PLANAR™

LB2650W

USER'S GUIDE

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European Union 2002/95/EC Directive on the Restriction of Hazardous Substances (RoHS)

In February 2003, the European Union issued Directive 2002/95/EC on the Restriction of Hazardous Substances, commonly known as RoHS, in certain electrical and electronic equipment. It restricts the use of six hazardous substances, including lead (Pb).

The Directive states that all new products within its scope, placed on the European market after July 1, 2006 must be compliant with its requirements.

Planar Systems Inc. is fully in support of and compliant with EU Directive 2002/95/EC for applicable products within its scope.

A Planar part number will be modified with an "LF" suffix designation to indicate RoHS compliance, as shown on the part number label affixed to the display and on the box containing the display.

Important Recycle Instruction:

(Hg) 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 WWW.EIAE.ORG. For lamp specific disposal information check WWW.LAMPRECYCLE.ORG.

Revision Control	
DATE:	DESCRIPTION
January 2009	Document number 020-0973-00 Rev. A
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Usage Notice

⚠ WARNING – To prevent the risk of fire or shock hazards, do not expose this product to rain or moisture.

⚠ WARNING – Please do not open or disassemble the product as this may cause electric shock.

Precautions

Follow all warnings, precautions and maintenance as recommended in this user's guide to maximize the life of your unit.

Do:

❑ Turn off the product before cleaning.
❑ LCD front surface may be cleaned using a soft clean cloth moistened with mild window glass commercial cleaners or 50/50 mixture of water and isopropyl alcohol.
❑ Use only high quality and safety approved AC/DC power adapter that comes with your monitor.
❑ Disconnect the power plug from AC outlet if the product is not used for an extended period of time.

Don't:

❑ Do not touch the LCD display screen surface with sharp or hard objects.
❑ Do not use abrasive cleaners, waxes or solvents for cleaning.
❑ Do not operate the product under the following conditions:
  - Extremely hot, cold or humid environment.
  - Areas susceptible to excessive dust and dirt.
  - Near any appliance generating a strong magnetic field.
  - In direct sunlight.

Introduction

About Planar's LB2650W

The LB2650W products all have a 26" diagonal flat panel screen with an active matrix, thin-film transistor (TFT) liquid crystal display (LCD).

Features include:

- ❑ Dual signal input: Analog VGA and Digital DVI (future models will also include an additional DVI port).
- ❑ Active matrix TFT LCD technology
- ❑ 1920 x 1200 WUXGA resolution
- ❑ 5 ms GTG response time
- ❑ 26" viewable display area
- ❑ 31 ~ 93 kHz horizontal scan
- ❑ 50 ~ 76 Hz vertical refresh rate
- ❑ 0.2865mm pixel pitch
- ❑ 400 cd/m^2(typ.) brightness
- ❑ 178° H, V viewing angle, CR=5
- ❑ CCFL backlight lamps
- ❑ Auto-adjustment function
- ❑ User controls
- ❑ Power saving

The LB2650W monitor has been designed to assist OEM customers with forward compatibility concerns. This product is designed to provide consistent X,Y, and Z mounting points and power input requirements. Customers are requested to only utilize Planar recommended mounting points contained on the products mounting brackets to ensure forward compatibility. OEM customers are reminded that connector location may change within the "component envelope"- therefore allow additional slack in your cable lengths and route cables inside your enclosure to ensure that your design will allow for changes in exact connector location. Finally, ensure that your systems power budget is adequate to allow up to 20% additional power draw should the efficiency of this product change during its product life.
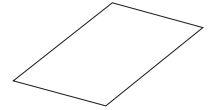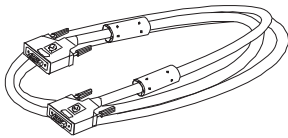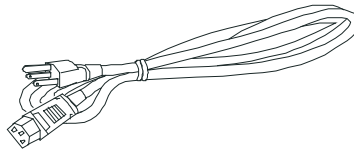
Package Overview
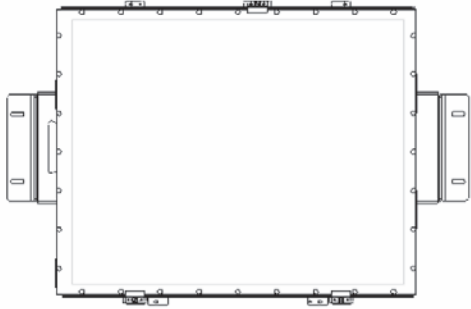
LCD Display
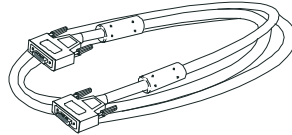
VGA Signal Cable

