



Elo Entuitive Touchmonitor User Guide

For 15" LCD Panel Mount Touchmonitors
1566L Series

ET1566L-7SWA-1

ET1566L-9SWA-1

ET1566L-9SWA-5



Revision B

Elo Entuitive Touchmonitor User Guide

15" LCD Panel Mount Touchmonitor

1566L Series

entuitive
Touchmonitors

Revision B

P/N 008531

Elo TouchSystems, Inc.

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www.elotouch.com

tyco

Electronics

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TOUCHSYSTEMS

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INTRODUCTION

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

Precautions

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

About the Product

Your LCD panel mount Touchmonitor is a 15" XGA TFT color display with the following features:

- Direct analog RGB input
- 15.1" diagonal screen size
- 16.7 million displayable colors
- 1024 x 768 resolution
- XGA / SVGA / VGA / VESA / Mac compatible
- 24-60kHz horizontal scan
- 56-85Hz high refresh rate

- Auto adjustment capability
 - High quality full screen re-scaling
 - Multilingual OSD menus in four languages: English, German, Spanish, and Japanese
 - Corded remote OSD controller
 - VESA DDC 1/2B data communication
 - VESA DPMS power saving
 - VESA flat panel monitor physical mounting interface (75mm)
 - 19 inch computer hardware rack adaptor available. Contact the factory.
 - Worldwide agency approvals that include UL*, CUL*, TÜV- Bauart, FCC, CE, C-Tick, VCCI
 - Certified by UL to NEMA 4, 4x and 12: ET1566L-7SWA-1*
 - Designed to meet NEMA 4, 4x & 12: ET1566L-9SWA-1/5*
- *ITE recognized component

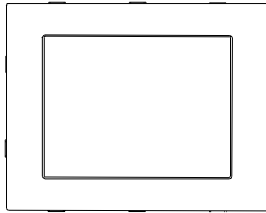
For full Product Specifications refer to Appendix C.

INSTALLATION AND SETUP

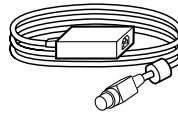
This chapter discusses how to install your LCD panel mount touchmonitor and how to install Elo TouchSystems driver software.

Unpacking Your Panel Mount Touchmonitor

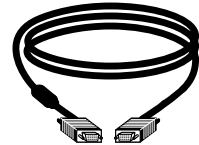
Check that the following 10 items are present and in good condition:



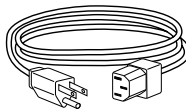
LCD Display



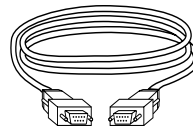
Brick power supply



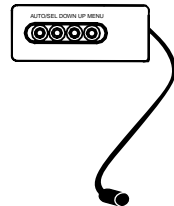
Video cable



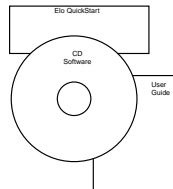
Monitor power cable (US/Canada)



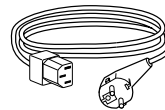
Serial touchscreen cable



OSD module



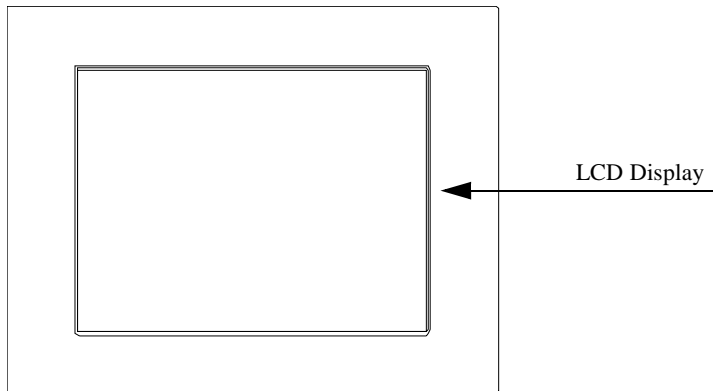
User's Guide,
Quick Start Guide and software CD



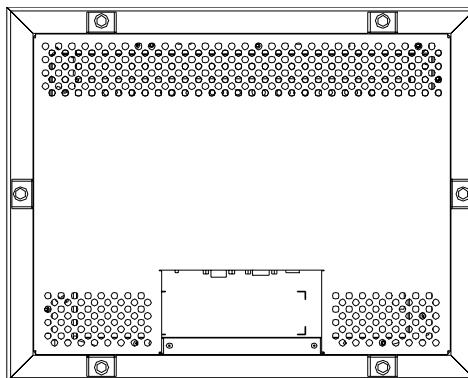
European monitor power cable
(Note: shipments to the UK will also contain a UK power cord.)

