CR>=10 |
| Horizontal Viewing Angle | Typical Vertical Viewing Angle: 60deg(looking down)/60 deg(lookingup) @ CR>=10 |

Customer Display

The Customer Display is a twenty character two line vacuum fluorescent display (VFD). It consists of a VFD and VFD controller.

Serial Version

Optional Parameters

| | |
|-------------------------|----------------|
| Characters per row | 20 |
| Number of rows | 2 |
| Character configuration | 5x7 dot matrix |
| Character Height | 9.5mm |
| Character width | 6.2mm |
| Character configuration | ASCII |
| Character color | Blue green |
| MTBF | 300,000 hours |

Fingerprint Reader

There is a fingerprint reader in the USB version only.

General Description-FDU01B is a PC peripheral FRD (Fingerprint Recognition Device) for USB (Universal Serial Bus) connections.

Specifications

| | |
|----------------------|-----------------|
| Sensor | SecuGen FOR |
| Image Capture Speed | 600ms/frame |
| Image Transfer Speed | 500Byte/ms |
| Pixel Resolution | 356x292 |
| USB Signaling Type | Full Speed Type |

Theory of Operation

The USB host initiates communication with the FDU01 using operation commands (Sensor LED On, Fingerprint Capture Start and Stop). Fingerprint data are then captured by the CMOS sensor at a total image size of 356 x 292 with 8-bit gray level. The image frame transfer speed is 500 bytes/ms. It takes about 600 milliseconds to send one frame of image data over USB protocols. FDU01 uses the SecuGen FOR (Fingerprint Optic Reader).

Sensor Specifications

| | |
|--------------------------|-------------------|
| Sensor | CMOS Image Sensor |
| Resolution | 500dpi |
| Verifying Time | <1sec |
| Image Capture Error Rate | <0.1% |
| Life Time Typically | 40,000Hrs |

Credit Card Reader

There is a USB credit card reader only. The USB version is available in HID and Keyboard emulation versions. The reader reads all three stripes on a standard credit card or drivers 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 |

Barcode Scanner

Omni-directional scanner:

1. Ability to read 1D codes with a 360° rotation, eliminating the need to orient the scanner in the field of view
2. Scan angle
 - Minimum horizontal: $34^{\circ} \pm 1.5^{\circ}$
 - Minimum vertical: $12.5^{\circ} \pm 1.5^{\circ}$
3. Ability to read 2-D barcodes (PDF417, Micro PDF)
4. Ability to read damaged or poorly printed barcodes

5. Effective form factor; ability to be mounted on side of ET1529L
6. USB interface that complies with USB 2.0 standards
7. USB bus powered
8. Easy communication between host and scanner
9. Visible laser diode operating at 650nm
10. 600+ scans/sec

1-D scanner:

1. Ability to read 1-D codes
2. Scan angle
Minimum: $47^{\circ} \pm 3^{\circ}$
3. Low cost solution
4. Effective form factor; ability to be mounted on side of ET1529L
5. USB interface that complies with USB 2.0 standards
6. USB bus powered
7. Easy communication between host and scanner
8. Visible laser diode operating at 650nm
9. 100+ scans/sec

Six Port USB Hub

The Hub provides 4 internal USB ports to be used by the credit card reader, the fingerprint reader, the touchscreen, and the customer display. The hub also supplies two USB ports to the outside of the back of the 1529L for external use. The hub is only used by the USB version of the 1529L. The hub meets the following requirements:

Specification

Full compliance with USB specification 1.0, 1.1 and HID Class Definition Rev 1.0.

Hub shall be self powered

Hub shall provide 2 external and 4 internal downstream ports with individual port over current detection, protection and recovery. Supports both Open Host Controller Interface (OHCI) and Universal Host Controller Interface (UHCI).

Supports Suspend and Resume operation.

Bus fault detection and recovery.

External Power Supply

The 1529L 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%

INSTALLATION AND SETUP

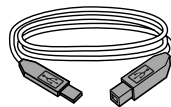
This chapter discusses how to install your LCD touchmonitor and how to install Elo TouchSystems driver software.

