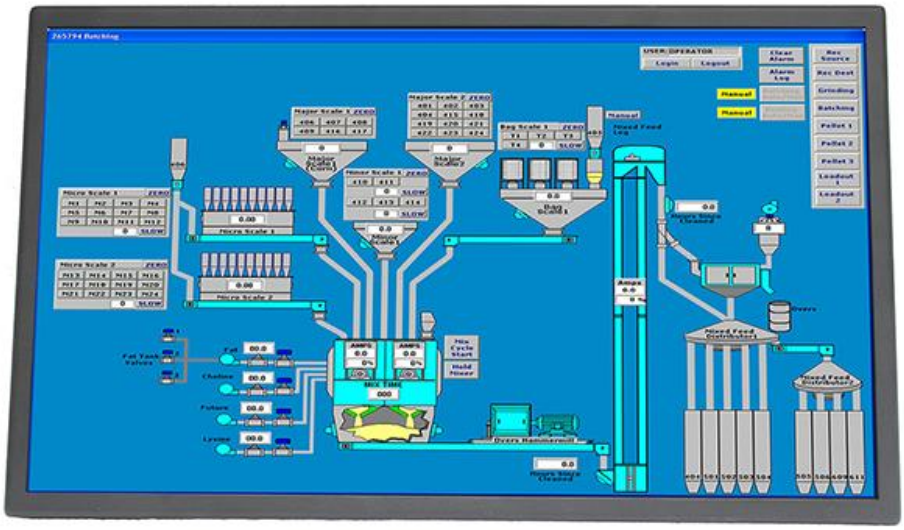
TR-LCD2300W-V2 Industrial Wide-Screen LCD Touch Screen Monitor with AC/DC Power Supply



USER MANUAL

Version 1.2

10/17/22

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Revision	Description	Date
1.0	Initial Release	10/19/2016
1.1	Revise viewing angle in specifications and add IEC 61000-6-4 / EN61000-6-4 certificate	11/29/2016
1.2	Revise to reflect change of video controller board and LCD panel	10/17/2022

Table of Contents

Introduction

Description of the TR-LCD2300W-V2 Computer Monitor

TR-LCD2300W-V2 monitor has been designed specifically for the stringent requirements of the reliability and safety in nuclear power plants. The design of this monitor is compliant with US Atomic Energy Commission Class 1E equipment standard that defines characteristics of equipment needed for the monitoring of the nuclear reactor and emergency shutdown procedures.

Transduction has a long history of manufacturing computers and monitors for the nuclear power plants in USA, China and Canada. Utmost attention is paid during design, manufacturing and test of our products in accordance with QA audits of several nuclear clients.

Model TR-LCD2300W-V2 monitor uses reliable LG LCD panel and sophisticated video controller card based on TSUMOLP887 from M STAR video chip. Precision welded aluminum frame has superior mechanical stability over wide range of temperature and is not affected by any vibration or shocks. For safety against intrusion no software BIOS is used, only internal settings of the video chip that are not accessible from the outside.

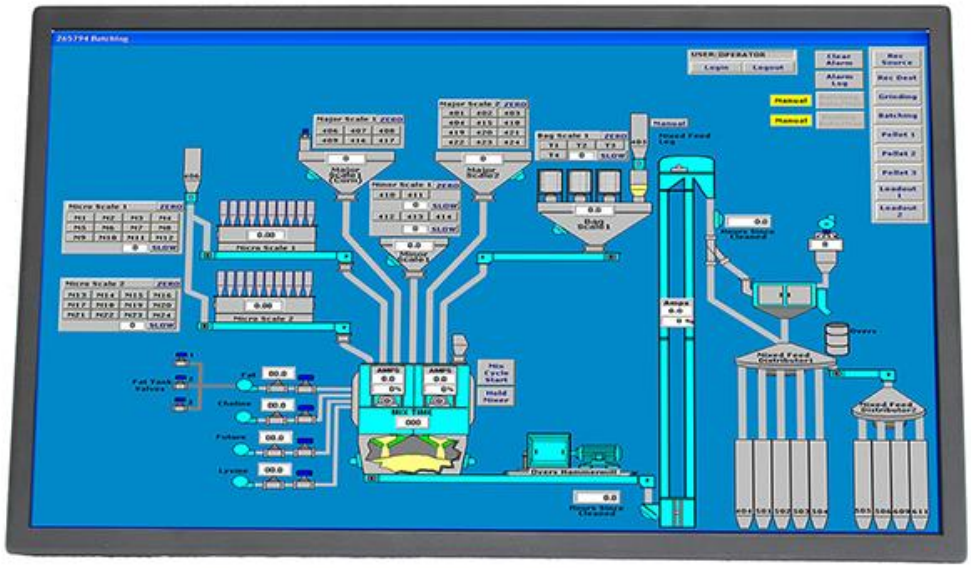
The video card has high performance input filter to eliminate problems with low signal to noise ratio on the long cable runs. Furthermore, the video controller allows user for "black level" adjustment to eliminate noise visible on the display.

Clarity of the image can be fine-tuned with user accessible “sharpness" feature.

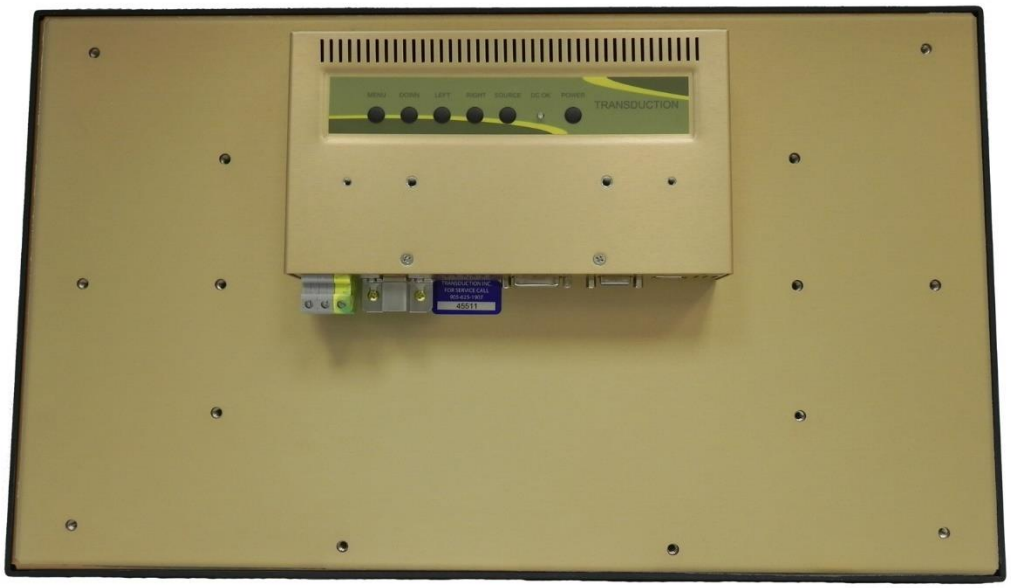
The isolated power supply included with the monitor can be used with AC source 85 to 264VAC 50/60 Hz or 125 or 250 VDC that is available from power back-up systems. 48VDC power option can also be supplied. MTBF of the power supply and monitor is 150,000 hours limited by the useful life of the LCD backlights.

This monitor is a fine example of our quality and workmanship. We can quickly re-design this monitor to fit mechanical opening of any existing monitors that are obsolete. Non-standard video formats can be matched.

Warranty of the TR-LCD2300W-V2 monitor is 5 years.



TR-LCD2300W-V2 Front



TR-LCD2300W-V2 Rear

TR-LCD2300W-V2 Rear (With Optional VESA Bracket)

Specifications

TR-LCD2300W-V2 Monitor	Notes
LCD Module	
Size:	23 inch diagonal
Display Area (mm):	509.184 (H) x 286.416 (L)
Pixel Pitch(mm):	0.2652 (H) x 0.2652 (L)
Type:	AG, haze 25%, hard coating (3H)
Viewing Angle:	89º(H) / (V)
Brightness:	250cd/m²
Contrast Ratio:	1000:1
Touch Screen	Optional USB Resistive
Synchronization	
Horizontal:	54.2 – 83.8kHz
Vertical:	49 – 75kHz
Display Colors	16.7M
Resolution	1920 x 1080 @60Hz
Input Signal	DVI-D, SVGA, DisplayPort
Maximum Pixel Clock	83MHz
Power Supply	AC Power Input: 85-264VAC 50/60Hz
	DC Power Input: 90-360VDC 50/60Hz
	Input Current: 0.5A
	Output: 12VDC ±0.1V /8.0A, 100W
Power Supply Isolation	Input to Output: 4300VDC
	Output to Chassis: 500VDC
	Input to Chassis: 2250VDC
Power Supply Efficiency	80% minimum at full load
Dimensions	21.300” (L) x 12.600” (H) x 2.795” (W)
	54.10cm (L) x 32.00cm (H) x 7.09cm (W)
Weight	
Power Supply	1.2lbs (0.55kg)
	14.33lbs (6.5kg)
With VESA Bracket	15.43lbs (7.0kg)

Environmental	
Operating Temperature:	32ºF ~ 122ºF, 144 ºF for 2 hours (0ºC ~ 50ºC, 60 ºC for 2 hours)
Humidity:	10% ~ 90%
Storage Temperature:	-4ºF ~ 140ºF (-20ºC ~ 60ºC)
Humidity:	10% ~ 90%
Vibration and Shock:	7.5G/50G,seismic qualified – available upon request
EMI/RFI:	Compliant – available upon request
Plug and Play Capability	This monitor can be installed and any Plug & Play compatible system. Interaction of the monitor and computer will provide the best operating conditions and monitor settings. In most cases, monitor installation will proceed automatically, unless the user wishes to select alternate settings.
User Adjustments:	Main Menu, Image, Display and Picture-In-Picture (PIP)
Regulatory Approvals	CSA, CE, UL, FCC Class A

Note#1: This monitor meets all requirements of IEEE Class 1E equipment to be used in nuclear power plants. Qualification reports are available on request.

Note# 2 – Safety: This monitor includes video controller card that is not software programmable and not accessible via any connection to the monitor.

Note# 3: EMI/RFI is compliant with EPRI TR-102323 Rev. 3 for Nuclear Safety Related Applications.

Important Information

The information in this document is subject to change without notice.

All relevant issues have been considered in the preparation of this document. Should you notice an omission or any questionable item in this document, please feel free to notify Transduction.

Regardless of the foregoing statement, Transduction assumes no responsibility for any errors that may appear in this document or for results obtained by the user as a result of using this product.

Return Policy

Products returned for repair must be accompanied by a Return Material Authorization (RMA) number, obtained from Transduction prior to return. Freight on all returned items must be prepaid by the customer. The customer is responsible for any loss or damage caused by the carrier in transit.

To obtain a RMA number, call us at 905-625-1907. We will need the following information:

- Return company address and contact
- Model name, model number and serial number
- Description of the failure

Mark the RMA number clearly on the outside of each box, include a failure report and return the product to:

Transduction Inc.

RMA# XXXXX

23-5155 Spectrum Way

Mississauga, ON Canada L4W 5A1

Tel: 905-625-1907

Safety Precautions

- When not used for extended periods of time, set your computer/monitor to DPMS. If using a screen saver, set it to the active screen mode.
- Do not use a damaged or loose plug. This may cause and electric shock or fire.
- Do not pull the plug out by the wire or touch the plug with wet hands. This may cause and electric shock or fire.
- Use only a properly grounded plug or receptacle. An improper ground may cause electric shock or equipment damage.
- Do not excessively bend the plug and wire or place heavy objects on them. This could cause damage, electric shock or fire.
- Do not place the monitor face down. The CDT surface may be damaged.
- When cleaning, wipe with slightly moistened soft cloth. Do not spray any cleaner directly on the monitor.
- Do not remove housing. No serviceable parts inside. Refer servicing to Transduction.

