PLANAR

Mariner
LX0801PTI/ LX1201PTI/ LX1501PTI
IP-65 Touch Monitors

USER'S GUIDE

www.planar.com

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Important Recycle Instruction:

LCD Lamp(s) inside this product contain mercury. This product may contain other electronic waste that can be hazardous if not disposed of properly. Recycle or dispose in accordance with local, state, or federal Laws. For more information, contact the Electronic Industries Alliance at HYPERLINK "http://WWW.EIAE.ORG"
For lamp specific disposal information check WWW.LAMPRECYCLE.ORG.

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Usage Notice

WARNING – Please do not open or disassemble the product as this may cause electric shock. Doing so will void the warranty.

ATTENTION – Do not plug the touchscreen in yet! Install the touchscreen driver first!

Precautions

To maximize the life and safe use of your unit, always be sure to follow the warnings, precautions and maintenance recommendations in this user's guide.

In a Watercraft or Vehicle:

- The monitor should be visible to the driver only if it is used for navigation, or system control. Care should be taken to ensure distraction does not occur.
- Review all applicable federal, state and local laws and regulations to make sure the monitor is used properly and safely.
- Avoid using the monitor for extended times while the charging system is not running, or the monitor could drain the watercraft's battery.

Cleaning the Monitor:

- Use a soft cloth moistened with mild detergent, isopropyl alcohol, or window cleaners to clean the display housing.
- Never use abrasive cleaners, waxes or solvents to clean the unit.

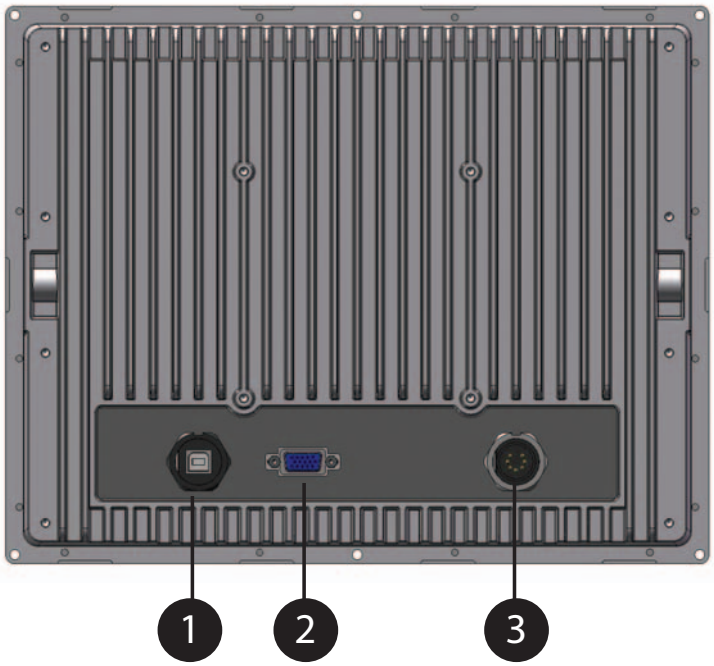
Introduction

About Planar's Mariner Touch Monitors

The LX0801PTI, LX1201PTI and LX1501PTI are high-performance, rugged touch monitors intended for demanding environments, such as those aboard a watercraft. The monitors feature a AMLCD TFT display with IR touchscreen, bright enough to be read in daylight. The monitors include several mounting points for front or rear mounting. The monitors are to be powered directly from circuit breaker protected and switched 8-32 VDC power aboard the watercraft. The metal enclosure is IP-65, designed to withstand liquid and dust intrusion. An optional cosmetic bezel is included with each monitor.

Front Views:

1. AMLCD TFT with Touchscreen
2. Auxiliary power switch
3. Brightness adjust/auto sync buttons



Rear View (Descriptions)**:**

1. USB port (Type B) for connecting the touchscreen to the remote computer
2. VGA Signal Input
3. 8-32 VDC Internally Regulated Power Input
4. Modular, removable connector plate for customizing I/O (not available on 12" model at time of print)

Mating Connectors (sourced from http://www.ltw-tech.com)**:**

USB Cable Assembly: 1 to 5 meter available. LTWWUB-20BFM-A7Axx (01, 02, ...05 for meter length)

VGA: The VGA connector located inside the monitor is waterproof. The connector style is standard 15-pin VGA.

DC Power Connector Only: LTWCD-07BFFA-LL 7001

DC Cable Assembly: LTWCD07AFFM-LL7Axx (01, 02, ... 99 meter length)

Features

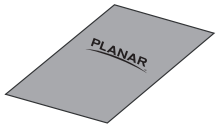
- **Brightness control** allows you to easily adjust the display to match the ambient light, from full sunlight to night.
- The monitor's **TFT display is optically bonded to the Touchscreen to increase contrast ratio. Increased contrast ratio makes it easier to read information displayed on the monitor.**
- The monitor's **autosync function** eliminates the need for adjusting the monitor for the best image - the monitor automatically makes any needed adjustments whenever it is powered up or the display mode is changed.
- The monitor supports **standard VGA signal input**:
  - LX0801PTI is 800 x 600 SVGA (native) and 640 x 480.
  - LX1201PTI and LX1501PTI are 1024 x 768 XGA (native), 800 x 600 and 640 x 480.
- The monitor's IP-65 **enclosure** protects from splashed water and dust. It is designed to withstand shock and vibration for greater endurance and reliability.
- There are several mounting point features incorporated in the design of the enclosure to enable installation flexibility.

Note: The LX0801PTI/LX1201PTI/LX1501PTI monitors do not have OSD controls available from the front buttons. All OSD commands can be controlled via USB cable from the host CPU (see Addendum A).

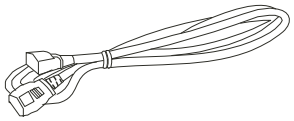
Package Overview

The following items are shipped with the display. If any of these items are not in the shipping container, please contact Planar.

LX080PTI/ LX1201PTI/ LX1501PTI
Touch Monitor
(Bezel is attached for shipping.)



Quick Start Guide



2M Power Cord

Note: Mounting hardware (M4 Screws), mounting brackets, power supply, USB and video cables are sold separately.