Unpacking Your Touchmonitor

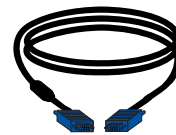
Check that the following items are present and in good condition:



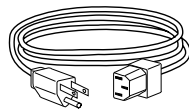
Touchmonitor



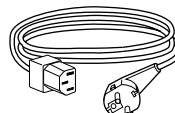
USB Cable



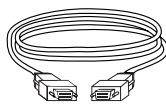
Video cable



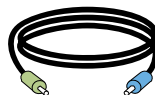
Power cable US/Canadian



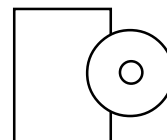
European power cable



DVI cable



Speaker



CD and Quick Install Guide

Product Overview

Main Unit



Note: Shown with optional Biometric & MSR.

Rear View



Note: Shown with optional Rear Facing Customer Display.

Side View



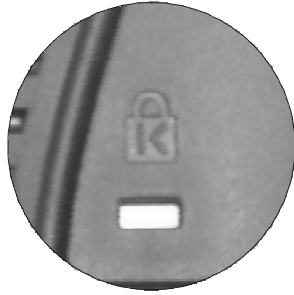
Base Bottom View



or



Kensington™ Lock



The Kensington™ lock is a security device that prevents theft. To find out more about this security device, do to <http://www.kensington.com>.

USB Interface Connection

Your touchmonitor comes with only one touchscreen connector cables: **USB** 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.



cable cover

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 in the second 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. Tighten by turning the two thumb screws clockwise to ensure proper grounding. You can select DVI video cable or D-SUB15 video cable.

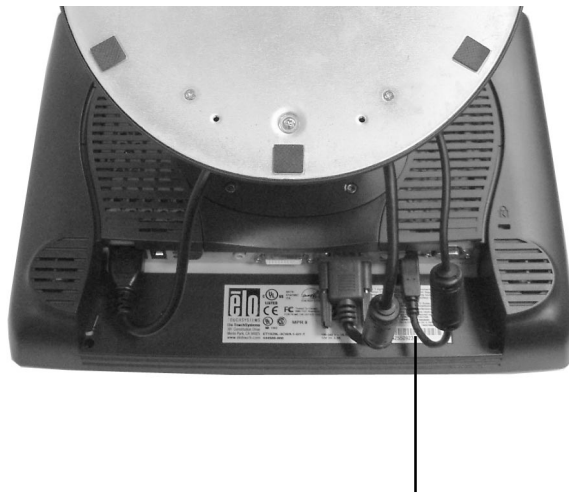


DVI cable



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 USB cable is for optional touch, MSR, CD and Finger Print Reader. Only one USB cable is needed because the device contains a self powered USB 1.1 Hub. Two self powered ports are available for running other USB devices. For touch only, no USB Hub is present.

USB / SERIAL Interface Connection

Your touchmonitor comes with only one touchscreen connector cables: **USB** 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.



cable cover

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 in the second 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. Tighten by turning the two thumb screws clockwise to ensure proper grounding. You can select DVI video cable or D-SUB15 video cable.



DVI cable



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

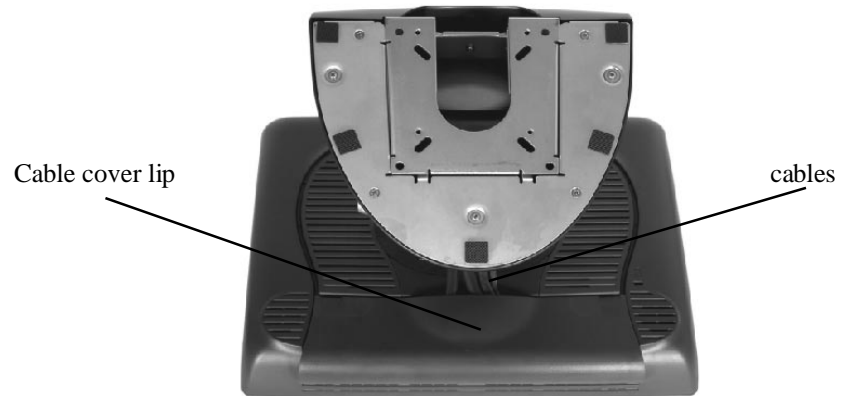


Serial cable

For USB interface, connect one end of the USB cable to the rear side of the computer and the other to the LCD monitor.

