

**Lucas Control Systems
Deeco™ Systems**

**EM-M061 Embedded XGA Monitor
USER MANUAL**

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WARNING!

These warnings must be observed. Damage to the display and/or controller card could result if these warnings are not heeded.

1. THE LUCAS DEECO CONTROLLER IS STATIC SENSITIVE. USE CMOS HANDLING PROCEDURES TO AVOID STATIC DAMAGE. ALWAYS EXERCISE STATIC PRECAUTIONS WHEN HANDLING THE OPEN FRAME EMBEDDED MODULE.
2. DO NOT ATTEMPT TO ALTER THE VOLTAGE POTENTIOMETER SETTING ON THE POWER SUPPLY BOARD. IT IS SET PROPERLY AT THE FACTORY AND SEALED. IF THE SEAL IS BROKEN AND THE SETTING ALTERED, DAMAGE TO THE DISPLAY MAY RESULT AND ALL WARRANTIES VOIDED.
3. IF IT IS NECESSARY TO DISCONNECT THE DISPLAY PANEL FROM THE CONTROLLER BOARD, WAIT A *MINIMUM* OF TEN SECONDS AFTER POWER DOWN TO AVOID POSSIBLE DAMAGE TO THE DISPLAY PANEL.
4. READ THE INSTALLATION AND SET-UP SECTION OF THIS MANUAL *CAREFULLY BEFORE* ATTEMPTING TO APPLY POWER TO THE MONITOR.

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1.0 Configuration and Specifications

The EM-M061 is a fully tested video monitor module for OEM and systems applications. The compact embedded monitor connects to a standard 15 pin DSUB video connector, and directly replaces a bulky CRT based monitor.



An optional resistive touch screen provides remote control of the host. The touch screen allows the operator to use his finger like a mouse.

Features:

- XGA (1024 x 768) AM color TFT LCD
- Available with 100-240VAC autoswitching or +24VDC power supply
- Optional clear resistive touch system is unaffected by debris

- All components are mounted to minimize the effects of high shock and vibration typically found in most industrial areas

System Includes:

- XGA resolution 14" active matrix LCD display
- Sealed bezel with front panel, which meets NEMA 4/12 (IP65) when mounted
- Heavy duty metal mounting frame
- On-board interface card that allows the monitor to be mounted up to 22 feet (6.7 meters) from host computer

1.1 EM-M061 ORDERING INFORMATION

SELECT A DISPLAY AND VIDEO CONTROLLER.

Ordering Example: EM-M061-3261-2408

Base System Configuration

Select a Display - 13.8" Diagonal

- 3261 XGA (1024 x 768 pixel) up to 4K colors, Color AMTFT

Select a Controller

- 2408 Up to 22' (6.7 m) DB15 XGA analog input, Display 3261 (XGA)

Upgrades and Options

Touch System

- 416 No touch
 412 Resistive touch

Mounting Option

- 1502 Open Frame, Standard Rack Mount
 1503 Open Frame, Panel Mount

Select a Power Supply *a

- 701 +20 to +36VDC
 702 90 to 264VAC, 47 to 63Hz

Software - Touch Drivers

- 816 DOS/Windows 3.1 Resistive Touch Mouse
 818 OS/2 Resistive Touch Mouse
 817 Windows NT Resistive Touch Mouse
 820 Microsoft Windows 95 Resistive Touch Mouse

* a If power supply not ordered user must provide +12VDC and +5VDC.

1.2 EM-M061 SPECIFICATIONS

Display	13.8" XGA (1024 x 768) AM TFT LCD	
Connectors	Power: See section 2.5 Touch: Standard RS-232 9-pin DSUB VGA Input: Standard 15-pin DSUB RGB analog.	
Software Requirements	No special software required except optional touch drivers.	
Adjustments	One time calibration for video interface controller	
Mounting	Panel cutout required (see Appendix B) 8 mounting holes for use with #8 mounting stud (see Appendix B).	
Touch Resolution	More than 100,000 touchpoints/in ² (15,500 touchpoints/cm ²)	
Weight	less than 10.0 lbs (4.5 kg) (weight varies depending on options chosen)	
Standard Dimensions	11.5" H x 14.4" W x 3.5" D (292 mm x 366 mm x 90 mm)	
w/ Front Panel: (Option 1502)	12.3" H x 15.2" W x 4.0" D (312 mm x 386 mm x 102 mm)	
w/ Front Panel: (Option 1503)	12.3" H x 19.0" W x 4.0" D (312 mm x 483 mm x 102 mm)	
	Operating	Non-operating
Temperature	0°C to +50°C	-25°C to +65°C
Shock (MIL-STD-810D)	10G	50G
Vibration (Broadband Spectrum 10-500 Hz per MIL-STD-810D)	1.0G rms	3.0G rms
Humidity	5-95% RH, non-condensing	
Power Input	+24 VDC, or 100-240 VAC, or +12VDC & +5VDC 50 W max @ +24 V DC 50 W max @ 100-240 V AC	

Note: Actual power requirements depend on options ordered

MTBF (nominal) Controller > 80,000 hours
(@25°C)

Note: AMTFT display backlights are considered field replaceable items, and are not included in MTBF figures.

2.0 Installation

2.1 INSTALLATION

This section covers unpacking, mounting requirements, host system connections, and applying power to the EM-M061 Embedded XGA Monitor. Following these steps will ensure successful operation.

2.2 UNPACKING

The Embedded XGA Module (EM-M061) is an OEM component shipped without extra items. A typical shipping configuration includes:

- This EM-M061 User Manual
- A separate interface controller manual
- A gasket for sealing the EM-M061 into an opening
- A pigtail power connector
- A 6' video cable
- If a touch screen is ordered, a 6' RS-232 cable and a 3 ½" floppy containing touch drivers and a touch system user manual

<p style="text-align: center;">Observe ESD Precautions When Unpacking and Handling the EM-M061</p>

Remove the XGA Monitor/Module from the protective wrapping, and inspect the unit. Contact the shipper if any damage is noted.

If the EM-M061 is ordered without the optional Resistive touch or sealed bezel, observe these precautions when handling the display:

- The front polarizer of the AMTFT screen is easily damaged. Do not scratch it.
- Wipe off water drops immediately. Long contact with water may cause discoloration or spots.
- When the panel surface is soiled wipe it with absorbent cotton or a soft cloth.