Software drivers can be downloaded from www.Planar.com/downloads

Installation

Before Installing

Keep the following in mind while installing the monitor:

- The monitor should be visible to the driver only if it is used for navigation, system control or vehicle information. If the monitor will be used for other purposes, it should be installed in such a way that it will only operate while the watercraft is not moving.
- Review all applicable federal, state and local laws and regulations to make sure the monitor is used properly and safely.
- The installed monitor must not interfere with the driver's vision.

Installing the monitor consists of three steps:

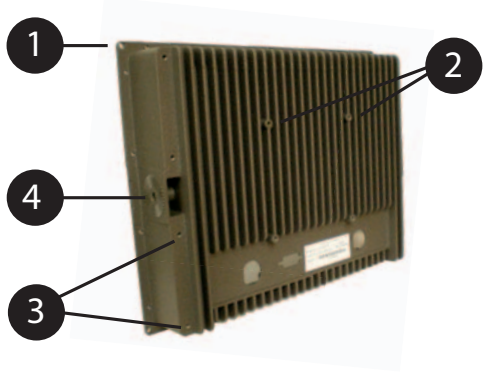
1. Attaching the monitor using one of the mounting interfaces built into the monitor's enclosure.
2. Connecting the monitor to the computer and power source.
3. Installing the touchscreen driver software.

Step 1 - Mounting the Monitor

The back and sides of the monitor include mounting points that you can use to mount the monitor as your installation requires.

Mounting holes on the LX0801PTI, LX1201PTI and LX1501PTI allow the monitor to be mounted :

- Front mounted using corner mounting holes (1)
- Rear mounted using either VESA, 3 hole RAM style, or edge mounting holes (2, 3)
- Side mounted using variegated bosses (4)



Mounting	Details	LX0801PTI	LX1201PTI	LX1501PTI
Front				
Non-Tapped Holes in Flange	Clearance for M4	n/a	4 Holes	6 Holes
Rear				
VESA 4 Hole Pattern	Accepts M4 x .07 up to 8mm depth	75mm	100mm	100mm
3 Hole RAM Mount Style (Addendum G)	Accepts M4 x .07 up to 8mm depth	(0.91 radius, 120°)	n/a	n/a
Edge of Rear Casting	Accepts M4 x .07 up to 8mm depth	n/a	8 Holes	4 Holes
Side				
Variegated Mounting Boss	Accepts M8 x 1.25 up to 8mm depth	n/a	Yes	n/a

NOTE: Planar does not supply fasteners.

Removing Bezel:

- If you are flange mounting the monitor, it will be necessary to remove the decorative bezel from the enclosure. As shown, insert a narrow straight blade screw driver between the bezel and enclosure near one of the friction points. Pry upwards gently.

Step 2 - Connecting the Monitor

Once the monitor is mounted in place, connect it to the computer (or other video source) and the regulated DC power supply as follows. Planar does not supply a power supply. The monitor is intended to be powered from the watercraft's DC power system. Power to the monitor (and CPU) is hard switched from the line power that should be protected by a magnetic hydraulic circuit breaker. **DO NOT connect the USB cable at this time!**

Note: This procedure refers to connections to and from the computer. However, depending on your particular hardware configuration, these connections may be to a dock or other device rather than directly to the computer.

1. Install IRtouch software on computer.
2. As needed, route any data and power cables from the computer to the monitor.
3. Make sure the computer is turned off . Connect video cable and USB cable.
4. Connect to the monitor's power supply.

Note: Use a appropriately sized fuse in line to the power source. Also, to prevent the watercraft's battery from draining in standby mode, you should install a device that shuts off power to the monitor while the monitor is inactive. (An example is Lind Electronic's Vehicle Battery Voltage Shutdown Timer - www.lindeletronic.com).

12VDC system: 4A slow blow fuse
24VDC system: 2A slow blow fuse

5. Turn on power to the computer and monitor. The monitor then turns on as soon as it receives a video signal from the computer, and its LED turns green.

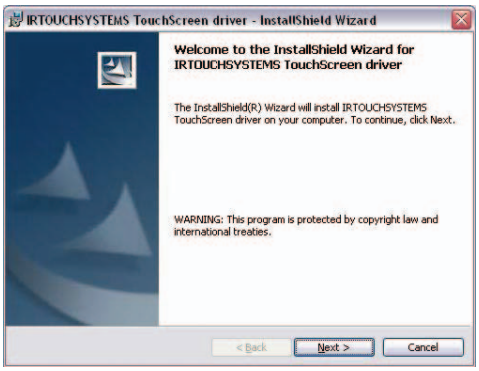
   Also, the first time the monitor is powered up, it automatically displays a test pattern of repeating colored screens (black, white, red, green, and blue) until a video signal is detected.

Note: For best results, adjust the display mode of the computer to a resolution of 800 x 600 (LX0801PTI) or 1024 x 768 (LX1201PTI and LX1501PTI) and a refresh rate of 60 Hz.

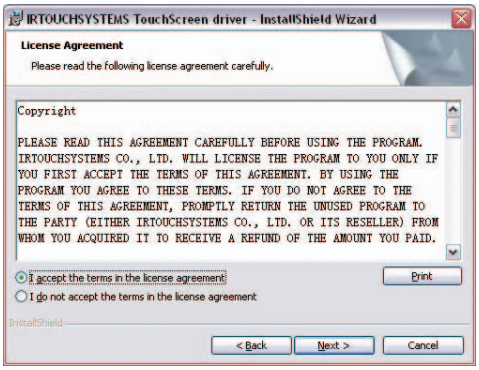
Step 3 - IRtouch Software Installation

IMPORTANT – Do not plug in the touchscreen yet! Install the driver first.