Quick Start Guide

HDMI to DVI Signal Cables

North American Power Cord
(Please order p/n 903-0467-00 for
European style cord)
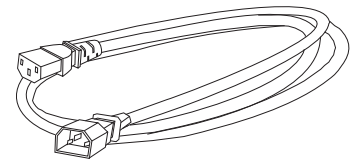
Extension Power Cable

Installation & Dimensional Drawings

Product Overview

Dimensional drawing — Front view annotations:
- 4X 622.3 TO CENTER OF MOUNTING SLOT
- 554.10 BEZEL OPENING
- 550.10 ACTIVE AREA
- 2X 70.00 ℄
- 70.00
- 98.35
- 98.35
- 70.00
- 26" 660mm DIAGNOL
- 70.00 ℄
- 2X 415.3 TO CENTER OF MOUNTING SLOT
- 347.80 BEZEL OPENING
- 343.80 ACTIVE AREA
- B

Side view annotations:
- 84.25
- 437.8 OUTSIDE OF MOUNTING BRACKET FLANGES
- 385.6 OUTSIDE OF MOUNTING BRACKETS
- 398.0 ENDS OF THREADED STUDS

Rear view annotations:
- ONSCREEN CONTROL BUTTONS
- POWER SWITCH
- A
- A

Connecting the display (Figure 1.1)

To set up this display, please refer to the following figure and procedures.

1. Be sure all equipment is off.

2. Connect the AC power cord to the power connector. Plug the other end into an electrical outlet(1).

3. For the PC with Analog graphics output: connect the VGA signal cable from display VGA input connector to the 15-pin connector of your host computer and tighten the screws(2).