Contents

Your new TR-LCD2300W-V2 monitor box should contain the following:

1. TR-LCD2300W-V2 monitor with AC/DC power supply
2. AC power cord, 6 feet
3. USB 2.0 Type A to Type A cable, 5 feet (**optional** – if touch screen model is ordered)
4. SVGA to SVGA video cable, 6 feet
5. DVI to DVI cable, 6 feet
6. DisplayPort to DisplayPort cable, 6 feet
7. User manual and driver installation CD

*****Remember to save your original box and packaging material to transport or ship monitor. *****

6FT Power Cord

5FT USB 2.0 Type A to Type A cable

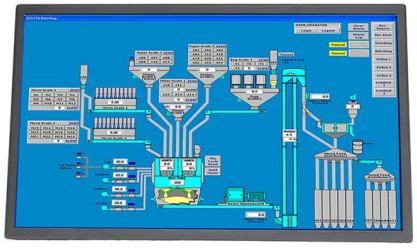
6FT DVI to DVI Cable

6FT SVGA to SVGA cable

6FT DisplayPort to DisplayPort Cable

AC/DC Power Supply

Optional VESA Mount Bracket



TR-LCD2300W-V2 Monitor

Quick Start

****Warning:** Never attach monitor to computer with the power ON as it might damage video port.

To attach the TR-LCD2300W-V2 monitor to your computer, follow the instructions below:

1. Turn OFF the power to your computer.
2. Plug the power cord for the monitor into nearby outlet.
3. Video connection options on the monitor:
   3.1. Option 1: connect the SVGA to SVGA cable – SVGA on the back of the monitor and SVGA on the computer.
   3.2. Option 2: connect the DVI to DVI cable – DVI on the back of the monitor and DVI on the computer.
   3.3. Option 3: connect the DisplayPort to DisplayPort cable to the DisplayPort on the back of the monitor and computer.
4. Turn ON the computer and monitor. If the monitor displays an image, installation is complete.

Notes:

- If the monitor is connected properly but you get a blank or fuzzy screen, check to see if monitor status is set to analog. Press the SOURCE key to have the monitor verify the input signal source.

OSD Setup Button Functions

Button Name and Function

Button	Description
MENU	Activates the OSD menu Confirm selected item
DOWN	Scroll through items within the main menu
LEFT	Increases the adjustment of the selected function
RIGHT	Decreases the adjustment of the selected function
SOURCE	Select video input source Go to previous sub-menu
POWER	Turns ON/OFF the monitor

OSD Setup

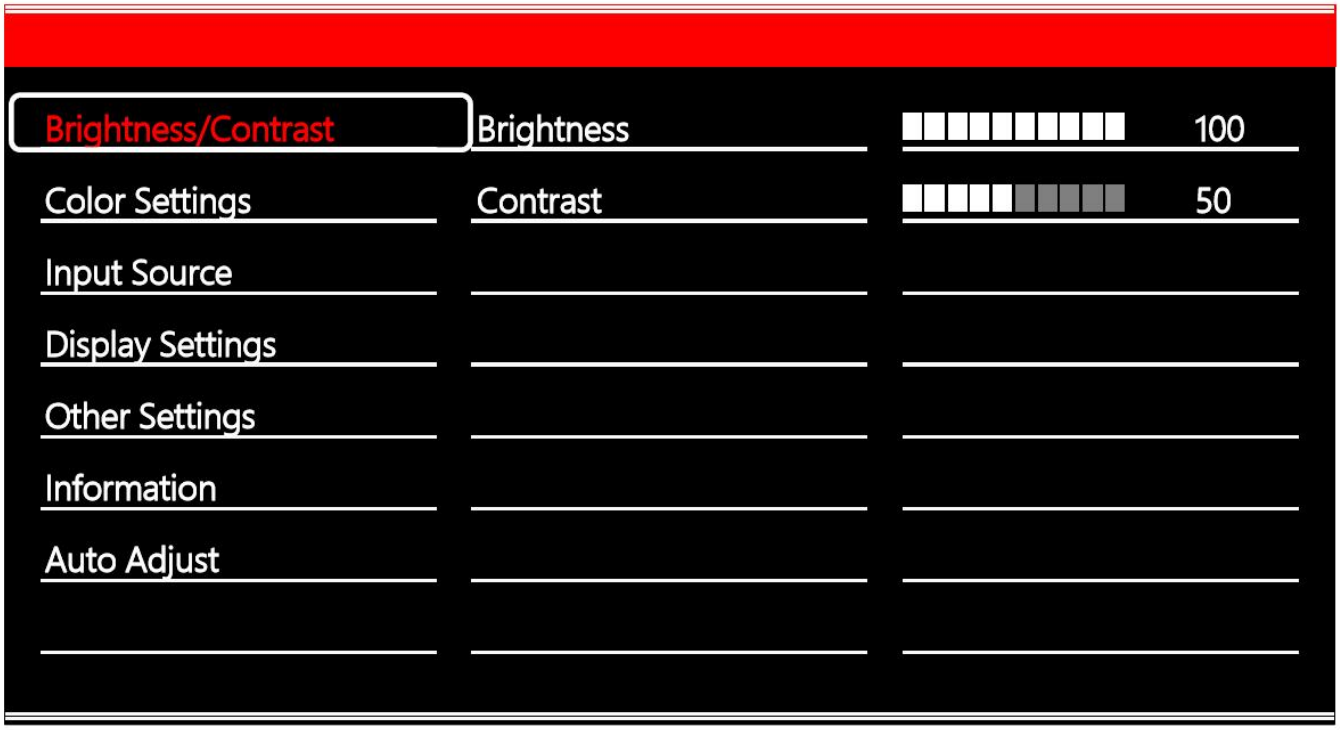
General Description

The monitor features an on-chip OSD (On-Screen Display) controller that creates the OSD user interface menus and overlays them onto the output data stream. User can adjust the display conditions on LCD monitor using the touch pad. After powering on, the controller restores itself to the last known conditions saved in Non-Volatile Random Access Memory (NVRAM). All parameters (Settings) are saved whenever user selects icon in OSD. Not making a selection within a defined time period causes the OSD menu to close. The **DOWN** key is used to scroll through items within the main menu. The selected item is highlighted. The **LEFT** and **RIGHT** keys are used to increase and decrease the adjustment of the selected function. The **MENU** key is used to open and close the OSD menu. The **MENU** key is defined as “CONFIRM” to activate the highlighted item. The SOURCE key is used to select the video input source. The SOURCE key is defined as “BACK” to go to previous sub-menu. The **POWER** key enables user to turn ON/OFF the monitor.

Main Menu

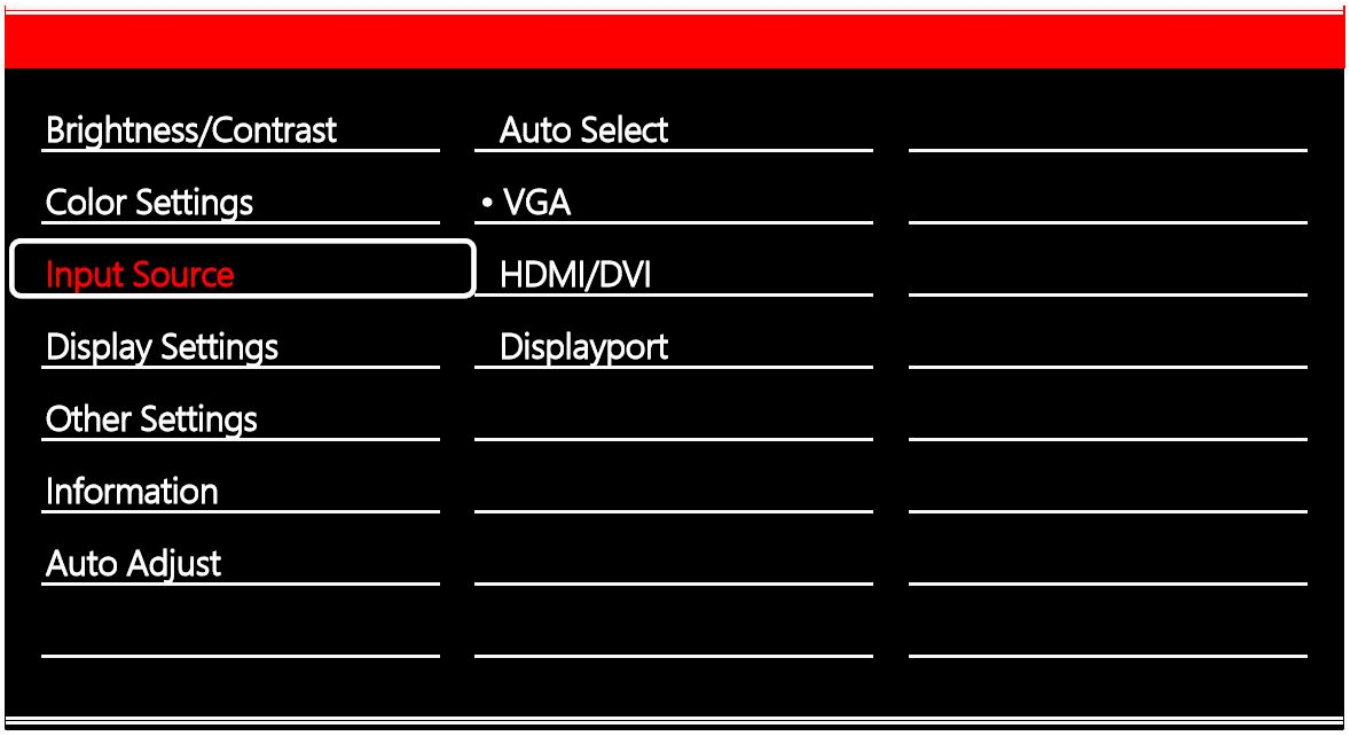
Press **MENU** of OSD board to start Main Menu. There are seven major icons in the Main menu: Brightness/Contrast, Color Settings, Input Source, Display Settings, Other Settings, Information and Auto Adjust. Use the **DOWN** key to scroll through items. Press **MENU** key again to select item sub-menu. For example, when Brightness/Contrast is highlighted, press **MENU** and then use the **DOWN** key to scroll the items. If sub-menu item Brightness is highlighted, press **MENU** ton select and then **RIGHT** or **LEFT** to adjust the brightness level. If setting is finished, press **SOURCE** to go back to Brightness sub-menu and press **SOURCE** again to go back to Brightness/Contrast main menu. New OSD parameters are saved in NVRAM.