1. Run IRtouch driver setup

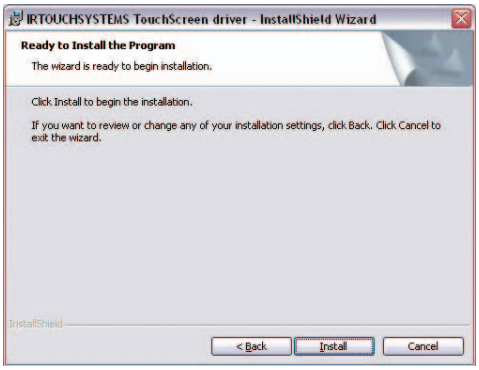


2. Accept user agreement

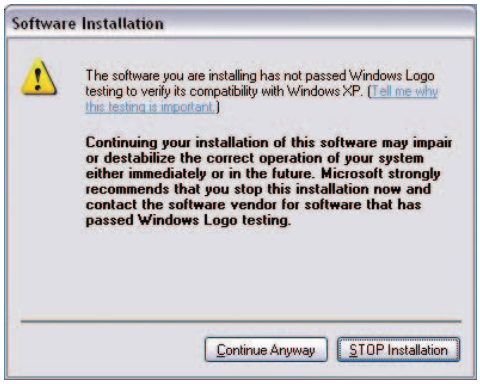


3. Install in default location

4. Click Install



5. Click continue, you can trust Planar and IRtouch

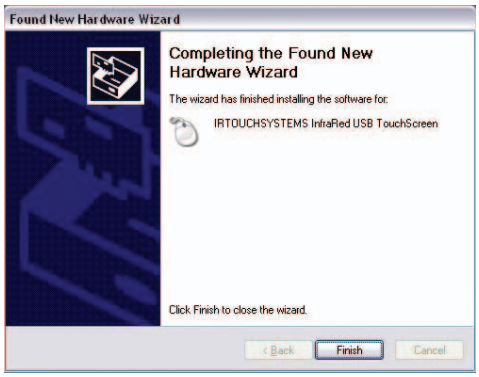


6. Click on Finish

   Attach the Planar monitor to the system or install the computer to a docking station. Attach the USB cable. After the USB cable from the monitor is attached to the computer it will recognize the touchscreen for the first time.

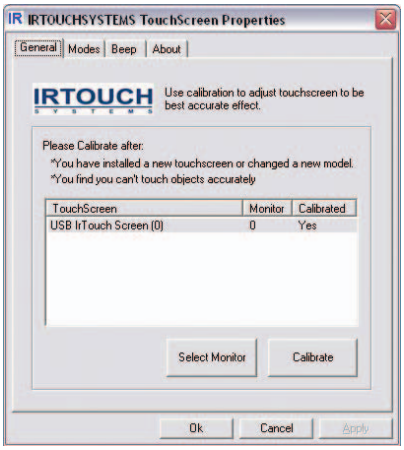
7. Continue

8. Click Finish



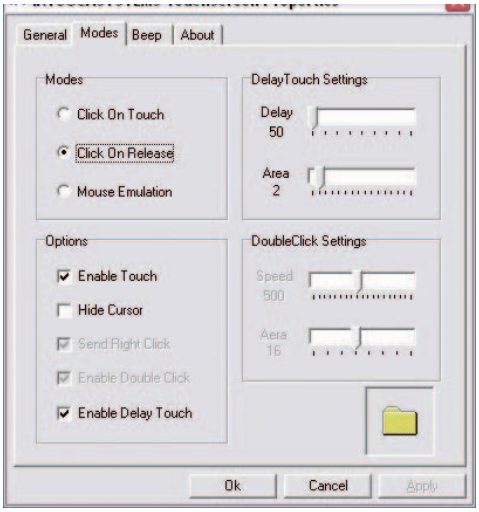
9. Click the IRtouch icon located on your desktop to calibrate the touch monitor.

10. Click Calibrate



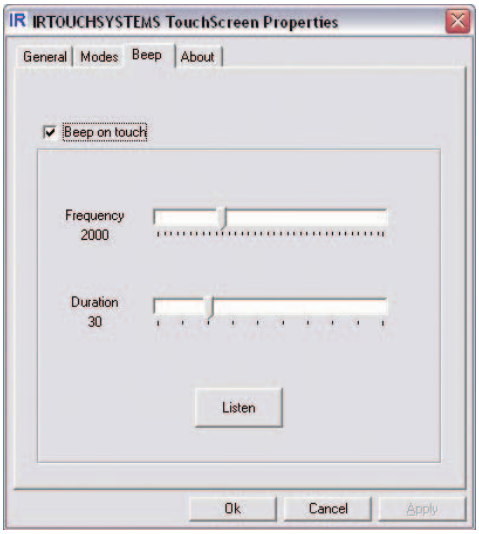
11. Set Modes

When used in rugged environments with software written for touchscreens, you may find it easier to use the 'click on release' radio button.



12. Beep

You can set the computer to beep on touch activation if needed.



User Controls

Front Panel Controls

CONTROL	FUNCTION
Auxiliary Power Switch	Turns the CPU off and sends signal to host PC through power cable.
Brightness Adjust Switches	Enables brightness adjustment by depressing one or the other button. Depressing both buttons simultaneously enables auto sync of the monitor to the video source.
Touchscreen	Enables user to control software and computer with a touch

Note: The Mariner design does not have a power switch that turns off the power to the monitor. This is because the vast majority of marine installations utilize a circuit breaker to turn power on/off to electrical devices.

Turning the Monitor On and Off

The monitor's power button can control power to the display and CPU. It is not designed to electrically isolate the monitor or CPU from the supply. Use an appropriately sized (4A slow blow 12VDC/2A slow blow 24VDC) magnetic hydraulic circuit breaker to switch line power on/off.

Note: Be sure to configure the computer's power options, including how the computer responds, when the button is pressed. See Windows on-line help for details. The monitor goes into standby whenever the computer is put into sleep or into hibernation.

Using the Touchscreen

The touchscreen allows you to operate the computer by touching the screen with a finger or stylus, rather than using a mouse or keyboard.

Navigating the Touchscreen

- To click an item, tap the item once.
- To double-click an item, tap the item twice rapidly.
- To drag an item, touch the item, and then drag it along the screen to the new location.
- To move the cursor, touch the screen and move the cursor as needed.

Cleaning the Monitor

Clean the monitor's touchscreen periodically to keep the display image bright and sharp, and to keep the touchscreen functions working properly.