4. For DVI or HDMI output: connect DVI cable from display to the PC.

5. Turn on your computer, display and video source.

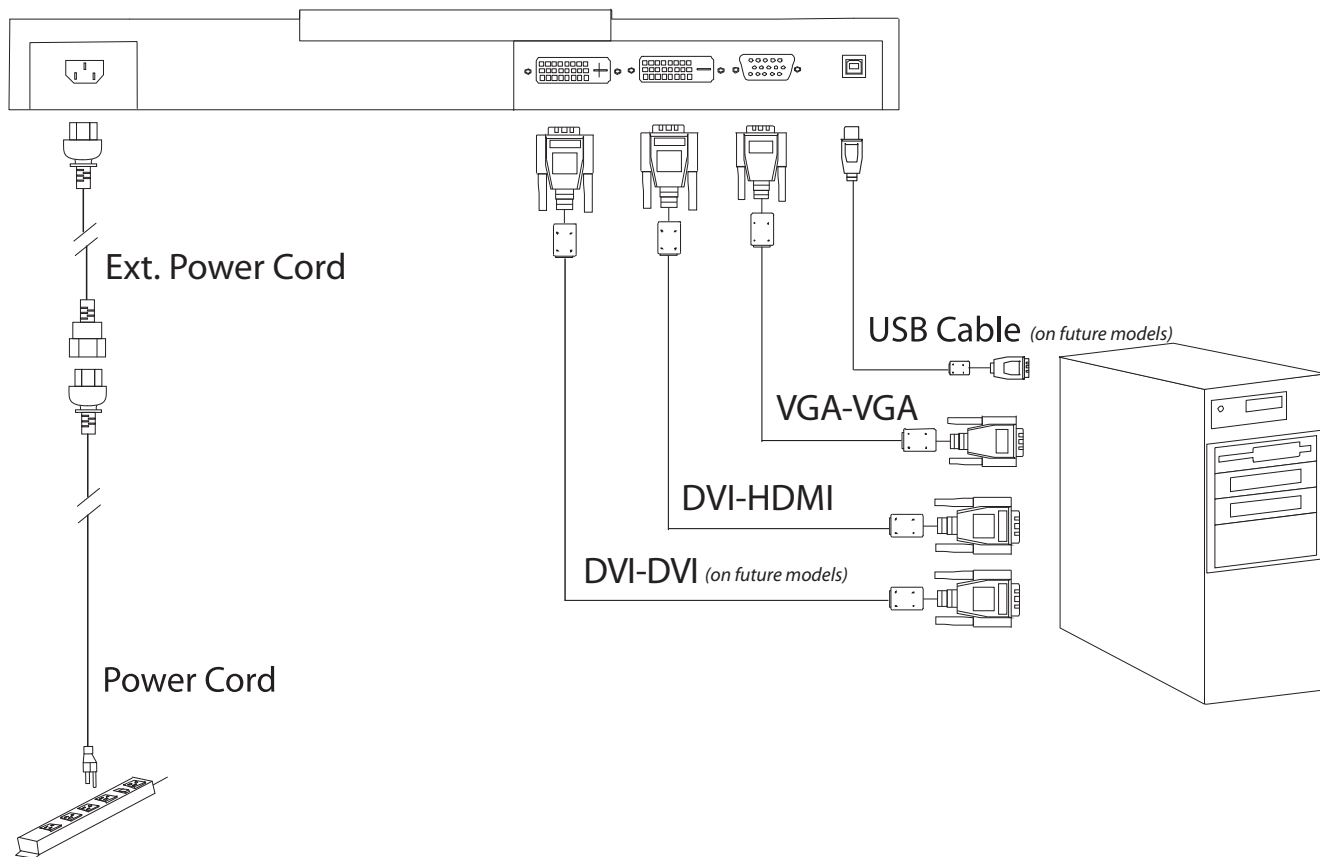**Notice:** To ensure the LCD display works well with your computer, configure the display mode of your graphic card, less than or equal to 1920 x 1200 resolution and make sure the timing of the display mode is compatible with the LCD panel. "Video Modes" of this LCD panel are listed in the appendices for your reference.
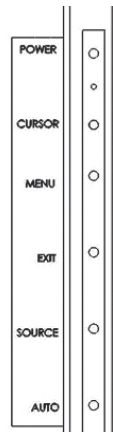
Figure 1.1

Ext. Power Cord

USB Cable *(on future models)*

VGA-VGA

DVI-HDMI

DVI-DVI *(on future models)*

Power Cord

User Controls

Front Panel Controls

A brief description and the location of all LCD Monitor functions controls and indicators.

Power Button	Push to turn ON or turn Off.
LED Indicator	Green when the monitor is on, Amber when in power saving mode, and Dark when off.
Cursor Button	A four direction key plus enter/exit button. Allows you to move up, down, left, right or pressed. See function chart below.
Menu Button	Activates OSD main menu.
Exit Button	Exit OSD display / DV mode hot key.
Source Button	Select DVI or D-SUB signal source. (Toggle Switch)
Auto Button	Hot key for manually auto adjusting the display.

Cursor Button

	Press key up~
	    Hot Key: Contrast +
	    Menu: Cursor Up	

Press key left~
    Hot Key: Brightness -
    Menu: Cursor Left/Volume -
	Press key center~
	    Item Enter/Exit
		Press key right~
		    Hot Key: Brightness +
		    Menu: Cursor Right/Volume +

	Press key down~
	    Hot Key: Contrast -
	    Menu: Cursor Down	

How to Use the OSD Menus

1. Press the "Menu" button to pop up the on-screen menu and to select between the four main menus.

2. Choose the adjustment items by pressing the "Select/Auto" button.

3. Adjust the value of the adjustment items by pressing the "⬚" button.

4. The OSD menu will automatically close, if you have left it idle for a pre-set amount of time.

Adjusting the Monitor's Display

The monitor has four function control buttons to select among functions shown of OSD menu, designed for easy user-viewing environments.