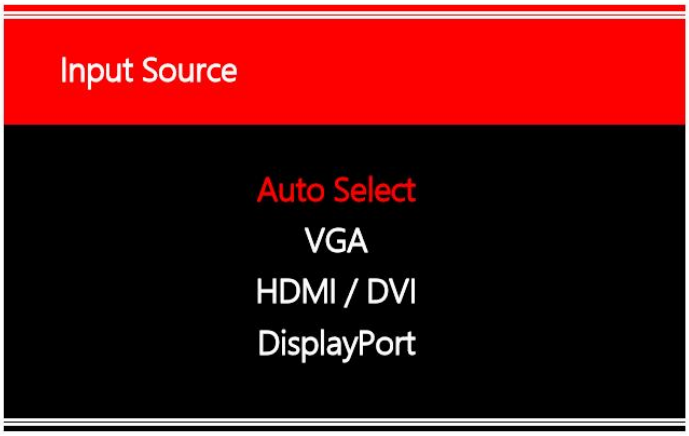
Brightness/Contrast



Color Settings

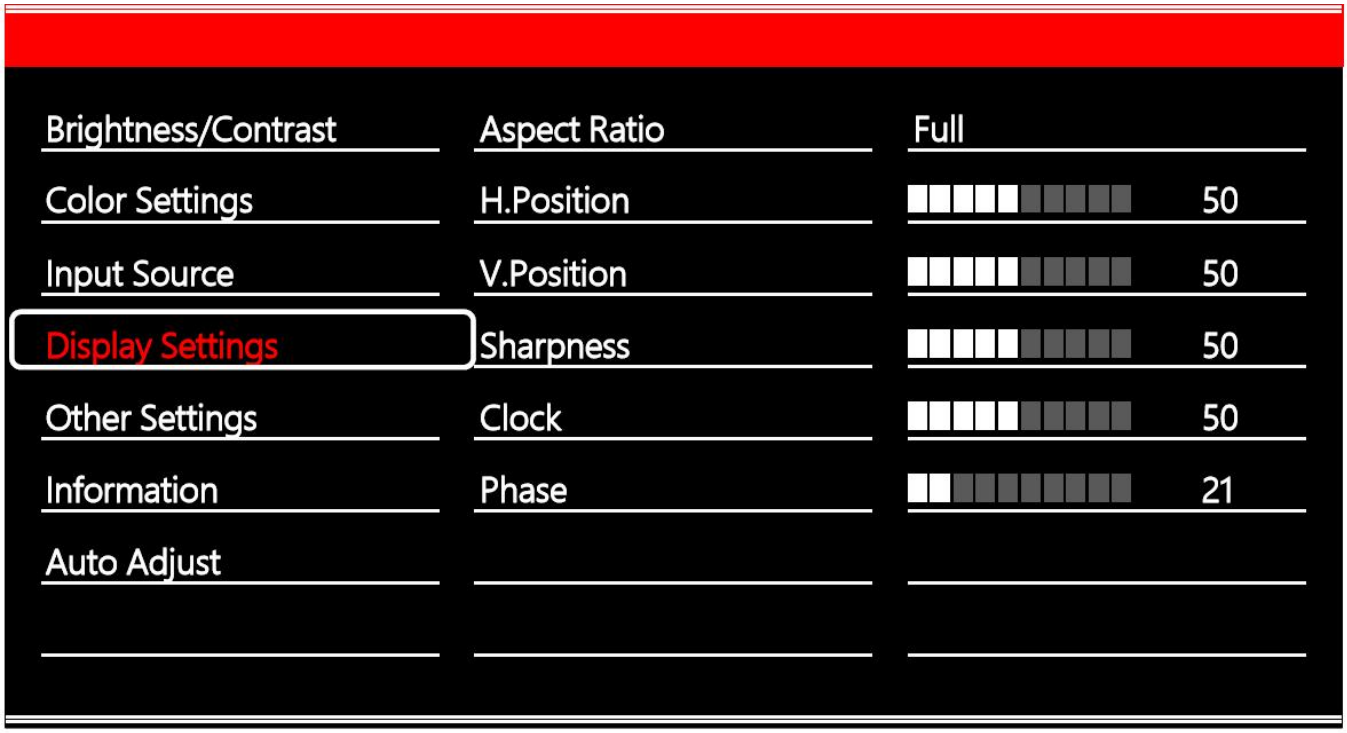
Input Source



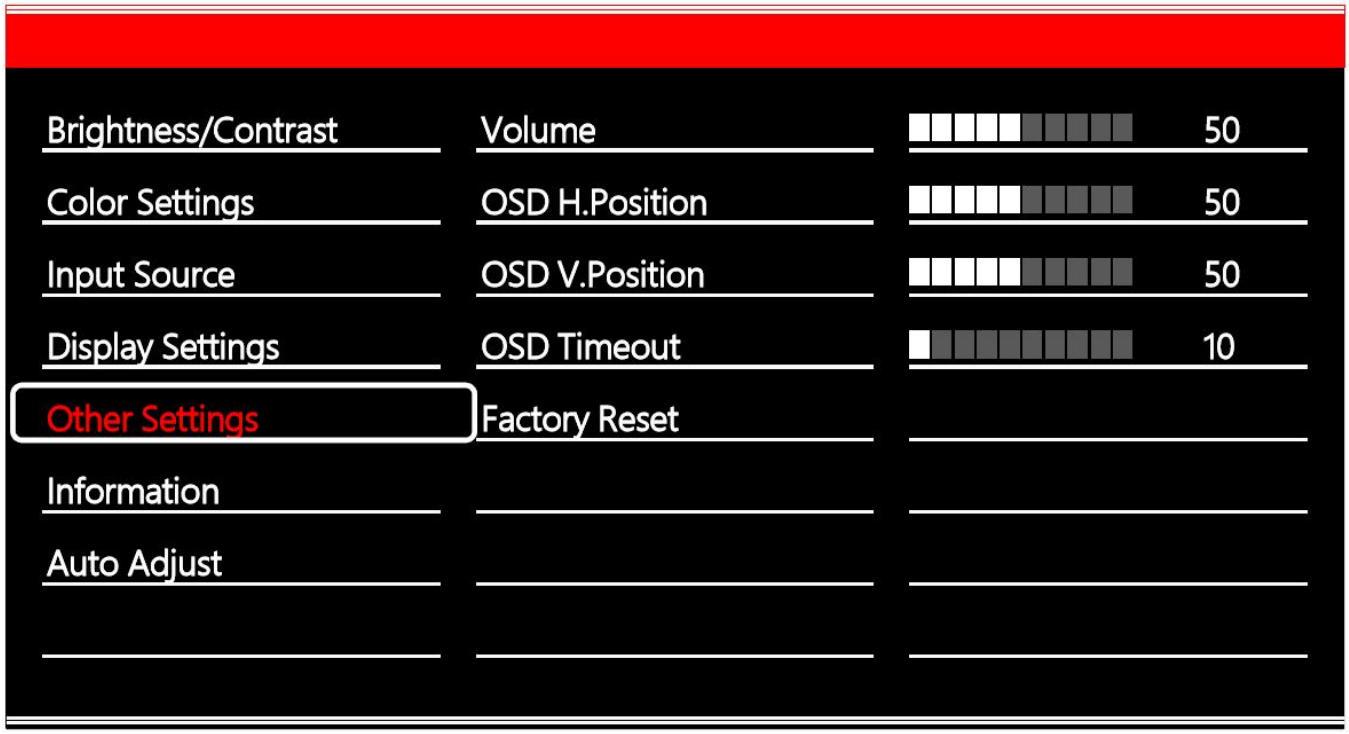


User has an option selectable Auto source function and Manual source function.
This pop up message will comes on when user press "Source" button on OSD board.