Product Overview

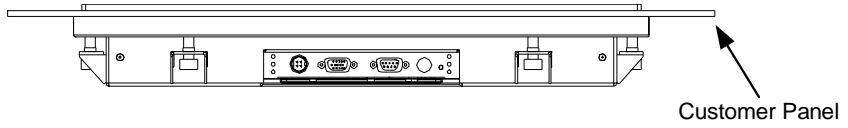
Main Unit



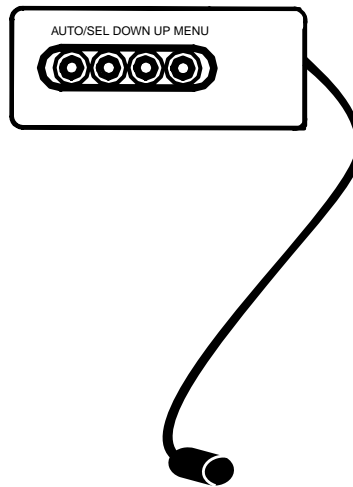
Rear View



Bottom View



Remote OSD with Cable Attachment



Mounting Your Touchmonitor

NOTE: You will need a 6mm allen socket and torque wrench (Hex) to attach the mounting brackets.

Your panel mount touchmonitor comes with 6 mounting brackets (and 6 screws). You will need 6 brackets to mount your touchmonitor. Two brackets attach to the top and bottom and one on each side.

To mount your touchmonitor to a panel, follow the steps below:

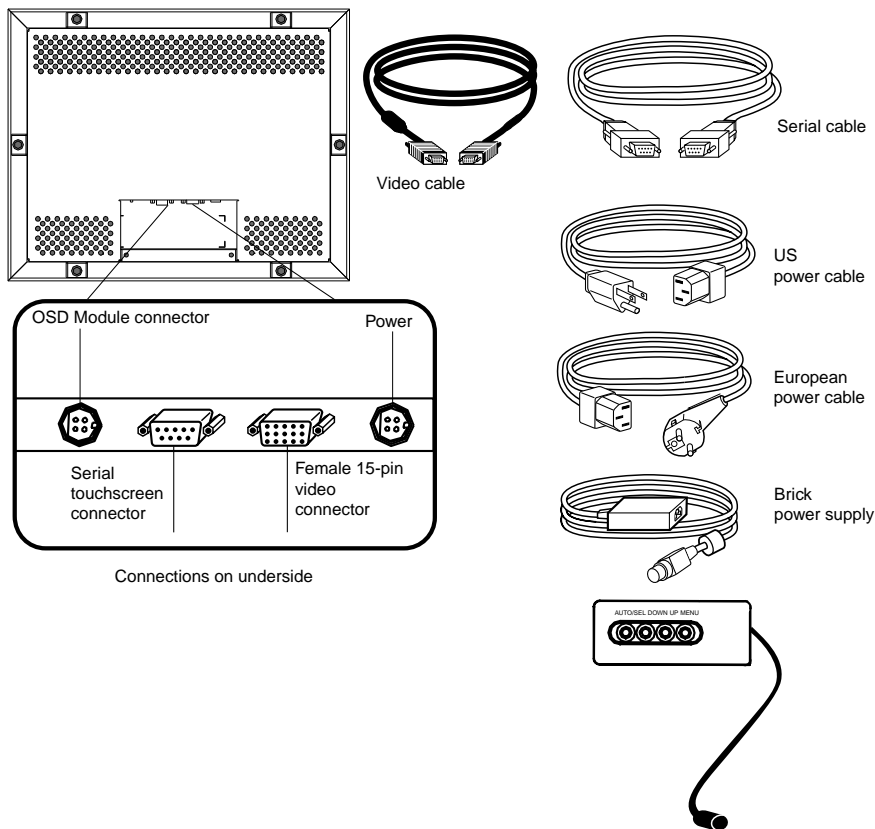
- 1** Prepare the opening in the panel (307mm x 398.2mm/12.08" x 15.68"). See page C-36. Mounting panel thickness must not exceed 13mm.
- 2** Disassemble the 6 brackets and NEMA frame.
- 3** Verify that your touchmonitor will clear the opening as you attempt to front mount it. The opening will be covered by the bezel flanges.
- 4** Mount the touchmonitor from the front side of the opening in the supporting panel and temporarily secure it.
- 5** From the back of the panel opening, slip the NEMA frame over the rear cover. Attach the 6 brackets into the slots. Use 2 brackets on top and bottom and 1 on each side.
- 6** To secure the touchmonitor, turn the screws clockwise until a firm contact is made with the NEMA frame. To assure a “flat” mount, screws should be tightened “cris-cross” and not sequentially, i.e. tighten the upper left corner screw first then the lower right screw. Torque screws to 35 in lbs. (4 Nm).