OSD Function Menu

To activate the OSD Main menu, simply press "Menu" button , the menu diagram will pop up on the screen as shown on Fig. 2-2
Use the 4D+1 key to navigate through the function you want to adjust. Push the 4D+1 key to enter a sub-menu and adjust the value. Push the 4D+1 key again to exit the sub-menu. Pressing the "Exit" buttons allows you to exit the OSD menu at any time. Pressing the "Menu" key gets you back to the main menu.

Figure 2-2

Menu under input

Attention
Firmware revision may have been updated into a latest version while the version number shown on information item in OSD menu will stay as Ver 1
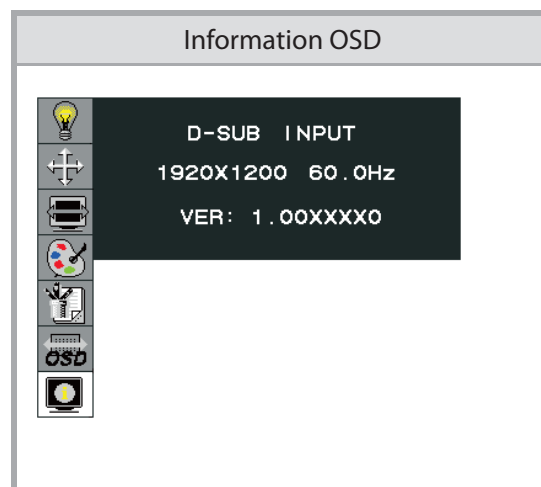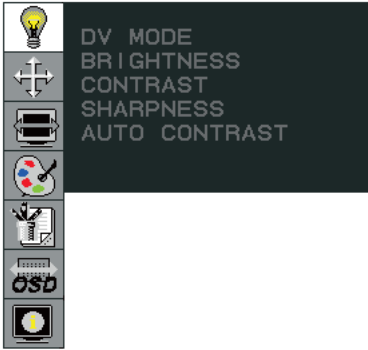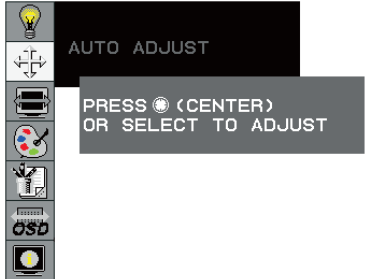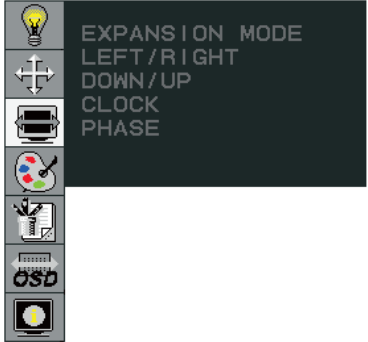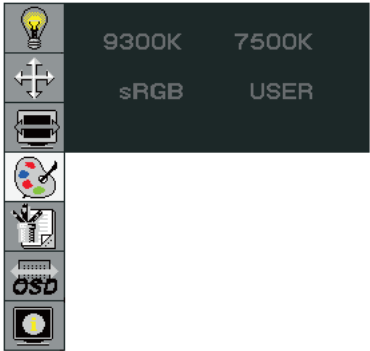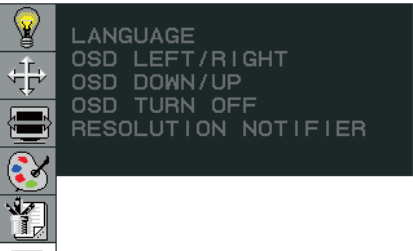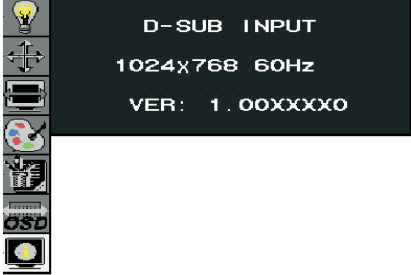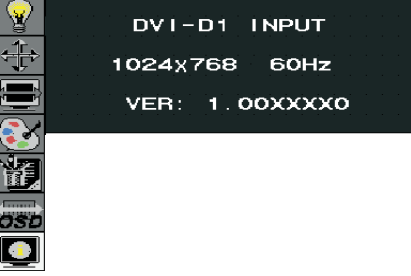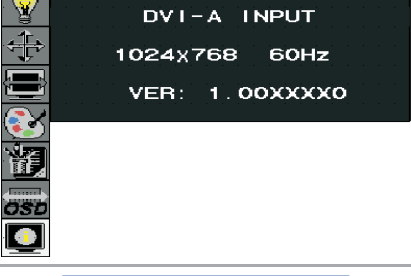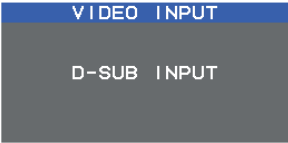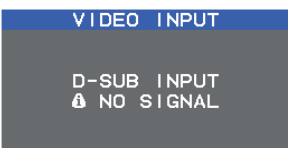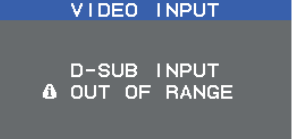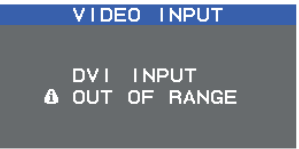