2.3 MOUNTING REQUIREMENTS

The EM-M061 is designed to be mounted to a cutout in a front panel. Refer to Appendix B for recommended panel cutout and standoff locations. Appendix A also includes detailed information on the dimensions and physical layout of the EM-M061. These drawings will assist the user in integrating the EM-M061 into the intended enclosure.

Optional frames are available to facilitate panel mounting or 19" rack mounting.

Installing the EM-M061 into a panel:

- Plan to protect the display from impact. Choose a high quality optical filter with sufficient impact resistance, or use the optional sealed bezel.
- Make a cutout template according to the cutout diagram in Appendix B.
- Make a cutout at the location where the EM-M061 is to be mounted.
- For the standard mounting configuration there are 10 mounting holes around the perimeter of the EM-M061. These holes facilitate the use of #8 mounting studs to mount the unit to the rear of the panel. Mount the module to the panel while making sure that the gasket is properly aligned. If the gasket is improperly installed, an effective NEMA 4/12 rated seal will not be achieved.
- The front panel mount bezel option covers the opening, and provides a finished appearance. Place the sealing gasket included with the EM-M061 module around the front of the display bezel. It is essential that this gasket is installed flat, and properly aligned on the bezel when mounting the EM-M061 assembly to the panel. Install the EM-M061 assembly using the same care as with the standard mounting configuration.
- For the rack mount option, simply slide the EM-M061 assembly into the rack slot. Three tabs (to be secured by bolts) are located on the front face of the panel.

2.4 HOST CONNECTIONS

The EM-M061 has a standard VGA Input 15-pin DSUB connector, located on the video interface board.

For systems utilizing the touch option, connect to the standard 9-pin DSUB serial connector cable.

2.5 APPLYING POWER

2.5.1 Power Requirements

Power Supply Option	Voltage	Current	Frequency	Power Supply Watts
Option 701	20-36 VDC	3.3 - 1.9 A	DC	50 W
Option 702	100-240 VAC	.7 - .3 A	47-63 Hz	50 W
Customer Supplied +5, +12V	+5	2.0 A	DC	-
	+12	2.0 A	DC	-

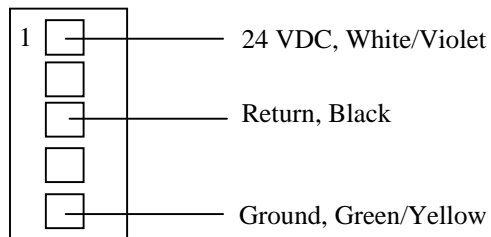
Note: Power specifications are approximate, and will vary with configuration

2.5.2 Power Connectors

Once the monitor has been properly connected to the host system, the user is ready to apply power to the unit.

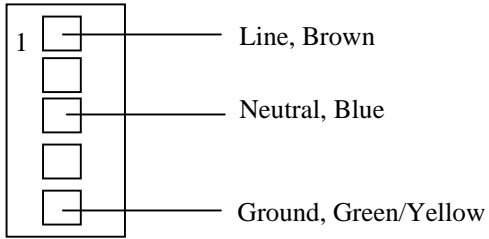
Option 701 DC Supply:

Connect 20-36 V input power to the pigtail as shown:



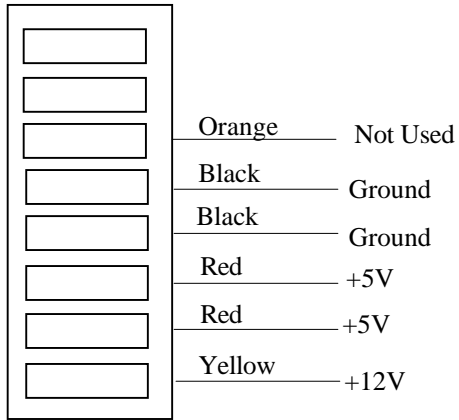
Option 702 AC Supply:

Connect 100-240VAC input power to the pigtail as shown.



Customer Supplied ± 5 , ± 12 V:

Connect ± 5 , ± 12 V and Ground to the pigtail as shown:



A Molex series 2400 header, 09-57-1085 or equivalent, and a pigtail wiring harness is shipped separately when no power supply is ordered. Use the 2400 series header to connect J2 to the pigtail. Connect so the yellow, red, and black wire colors match, not the pin numbers. Connect to the pigtail as follows:

Power Input at Pigtail	
Voltage	Wire Color
+12 @ 2.0 Amp	Yellow
+5V @ 2.0 Amp	Red
	NC
Return (ground)	Black
No Connect	Orange

The power supply must regulate to $\pm 3\%$ on +5V and $\pm 5\%$ on +12V, over a range of 20%-100% of the maximum load. Input current ratings are approximate.

3.0 Maintenance

The XGA Monitor is a ruggedized system, so no special maintenance procedures are required.

The bezel and filter are made of a plastic polymer material, so strong solvents or acids should not be used for cleaning purposes. A soft, lint-free cloth, along with a non-abrasive, non-acidic cleaner can be used to clean the touch screen. Ammonia based cleaners are fine.

3.1 EFFECTS OF CHEMICALS ON THE OPTIONAL SEALED BEZEL/FILTER

Chemical Resistance

The active area of the touch screen is resistant to the following:

- Acetone
- Butyl Cellosolve
- Cyclohexanone
- Ethyl Acetate
- Hexane
- Isopropyl Alcohol
- MEK
- Methylene Chloride
- Toluene
- Xylene
- 40% NaOH
- Clorox
- Coffee
- Downy
- Fantastik
- Formula 409
- Grape Juice
- Ketchup
- Lemon Juice
- Mineral Spirits
- Mr. Clean
- Mustard
- Spray'N'Wash
- Tea
- Tomato Juice
- Top Job
- Turpentine
- Vinegar
- Wisk

If the EM-M061 is ordered without the optional Resistive touch or sealed bezel, observe these precautions:

The front polarizer of the AMTFT screen is easily damaged. Do not scratch it.

Wipe off water drops immediately. Long contact with water may cause discoloration or spots.

When the panel surface is soiled, wipe it with absorbent cotton or a soft cloth.

Consider using an acrylic or polycarbonate optical filter to cover the display, or use the sealed bezel option to provide needed protection.

4.0 Video Interface

The comments in this section are general. Refer to the accompanying Video Interface Controller documentation for specific information.

4.1 CONNECTING TO THE EM-M061

This is the standard PC compatible VGA 15-pin DSUB Video Connector. The EM-M061 video connector is identical, and located on the video interface card.