Connecting Your Touchmonitor

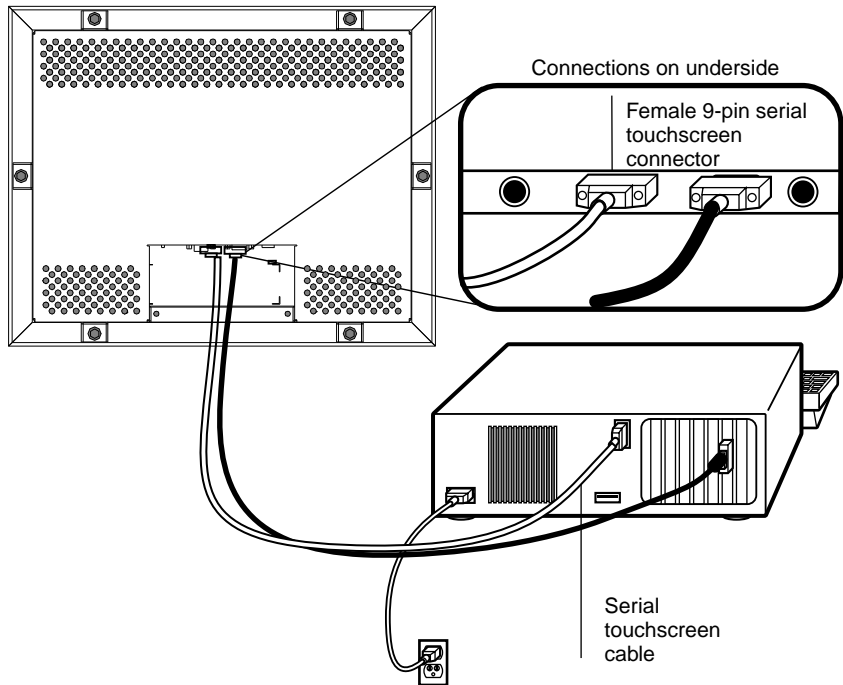
The following illustrations guide you step by step in connecting your touchmonitor.