Figure 2-3

Function Description

Figure	Function	Function Description
	DV MODE	The following DV mode display setting can be selected by OSD (STANDARD/TEXT/sRGB/MOVIE/GAMING/PHOTO) Default setting: TEXT
	BRIGHTNESS	Adjust the brightness. Factory setting: 100.0%
	CONTRAST	Adjust the image contrast. Factory setting:50.0%
	SHARPNESS	Adjust the sharpness. Factory setting: 50%
	AUTO CONTRAST (D-SUB or DVI-I Analog signal Only)	Adjust the CONTRAST to the optimal value for the video-input level automatically.
	AUTO ADJUST (D-SUB or DVI-I Analog Input Only)	Adjust the H.POSITION, V.POSITION, H-SIZE and FINE to the optimal value automatically.
	EXPANSION MODE	This function allows you to choose from different display modes: Full: expands all resolution to full screen. Aspect: enlarges native resolution to either horizontal or vertical limit. Real: displays native resolution. Default setting: FULL
	LEFT/RIGHT (D-SUB or DVI-I Analog Input Only)	Adjust the horizontal image position.
	DOWN/UP (D-SUB or DVI-I Analog Input Only)	Adjust the vertical image position.
	CLOCK (D-SUB or DVI-I Analog Input Only)	Adjust the sync frequency of internal pixel clock.
	PHASE (D-SUB or DVI-I Analog Input	Adjust the value for improve display focus.

	Only)	
	Color Temperature	Choose different color temperature (9300K, 7500K, sRGB, USER). Default is USER. USER mode adjustable.
	RED GREEN BLUE GAIN	Adjust the contrast and brightness of each color of the white balance. Allows you to adjust the Red/Green/Blue color gain.
	RED GREEN BLUE OFFSET	Allows you to adjust the Red/Green/Blue color offset.
	SATURATION	Adjust color depth, increasing this value makes pictures more colorful, decreasing makes pictures less colorful. Adjustable value from -100 to 100. Factory setting: 0
	DDC/CI	DDC/CI allows you to control certain settings of the monitor via computer. Default is ON.
	SIDE COLOR	When "Full" is not selected in the "Expansion Mode" and the resolution is under the LCD panel's native resolution, the picture does not display at full screen. The borders/sides around the picture can be customized. Adjust "Side Color" to customize the color of the border/sides around the picture.
	RECALL	Reset all user settings to factory preset value except language selection.
	LANGUAGE	Select a language for OSD menu.
	OSD LEFT/RIGHT	Control the location of the OSD menu on the screen. Factory setting: Center of the screen.
	OSD UP/DOWN	
	OSD TURN OFF	Select OSD Menu turn off time. Factory setting: 45 seconds.