Video Input Connector Part Number: AMP 748390-5 or equivalent

Pin #	Description
1	Red (analog)
2	Green (analog)
3	Blue (analog)
6	Red return
7	Green return
8	Blue return
5	Equipment Ground
10	Sync return
12	ID info
13	Horizontal sync.
14	Vertical sync.
4, 9, 11, 15	No connection

For different cable lengths up to 22', contact your local cable vendor. Black Box cable company at 412-746-5500 can supply cables to your specification.

4.2 XGA SIGNALS

The signals on the 15 pin DSUB VGA connector are designed primarily for display on an analog CRT, not a flat panel display. Flat panel displays require digital signals. The video controller conditions the XGA signals for display on a flat panel screen.

The video controller performs four functions:

Red, Green, and Blue data coming from the PC is analog. The video controller converts this data to digital color for display on the flat panel screen.

No clock is present on the VGA connector. The video interface card creates the clock signal required by the flat panel display.

Mode detection. The VGA standard is backwards compatible with all earlier IBM PC software (CGA, EGA, etc.). This means that depending on software, images delivered to the screen may be 640 x 200, 640 x 350, 640 x 480 (VGA graphics) or 720 x 400 (VGA text), or other resolutions. The video interface card must detect the resolution (or mode) of the

image in order to display it properly. The most important modes are 1024 x 768 (XGA graphics) 640 x 480 (VGA graphics) and 720 x 400 (VGA text). When Microsoft Windows is used on the computer, select the video mode under Control Panel / Display Properties / Settings. If the display jitters while the computer is booting, it could be because 720 x 400 text mode video is being delivered to the display. If the display stabilizes after Windows starts running, it is because the video interface card is properly calibrated for the graphics mode selected under Display Properties.

The video controller centers the image on the flat panel display. On CRTs, there is plenty of active area outside the displayed image, so centering is not crucial. On flat panel displays centering must be perfect, or rows and/or columns of information will be missing.

4.3 GETTING STARTED

Load a 1024 x 768 video driver for Windows before connecting the EM-M061 to your PC.

Observe ESD Precautions When Handling the EM-M061!

4.4 CALIBRATION

Refer to the separate video controller manual for video interface user manual for specific calibration information. The comments in this section are general.

Because the analog data signals vary from card to card and from cable to cable, a one time calibration of the EM-M061 is required. The video controller module records the calibration in a local EEPROM. During configuration, check all the various VGA video modes that will be used on your system.

Generating a properly phased clock signal depends on factors like the video card in the PC, and the cable connecting the PC to the monitor. Therefore, calibrate the EM-M061 using the exact cable, routing, and video card that will be used in the final installation.

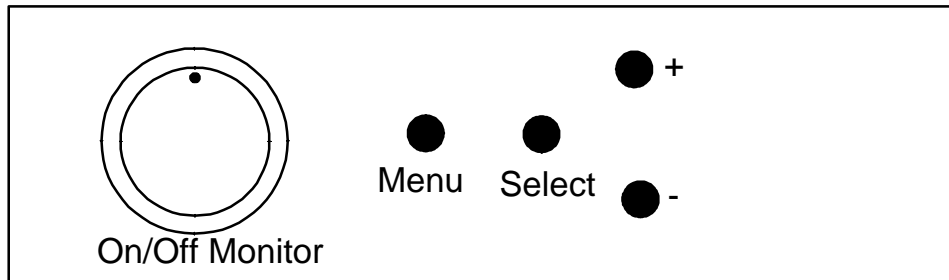
Possible sources of noise

- incoming power fluctuations outside of the specified values
- improper grounding
- poor shielding of video cable in the presence of noisy power line
- slight pixel jitter in the VGA output (some board designs do not use the crystal oscillators for the cost reasons)
- mis-adjustment of the A-to-D sampling position switch on the video interface controller

4.4.1 LCD Display Systems Settings

The OSD BIOS version of the controller provides On Screen Display of certain functions which are controlled by 4 buttons. By way of explanation the following refers to a set of sample buttons that may be supplied as an option for demonstration purposes:

1. On Off: toggle power on/off
2. Menu: turns the OSD menu On or Off
3. Select: moves the selection indicators to the next function
4. +: increase the setting
5. -: decrease the setting



5.0 Resistive Touch System

The EM-M061 is available with an optional resistive touch screen. The hardware consists of the touch bezel and the touch controller. The touch bezel reads all touch inputs. The touch controller processes this information, then communicates with the computer over a RS-232 link.

A software touch driver runs on the computer, which processes the RS-232 touch point data, and formats the information as if it were coming from a mouse.

Touch drivers are pre-installed at the factory and reside on the mass storage device. The touch screen is factory calibrated, and normally requires no field adjustment. Touch drivers and documentation are sent on a 3 ½" floppy.

More complete documentation is available on the web page at <http://www.elotouch.com>. Here are samples of available information:

Hardware Manual: Request at <http://www.elotouch.com/manuals.html>:

AccuTouch Product Manual - version 3.1a - (Part number 008211).
Installation, specifications, and hardware troubleshooting for AccuTouch systems.

Software Manuals: <http://www.elotouch.com/manuals.html>:

MonitorMouse for Windows 95 - version 1.0 - (Part number 008224-A).

MonitorMouse for Windows NT - version 2.0 - (Part number 008013-A).
Includes English, French, German, Spanish, Italian, Portuguese, and Dutch versions.

DOS and Windows Driver Guide/Disk - version 2.0c - (Part number 008100-A).

For Windows 3.x and DOS. Includes MonitorMouse for Windows 1.6a, MonitorMouse for DOS 1.6a, ELODEV 1.7a,

TouchBack 1.2a and ELODEMO. Includes French, German, Spanish, Italian, Dutch, and Portuguese versions.

MonitorMouse for OS/2 - version 2.1 - (Part number 008010-A).
Includes English, French, German, and Spanish versions.

The most current and complete set of drivers, driver installation instructions, and utilities reside at <http://www.elotouch.com/library.html>. Most files can also be downloaded from the BBS at 510-651-1224 and Compuserve (GO ELOTOUCH)

Here is a list of files in the current library:

Windows 95 Drivers:

MMWIN95.EXE (666K) - MonitorMouse for Windows 95, version 1.00. Includes a 32-bit driver and Touchscreen Control Panel, as well as an easy-to-use Windows 95 Setup program. See the !README!.TXT file after running the self-extracting program.

WIN95.TXT (3K) - Instructions for installing the DOS and Windows Driver Disk, version 2.0c (Windows 16-bit 3.x drivers) with Windows 95. These instructions are also included in DWDSK.ZIP and DWENG.ZIP. See the !READ.ME! file. Note: Do not use a combination of the 16-bit and 32-bit drivers.