For Serial interface, connect one end of the RS-232 cable to the rear side of the computer and the other to the LCD monitor.

Replace the Cable Cover



Then you have attached all the cables to the monitor, gently bring all the cables toward the standard so they fit under the cover lip.

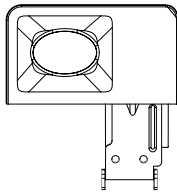
Snap the Cable cover in place over the connections.

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

Finger Print Reader



NOTE: This driver is for MS Windows 9x through XP.

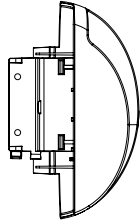
- 1 On the TouchTools CD, browse to **Touch Monitor Peripherals\Finger Print Readers\Fingerprint Reader 229L 1529L\Driver Install\Drivers**.
- 2 Double-click *setup.exe*
Follow the Install Shield Wizard procedure to complete the installation.
For a detailed software development kit, browse to **Touch Monitor Peripherals\Finger Print Readers\Fingerprint Reader 229L 1529L\Driver Install\Drivers** and open the following files:
 - FDxSDKforWindows1 .20.zip
 - SecuBSPSDK for Windows2 .10.zip

You will enter one of the following serial numbers depending on your operating system:

- FDx SDK for Windows: 31-100s101-3586383
- FDx SDK for Windows CE: 32-100s101-9713291
- SecuBSP SDK for Windows: 41-100s101-7685871
- SecuBSP SDK for Windows CE: 42-100s101-1155462
- SecuBSP SDK: 51-100s101-5963137

Once the driver setup is complete, the demo program can be run from **Touch Monitor Peripherals\Finger Print Readers\Fingerprint Reader 229L 1529L\Demo\BSPDemo.exe**

Magnetic Stripe Reader



No device are needed.

Testing the USB MSR Keyboard Emulation

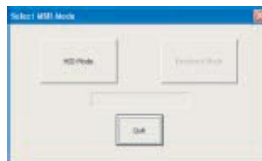
- 1 Plug in the device.
- 2 Open MS Word.
- 3 Slide the card through the MSR to view the data.

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

- 1 To convert from HID mode to Keyboard Emulation mode
 - 1.1 Double-click on the “MSR Change Mode” icon on the desktop.
The following will appear:



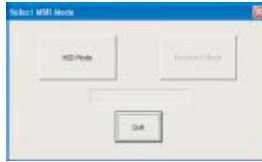
- 1.2 The dim box will indicate the current setting. Click the “Keyboard Mode” to switch to Keyboard Emulation mode.
 - 1.3 Click “Quit” to close the window.
- 2 Open Notepad.
- 3 Slide the card through the MSR to view the data.

Convert MSR from keyboard emulation to HID

1 To convert from Keyboard Emulation mode to HID mode

1.1 Double-click on the “MSR Change Mode” icon on the desktop.

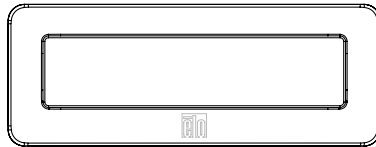
The following will appear:



1.2 The dim box will indicate the current setting. Click the “HID Mode” to switch to HID mode.

1.3 Click “Quit” to close the window.

Rear Facing Customer Display



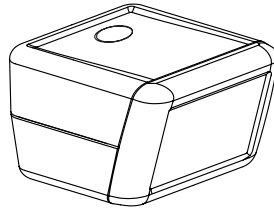
1. Insert your Elo TouchTools CD.
2. On the CD, browse to ***Touch Monitor Peripherals\Rear Facing Customer Display\Drivers\USB Drivers***. Click on the folder that has the name of your operating system for the necessary drivers.
3. Once in this folder, open up the zip file and open the install text file for further driver installation instructions.

* Note: If your software requires **OPOS Drivers**, it is available in the following location: ***Touch Monitor Peripherals\Rear Facing Customer Display\Drivers\OPOS Drivers***.