		RESOLUTION NOTIFIER	Resolution notifier activity. Factory setting: OFF
D-SUB INPUT 1024x768 60Hz VER: 1.00XXXX0 DVI-D1 INPUT 1024x768 60Hz VER: 1.00XXXX0 DVI-D2 INPUT 1024x768 60Hz VER: 1.00XXXX0 DVI-A INPUT 1024x768 60Hz VER: 1.00XXXX0		Information	Provide information about resolution, H/V frequencies, and polarity of the input signal.
VIDEO INPUT D-SUB INPUT VIDEO INPUT DVI-D INPUT		Input Select	This OSD informs the user the current signal that is displayed. This OSD will automatically turn off after 2 seconds or by pressing the "Exit" key.
VIDEO INPUT D-SUB INPUT NO SIGNAL		**OSD Warnings** NO SIGNAL	This OSD gives a warning when the selected input signal is not active. After power on or when the input signal become inactive, this warning appears. No signal OSD shall be shown after around 0.5sec from video mode detection. This OSD shall be turned off after 5 seconds automatically, or by "EXIT" key. Then

		change to power saving mode. If direction key is pressed during power saving mode, this warning OSD is opened again.
VIDEO INPUT D-SUB INPUT ⚠ OUT OF RANGE VIDEO INPUT DVI INPUT ⚠ OUT OF RANGE	**OSD Warnings** OUT OF RANGE	This function gives warning about input resolution or refresh rate that the monitor cannot display. If video signal is not at the proper timing when the monitor powers on or input signal is changed, this message opens and it disappears after 45 seconds, or by "EXIT" key.
AUTO ADJUST PROCEEDING...	Auto Adjust (Analog Input Only)	When the monitor is displayed for the first time and the resolution is 800x600 and above, the monitor will auto adjust itself. To manually execute the Auto Adjust function, press the Auto button.

Target color coordinates

Color Temp.	9300K	7500K	sRGB
u′	0.189	0.194	0.198
v′	0.446	0.459	0.468
x	0.283	0.299	0.313
y	0.297	0.315	0.329

OSD Lock Out Function

The OSD Lock Function allows you to lock out the OSD menu and the button keys.

To activates the OSD lock function, the monitor must be in a normal display mode and the information menu as shown in fig-2-4 must be activated. Then follow the instructions below.

D-SUB INPUT
1920X1200 60.0Hz
VER: 1.00XXXX0
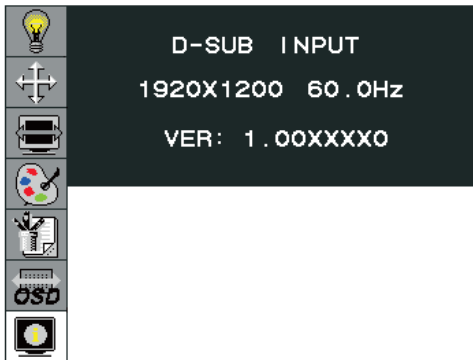
Figure 2-4

Option 1: OSD lock – all buttons be locked except the "POWER" button.

Press "Exit Key + Menu Key + Soft power key" at same time

The monitor will show an "OSD Lock Out" message, showing time as "OSD TURN OFF" setting, and the message be show again by any button, also any button exit this message, but "Power" button be turn off / on monitor.

VIDEO INPUT
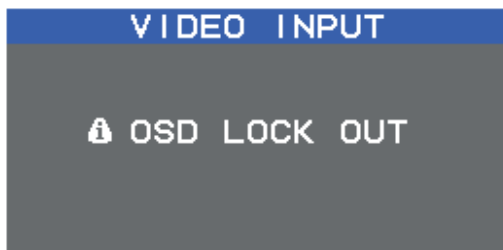
🔒 OSD LOCK OUT

Only repeat this step to unlock.