- Always turn off the monitor before cleaning.

- Clean the touchscreen with a dry soft cloth. If this does not clean the screen adequately, preferably use Sparkle or Glass X cleaners.

If these optimal cleaners are not available use water or mild glass or window cleaner **(that does not contain ammonia)** applied to the cloth and not to the display.

- Clean the monitor housing with a soft cloth moistened with mild detergent.

- Never apply abrasive cleaners, waxes or solvents to the monitor.

Appendix

Troubleshooting the Monitor

If you are experiencing trouble with the monitor, refer to the following. If the problem persists, please contact your local dealer or our service center.

Problem: No image appears on screen

- Make sure the brightness is not turned all the way down.
- Make sure all data and power cables are properly connected to the monitor and to the computer and power supply.
- Make sure the pins on the cables and connectors are not crooked or broken.
- Make sure the computer is functioning properly, and has not entered power-saving mode. (You may also want to disable the computer's power-saving feature.)

Problem: Partial image or incorrectly displayed image

- Make sure the computer's image resolution is set to one of these resolutions: 1024 x 768 (XGA) (LX1201PTI only), 800 x 600 (SVGA) or 640 x 480 (VGA).

Problem: Image is scrolling

- Check and make sure the VGA signal cable (or adapter) is securely connected at both ends.
- Initiate an auto-sync to solve the problem.

Problem: The monitor does not appear to respond to the touchscreen

- Make sure the USB cable to the computer is securely connected at both ends.

Specifications

Parameter	LX1501PTI - 15"
Display Type	Full Color TFT AMLCD
Display Viewing Area	304 (w) x 228 (h) mm
Diagonal Viewing Area	15" (381 mm)
Display Color	262 K (6 bit/color); 16.7 m (8 bit)
Resolution	1024 (H) x 768 (V) pixels XGA
Contrast Ratio	650:1 (typical)
Response Time	25 ms (on/off)
Luminance	1200 Nits (typical)
Horizontal Viewing Angle (CR>5)	80° (right), 80° (left)
Vertical Viewing Angle (CR>5)	80° (down), 70° (up)
Video Input	VGA
Backlight	6 CCFLs
Backlight Adjustment	0-100% dimmable
Backlight Inverter	Pizeoelectric, dims to off
Power Consumption	<45 Watts (total), 4.2W standby typical with USB connected; 3.6W standby typical without USB.
Touch screen	Infrared, 4096 points of resolution
Touch screen Interface	USB
Cover Glass	AG etched, direct bonded
Operating Survival Temp Range	-40° C to + 60° C
Operating Temperature	-20° C to + 60° C
Storage Temperature	-20° C to + 80° C
Shock	30 Gs, Half Sine Wave, 11 ms
Vibration, Endurance	10-500 Hz, 2 Gs rms, 1hr/axis
Vibration, Operating	10-500 Hz, 2 Gs rms, 1hr/axis
Humidity	90% RH @ 40° C, Non-condensing
Emission	EN 55022, EN6100-3-2, -3 (targeted standards at time of printing)
Immunity	IEC 6100-4-2, -3, -4, -5, -6, -8, -11: 1995 (targeted standards at time of printing)
Reverse Polarity Protection	Protected
Regulatory and Safety	FCC Class A, CE, UL/CUL, TUV
Enclosure Including Front Bezel	IP-65 (Waterproof)
Input/Outputs	Power On/Off Button Dimming/Auto Sync rocker switch Watertight USB "B" Type Watertight VGA 15-Pin Watertight Power Connector (LTW p/n LTWCD-07BFFA-LL7001 is field installable mating connector)
Weight with Plastic Bezel	12.35 lbs (5.62 kg)

Parameter	LX1201PTI - 12.1"
Display Type	Full Color TFT AMLCD
Display Viewing Area	246 (w) x 184.5 (h) mm
Diagonal Viewing Area	12.1" (307 mm)
Display Color	262 K (6 bit/color); 16.7 m (8 bit)
Resolution	1024 (H) x 768 (V) pixels XGA
Contrast Ratio	650:1 (typical)
Response Time	25 ms (on/off)
Luminance	>800 Nits (typical)
Horizontal Viewing Angle (CR>5)	65° (right), 65° (left) (CR>1)
Vertical Viewing Angle (CR>5)	80° (down), 70° (up) (CR>1)
Video Input	VGA
Backlight	4 CCFLs
Backlight Adjustment	0-100% dimmable
Backlight Inverter	Pizeoelectric, dims to off
Power Consumption	<30 Watts (total), 4.2W standby typical with USB connected; 3.6W standby typical without USB.
Touch screen	Infrared, 4096 points of resolution
Touch screen Interface	USB
Cover Glass	AG etched, direct bonded
Operating Survival Temp Range	-40° C to + 60° C
Operating Temperature	-20° C to + 60° C
Storage Temperature	-20° C to + 80° C
Shock	18 Gs, SAE J1455
Vibration, Endurance	100-1100 Hz, 4 Gs rms, 1hr/axis
Vibration, Operating	5-150 Hz, 4 Gs rms, 1hr/axis
Humidity	95% RH, Non-condensing
Emission	-
Immunity	-
Reverse Polarity Protection	Protected
Regulatory and Safety	FCC Class A, CE, UL/CUL, TUV
Enclosure Including Front Bezel	IP-65 (Waterproof)
Input/Outputs	Power On/Off Button Dimming/Auto Sync rocker switch Watertight USB "B" Type Watertight VGA 15-Pin Watertight Power Connector (LTW p/n LTWCD-07BFFA-LL7001 is field installable mating connector)
Weight with Plastic Bezel	8.65 lbs (3.92 kg)