Test Applications:

1. Insert your Elo TouchTools CD.
2. On the CD, browse to ***Touch Monitor Peripherals\Rear Facing Customer Display\Testing\USB***.
3. Open up the text file named ***USB Test*** and follow the instructions. This testing procedure assumes you have already installed the necessary USB drivers.

Barcode Scanner



1. Insert your Elo TouchTools CD.
2. On the CD, browse to *Touch Monitor Peripherals\Barcode Scanner Startup\Drivers*.
3. Double-click on *USB7210.msi* and follow the prompts given by the setup file.
4. Once you have finished installing the above: Right click on *My Computer* and click on *Properties*. Click on the *Hardware* tab and then click *Device Manager*.
5. Double click on *USB7210 Converter Module*, which should be located in the *Other Devices* section. Next click on *Reinstall Driver*.
6. Now your Windows operating system should guide you through the rest of the installation process. If any files are requested, please provide the following pathname in your Elo TouchTools CD: *Touch Monitor Peripherals\Barcode Scanner Startup\Drivers*.

Test Applications:

1. Insert your Elo TouchTools CD.
2. On the CD, browse to *Touch Monitor Peripherals\Barcode Scanner Startup\Test Applications*.
3. Double click on *Scanner Test Application Readme*. This document will explain how to test your scanner for basic functionality.

Your scanner default settings do not enable 2-D barcode reading ability. In order to enable this option, follow these steps:

- 1) Scan the barcodes below to enable PDF417 and MicroPDF417. These are both types of 2-D barcodes.



Enable PDF417

(01h)



Enable MicroPDF417

(01h)

2) Now scan the barcode below to change your scanning pattern. Using this scanning pattern will allow you to read 2-D barcodes (you can still read 1-D barcodes also).



**Always Raster
(02h)**

The scanner module also adds a Hall Effect Switch (HE Switch) that enables the unit to automatically set the Trigger mode of the Scan Engine depending on the location of an external magnet (included in scanner cradle).

The output of the HE Switch switches low (turns ON) when a magnetic field (south polarity) perpendicular to the Hall sensor exceeds the operate point threshold, B_{OP} (typically 100 G magnetic field). When the magnetic field is reduced below the release point, B_{RP} , (typically 45 G magnetic field) the HE Switch output goes high (turns OFF). The Hall Effect Switch goes to the USB Controller's DSR input. As the HE Switch opens or closes, it causes the USB Controller to initiate a USB Interrupt message to the host. When the Host Application software detects the DSR input active LOW via the USB Interrupt and a CDC message (HE Switch is ON), it sends a 'Continuous Trigger' SSI command to the Symbol Scan Engine.

The Scan Engine turns on the laser and is able to scan and decode barcodes continuously without the user having to press the trigger (momentary switch). When the Host Application software detects the DSR input HIGH (HE Switch is OFF), it sends a 'Level Trigger' SSI command to the Symbol Scan Engine. The Scan Engine turns off the laser and will scan and decode barcodes only when the trigger is activated.

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 following section for driver installation instructions.

Installing the USB Touch Driver

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

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

OPERATION

About Touchmonitor Adjustments

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

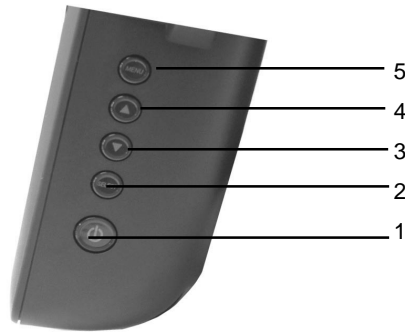
For best performance, your touchmonitor should be operating in native resolution, that is 1024 x 768 at 60-75 Hz. Use the Display control panel in Windows to choose 1024 x 768 resolution.

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 3-43.

15" 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 select (“Clockwise” and “Counter-clockwise” direction) 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 vertically 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 Auto Adjust icon)

OSD Position

- Allows the OSD indication position to be selected.

Language

- Select the language used for the OSD menu from among English, France, Deutsch, Spanish and Japanese.

Recall Defaults

- All data copy from factory shipment data.