Windows NT Driver:

MMNT.EXE (641K) - MonitorMouse for Windows NT, version 2.0. See the README.TXT file after running the self-extracting program. Compatible with NT 3.5, 3.51, and 4.0. Includes an updated driver and new multi-language Touchscreen Control Panel, as well as an easy-to-use Setup program. Order disk and printed manual.

DOS and Windows 3.x Drivers:

DWDSK.ZIP (1011K) - DOS and Windows Driver Disk, version 2.0c with all-in-one INSTALL program. Includes MonitorMouse for Windows 1.6a, MonitorMouse for DOS 1.6a, ELODEV 1.7a, TouchBack 1.2a, and ELODEMO. UnZIP onto a blank 3 1/2" HD floppy with the -d flag: "PKUNZIP -d DWDSK a:", then run A:INSTALL.

DWENG.ZIP (860K) - Same as DWDSK.ZIP but in English only. UnZIP to blank 3 1/2" HD floppy with -d flag: "PKUNZIP -d DWENG a:", then run A:INSTALL.

MMUPDATE.ZIP (50K) - Updates to ELODEV.EXE (1.7a), MONMOUSE.COM (1.6a), NOMOUSE.COM (1.1), and ELOCALW.CPL. Does not include INSTALL, demo, or utility programs. Not needed if downloading DWDSK.ZIP or DWENG.ZIP.

MONMICE.ZIP (63K) - Installation instructions for MonitorMice™ for Windows. This new Elo technology (patent applied for) allows multiple touch monitors and simultaneous users on a single Windows 3.x or Windows 95 PC using multiple video cards, multiport video card(s), or video splitter(s). Also see the MonitorMice press release, MULTIBDS.TXT and POSDEMO.ZIP below. Requires the DOS and Windows Driver Disk, version 2.0c.

MULTIBDS.TXT (1K) - List of companies that manufacture multiport video boards compatible with MonitorMice. Multiple standard PCI video cards may also be used.

POSDEMO.ZIP (110K) - Elo TouchSystems' point-of-sale demo program for Windows. This program can be run on a single touch monitor or on as many as four touch monitors with a multiport video card. Four independent users can run simultaneously from the same PC with the new MonitorMice software technology from Elo. See MONMICE.ZIP above.

VBCAL.ZIP(1K) - Visual Basic calibration example. This example program calls an exported function in the Elo TouchSystems Touchscreen Control Panel to calibrate the touchscreen directly from a Visual Basic application (without going through the Control Panel). See page 131 in the DOS and Windows Driver Guide, version 2.0, for more information and an example in C.

ELOCALWJ.HLP (60K) - Japanese version of the Touchscreen Control Panel Help File for Windows 3.x. Rename to ELOCALW.HLP.

COM34.TXT (2K) - Using ELODEV on COM3 and COM4. ASCII text file describing the new support for COM3 and COM4 in ELODEV, MonitorMouse for DOS, and MonitorMouse for Windows 3.x. Also describes the use of UCOMTSR.ASM to allow custom serial port handlers.

ELODEV.EXE (18K) - Pre-release version of ELODEV 1.7b. Fixes "divide-by-zero" message when loading on some 200+ MHz Pentium systems.

DOS Drivers:

MOUSETST.ZIP (5K) - Example program using the Microsoft Mouse API under DOS (Int 33H). This code is compatible with MonitorMouse for DOS. See the Microsoft Mouse Programmer's Reference book for details (Microsoft Press).

C.ZIP (40K) - Microsoft and Borland C programming examples for ELODEV 1.6 or later. See also TUC.ZIP for examples of Zoned Mode programming.

TUC.ZIP (37K) - Microsoft and Borland C programming examples for ELODEV 1.6 or later in Zoned Mode. Requires TouchUp, sold separately. VESA-compatible SVGA support included in VIEW.C.

PAS.ZIP (27K) - Borland Pascal programming examples for ELODEV 1.6 or later. Includes protected mode support. See also TUPAS.ZIP for examples of Zoned Mode programming.

TUPAS.ZIP (40K) - Borland Pascal programming examples for ELODEV 1.6 or later in Zoned Mode. Requires TouchUp, sold separately. VESA-compatible SVGA support included in VIEW.PAS.

BASIC.ZIP (10K) - BASIC programming examples with ELODEV 1.6 or later. Examples for four compilers included.

ASM.ZIP (7K) - Assembly language programming examples for ELODEV 1.6 or later.

DIAGS.ZIP (44K) - Touchscreen and controller diagnostic tools. Includes BUSSTAT, COMDUMP, INFO, and SAWDUMP (also included on the DOS and Windows Driver Disk). Also includes COMTEST and TSTIMER.

SMARTSET.EXE (60K) - SMARTSET software setup utility for AccuTouch E271-22xx and IntelliTouch E281-2300 controllers; typically not needed if Elo drivers are used.

GRASP.ZIP (11K) - Examples of using MonitorMouse for DOS with GRASP (Paul Mace software). Also includes examples calling ELODEV directly from GRASP 4 and GRASP 5.

MMOTN.TXT (1K) - Notes on using MonitorMouse for DOS with IBM's M-Motion/M-Control under DOS.

OS/2 Drivers:

MMOS2.ZIP (194K) - MonitorMouse for OS/2, version 2.2. Compatible with OS/2 2.x, Warp 3.0 and 4.0. PKUNZIP onto a blank floppy with the -d flag: "PKUNZIP -d MMOS2 a:". See OS2DOC.ZIP for manual.

MMOS2E.ZIP (111K) - Same as MMOS2.ZIP but English-language Touchscreen Control Panels only.

OS2DOC.ZIP (21K) - MonitorMouse for OS/2 User's Guide, version 2.1 (ASCII text version). See MMOS2.ZIP for software.

Other Drivers:

XTERM.TXT (1K) - ASCII text file describing X terminal compatibility with Elo touchscreens.

QNX.TXT (1K) - ASCII text file describing compatibility of Elo touchscreens with the QNX operating system.

Application Notes

Ten Tips for Effective Touchscreen Applications - Software tips for public access and other touchscreen applications. Includes kiosk cabinet design tips.

Check out the frequently asked questions at: <http://www.elotouch.com/faqs.html>.

The Ten Tips for Effective Touchscreen Applications at <http://www.elotouch.com/10tips.html> are reprinted below:

Ten simple pointers that can make the difference between success and failure for your touch-activated application.