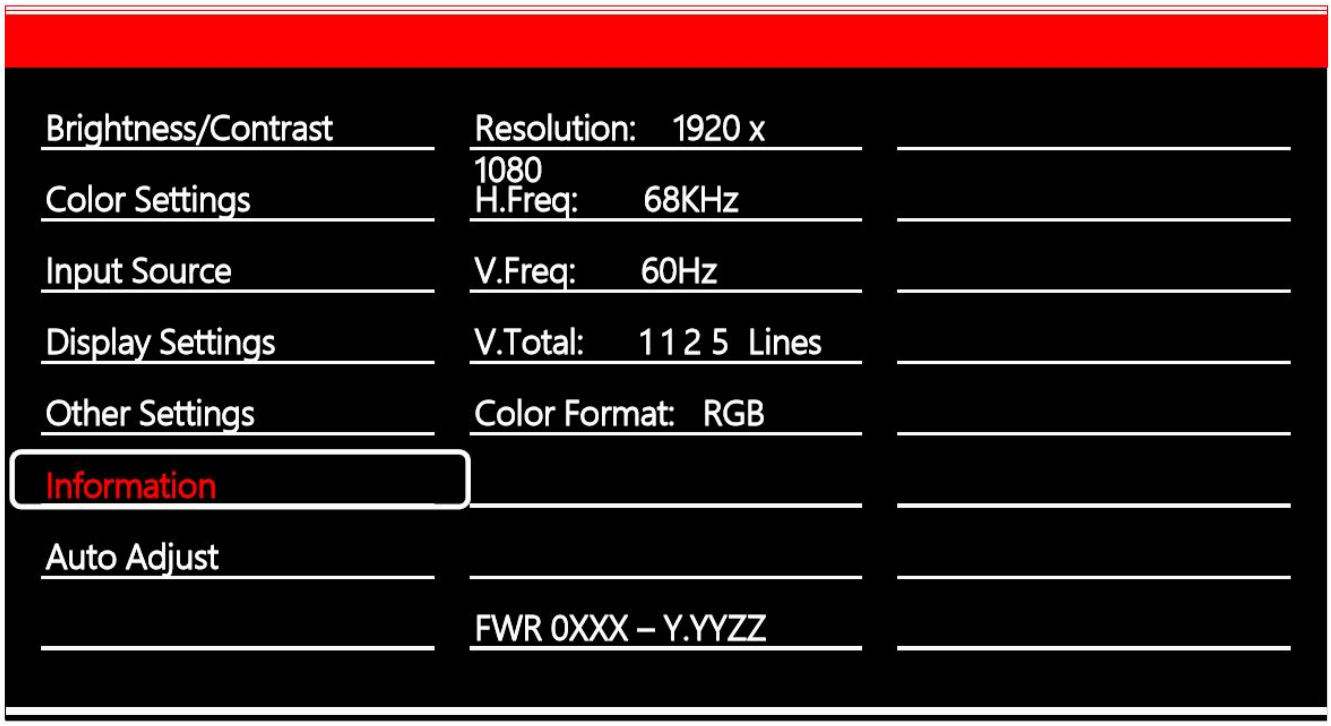
Display Settings



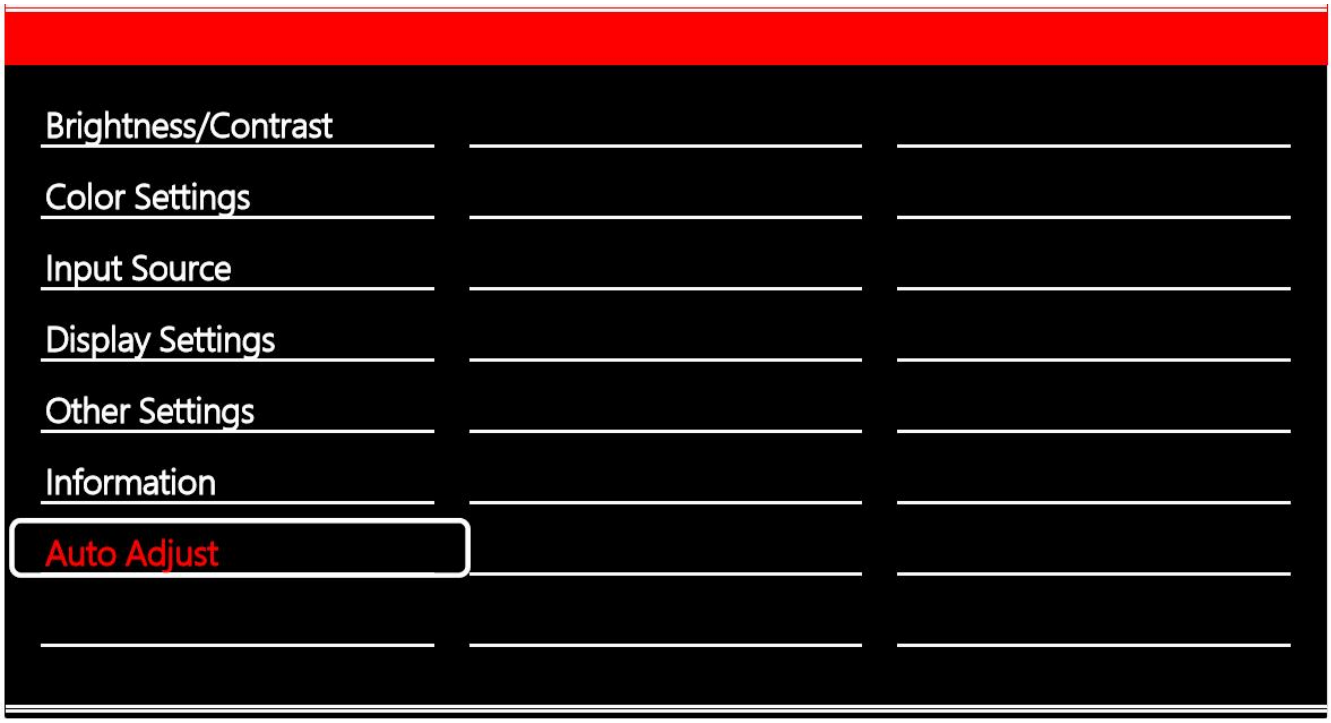
Other Settings



Information



Auto Adjust

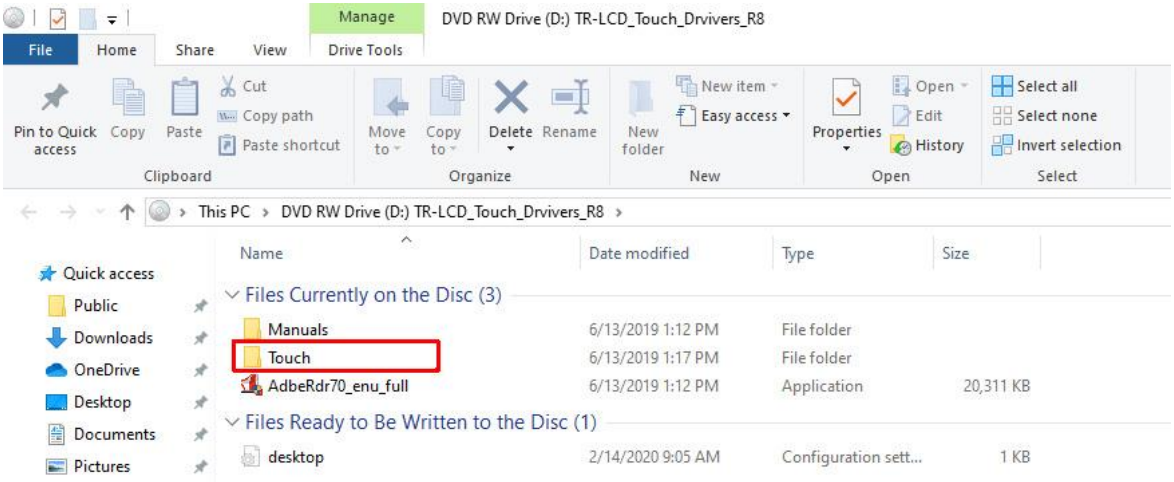


Resolutions Supported

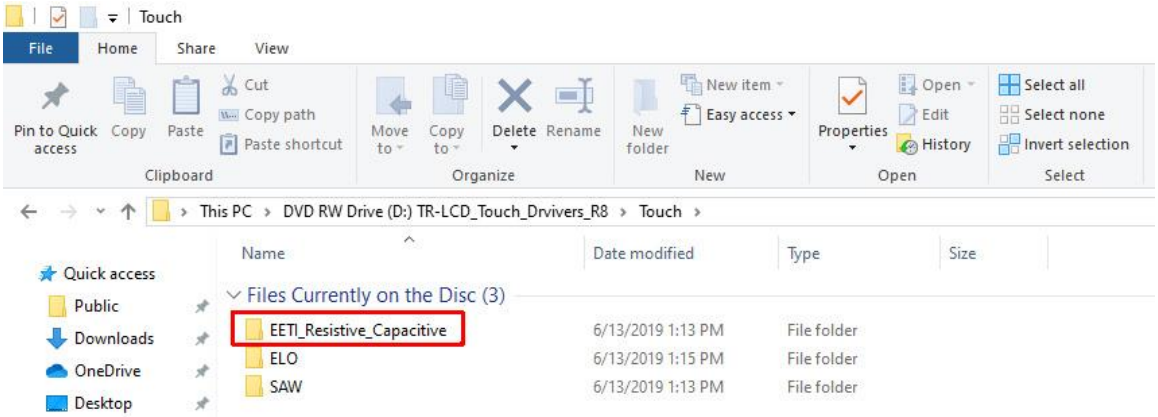
Mode	Resolution	Refresh rate	H-freq.	Pixel freq.	Remarks
VGA	640 x 350	70Hz	31.47KHz	25.175MHz	VESA Standard
VGA	720 x 400	59.940HZ	31.469KHZ	25.175MHZ	IBM VGA 3H
VGA	640 x 480	60Hz	31.5KHz	25.175MHz	Industry Standard
VGA	640 x 480	72Hz	37.9KHz	31.500MHz	VESA Standard
VGA	640 x 480	75HZ	37.5KHZ	31.500MHZ	VESA Standard
SVGA	800 x 600	60Hz	37.9KHz	40.000MHz	VESA Guidelines
SVGA	800 x 600	72Hz	48.1KHz	50.000MHz	VESA Standard
SVGA	800 x 600	75HZ	46.9KHZ	49.500MHZ	VESA Standard
XGA	1024 x 768	60Hz	48.4KHz	65.000MHz	VESA Guidelines
XGA	1024 x 768	70Hz	56.5KHz	75.000MHz	VESA Standard
XGA	1024 x 768	75HZ	60KHZ	78.750MHZ	VESA Standard
SXGA	1280 x 1024	60Hz	64KHZ	108.000 MHZ	VESA Standard
SXGA	1280 x 1024	75HZ	80KHZ	135.000 MHZ	VESA Standard
WXGA	1280 x 768	60~75Hz	47.7~65KHZ	80.140 MHZ	Not Standard
WXGA	1366 x 768	60~75Hz	47.7~65KHZ	80.000 MHZ	Not Standard
WSXGA	1440 x 900	60~75Hz	65KHZ	150.000 MHZ	Not Standard
WSXGA	1680 x1050	60Hz	70KHZ	150.000 MHZ	Not Standard
WUXGA	1920 x1080	60Hz	95KHZ	190.000 MHZ	Not Standard

Touch Screen Calibration (If Option is Ordered)

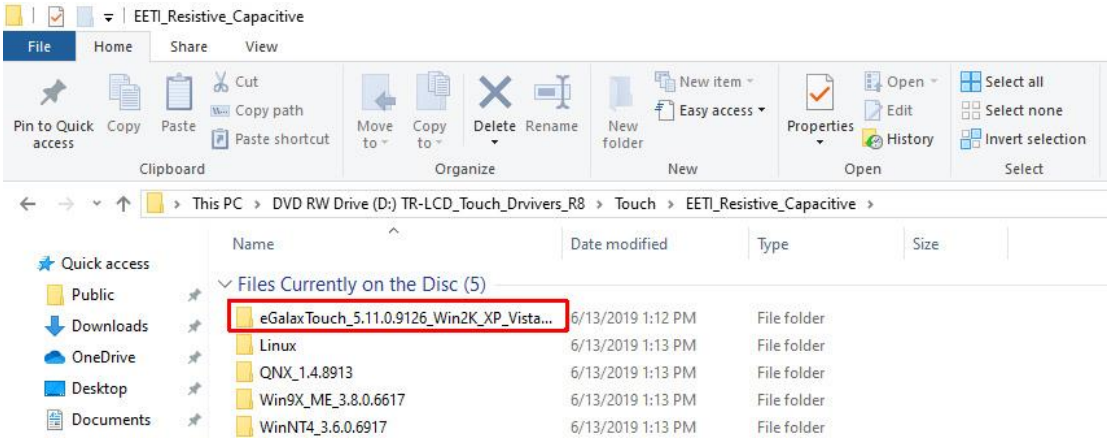
1. Insert the TR-LCD Touchscreen Drivers & User Manual CD into the CD-DVD-R/W drive.
2. Open the *Touch* folder.



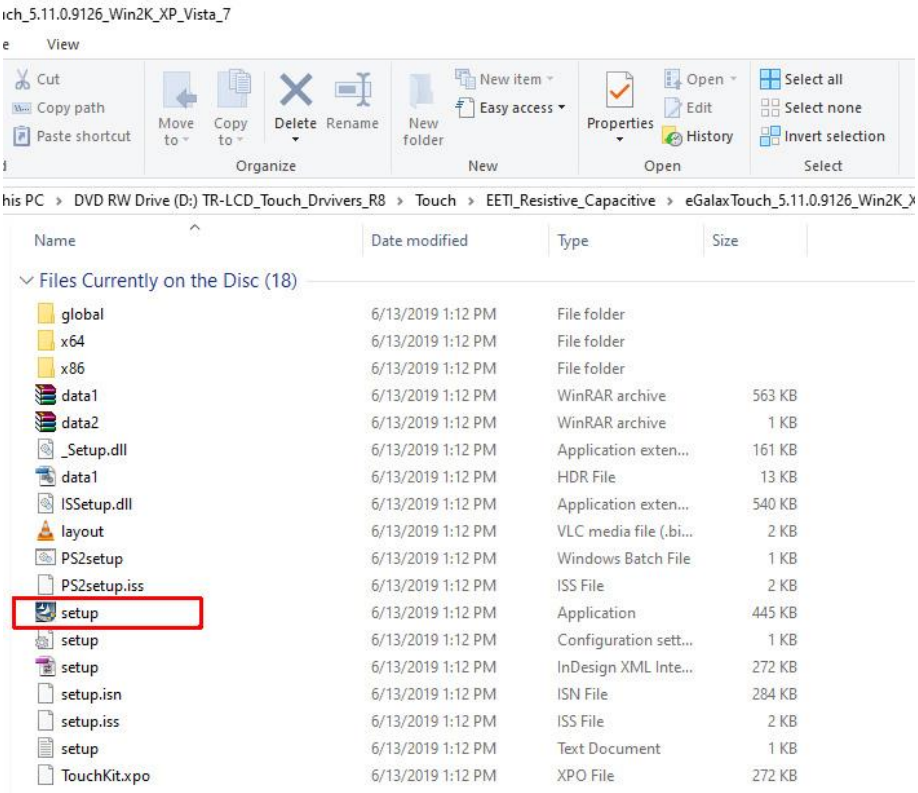
3. Open the *EETI_Resistive_Capactive* folder. ****(Open the ELO folder if monitor was ordered with ELO touch controller.)****



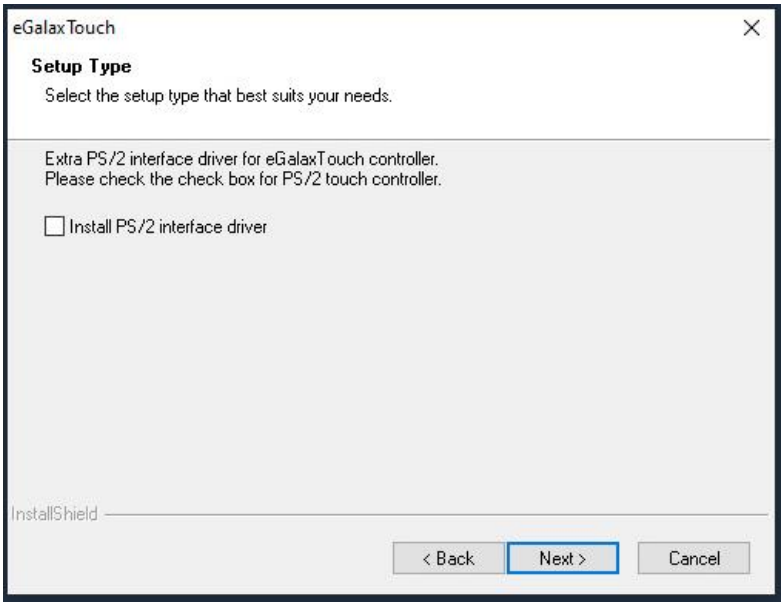
4. Open the *eGalaxTouch_5.11.0.9126_Win2K_XP_Vista_7* folder.



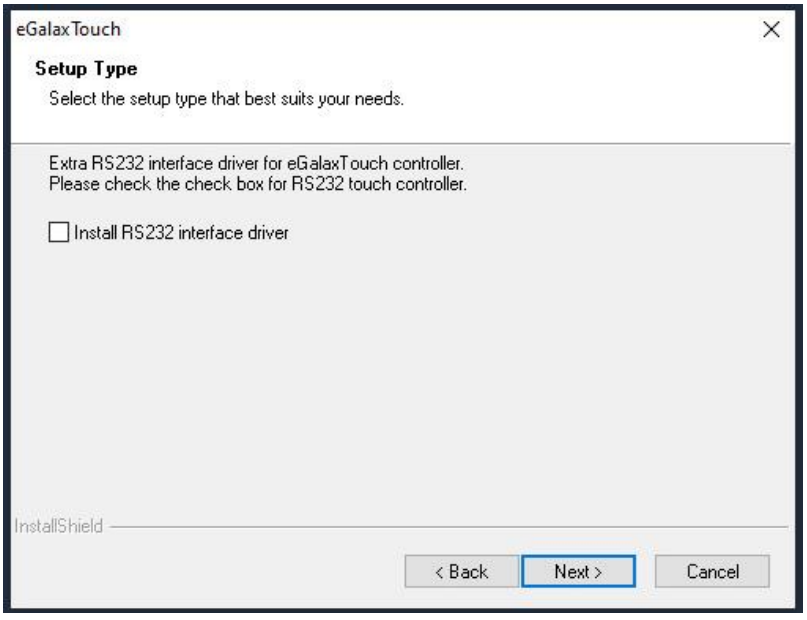
5. Double-click the **setup** icon.