OSD Timeout

- Adjust time for OSD 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 are switch **on**, this LED lights in **green**.

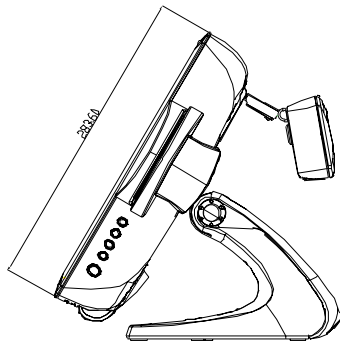
The LED indicates the different power status with altered LED colors when monitor operates in different modes (see following table).

| Mode | Power | |
|-------|-------------|-----------|
| | Consumption | Indicator |
| On | 50w max. | Green |
| Sleep | 4w max. | Orange |
| Off | 2w | NO |

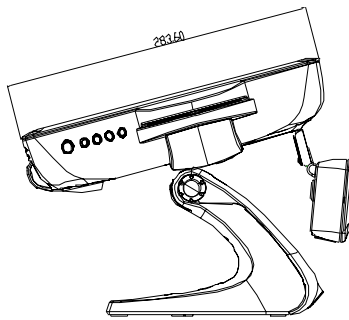
We recommend switching the monitor off when it is not in use for a long period of time.

Display Angle

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



Tilt 30° from vertical



Tilt 75° 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.

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

- Gain of R, G, and B signal is adjusted.

Sharpness

- The sharpness can be adjustable.

Phase

- The phase of the dot clock is adjusted.

Auto Adjust

- Automatically adjusts the systems dot clock(takes approximately 5 seconds).

OSD Left/Right

- The osd screen is moved horizontally left and right.

OSD Up/Down

- The OSD screen is moved vertically up and down.

Clock

- The ratio of dividing frequency of the dot clock is adjusted.

Color Temperature

- Sets the R, G, and B gains.

Current Input

- The frequency of the horizontal/vertical synchronizing signal under the input is indicated.(These information is under auto Adjust icon)

OSD Position

- The osd indication position can be selected.

Language

- Select the language for the OSD menu from among English, France, Deutsch, Spanish and Japanese.

Recall Defaults

- Restore all original factory defaults.

OSD Timeout

- Adjust how long the OSD menu is displayed.

Input Video Select

- Select D-SUB Analog, dvi Digital signal.

Volume

- To increase or decrease the sound level.

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 The screen is blank | Refer to the <i>Controls and Adjustments</i> section to adjust the brightness. 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 <i>Controls and Adjustments</i> section to adjust the brightness. |
| OSD or power buttons don't work "Out of Range" display | Check to see that they are not locked out. See page 3-33. 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 1024x768. 1024x768 is optimal. See Appendix A for more information on resolution. |
| Touch doesn't work | Make sure cable is securely attached at both ends. |



NATIVE RESOLUTION

The native resolution of a monitor is the resolution level at which the LCD panel is designed to perform best. For the Elo LCD touchmonitor, the native resolution is 1024 x 768 for the 15.0 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 | 15.0" 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.

B

TOUCHMONITOR SAFETY

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

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

Care and Handling of Your Touchmonitor

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

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



Warning

This product consists of devices that may contain mercury, which must be recycled or disposed of in accordance with local, state, or federal laws. (Within this system, the backlight lamps in the monitor display contain mercury.)



Waste Electrical and Electronic Equipment(WEEE) Directive

In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling.

C

TECHNICAL SPECIFICATIONS

Display Modes

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

| Item | Resolution | Type | H. Scan(KHz) | V. Scan(Hz) | Pol. |
|------|------------|--------|--------------|-------------|-------|
| 1 | 640X350 | VGA | 31.469 | 70.087 | +/ |
| 2 | 720X400 | VGA | 31.469 | 70.087 | - / + |
| 3 | 640X480 | VGA | 31.469 | 59.940 | -/ |
| 4 | 640X480 | VESA72 | 37.861 | 72.809 | -/ |
| 5 | 640X480 | VESA75 | 37.500 | 75.000 | -/ |
| 6 | 800X600 | SVGA | 35.156 | 56.250 | +/+ |
| 7 | 800X600 | SVGA | 37.879 | 60.317 | +/+ |
| 8 | 800X600 | VESA72 | 48.077 | 72.188 | +/+ |
| 9 | 800X600 | VESA75 | 46.875 | 75.000 | +/+ |
| 10 | 1024X768 | XGA | 48.363 | 60.004 | -/- |
| 11 | 1024X768 | XGA | 56.476 | 70.069 | -/- |
| 12 | 1024X768 | VESA75 | 60.023 | 75.029 | +/+ |