1. Run your application full screen—Remove title bars and menu bars so your application can take full advantage of the entire display area.

2. Use bright background colors (no black)—Bright backgrounds in your application will hide fingerprints and reduce glare.

Dithering or other patterned backgrounds (for example, the “crumpled paper look”) help the eye focus on the screen image instead of reflections, even in areas where there are no icons or menu choices.

3. Use a simple point-and-click interface with large buttons—Dragging, double-clicks, scroll bars, drop-down menus, multiple windows, or other elements can confuse the typical user and interfere with user-friendliness and efficiency.

4. Turn the cursor off so your user will focus on the entire screen instead of the arrow—A cursor on the screen makes the user think, “How do I get the arrow to do what I want?” Remove the cursor, and the user’s thinking and actions become direct instead of indirect—thereby unlocking the true power of touchscreens.

5. Always give your users feedback as soon as they touch the screen—Immediate feedback is critical to reassure the user that a touch has registered. Responses can be visual, like 3-D button effects similar to those found on a standard Windows button. Or you can provide an audio response, such as a “click” or other sound output whenever a user touches the screen. Be sure that the display clears immediately and that the screen shows an hourglass (or similar icon) while the next screen loads.

6. Make your application fun and fast—Users will walk away from a sluggish system, but you can keep their attention with a quick response to touches (refer to the previous tip). Speedy systems also reduce vandalism. Graphics modes offering lots of colors or higher resolution only slow down your system. Using 256 colors is typically more effective than providing resolution greater than 640x480.

7. Try to make the application intuitive, limit choices, and guide the user as much as possible—Test your application on focus groups. If users pause in confusion—even for a moment—you’ve identified the areas that need improvement.

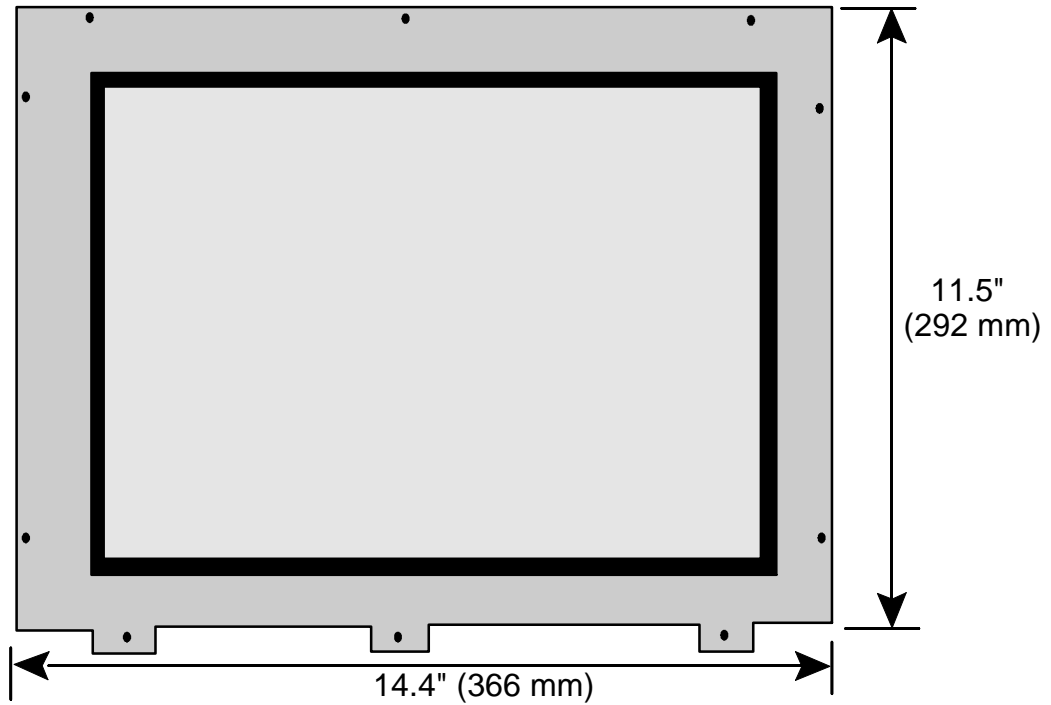
8. Digitized speech (via a sound card) can walk users through your application—Because the human brain can simultaneously process voice while absorbing an image, there is something almost magical about a user interface that provides voice prompts and touch response. The better kiosk applications exploit this knowledge for maximum effect. For example: “Touch the first letter of the company you are looking for.” Click. “Now touch OK.” Click.

9. Make your application part of an attractive package—Animation and large fonts help attract users to kiosk applications. The actual design of the kiosk cabinet should also be attractive (see tip #10 below).

10. Keep the following considerations in mind when designing a kiosk cabinet—Are you using forced air ventilation? Put your fan at the top, near the monitor's vents. To minimize the airborne dust from footsteps, keep the intake away from the floor. Keep air from entering around the monitor face, too. Remember to point your speakers in the direction of your user's ears. Finally, choose a finish that does not show fingerprints—avoid polished stainless steel, chrome, or glossy black paint.

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APPENDIX A: MECHANICAL DRAWINGS



Note:

Dimensions shown without optional front panel.

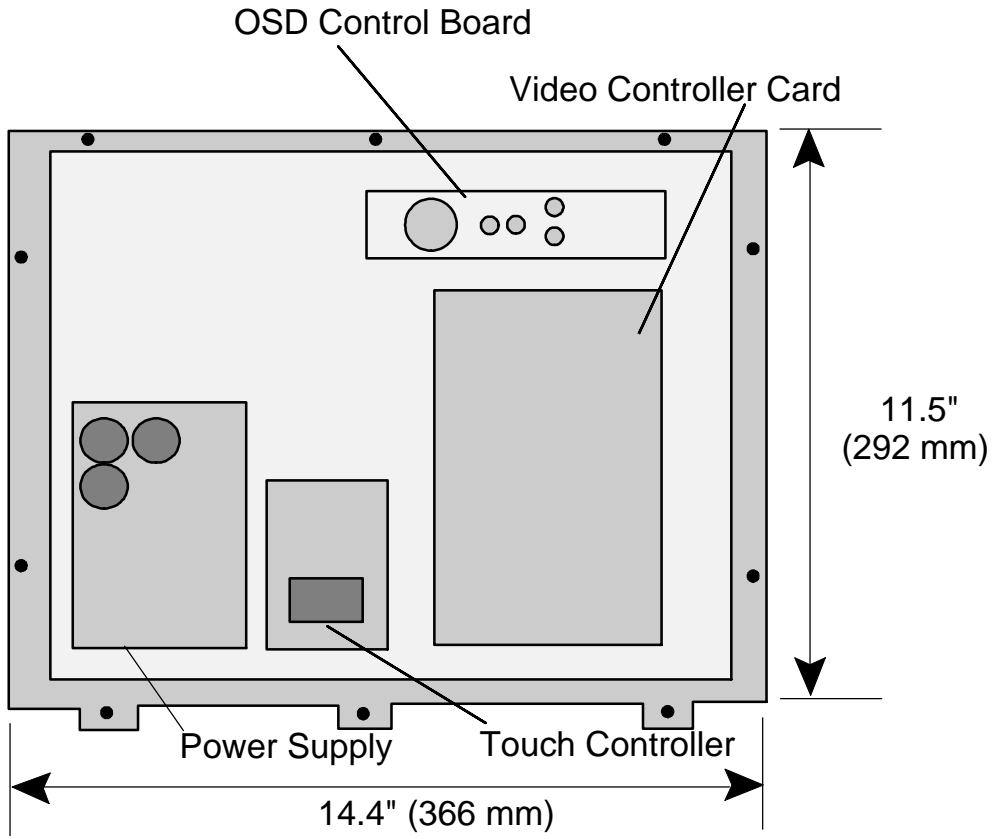
Dimensions with front panel 1502:

12.3" H x 15.2" W x 4.0" D
(312 mm x 386 mm x 102 mm)

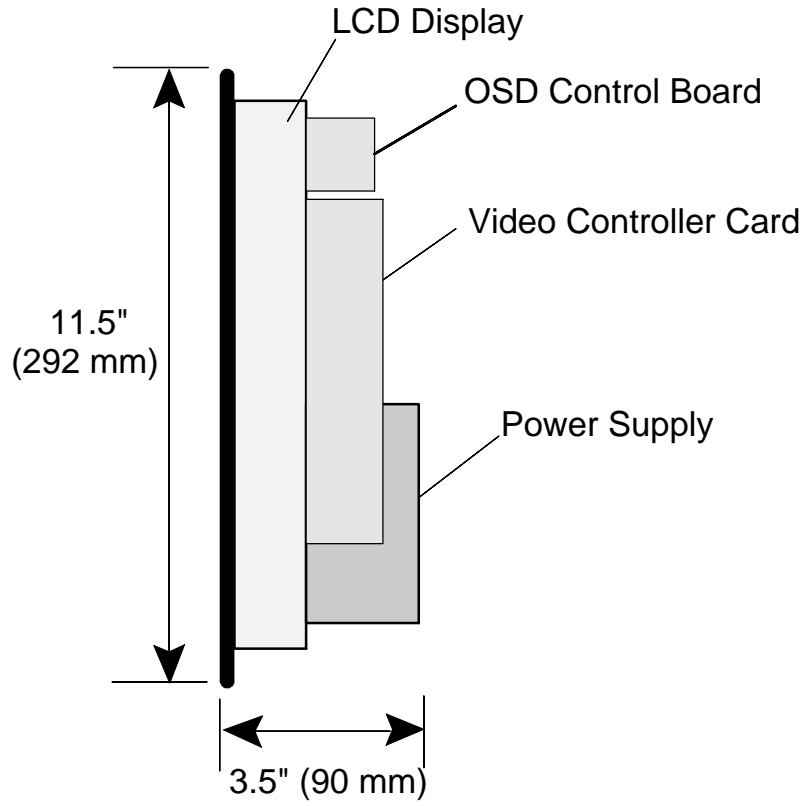
Dimensions with front panel 1503:

12.3" H x 19.0" W x 4.0" D
(312 mm x 483 mm 102 mm)