Parameter	LX0801PTI - 8.4"
Display Type	Full Color TFT AMLCD
Display Viewing Area	170 (w) x 127 (h) mm
Diagonal Viewing Area	8.4" (213 mm)
Display Color	262 K (6 bit/color); 16.7 m (8 bit)
Resolution	800 (H) x 600 (V) SVGA
Contrast Ratio	650:1 (typical)
Response Time	-
Luminance	700 Nits (typical)
Horizontal Viewing Angle (CR>5)	80° (right), 80° (left)
Vertical Viewing Angle (CR>5)	60° (down), 80° (up)
Video Input	VGA
Backlight	2 CCFLs
Backlight Adjustment	0-100% dimmable
Backlight Inverter	Pizeoelectric, dims to off
Power Consumption	<15 Watts (total), 4.2W standby typical with USB connected; 3.6W standby typical without USB.
Touch screen	Infrared, 4096 points of resolution
Touch screen Interface	USB
Cover Glass	AG etched, direct bonded
Operating Survival Temp Range	-40° C to + 70° C
Operating Temperature	-20° C to + 60° C
Storage Temperature	-20° C to + 85° C
Shock	18 Gs, SAE J1455
Vibration, Endurance	100-1100 Hz, 4 Gs rms, 1hr/axis
Vibration, Operating	5-150 Hz, 4 Gs rms, 1hr/axis
Humidity	95% RH, Non-condensing
Emission	-
Immunity	-
Reverse Polarity Protection	Protected
Regulatory and Safety	FCC Class A, CE, UL/CUL, TUV
Enclosure Including Front Bezel	IP-65 (Waterproof)
Input/Outputs	Power On/Off Button Dimming/Auto Sync rocker switch Watertight USB "B" Type Watertight VGA 15-Pin Watertight Power Connector (LTW p/n LTWCD-07BFFA-LL7001 is field installable mating connector)
Weight with Plastic Bezel	4.8 lbs (2.2 kg)

Addendum A

An interconnection to the host PC with USB can be exploited by the customer to create an OSD. Planar has utilized a powerful Pixelworks video IC to enable this functionality should customers desire increased control functions. Planar does not provide the programming to do this. Please consult with Planar's application engineering team if you have questions about the scale of this undertaking. Contact sales@planar.com.

Addendum B

Monitor is not provided with a power supply brick. The AC/DC power supply is not required in DC powered vehicle applications. The power brick is available as an optional accessory should one be required in AC powered applications.

Power source:
DC power or optional universal input (110-240VAC) AC/DC supply.

PIN OUT TABLE		
CONN.	WIRE COLOR	DEFINITION FOR PIN-OUTS
1	BLUE	8-30VCD TO INVERTER
3 2	ORANGE	GROUND TO INVERTER
3	YELLOW	8-30VDC TO INVERTER
4	RED	BEZEL SWITCH CONNECTION
5	BROWN	BEZEL SWITCH CONNECTION 2
6	GREEN	8-30VDC TO VIDEO BOARD
3 7	WHITE	GROUND TO VIDEO BOARD

BILL OF MATERIALS		
ITEM	QTY	DESCRIPTION
1	1	POWER SUPPLY, 12V, 6.67A, 80W MAX (902-0156-02)
2	1	6 FT 20 AWG 4C NON-SHIELDED CORD
3	1	LTW CONNECTOR, P/N LTWCD-07AFFM-LL7A02

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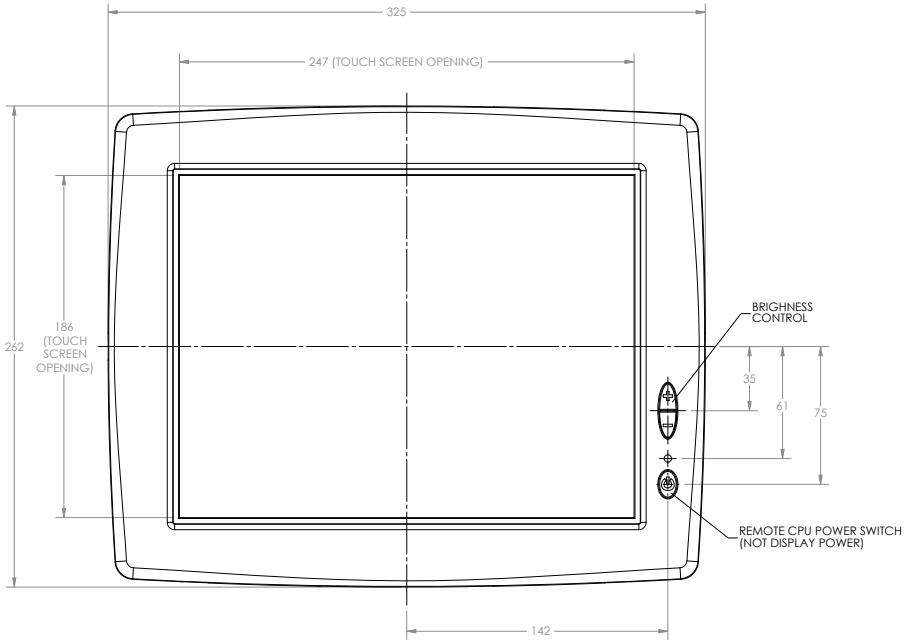
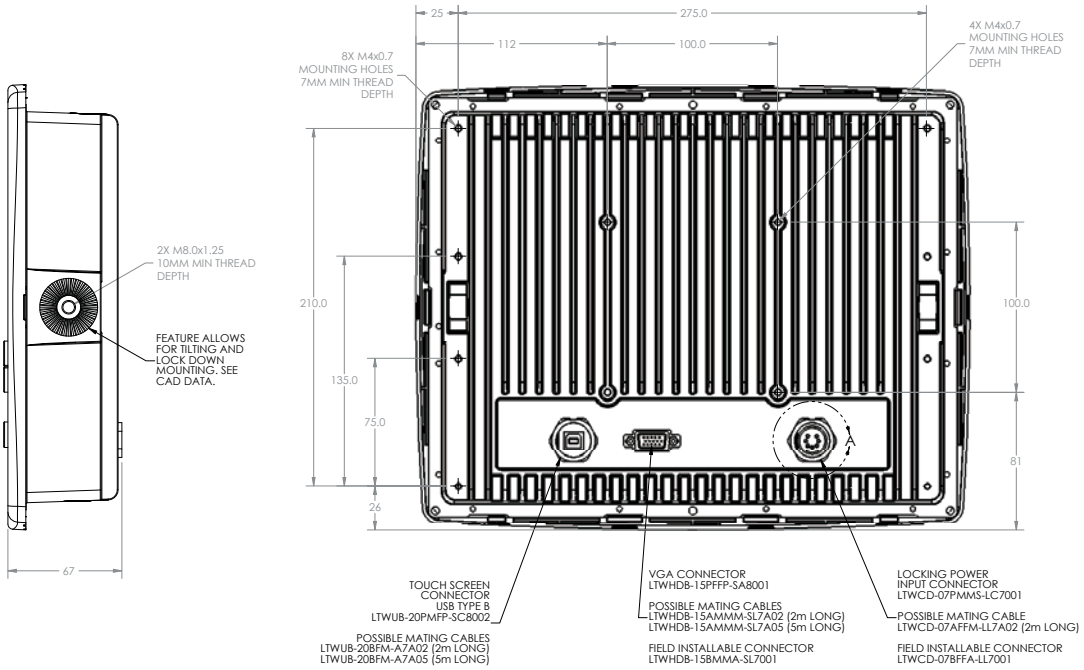
Pins 4 and 5 are the switch connections. These are connected to our front bezel button so when the button is depressed these signals will be shorted together for as long as you hold the button. When you release the button the connection will be open.