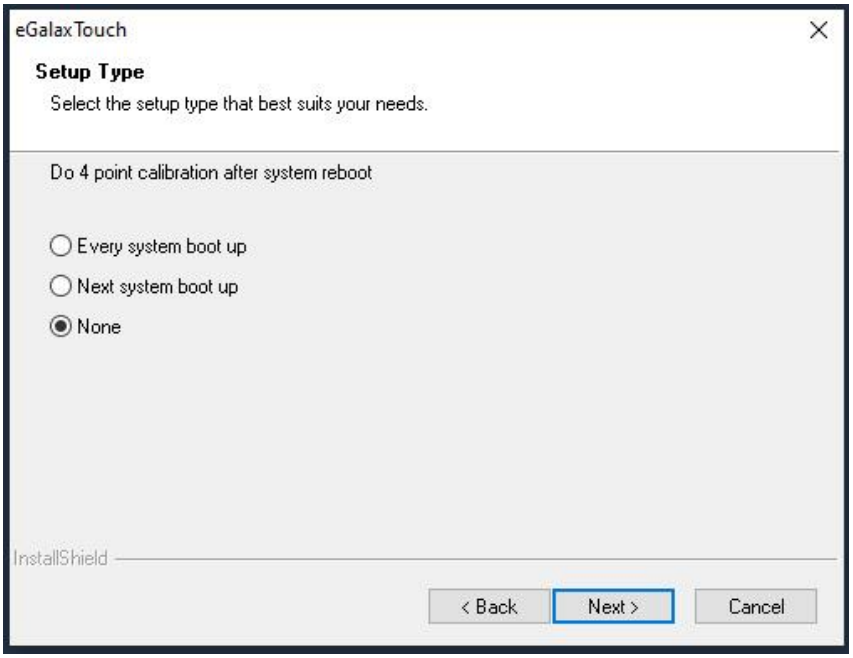
6. Leave the **Install PS/2 interface driver** box unchecked. Click **Next**.



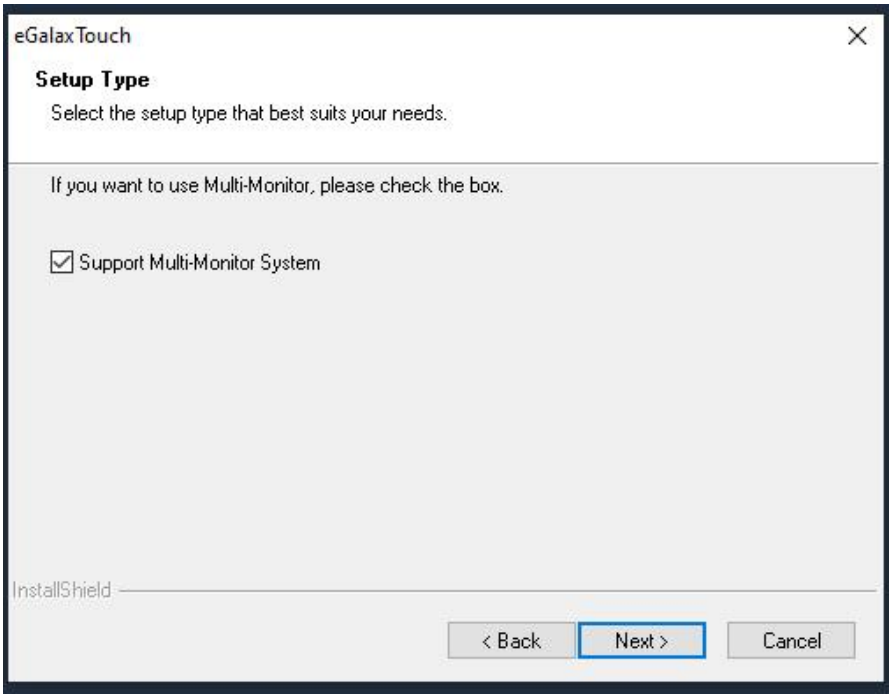
7. Uncheck the **Install RS232 interface driver** box. Click **Next**.



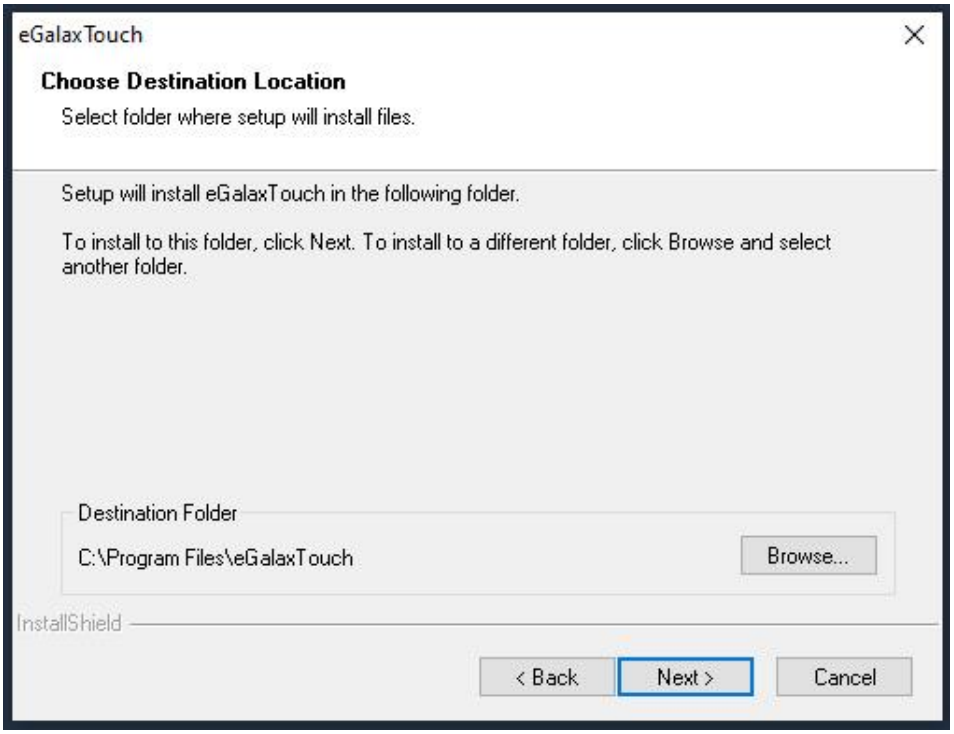
8. Leave **None** selected. Click **Next**.



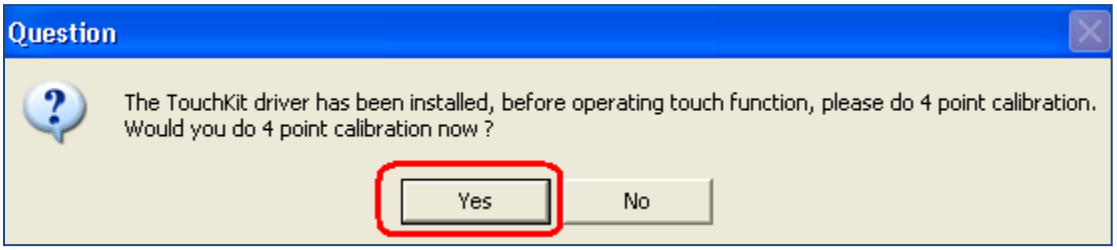
9. Leave **Support Multi-Monitor System** box check marked. Click **Next**.



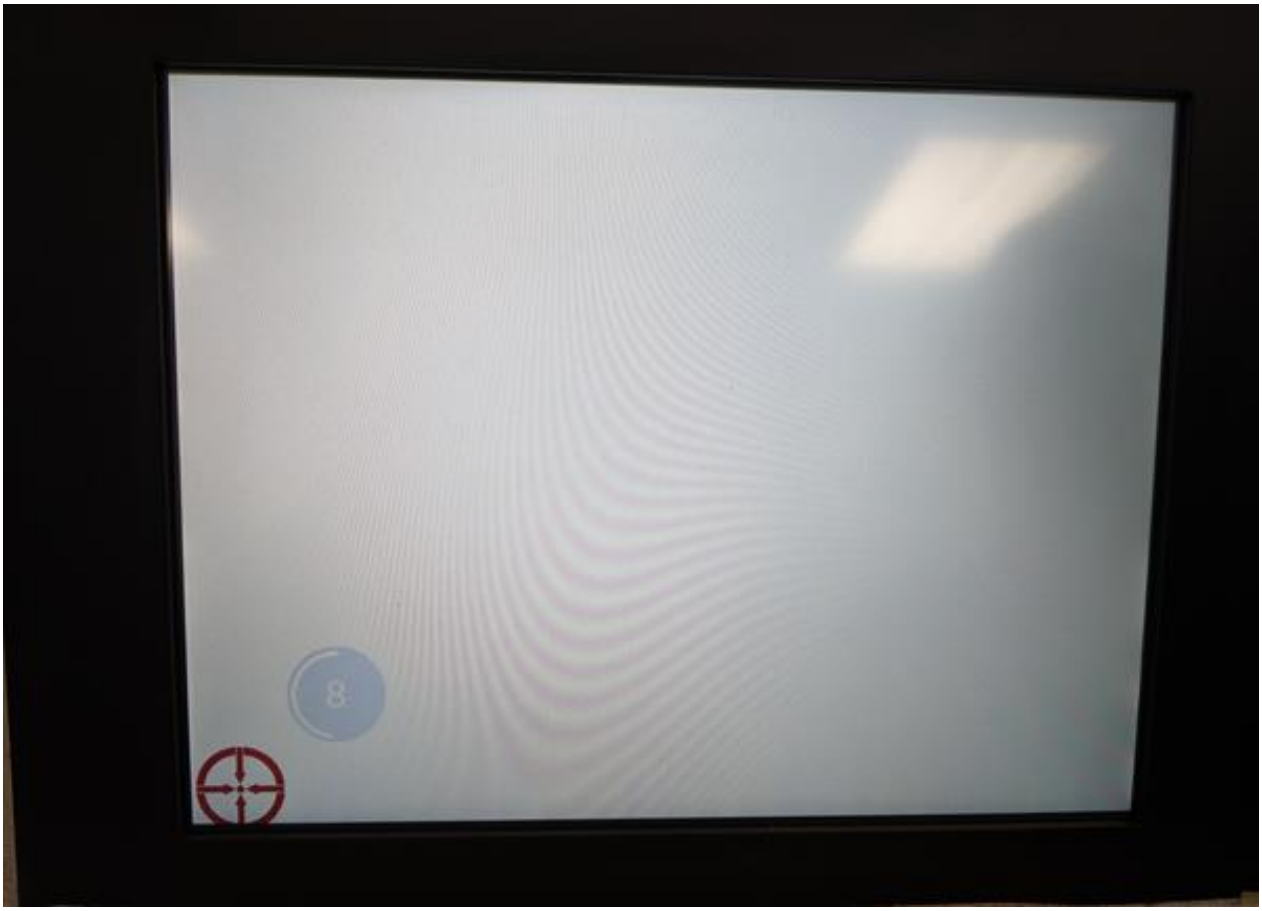
10. Choose destination location to install driver. Click **Next**.



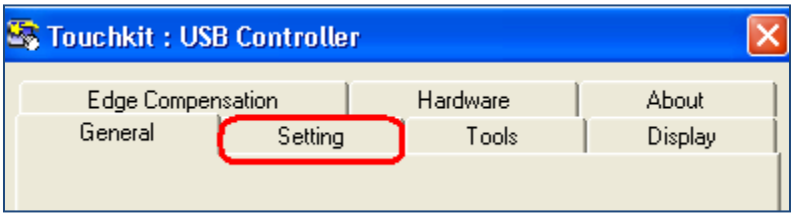
11. Click **Yes** to perform an initial four-point calibration.



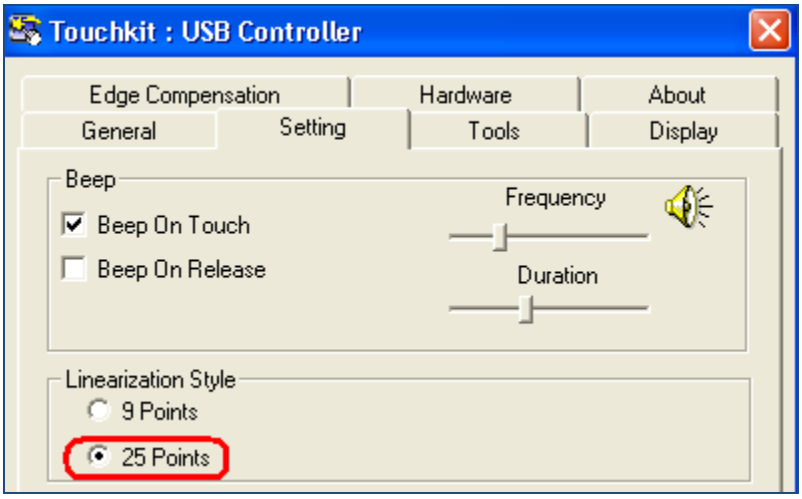
12. Touch the 4 red points (red dot inside circle within 4 pointing arrows) with a stylus and then click **OK**. You have 15 seconds to touch each point.