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

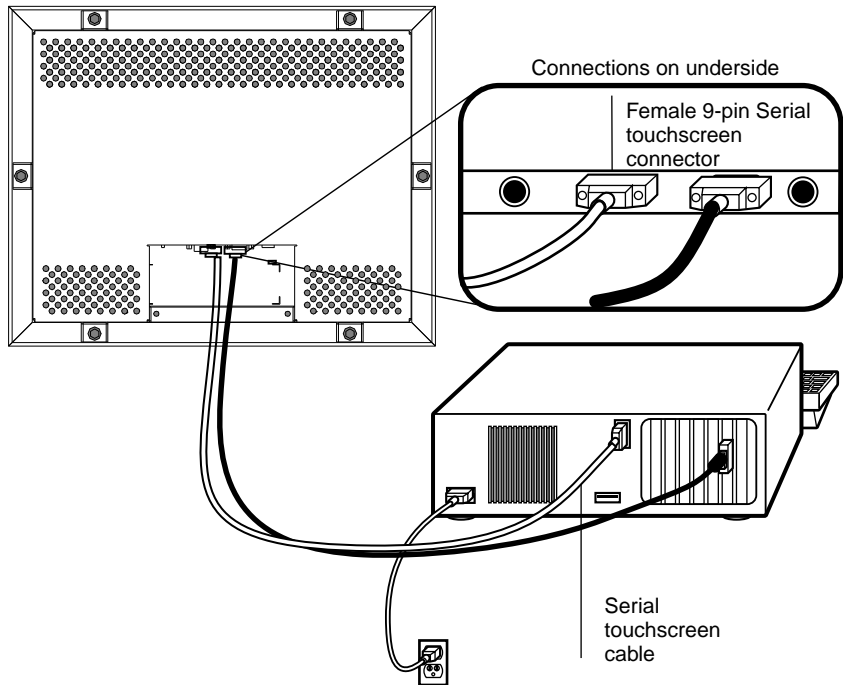


STEP 1-Connecting the Video Cable



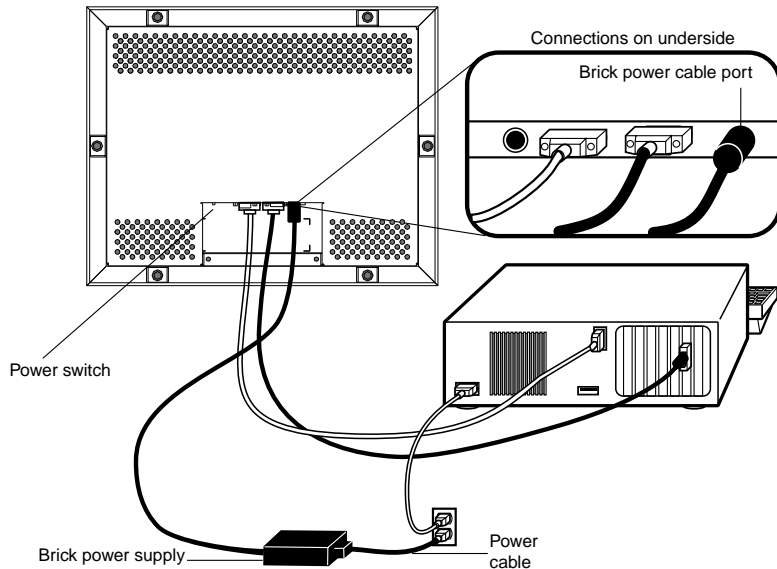
- Connect the 15-pin video cable (the ferrite bead end) to the video port on your PC.
- Connect the other end of the video cable to the video connector on your touchmonitor.
- Secure the cable to your touchmonitor and PC by turning the screws on the connector clockwise.

STEP 2-Connecting the Serial Touchscreen Cable



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

STEP 3-Connecting the Power Cable



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

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



To protect your equipment against risk of damage from electrical surges in the power line, plug the brick supply's power cord into a surge protector, and then connect the surge protector to a grounded (three-pronged) AC electrical outlet.

- Power on your PC then your touchmonitor. After a brief pause the picture should appear.
- The power can be turned on and off by the small white switch on the back of the touchmonitor. The touchmonitor can also be turned on and off by plugging and unplugging the power cable.

Optimizing the LCD Display

To ensure the LCD display works well with your computer, configure the display mode of your graphic card to output 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. Refer to Chapter 3 for more information on adjusting your touchmonitor's video characteristics.

Installing the Driver Software

Elo TouchSystems provides driver software that allows your touchmonitor to work with your computer. The enclosed CD-ROM contains drivers for the following operating systems:

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

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

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

Installing the Serial Touch Driver

To install your driver software, follow the instructions in the appropriate following section.

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

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

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

If the AutoStart feature for the 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 and locate the EloCd.exe program on the CD-ROM.

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

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

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

To install the drivers for Windows 3.x and MS-DOS from Windows 95/98, follow these steps:

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

If you need additional installation information, see Chapter 2 of the *Elo DOS and Windows Driver Guide* found on www.elotouch.com.

To run the **INSTALL** program:

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

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

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

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

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

OPERATION

About Touchmonitor Adjustments

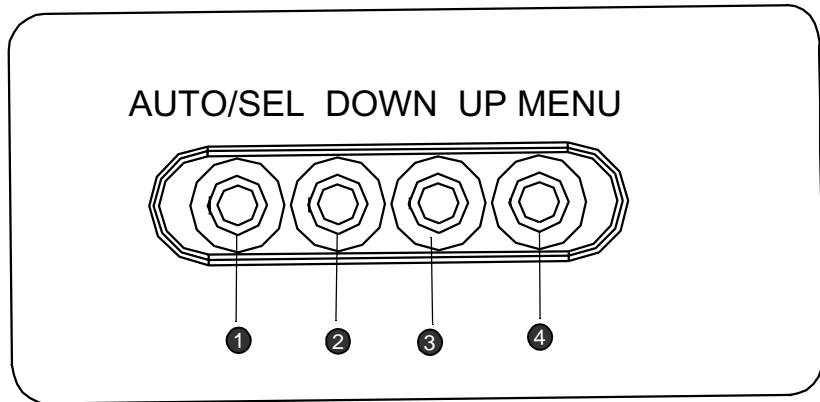
Variations in video output and application will likely require you to adjust your touchmonitor to optimize the quality of the display.

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

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

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

OSD Module Controls



	Control	Function
①	Auto/Select	Auto- To activate the “Auto Adjustment” function to obtain an optimum image. Select- To select the adjustment items from the OSD menus.
②	Down	1. Decreases the brightness of the display image. 2. Decreases value of the adjustment items.
③	Up	1. Increases the brightness of the display image. 2. Increases value of the adjustment items.
④	Menu	Displays the OSD menus.

Using the OSD Menus

All menu items can be selected by using the buttons on the remote OSD.

NOTE: OSD menu default is enabled. Press the UP and DOWN buttons at the same time and hold them down for several seconds to enable/disable the OSD functions.

Auto Adjustment

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

To Auto-adjust the video screen:

- 1 Press the **Auto/Sel** button and the Auto Adjustment menu will display.