Addendum C

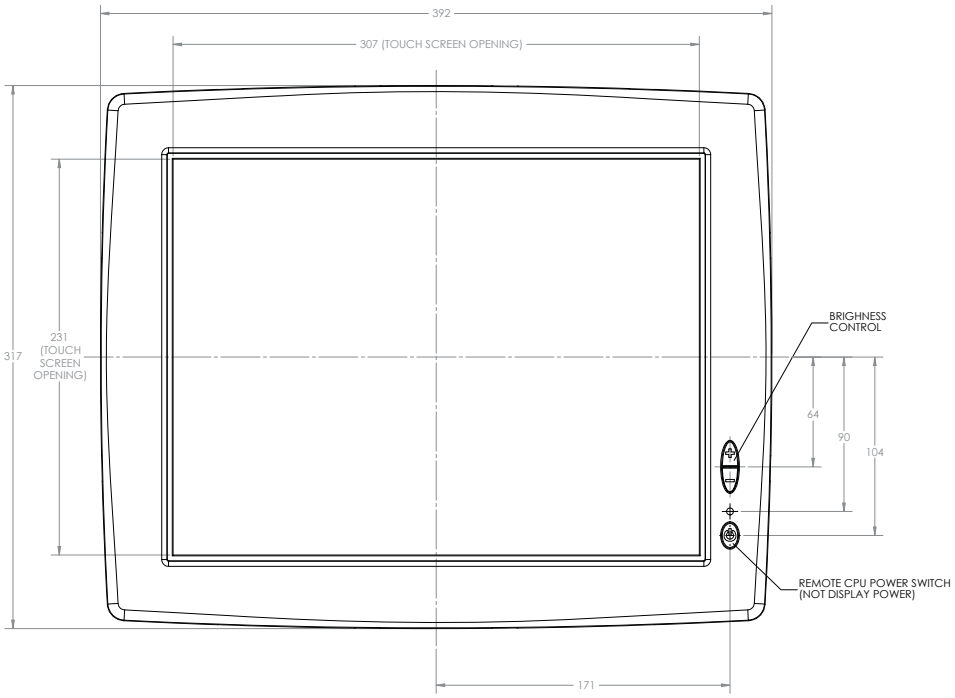
Note, this manual has been published prior to the release of LX0801PTI, please consult factory for additional information.