Option 2: OSD & Power button lock – all buttons including "POWER" button be locked.

Press "Exit Key + Menu Key + Up key" at same time

The monitor will show an "OSD Lock Out" message, showing time as "OSD TURN OFF" setting, and the message be show again by any button, also any button exit this message, but "Power" button no action.
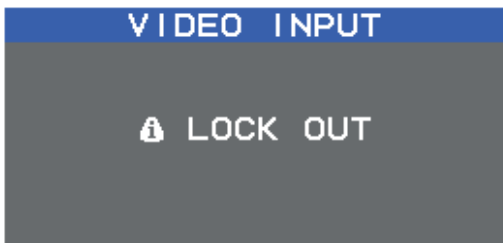

VIDEO INPUT

🔒 LOCK OUT

Only repeat this step to unlock.

Appendix

Troubleshooting

If you are experiencing trouble with the LCD display, refer to the following.
If the problem persists, please contact your local dealer or visit Planar Support at
www.planar.com/support. See support contact information on rear cover.

PROBLEM: Picture is unclear and unstable.

The picture is unclear and unstable, please perform the following steps:

1. Enter PC to "Shut Down Windows" status while you're in MS-Windows environment.
2. Check the screen to see if there's any black vertical stripes appear. If there are, take advantage of the "Clock" function in OSD menu and adjust (by increment or decrement numbers) until those bars disappear.
3. Move to "Phase" function in OSD menu again and adjust the monitor screen to its most clear display.
4. Click "No" on "Shut Down Windows" and back to the normal PC operating environment.

PROBLEM: There is no picture on LCD Monitor

If there's no picture on the LCD Monitor, please perform the following steps:

1. Make sure the power indicator on the LCD Monitor is ON, all connections are secured, and the system is running on the correct timing. Refer to Chapter 3 for information on timing.

2. Turn off the LCD Monitor and then turn it back on again. If there is still no picture, press the Adjustment Control button several times.

3. If step 2 doesn't work, connect your PC system to another external CRT. If your PC system Functions properly with a CRT Monitor but it does not function with the LCD Monitor, the output timing of the VGA card may be out of the LCD's synchronous range. Please change to an alternative mode listed in the Standard Timing Table or replace the VGA card, and then repeat steps 1 and 2.

PROBLEM: There is no picture on LCD Monitor

If you have chosen an output timing that is outside of the LCD Monitor's synchronous range (Horizontal: 31 ~ 93.75 kHz and Vertical: 50 ~ 76 Hz), the OSD will display a "Out of Range" message. Choose a mode that is supported by your LCD Monitor.

Also, if the signal cable is not connected to LCD monitor at all or properly, the monitor screen will display a message "No Input Signal".

Standard Timing Table

If the selected timing is NOT included in table below, this LCD monitor will use the most suitable available timing.