Auto Adjustment
YES: Press "AUTO" again
NO: Press other buttons

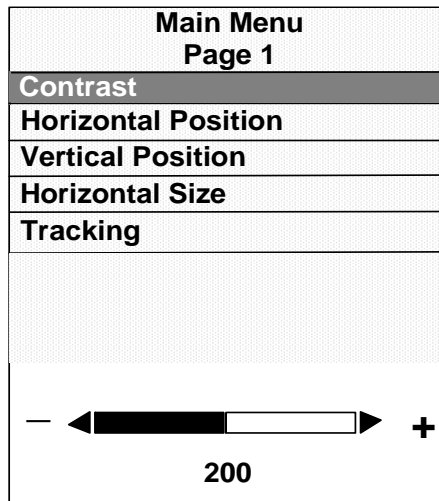
- 2 Press the **Auto/Sel** button again. If Auto-adjust does not provide a satisfactory image, use the following procedure. It is highly recommended to make adjustments in the exact order listed:

First OSD Menu

To access the first OSD menu:

- 1 Press the **Menu** button to display the menu and to select between the two Main Menus.
- 2 Choose the adjustment items by pressing the **Auto/Sel** button.
- 3 Adjust the value of the adjustment items by pressing the Up or Down button.

The OSD menus have a pre-set time delay after which menus will automatically disappear.



Contrast

The contrast function allows you to adjust the difference between black and white shades for image sharpness.

To adjust the contrast:

- 1 Highlight the Contrast menu option by pressing the Select button. A Contrast gauge displays, indicating a numeric value that changes as you increase or decrease the contrast.
- 2 Adjust the contrast by pressing the **Up** or **Down** button.

Horizontal Position

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

To adjust the horizontal position:

- 1 Highlight the Horizontal Position option by pressing the **Auto/Sel** button. The Horizontal Position gauge will display.
- 2 By using the **Up** or **Down** buttons adjust the horizontal position to center the displayed image. Assure that both leftmost and rightmost vertical sides are clearly displayed and the widest possible image is obtained and is fully centered.

Vertical Position

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

To adjust the vertical position:

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

Horizontal Size

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

To adjust the horizontal size:

- 1 Highlight the Horizontal Size option by pressing the **Auto/Sel** button.
- 2 By using the **Up** or **Down** buttons adjust the horizontal size.

Display Mode

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

To adjust the Display Mode:

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

OSD Off-Time

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

- 1 Highlight the OSD Off-Time option, then press the **Auto/Sel** button.
A gauge displays allowing you to adjust the time delay.
- 2 Use the **Up** or **Down** buttons to choose a different increment of time.

Language

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

- 1 Highlight the Language menu option then press the **Auto/Sel** button.
- 2 Use the **Up** or **Down** buttons to choose the language you want.

Text-Graphic

NOTE: This option is not available on this unit.

Reset

You can use the reset option to return the display parameters of the current mode to the factory default settings.

- 1 Highlight the Reset option, then press the **Auto/Sel** button.

TROUBLESHOOTING

If you are experiencing trouble with your touchmonitor, refer to the following table. If the problem persists, please contact your reseller or our technical support at 1-800-557-1458.

Solutions to Common Problems

Problem	Suggestion(s)
No image appears on screen.	<p>Check that all the I/O and power connectors are properly connected as described in Chapter 2.</p> <p>Make sure the pins of the connectors are not crooked or broken.</p> <p>Test power supply by trying different cables, or a different wall outlet or plug another appliance into the outlet.</p> <p>Make certain the video cable is properly connected and that it is not damaged. Check for bent pins on the cable connectors.</p> <p>Ensure that your computer and video card are properly configured. (Consult video card documentation.)</p>
Partial image or incorrectly displayed image.	<p>Check whether the resolution of your computer is higher than that of the LCD display.</p> <p>Reconfigure the resolution of your computer to make it less than or equal to 1024 x 768. See Appendix A for more information on resolution.</p>
Image has vertical flickering line bars.	<p>Use the Tracking function to make an adjustment.</p> <p>Check and reconfigure the display mode of the vertical refresh rate of your graphic card to make it compatible with the LCD display.</p>

Problem	Suggestion(s)
Image is unstable and flickering	Use the Tracking function to make an adjustment.
Image is scrolling	Make sure the VGA signal cable (or adapter) is well connected. Check and reconfigure the display mode of the vertical refresh rate of your graphic card to make it compatible with the LCD display.
Touch doesn't work	Make sure the touchscreen cable is securely connected at both ends.
Remote OSD does not work	Press the UP and Down buttons simultaneously for a few seconds to enable the function.



NATIVE RESOLUTION

The native resolution of a monitor is the resolution at which the LCD panel is designed to perform best. 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. For the Elo LCD touchmonitor, XGA-15 inch, the native resolution is 1024 x 768.