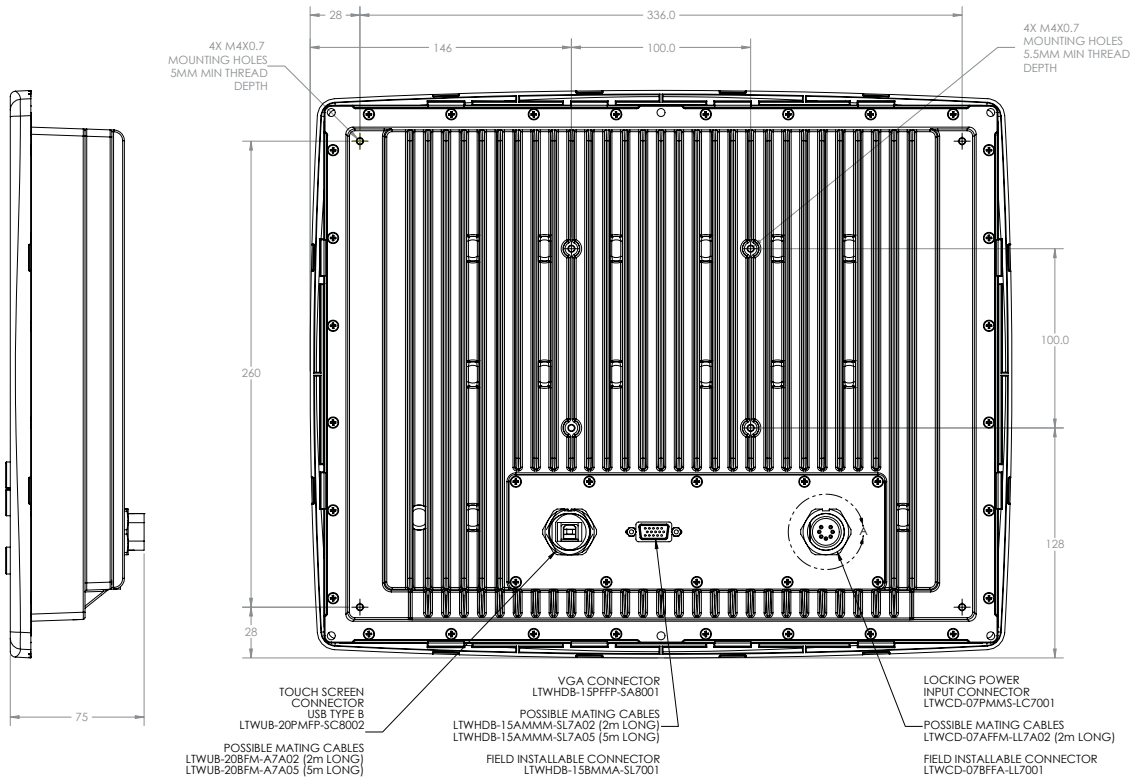
Addendum D





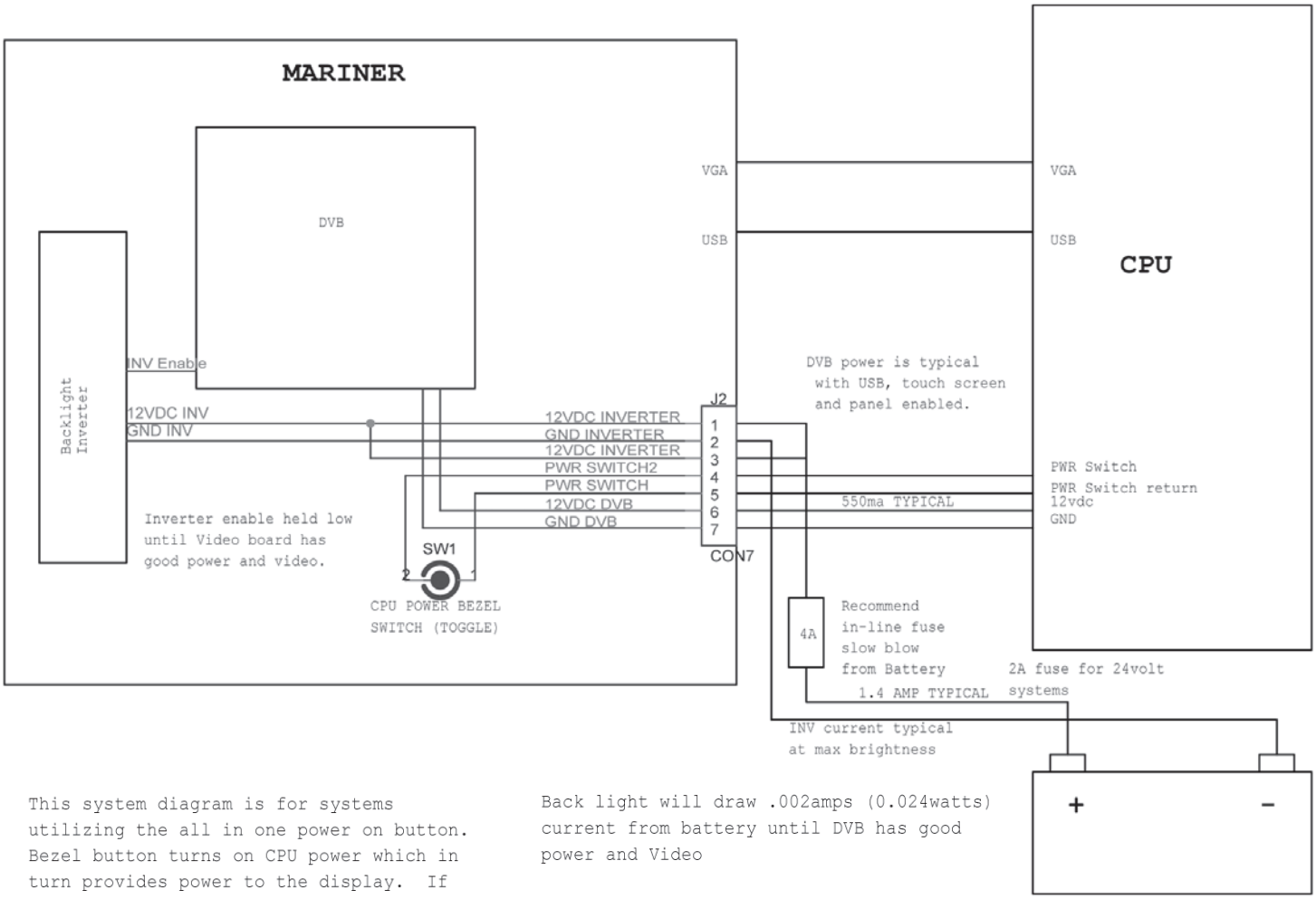
Addendum E


392
307 (TOUCH SCREEN OPENING)
317
231
(TOUCH
SCREEN
OPENING)
BRIGHNESS
CONTROL
64
90
104
REMOTE CPU POWER SWITCH
(NOT DISPLAY POWER)
171


28
336.0
146
100.0
4X M4X0.7
MOUNTING HOLES
5MM MIN THREAD
DEPTH
4X M4X0.7
MOUNTING HOLES
5.5MM MIN THREAD
DEPTH
260
100.0
128
28
75
TOUCH SCREEN
CONNECTOR
USB TYPE B
LTWUB-20PMFP-SC8002
POSSIBLE MATING CABLES
LTWUB-20BFM-A7A02 (2m LONG)
LTWUB-20BFM-A7A05 (5m LONG)
VGA CONNECTOR
LTWHDB-15PFFP-SA8001
POSSIBLE MATING CABLES
LTWHDB-15AMMM-SL7A02 (2m LONG)
LTWHDB-15AMMM-SL7A05 (5m LONG)
FIELD INSTALLABLE CONNECTOR
LTWHDB-15BMMA-SL7001
LOCKING POWER
INPUT CONNECTOR
LTWCD-07PMMS-LC7001
POSSIBLE MATING CABLES
LTWCD-07AFFM-LL7A02 (2m LONG)
FIELD INSTALLABLE CONNECTOR
LTWCD-07BFFA-LL7001

Addendum F

CPU Power Switch Scheme



This system diagram is for systems utilizing the all in one power on button. Bezel button turns on CPU power which in turn provides power to the display. If the single button approach is not desired the monitor power and ground pins can be connected directly to the power supply. The display will then be put in standbye when no video is present.