Touchmonitor Specifications

| Model | | 1529L |
|-------------------------------|------------------|---|
| 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 | | 400 : 1 (typical) |
| Brightness | | 350 cd/m ² with AT 287 cd/m ² , IT 322 cd/m ² , IR 322 cd/m ² , SC 294 cd/m ² |
| LCD | | 350 cd/m ² (Typical) |
| AccuTouch | | 287 cd/m ² (Typical) |
| IntelliTouch | | 322 cd/m ² (Typical) |
| CarrollTouch | | 322 cd/m ² (Typical) |
| Surface Capacitive | | 294 cd/m ² (Typical) |
| Acoustic Pulse Recognition | | 322 cd/m ² (Typical) |
| Response Time | | Tr= 5 msec, Tf= 11 msec typical(CPT CLAA150XP01P) Tr= 4 msec, Tf= 12 msec typical(AU G150XG01) |
| Display Color | | 16.2 million color, 6 bit with dithering |
| Viewing Angle | | (L/R)= -60°/+60° (typical), (U/D) -60°/+40° (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 |
| | DVI Video | Digital TMDS Input |
| Signal Connector | | 15 Pin D-Sub, DVI-D |
| 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 | | DDC1 / 2B |
| Touch Panel (optional) | | AccuTouch, IntelliTouch and CarrollTouch, Surface Capacitive, Acoustic Pulse Recognition |
| Power | | Input: AC 85-265V, 47-63Hz, or DC 12V/4A (max.) |
| Operating Conditions | Temp | 0°C ~ 40°C (41°F ~ 95°F) |
| | Humidity | 20% ~ 80% (No Condensation) |
| | | Altitude To 12,000 Feet |
| Dimensions (HxWxD) | | 354 x 301 x 285mm |
| Weight (Net) | | 20.1lbs., monitor weight 16.2 lbs. |
| Certifications | | UL, C-UL, FCC-B, CE, Semko, VCCI, MPRII, C-TICK |

AccuTouch Touchscreen Specifications

Mechanical

Construction

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

Inside: Transparent conductive coating.

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

Positional Accuracy

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

Touchpoint Density

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

Touch Activation Force

Typically less than 4 ounces (113 grams).

Surface Durability

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

Meets pencil hardness 3H.

Expected Life

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

Typically 85% at 550-nm wavelength (visible light spectrum).

(per ASTM D1003)

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 \pm 20 gloss units tested on a hard-coated front surface.

IntelliTouch Touchscreen 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/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)

90%

Visual Resolution

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

Clear surface: Excellent, with no noticeable degradation.

Antiglare surface: 6:1 minimum.

Gloss (per ASTM D2457 using a 60-degree gloss meter)

Antiglare surface: Curved: 60 ± 20 gloss units or 75 ± 15 gloss units.

Environmental

Chemical Resistance

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

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

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

Meets Levels 4 (15kV air/8 kV contact discharge)

Infrared Touchscreen Specifications

Mechanical

Input Method 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: 90% 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 Specification