Input Video	15" LCD
640 x 480 (VGA)	Transforms input format to 1024 x 768 size
800 x 600 (SVGA)	Transforms input format to 1024 x 768 size
1024 x 768 (XGA)	Displays in native resolution

The native resolution of an LCD is the resolution that matches the LCD's pixels. Video performance is always best at native resolution settings. The various standard LCD resolutions are usually represented as follows:

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

For example, a SVGA resolution LCD panel displays 800 pixels horizontally and 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. For example, the pixel in 45 column and 26 row of the input video is in 45 column and 26 row of the LCD. When the input video is set at a lower resolution than the native resolution of the LCD, the direct correspondence between the video pixels and the LCD pixels is lost. The LCD controller can compute the correspondence between video pixels and LCD pixels using algorithms contained in the controller. The accuracy of the algorithms determines the fidelity of conversion of video pixels to LCD pixels. Poor fidelity conversion can result in artifacts in the LCD display, such as characters of varying width.

B

TOUCHMONITOR SAFETY

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

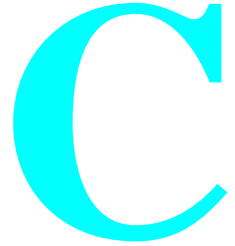
- 1** To reduce the risk of electric shock, follow all safety notices and never open the touchmonitor or brick supply case.
- 2** Turn off the product before cleaning
- 3** Your new brick supply is equipped with a 3-wire, grounding power cord. The power cord plug will only fit into a three-prong safety ground outlet. Do not attempt to fit the plug into an outlet that has not been configured for this purpose. Do not use a damaged power cord. Use only the power cord that comes with your Elo TouchSystems touchmonitor. Use of an unauthorized power cord may invalidate your warranty.
- 4** The slots located on the sides and top of the brick supply and touchmonitor case are for ventilation. Do not block or insert anything inside the ventilation slots.
- 5** It is important that the brick supply and the rear portion of your touchmonitor remain dry. Do not pour liquid into or onto your brick supply or touchmonitor. If your brick supply or touchmonitor become wet do not attempt to repair them 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 brick supply or display unit cabinet, use a cloth lightly dampened with a mild detergent.
- Avoid getting liquids inside your brick supply or touchmonitor. If liquid does get inside, have a qualified service technician check it before you power it on again.
- Do not wipe the screen with a cloth or sponge that could scratch the surface.
- To clean the touchscreen, use window or glass cleaner. Put the cleaner on the rag and wipe the touchscreen. *Never* apply the cleaner directly on the touchscreen.





TECHNICAL SPECIFICATIONS

Compatibility Modes

Your Elo Entuitive touchmonitor is compatible with the following standard video modes. All specifications are typical and subject to change.

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

Touchmonitor Specifications

15" LCD Touchmonitor (ET1566L) Specifications

Display Type	Active matrix, thin film transistor (TFT), liquid crystal display	
Size	15-inch diagonal 304.1 x 228.1 mm useful screen area	
Pixel Format	1024 x 768	
Touchscreen	AccuTouch	
Colors	16 million with dithering	
Display Brightness	AccuTouch: 170 cd/m ² typical	
Back-light Lamp Life	40,000 hours at full brightness typical	
Viewing Angle	Horizontal	+/-60 or 120 degrees total
	Vertical	+/-60 or 120 degrees total
Contrast Ratio	200:1 typical	
Display Response Time	20 ms rise, 30 ms delay typical	
Environmental	Operating Temp	0°C to 40°C, 80% relative humidity at 40° 90% relative humidity at 35°
	Storage Temp	-25°C to +60°C 10% relative humidity at 60° 90% relative humidity at 35° non-condensing Certified by UL to NEMA 4, 4x & 12 as a Recognized Component (AT only). IR is designed to meet certification.
Mechanical	Weight	30 lbs. maximum approx. weight
	Size	See drawings on page 34.
Materials	Front bezel	5052H32 aluminum with epoxy paint 3/16" thick
	Back cover	cold roll steel zinc plated
Electrical	Input Video	VGA/SVGA/XGA analog video
	Input Power	100-240 VAC, 50/60 Hz.
	Power Dissipation	Universal
Agencies	Safety & EMC	UL*, cUL*, TÜV-Bauart, FCC-B, CE-B, C-Tick, VCCI

* ITE Recognized Component

AccuTouch 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/in ² (15,500 touchpoints/cm ²).
Touch Activation Force	Typically less than 4 ounces (113 grams).
Surface Durability	Surface durability is that of glass, Mohs' hardness rating of 7.
Expected Life Performance	AccuTouch technology has been operationally tested to more than 35 million touches in one location without failure, using a stylus similar to a finger.
Sealing	Unit is certified by UL to NEMA 4, 4x & 12 as a required component.

Optical

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. 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 Methylene chloride Methyl ethyl ketone Isopropyl alcohol Hexane Turpentine Mineral spirits Unleaded Gasoline Diesel Fuel Motor Oil Transmission Fluid Antifreeze Ammonia based glass cleaner Vinegar
Electrostatic Protection (per EN 61 000-4-2)	The touchscreen withstands 20 discharges of 15KV, distributed randomly across the active area of the touchscreen with proper transient protection.