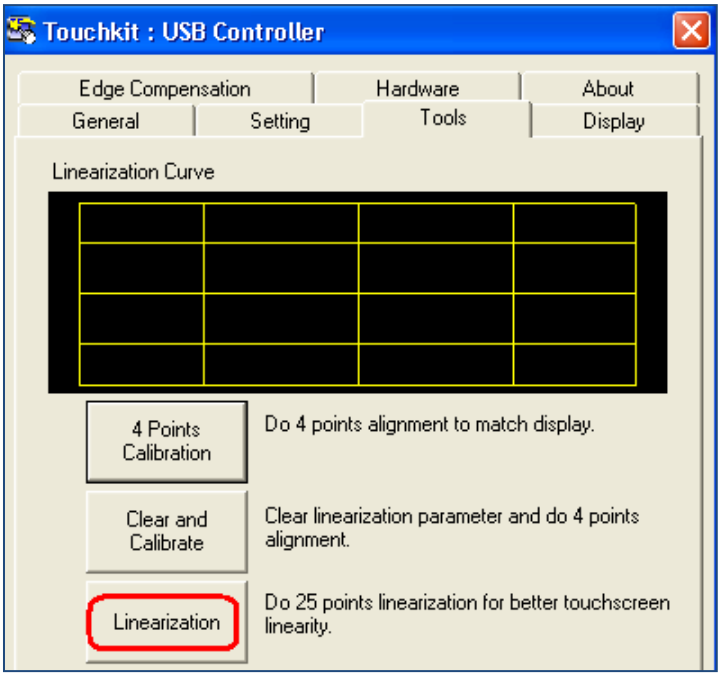
13. Open the Touch Screen software and select **Setting**.



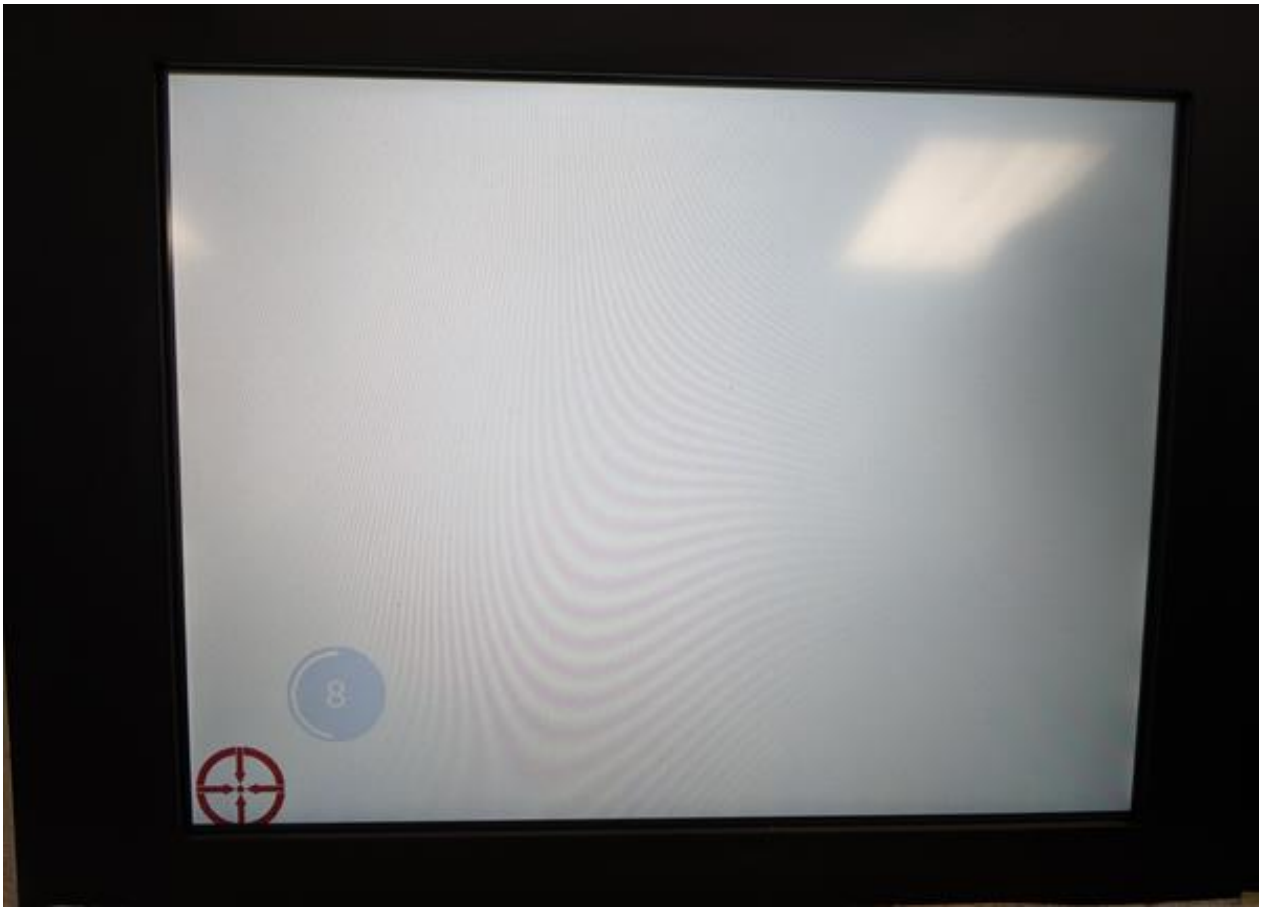
14. Select **25 Points** calibration for **Linearization Style** and then click **Apply**.



15. Under the **Tools** tab, select the **Linearization** button.



16. Touch all 25 red points (red dot inside circle within 4 pointing arrows) with a stylus and then click **OK**. You have 15 seconds to touch each point.



Troubleshooting Tips

Symptom	Check List	Solutions
No images on the screen. I cannot turn on the monitor.	Is the power cord connected properly?	Check the power cord connection and supply.
	Can you see "No Connection, Check Signal Cable" on the screen?	(Connected using the D-sub cable) Check the signal cable connection. (Connected using the DVI cable) If you still see an (error) message on the screen when the monitor is connected properly, check to see if the monitor status is set to analogue. Press Source button to have the monitor double-check the input signal source.
	If the power is on, reboot the computer to see the initial screen (the login screen), which can be seen.	If the initial screen (the login screen) appears, boot the computer in the applicable mode (the safe mode for Windows ME/2000/XP7/8.1/10) and then change the frequency of the video card. (Refer to the Preset Display Modes page 32) Note: If the initial screen (the login screen) does not appear, contact a service center or your dealer.
	Can you see "Video mode not supported" on the screen?	You can see this message when the signal from the video card exceeds the maximum resolution and frequency that the monitor can properly handle. Adjust the maximum resolution and frequency that the monitor can properly handle.
	There is no image on the screen. Is the power indicator on the monitor blinking at 1 second intervals?	The monitor is in PowerSaver mode. Press a key on the keyboard or move the mouse to activate the monitor and restore the image on the screen. If there is still no image, press the 'Source' button. Then press any key on the keyboard or move the mouse again to activate the monitor and restore the image on the screen.
	Connected using the DVI cable?	You may get a blank screen if you boot the system before you connect the DVI cable, or disconnect and then reconnect the DVI cable while the system is running as certain types of graphic cards do not send out video signals. Connect the DVI cable and then reboot the system.
I cannot see the On Screen Display.	Have you locked the On Screen Display (OSD) Menu to prevent changes?	Unlock the OSD by pressing the MENU button for at least 5 seconds.
The screen shows strange colors or just black and white.	Is the screen displaying only one color as if looking at the screen through cellophane paper?	Check the signal cable connection. Make sure the video card is fully inserted in its slot.
	Have the screen colors become strange after running a program or due to a crash between applications?	Reboot the computer.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
The screen suddenly has become unbalanced.	Have you changed the video card or the driver?	Adjust screen image position and size using the OSD.
	Have you adjusted the resolution or frequency to the monitor?	Adjust the resolution and frequency at the video card. (Refer to the Preset Display Modes page 32).
	The screen can be unbalanced due to the cycle of the video card signals. Readjust Position by referring to the OSD.	
The screen is out of focus or OSD cannot be adjusted.	Have you adjusted the resolution or frequency on the monitor?	Adjust the resolution and frequency of the video card. (Refer to the Preset Display Modes page 32).
LED is blinking but no images on the screen.	Is the frequency properly adjusted when checking the Display Timing on the menu?	Adjust the frequency properly by referring to the video card manual and the Preset Display Modes. (The maximum frequency per resolution may differ from product to product.)
There are only 16 colors shown on the screen. The screen colors have changed after changing the video card.	Have the Windows colors been set properly?	For Windows ME/2000/XP7/8.1/10: Set the colors properly at the Control Panel, Display, Settings.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
There is a message that reads "Unrecognized monitor, Plug & Play (VESA DDC) monitor found".	Have you installed the monitor driver?	Install the monitor driver according to the Driver Installation Instructions.
	See the video card manual to see if the Plug & Play (VESA DDC) function can be supported.	Install the monitor driver according to the Driver Installation Instructions.

Check the following items if there is trouble with the monitor.

1. Check if the power cord and the cable are properly connected to the computer.
2. Check if the computer beeps more than 3 times when booting.

   (If it does, request an after-service for the main board of the computer.)
3. If you installed a new video card or if you assembled the PC, check if you installed the adapter (video) driver.
4. Check if the scanning ratio of the video screen is set at 75Hz. (Do not exceed 60Hz when using the maximum resolution.)
5. If you have problems in installing the adapter (video) driver, boot the computer in Safe Mode, remove the Display Adapter from the hardware profile and then reboot the computer and reinstall the adapter (video) driver.

Frequently Asked Questions

Question	Answer
How can I change the frequency?	Frequency can be changed by reconfiguring the video card. Note that video card support can vary, depending on the version of the driver used. (Refer to the computer or the video card manual for details.)
How can I adjust the resolution?	Windows ME/XP/20007/8.1/10: Set the resolution at **the Control Panel, Display, Settings.**
How can I set the Power Saving function?	Windows ME/XP/2000/7/8.1/10: Set the function from the **Control Panel, Display, Screen Saver.**
How can I clean the outer case / LCD Panel?	Clean the monitor with a soft cloth, using either a cleaning solution or plain water. Do not spray directly on to the monitor.