FRONT VIEW



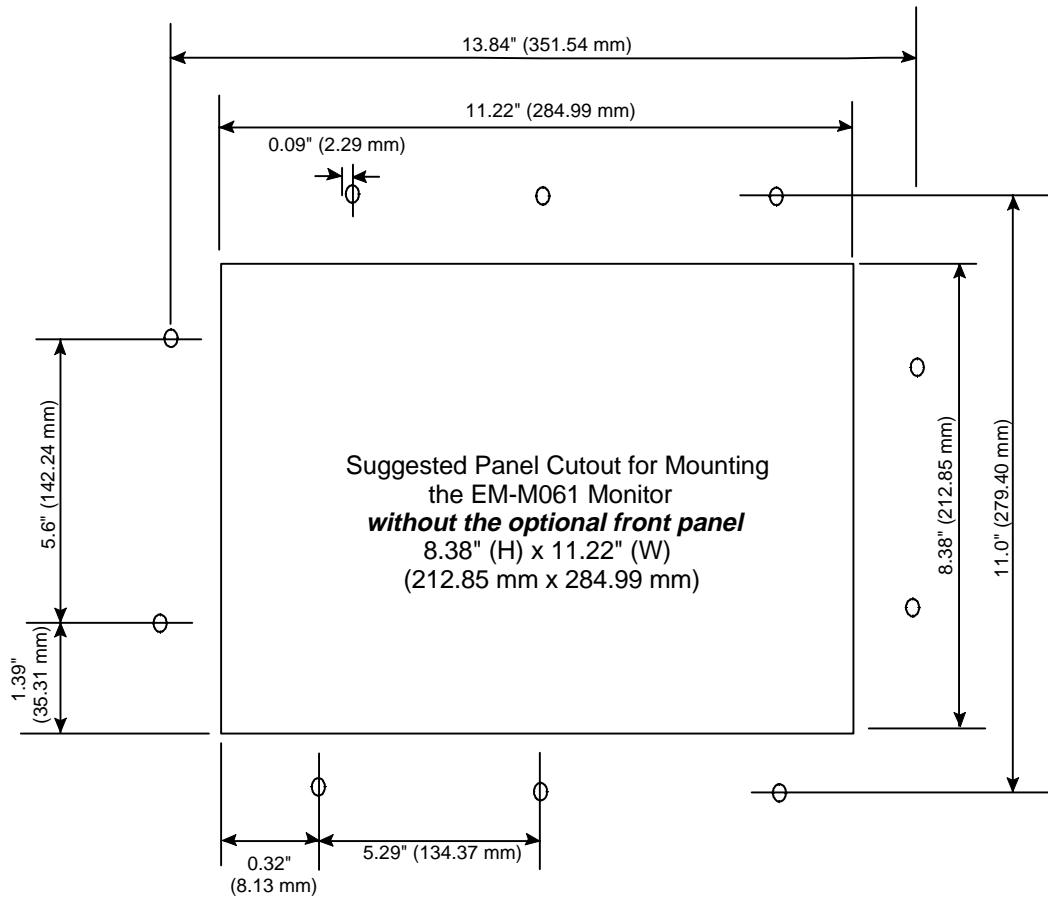
REAR VIEW



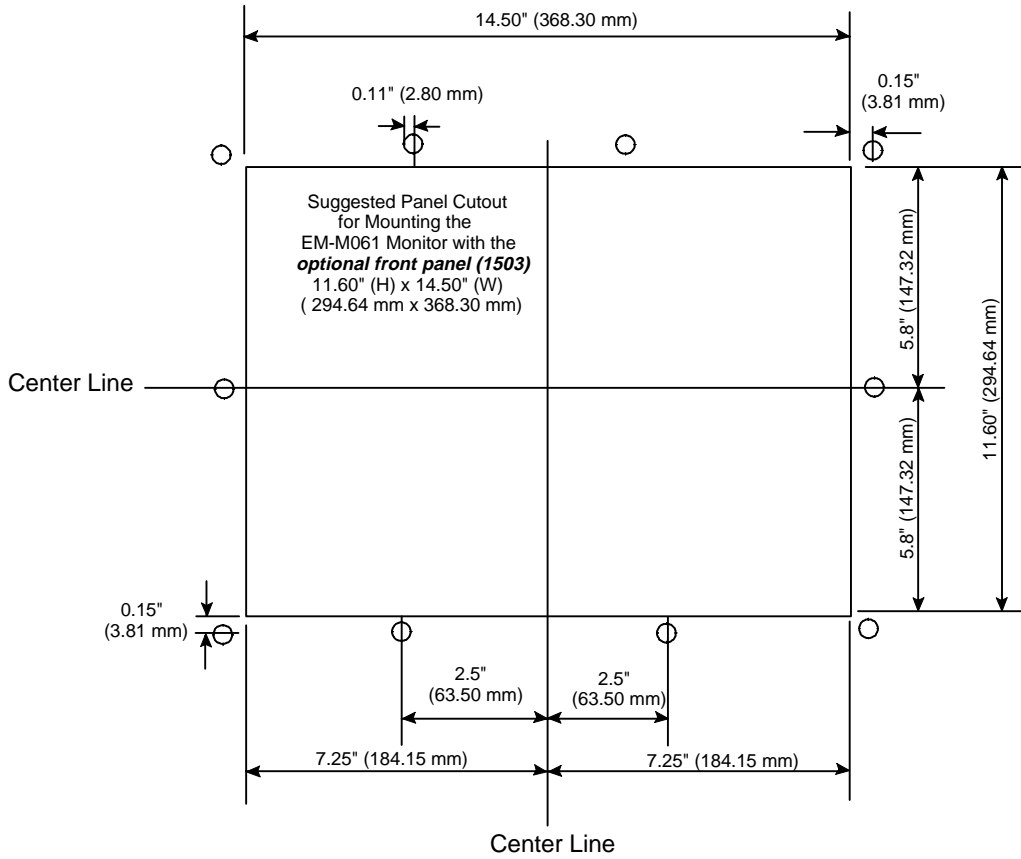
SIDE VIEW

APPENDIX B: MOUNTING DRAWINGS

RECOMMENDED PANEL CUTOUT AND MOUNTING STANDOFF LOCATIONS FOR EM-M061 MODULE

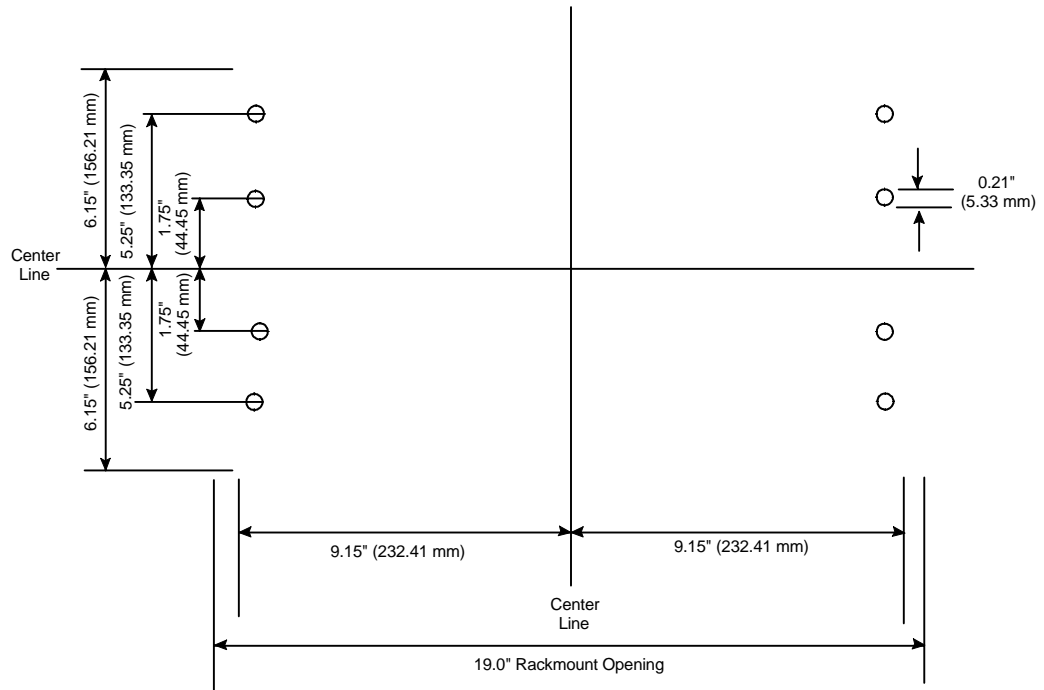


NOTE: Drawing is not to scale. All dimensions are in inches and (millimeters)