CarrollTouch Specifications

Mechanical

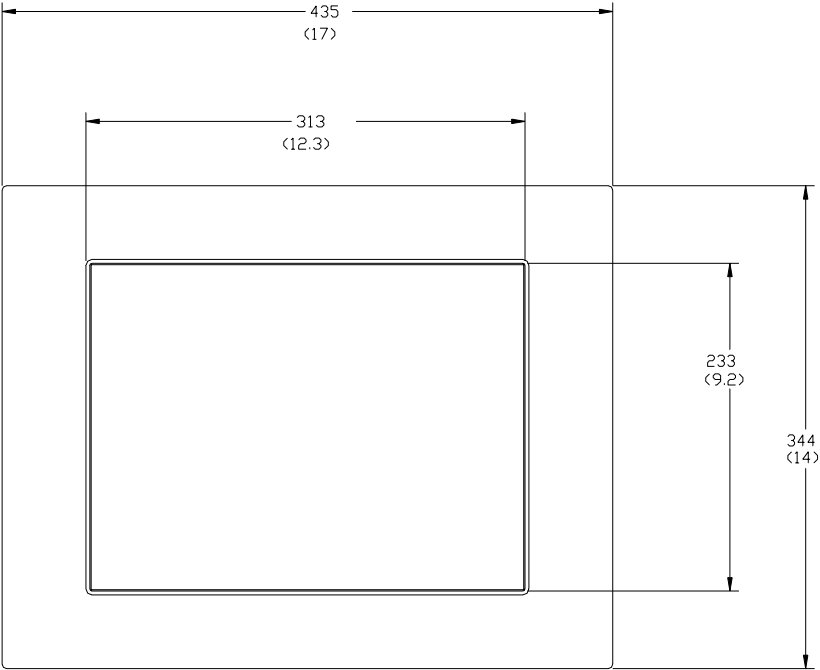
Construction	The CarrollTouch IR XRES frame is a solid state circuit card assembly. The circuits are populated onto .062" thick FR4 printed wiring board material with a UL flammability rating of 94V-0. The IR transparent insert attached to the circuit card assembly is polycarbonate material with a UL flammability rating of 94V-0 at thicknesses of .090 inches and above, and 94V-2 at thicknesses from .034-.089 inches.
Cable and Connector	<p>The cable exits from the left center of the frame assembly and is a 16 position, 0.5 mm flat flex cable (FFC). The cable terminates into a ZIF connector on both sides of the controller and frame interface.</p> <p>The FFC cable can be folded and creased. Test data for this cable reveals that the cable maintains electrical characteristics over 20 million cycles of a simulated forming bend around cylinders of radius 0.5", 0.75", and 1.0". The FFC is guaranteed to maintain electrical and plating characteristics for a minimum of 25 insertion and withdrawal cycles with the ZIF connector.</p>
Positional Accuracy	The positional accuracy of the IR XRES frame to a touch stylus is a function of the physical spacing of the discrete IR opto-electronics, diameter of the touch stylus, and location of the stylus in the touch active area. The table below provides the positional accuracy specifications with corresponding XRES product and dimensional determinants.

PARAMETER	XRES PRODUCT DIAGONAL SIZE	
	15"	NOTES
Horizontal Touch Size	12.16"	
Vertical Touch Size	9.13"	
Typical Accuracy	.047" (21 points/inch)	(1)
Minimum Accuracy	.22" (5 points/inch)	(2)
Minimum Accuracy %	4%	(3)
Minimum Stylus Size	0.23"	(4)

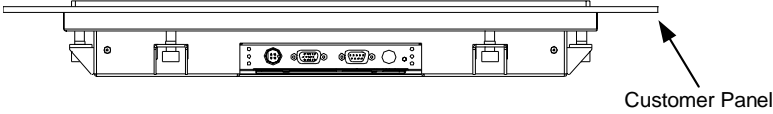
- (1) Typical accuracy demonstrated by product using a stylus greater than minimum specified diameter. See note (4).
- (2) Minimum accuracy demonstrated by product using a stylus greater than minimum specified diameter. See note (4).
- (3) Percent of touch area that may possibly exhibit the minimum accuracy parameter. See note (4).
- (4) Minimum stylus diameter required for a touch response.