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

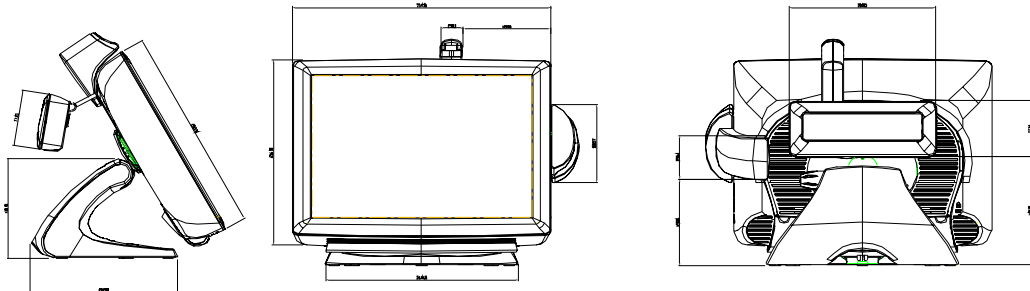
Chemical resistance The touch activation area of the touchscreen is resistant to chemicals that do not affect glass such as: acetone, toluene, methyl ethyl ketone, isopropyl alcohol, methyl alcohol, ethyl acetate, ammonia-based glass cleaners, gasoline, kerosene, vinegar

DURABILITY

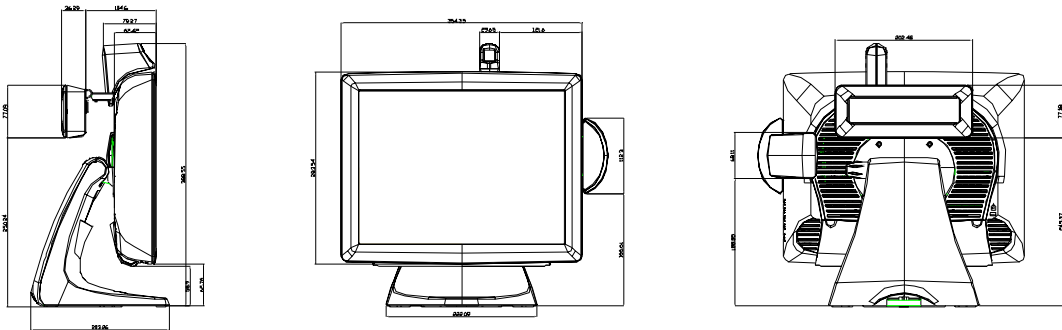
Surface durability Surface durability is that of glass, Mohs' hardness rating of 7

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.

15" LCD Touchmonitor(ET1529L-XXA-1-XX-G) Dimensions



15" LCD Touchmonitor(ET1529L-XXA-1-XX-T-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 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.

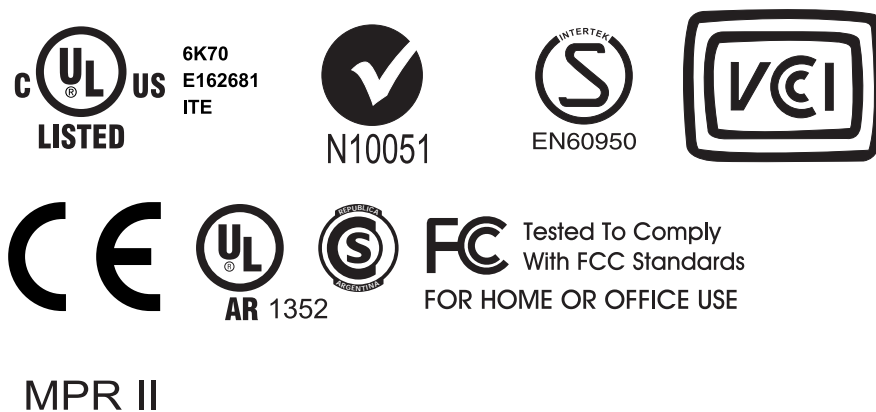
1) In order to meet emission and immunity requirements, the user must observe the following:

- 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.



"The application of this monitor is restricted to special controlled luminous environments. The screen surface tends 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 luminaires. The monitor is in compliance with Reflection Class III according to ISO 13406-2"

"Die Anwendung dieses Bildschirms ist auf speziell kontrollierte Umgebungsbeleuchtungen eingeschränkt. Die Bildschirmoberfläche neigt zu störenden Spiegelungen von Lampen und Sonnenlicht. Um diese Reflexionen zu vermeiden sollte der Monitor nicht auf Fenster und Beleuchtungseinrichtungen ausgerichtet sein. Der Monitor erfüllt nur die Reflexionsklasse III nach 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.

VORSICHT:

Explosionsgefahr bei unsachgemäßen Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

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 2 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.

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