Mechanical Drawings

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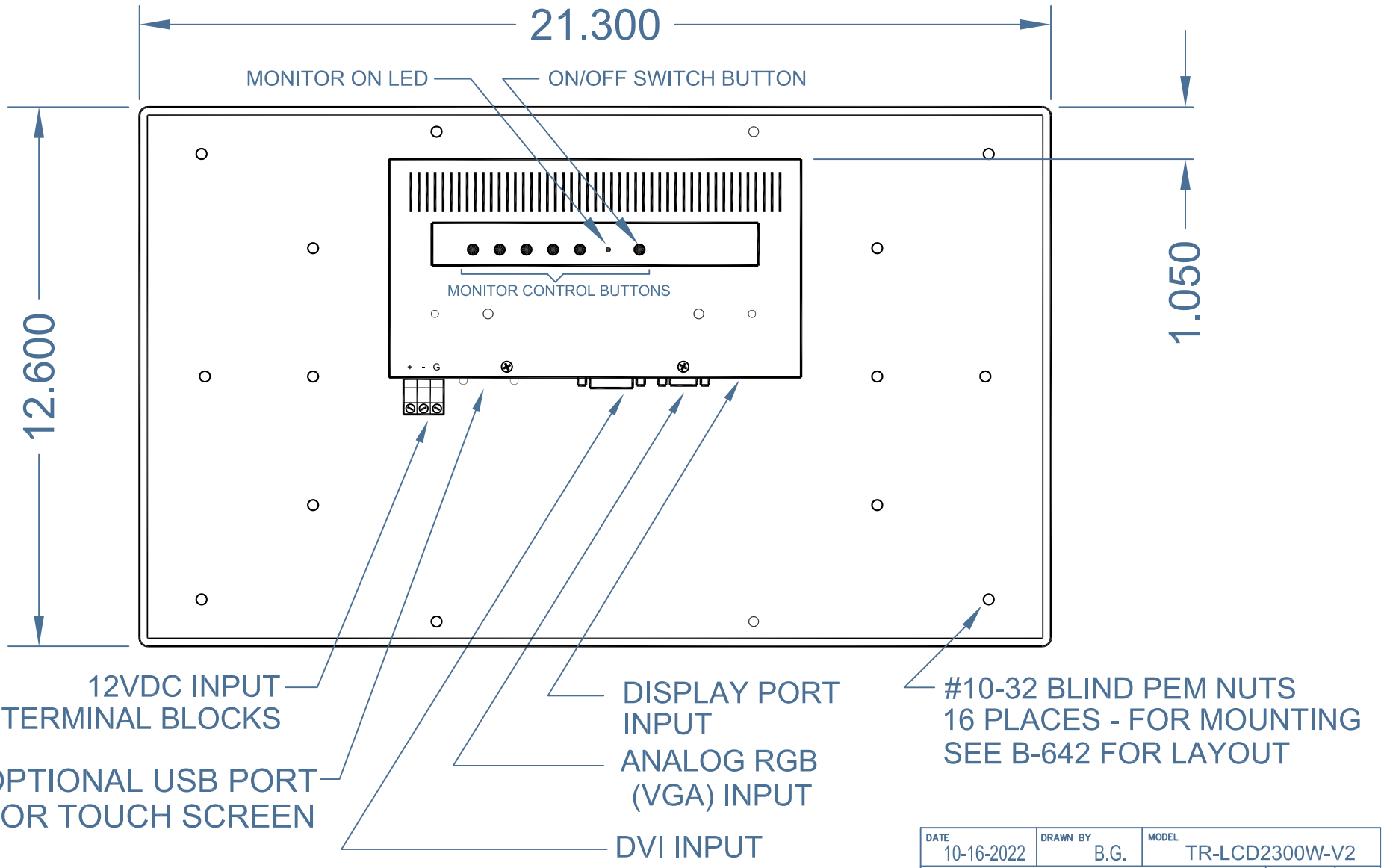
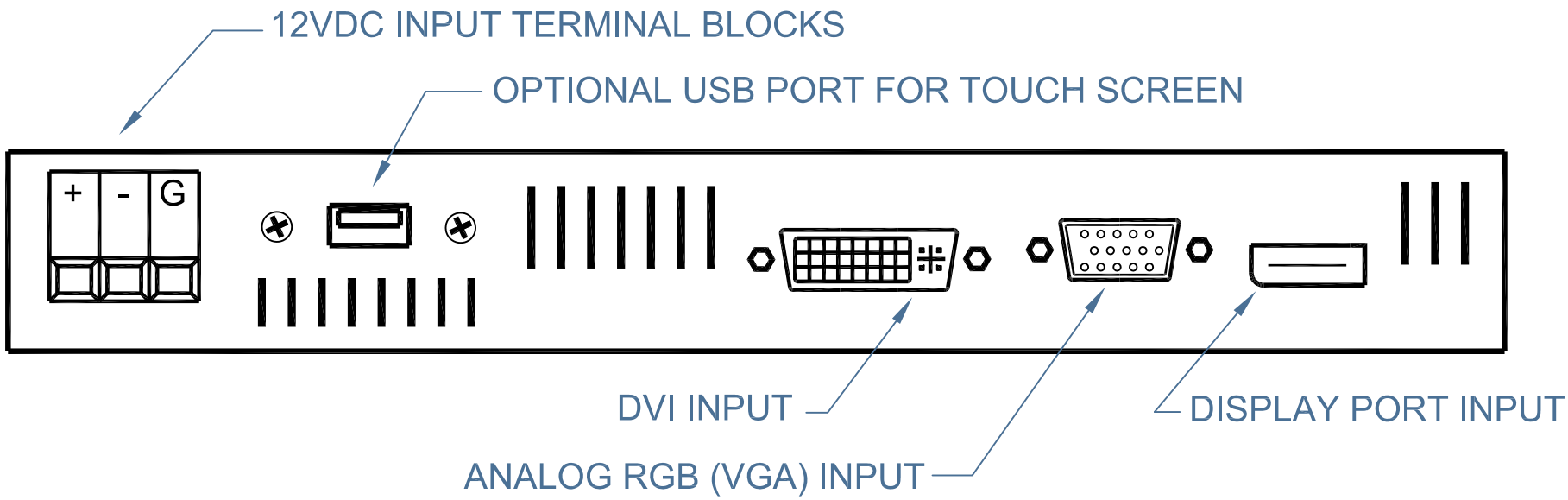
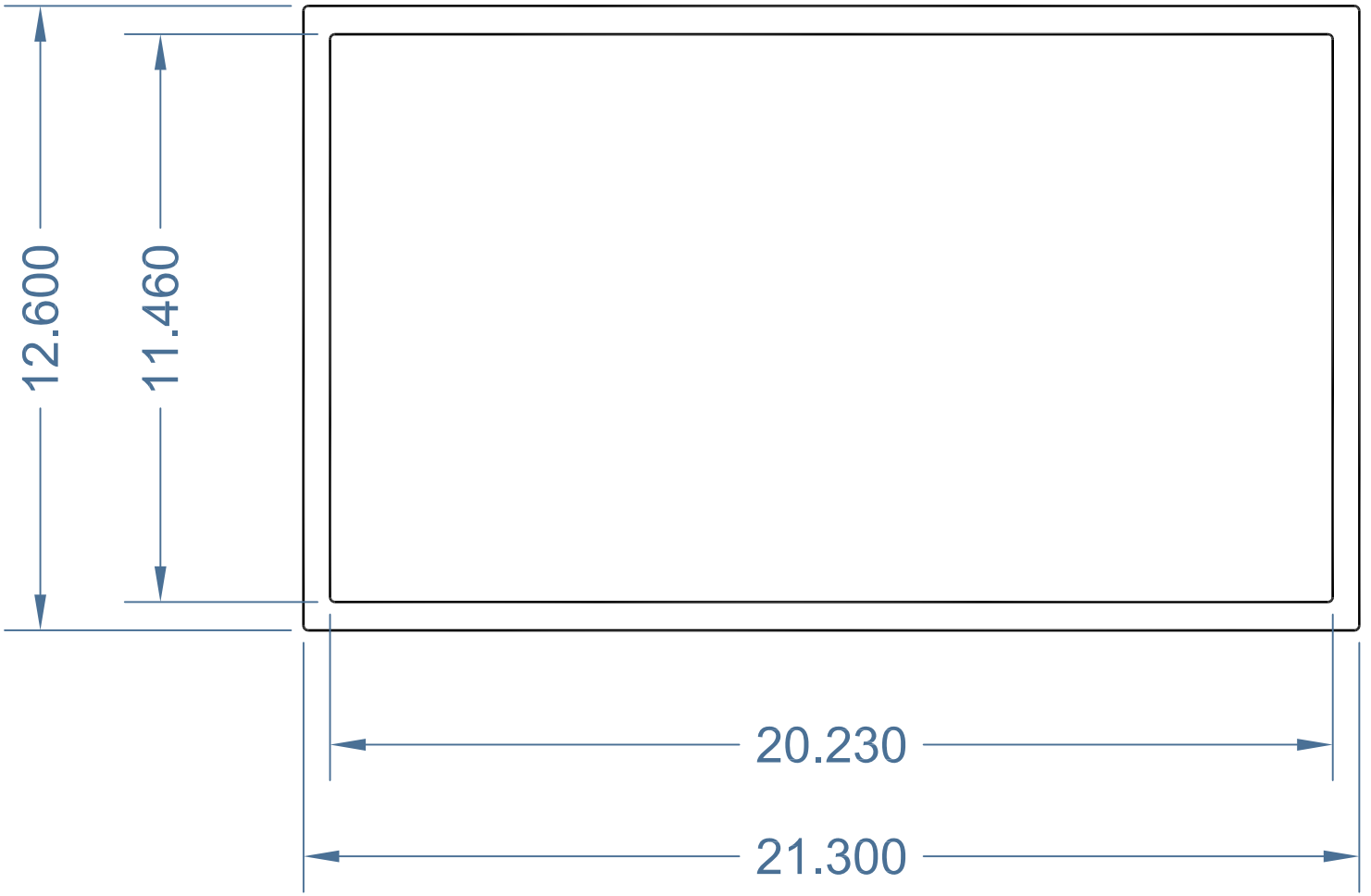


REAR VIEW

DATE 10-16-2022	DRAWN BY B.G.	MODEL TR-LCD2300W-V2	
PRODUCT PANEL MOUNT VERSION		REVISION 0	SCALE NTS
FINISH	Transduction	CHECKED BY	
TITLE LAYOUT		DRAWING No B-738	

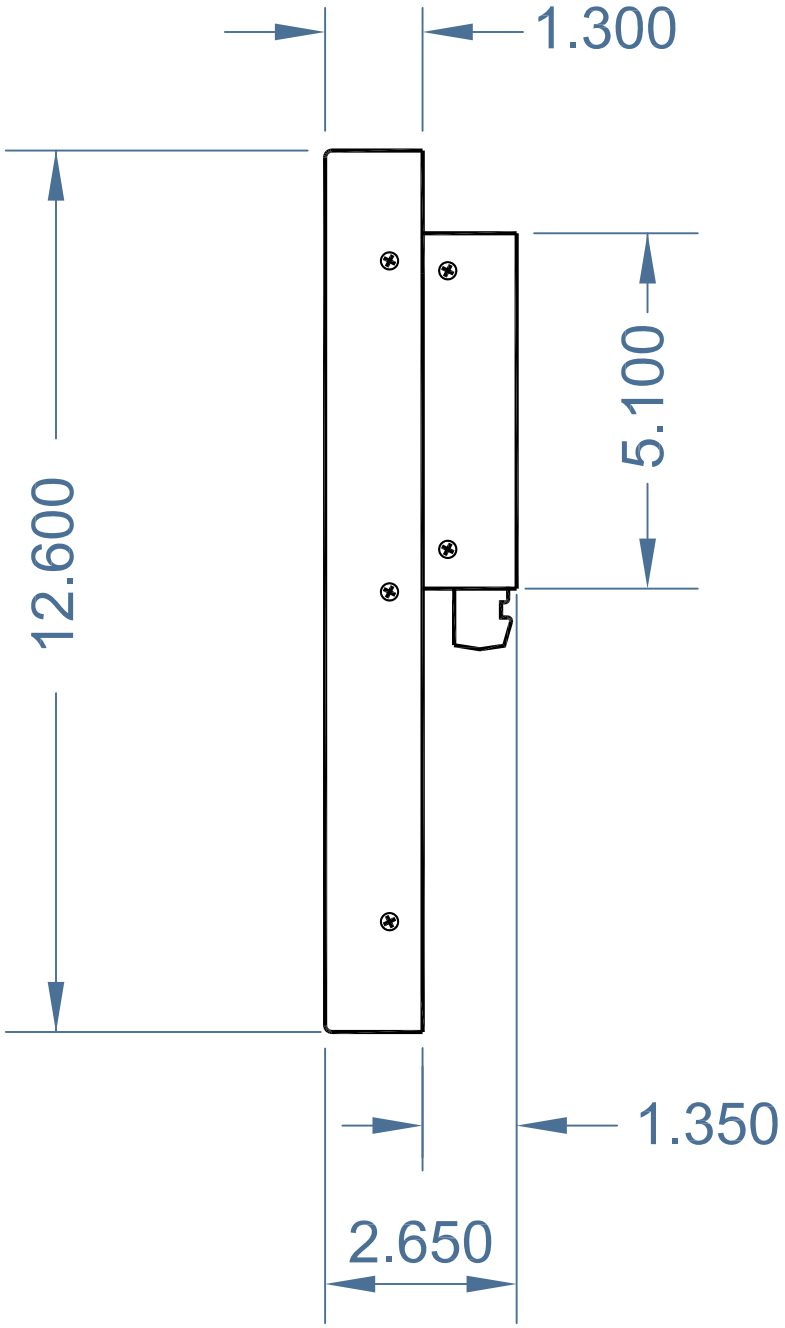


DATE 10-16-2022	DRAWN BY B.G.	MODEL TR-LCD2300W-V2	
MATERIAL		REVISION 0	SCALE NTS
FINISH	Transduction	CHECKED BY	
TITLE CONNECTOR LAYOUT		DRAWING No B-739	