MOUNTING LOCATIONS FOR FRONT PANEL OPTION 1503

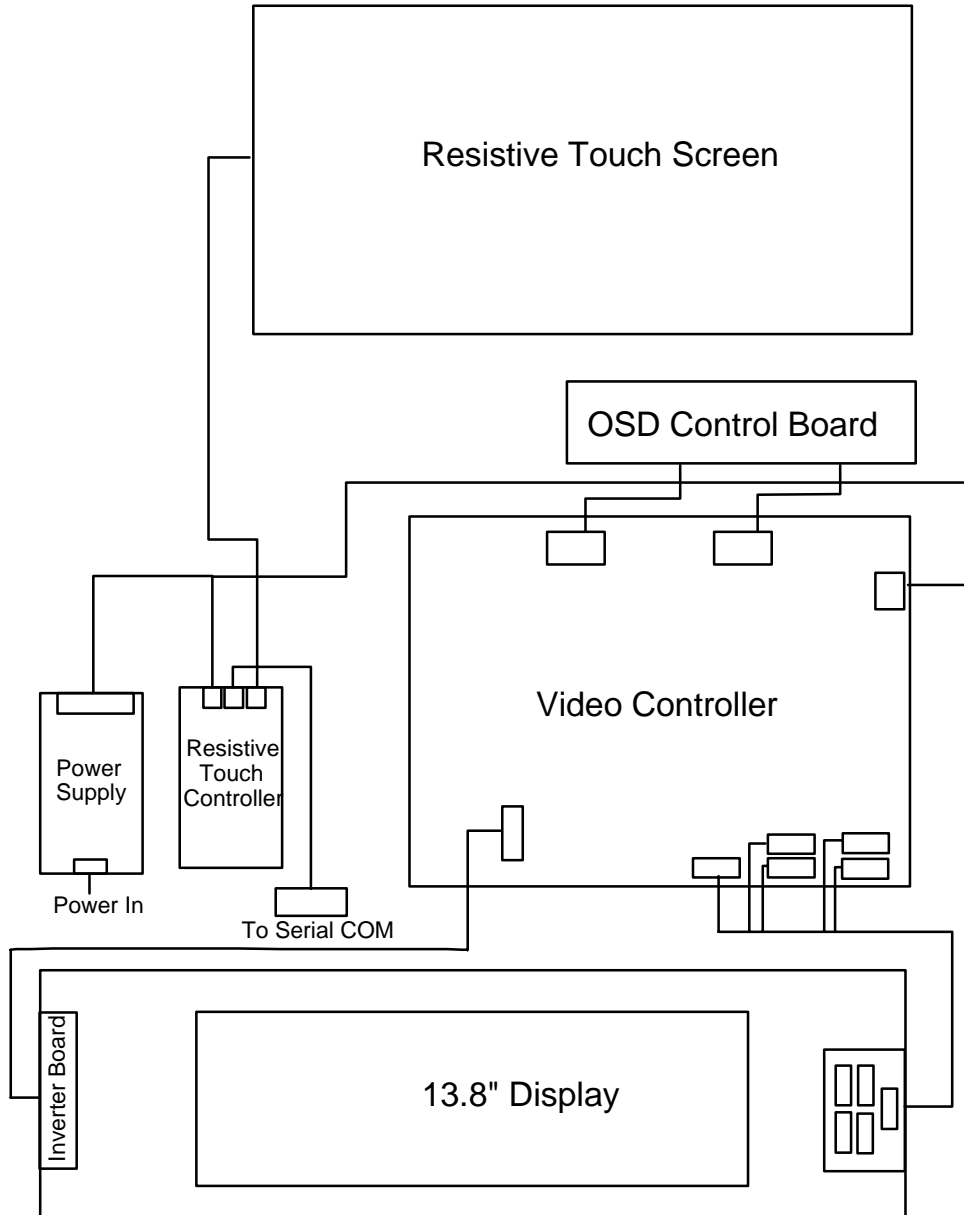
NOTE: Drawing is not to scale. All dimensions are in inches and (millimeters)



MOUNTING LOCATIONS FOR RACK MOUNT OPTION 1502

NOTE: Drawing is not to scale. All dimensions are in inches and (millimeters)

Appendix C: Block Diagram



Limited Warranty

Lucas Control Systems, Deeco Systems warrants this product against defects in materials and workmanship for a period of one year from the date of original shipment from the factory.

During this warranty period, Lucas Control Systems will, at no cost to the buyer, promptly repair or replace defective equipment returned to the factory, or other authorized warranty repair center, transportation charges pre-paid by the buyer, and will return such equipment, transportation charges prepaid. Lucas Control Systems 's sole obligation shall be, at its option, to repair or replace any goods which have been determined to be defective by Lucas Control System.

Equipment returned to the factory must be accompanied by the following information:

- Returned Material Authorization (RMA) number, obtained from Lucas Control Systems;
- Reason for return, with a comprehensive description of the malfunction;
- The name and telephone number of the person to contact in the event of questions or problems; and,
- Shipping instructions

This warranty shall not apply to damage resulting from improper handling, accident, negligence, loss or damage in transit, or abuse (such as applying the wrong polarity or voltage power). This warranty shall be voided should the buyer attempt any repairs or alterations without prior written permission of Lucas Control Systems.

Lucas Control Systems makes no other warranty, either expressed or implied, and disclaims any warranty or merchantability or fitness for a particular purpose. Any action by buyer for any alleged breach of this warranty shall be brought to the attention of Lucas Control Systems by the buyer within the warranty period.

Repairs and/or replacement under the terms of this warranty **SHALL NOT EXTEND THE WARRANTY LIFE OF THE ORIGINAL EQUIPMENT SUPPLIED.**

LIMITATIONS OF LIABILITY

THE BUYER AND LUCAS CONTROL SYSTEMS AGREE THAT THE SOLE AND EXCLUSIVE REMEDIES FOR BREACH OF ANY WARRANTY SHALL BE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS ACCORDING TO THE TERMS DESCRIBED ABOVE. LUCAS CONTROL SYSTEMS SHALL NOT BE LIABLE FOR CONTINGENT OR CONSEQUENTIAL DAMAGES TO PERSONS OR PROPERTY, AND LUCAS CONTROL SYSTEMS PRODUCTS' SOLE LIABILITY IS AS SET FORTH ABOVE. THIS STATEMENT OF WARRANTY AND LIMITATION OF LIABILITY IS A COMPLETE AND EXCLUSIVE STATEMENT OF ALL WARRANTY AND LIABILITY REPRESENTATIONS OF LUCAS CONTROL SYSTEMS.

IT MAY NOT BE VARIED, SUPPLEMENTED, QUALIFIED OR INTERPRETED BY ANY PRIOR DEALINGS BETWEEN THE PARTIES OR BY ANY USAGE OF THE TRADE OR UPON THE FACE OR REVERSE OF ANY FORM TO WHICH THIS IS ATTACHED OR PART OF, NOR MAY IT BE MODIFIED BY ANY AGENT, EMPLOYEE, OR REPRESENTATIVE OF LUCAS CONTROL SYSTEMS.

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