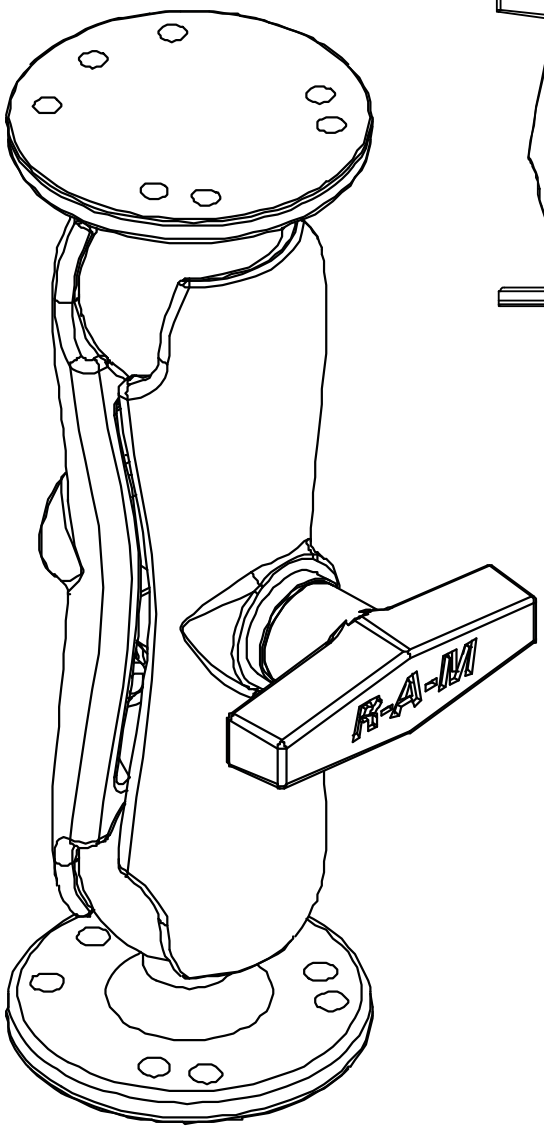
Back light will draw .002amps (0.024watts) current from battery until DVB has good power and Video

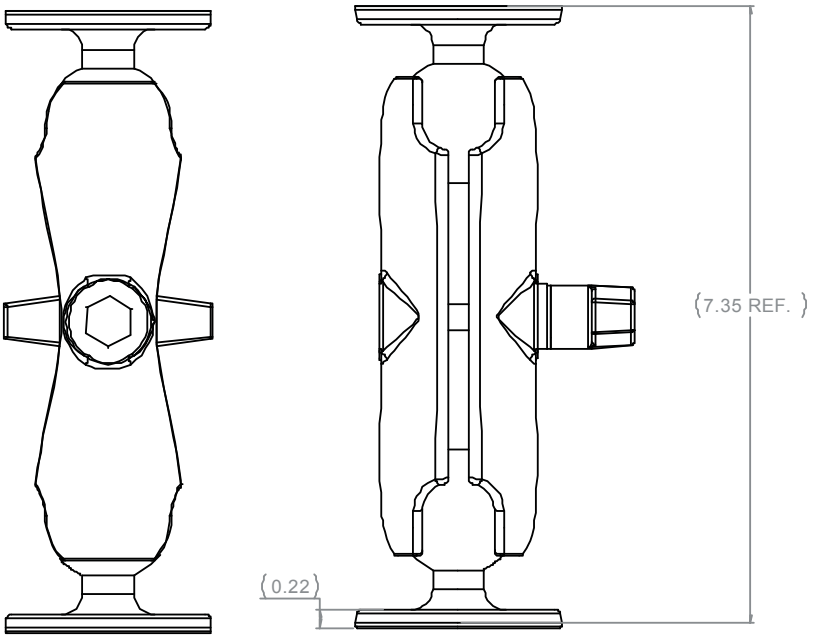
Direct 8-30 VDC Power Scheme

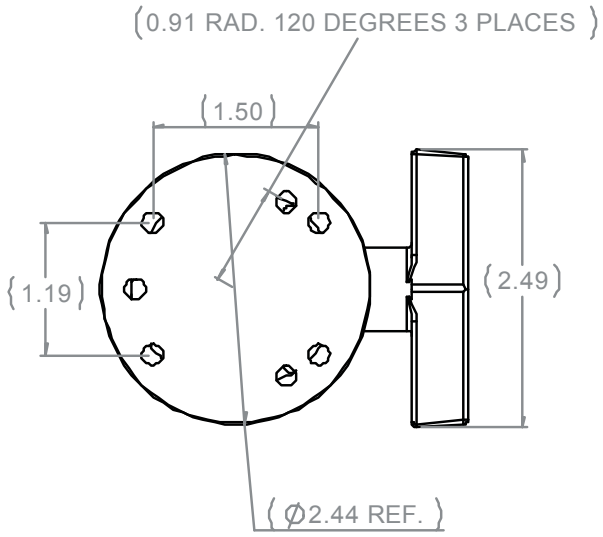
Pin	Wire Color	Definition
1	Blue	8-30 VDC to Invertor
3	Yellow	8-30 VDC to Invertor
6	Green	8-30 VDC to Video Board
2	Orange	Ground to Invertor
7	White	Ground to Video Board

Addendum G

RAM Mount for LX0801 PTI







Addendum H

Frequently Asked Questions

Q1: I want to be able to turn power off to the monitor on/off with a switch. I do not want the monitor to be in stand-by power mode because it draws power; and, I don't want to use a Vehicle Battery Voltage Shutdown Timer mentioned on page 12 of this manual. Can I tie the inverter power and video power together in my wire harness to switch the power?

A1: Yes, Pins 1, 3 and 6 can be tied together. Pins 2 and 7 can be tied together.

Q2: In Addendum F, does pin 3 have to be connected to pin 1?

A2: No pin 3 was reserved to provide more current capacity for future display family growth in either size or brightness.

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Email: PlanarSupport@planar.com

Americas Support
1195 NW Compton Drive
Beaverton, OR 97006-1992
Tel: 1-866-PLANAR-1 (752-6271) (US only)
1-503-748-5799 (outside the US)
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Europe and Asia-Pacific Support
Olarinluoma 9 PO Box 46
FIN-02201 Espoo, Finland
Tel: +358-9-420-01
Hours: M-F, 7am - 4pm CET

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Document No. 020-0982-00A