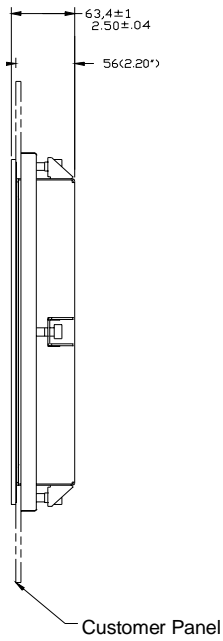
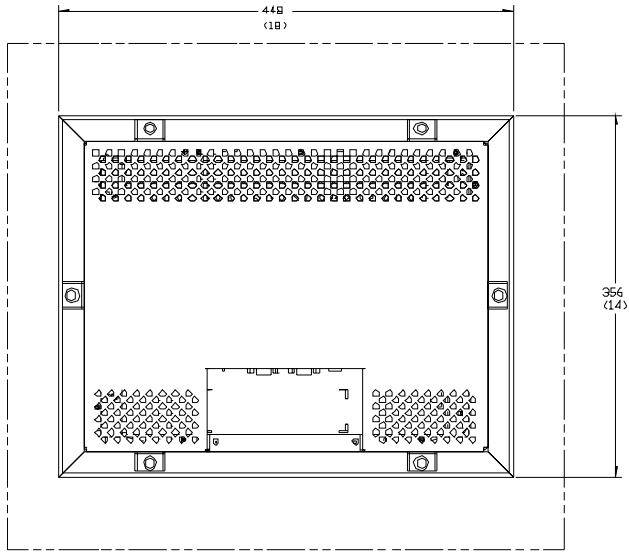
Touchpoint Density	Touchpoint density is based on controller resolution of 4096 x 4096. This equates to more than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²) for a typical touchscreen used with Elo TouchSystems controllers
Touch Activation Force	No minimum touch activation force is required with IR touch technology.
Hardcoat Pencil Hardness (per ASTM D3363)	Glass Filter meets Mohs' hardness rating of 7. Meets Taber Abrasion Test. Meets pencil hardness 6H per ASTM D 3363 for acrylic filter option.
Sealing	Designed to meet NEMA 4, 4x & 12.
Optical	Optical performance depends on Filter type
Glass Filter	Light Transmission (per ASTM D1003): 91% Visual Resolution Haze Gloss (per ASTM D2457 using a 60-degree gloss meter): 80 +/-10 gloss units
Acrylic Filter	Light Transmission: 92% Haze: 1.0 Gloss: 78 gloss units
Environmental	
Ambient Light	The IR touch screen shall be capable of operating in the following ambient light conditions when mounted in a typical application enclosure: Direct Sunlight- perpendicular to +/- 30 ^o to the display surface- Touch Detection Operational Direct Sunlight- all angles to display surface - No false touch reports
Electrical	
Electrostatic Discharge Protection [per EN 61000-4-2]	The touch system shall withstand 25KV air discharges to the touch active area and bezel insert seams. The touch system interconnects shall withstand level 4 IEC 801-2 requirements for air and direct contact discharges, 15KV and 8KV respectively.

15" LCD Panel Mount Touchmonitor (ET1566L-XSWA-X) Dimensions



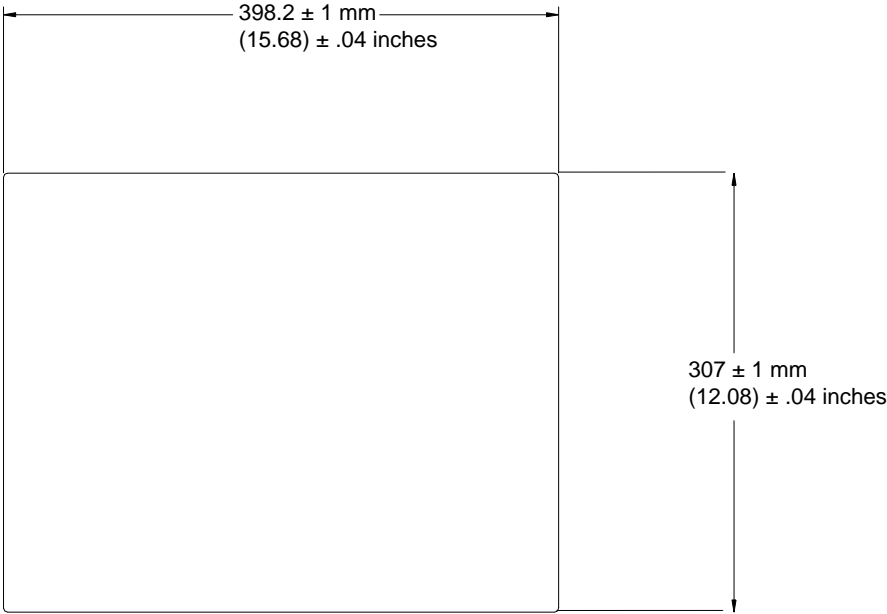
For cutout dimensions, see page 36.





NOTE: Dimensions in millimeters (inches)

Panel Cutout



Maximum panel thickness 13mm (0.5")

REGULATORY INFORMATION

I. Electrical Safety Information:

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

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

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

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

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

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

II. Emissions and Immunity Information

A) Notice to Users in the United States: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

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



FC Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

WARRANTY

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

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

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

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

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

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

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