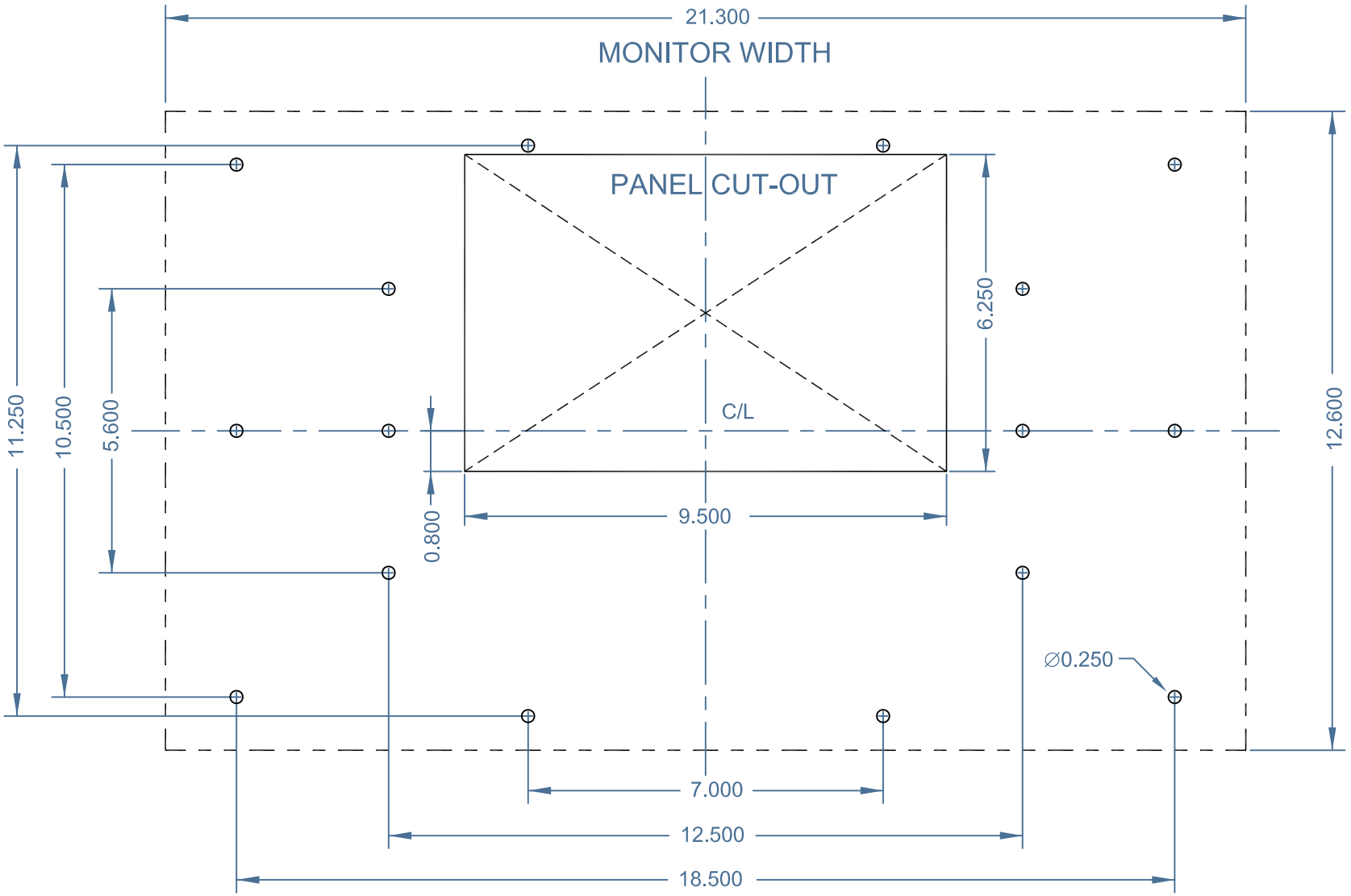
FRONT VIEW

DATE 10-23-2022	DRAWN BY B.G.	MODEL TR-LCD2300W-V2	
PRODUCT PANEL MOUNT VERSION		REVISION 0	SCALE NTS
FINISH CRINKLE BLACK POWDER PAINT	Transduction	CHECKED BY	
TITLE LAYOUT		DRAWING No B-740	

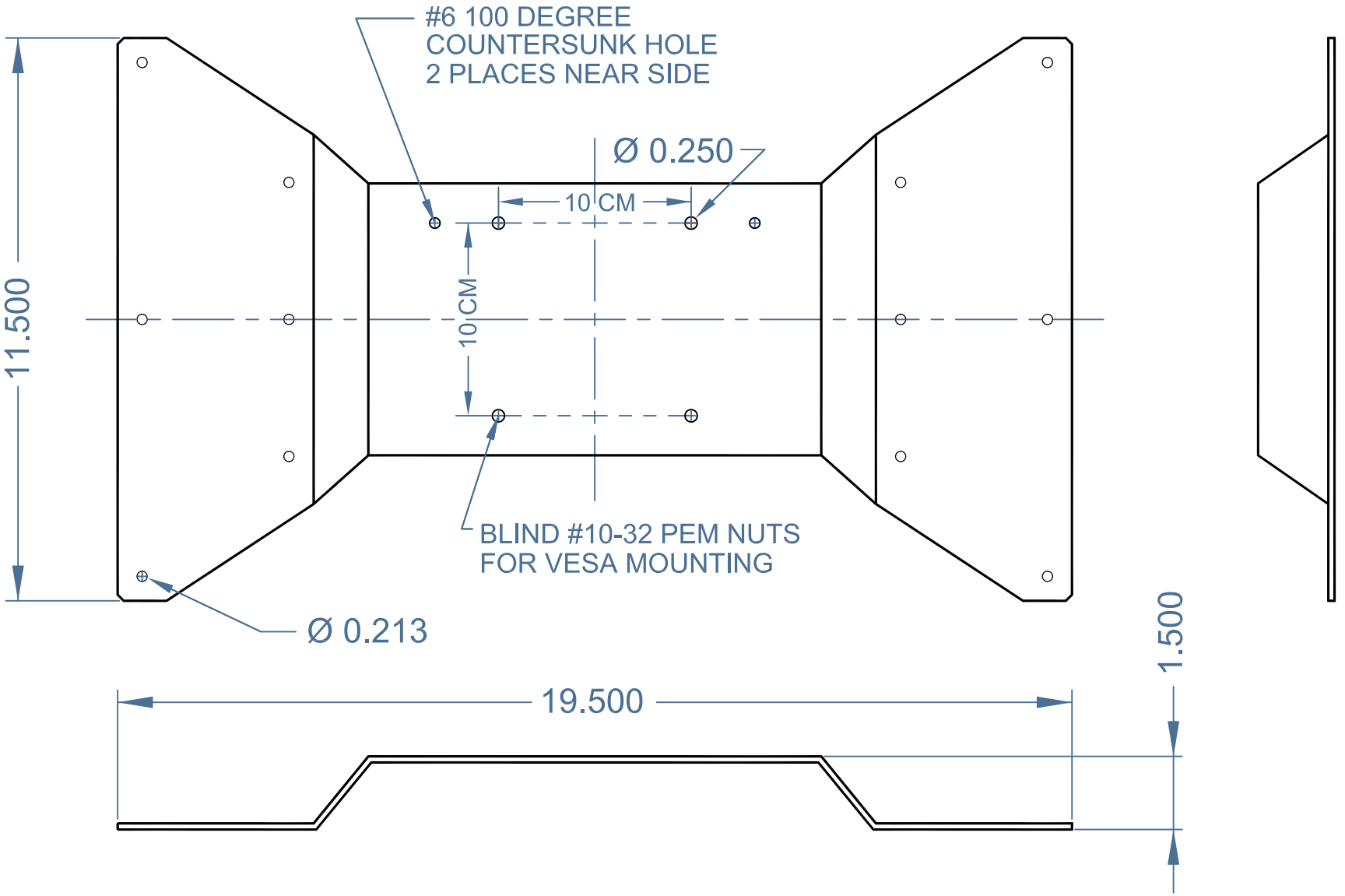


RIGHT SIDE VIEW

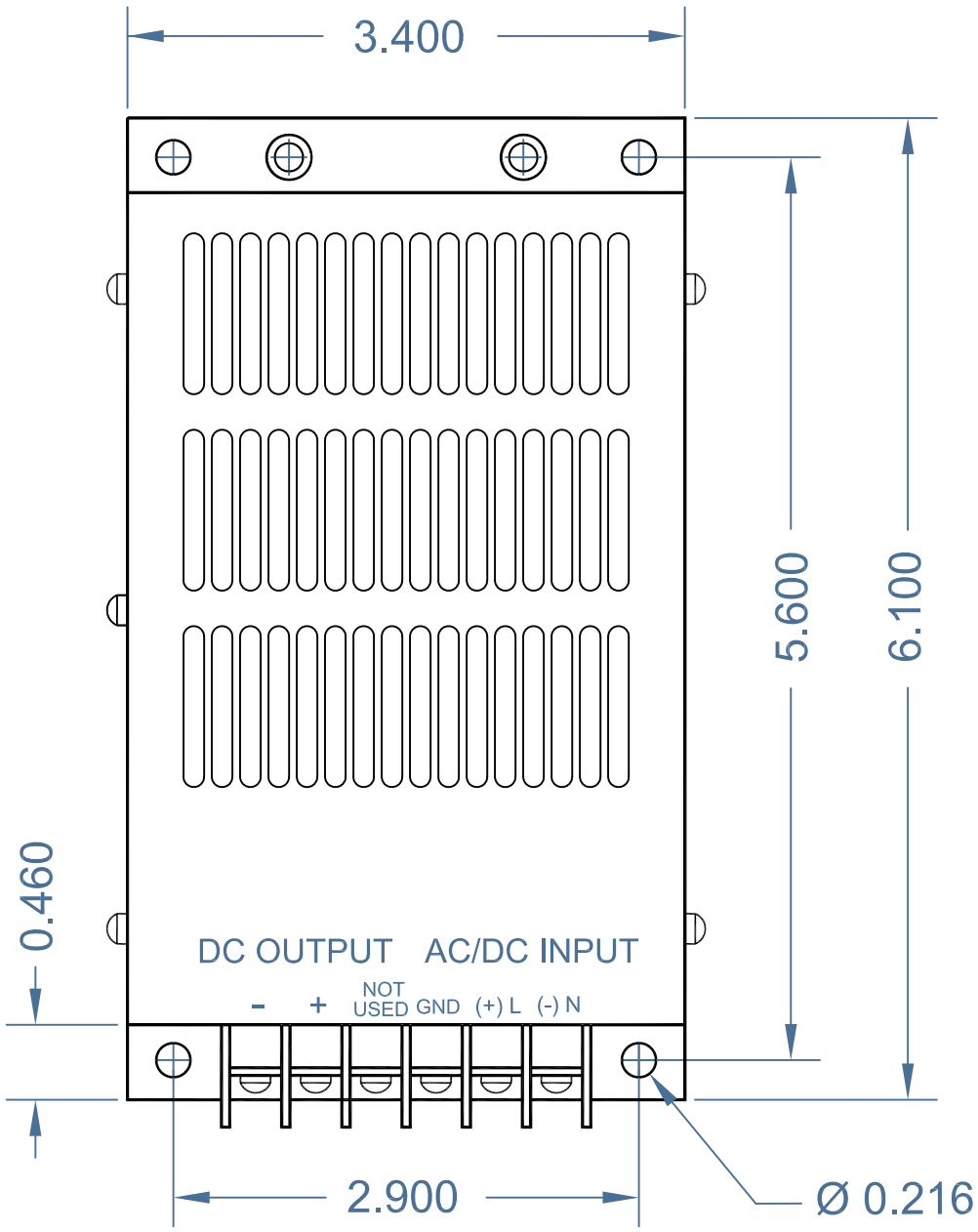
DATE 10-23-2022	DRAWN BY B. G.	MODEL TR-LCD2300W-V2	
PRODUCT PANEL MOUNT VERSION		REVISION 0	SCALE NTS
FINISH CRINKLE BLACK POWDER PAINT	Transducton	CHECKED BY	
TITLE LAYOUT		DRAWING No B-741	



DATE 10-23-2022	DRAWN BY B.G.	MODEL TR-LCD2300W-V2	
PRODUCT PANEL MOUNT VERSION		REVISION 0	SCALE NTS
FINISH	Transduction	CHECKED BY	
TITLE CUTOUT		DRAWING No B-742	



DATE 10-23-2022	DRAWN BY B.G.	MODEL TR-LCD2300W-V2	
PRODUCT VESA BRACKET		REVISION 0	SCALE NTS
FINISH	Transduction	CHECKED BY	
TITLE LAYOUT		DRAWING No B-743	



TOP VIEW

DATE 10-22-2015	DRAWN BY B. G.	MODEL TR-LCD2300W	
PRODUCT MIW 99-12-FT-R1281 SWITCHING POWER SUPPLY		REVISION 0	SCALE NTS
FINISH	Transduction	CHECKED BY	
TITLE LAYOUT		DRAWING No B-644	