TIMING NAME	FH (KHz) FV (Hz)	SYNC POLARITY	TOTAL (DOT / LINE)	ACTIVE (DOT / LINE)	SYNC WIDTH (DOT / LINE)	FRONT PORCH (DOT / LINE)	BACK PORCH (DOT / LINE)	PIXEL FOREQ.(MHz)
640x350	31.469	+	800	640	96	16	48	25.175
VGA-350	70.087	–	449	350	2	37	60	
640x400	31.469	–	800	640	96	16	48	25.175
VGA-GRAPH	70.087	+	449	400	2	12	35	
640x480	31.469	–	800	640	96	16	48	25.175
VGA-480	59.94	–	525	480	2	10	33	
640x480	35	–	864	640	64	64	96	30.24
APPLE MAC-480	66.67	–	525	480	3	3	39	
640x480	37.861	–	832	640	40	16	120	31.5
VESA-480-72Hz	72.809	–	520	480	3	1	20	
640x480	37.5	–	840	640	64	16	120	31.5
VESA-480-75Hz	75	–	500	480	3	1	16	
720x350	31.47	+	900	720	108	18	54	28.322
70Hz	70.087	–	449	400	2	37	60	
720x400	31.469	–	900	720	108	18	54	28.322
VGA-400-TEXT	70.087	+	449	400	2	12	35	
832x624	49.725	–	1152	832	64	32	224	57.2832
APPLE MAC-800	74.55	–	667	624	3	1	39	
800x600	35.156	+	1024	800	72	24	128	36
SVGA	56.25	+	625	600	2	1	22	
800x600	37.879	+	1056	800	128	40	88	40
VESA-600-60Hz	60.317	+	628	600	4	1	23	
800x600	48.077	+	1040	800	120	56	64	50
VESA-600-72Hz	72.188	+	666	600	6	37	23	
800x600	46.875	+	1056	800	80	16	160	49.5
VESA-600-75Hz	75	+	625	600	3	1	21	
848x480	31.02	+	1088	848	64	32	152	56.25
VESA	60	+	517	480	3	1	27	
1024x768	48.363	–	1344	1024	136	24	160	65
XGA	60.004	–	806	768	6	3	29	
1024x768	53.964	+	1328	1024	176	16	112	71.664
COMPAQ-XGA	66.132	+	816	768	4	8	36	
1024x768	56.476	–	1328	1024	136	24	144	75
VESA-768-70Hz	70.069	–	806	768	6	3	29	
1024x768	60.023	+	1312	1024	96	16	176	78.75
VESA-768-75Hz	75.029	+	800	768	3	1	28	
1024x768	60.24	–	1328	1024	96	32	176	80
APPLE MAC-768	75.02	–	803	768	3	3	29	
1152x864	54.054	+	1480	1152	96	40	192	80
(60Hz)	59.27	+	912	864	3	13	32	
1152x864	63.851	+	1480	1152	96	32	200	94.499
(70Hz)	70.012	+	912	864	3	1	44	

1152x864	67.5	+	1600	1152	128	64	256	108
(75Hz)	75	+	900	864	2	2	32	
1152x870	68.68	–	1456	1152	128	32	144	100
(75Hz)	75.06	–	915	870	3	3	39	
1280x720	44.772	–	1664	1280	128	64	192	74.5
(60Hz)	59.855	+	748	720	5	3	20	
1280x960	60	+	1800	1280	112	96	312	108
(60Hz)	60	+	1000	960	3	1	36	
1280x960	70	+	1800	1280	112	96	312	126
(70Hz)	70	+	1000	960	3	1	36	
1280x960	75	+	1800	1280	112	96	312	135
(75Hz)	75	+	1000	960	3	1	36	
1280x1024	64	+	1688	1280	112	48	248	108
VESA-1024-60Hz	60	+	1066	1024	3	1	38	
1280x1024	80	+	1688	1280	144	16	248	135
VESA-1024-75Hz	75	+	1066	1024	3	1	38	
1360x768	75	+	1792	1360	112	64	256	85.5
60Hz	75	+	795	768	6	3	18	
1440x900	55.469	+	1600	1440	32	48	80	88.75
Red. BLKing 60Hz	59.901	–	926	900	6	3	17	
1440x900	55.935	–	1904	1440	152	80	232	106.5
60Hz	59.887	+	934	900	6	3	25	
1440x900	70.635	–	1936	1440	152	96	248	136.75
75Hz	74.984	+	942	900	6	3	33	
1680x1050	64.674	+	1840	1680	32	48	80	119
Red. BLKing 60Hz	59.883	–	1080	1050	6	3	21	
1680x1050	65.29	–	2240	1680	176	104	280	146.25
60Hz	59.954	+	1089	1050	6	3	30	
1680x1050	82.306	–	2272	1680	176	120	296	187
75Hz	74.892	+	1099	1050	6	3	40	
1600x1200	75	+	2160	1600	192	64	304	162
VESA-1200-60Hz	60	+	1250	1200	3	1	46	
1600x1200	87.5	+	2160	1600	192	64	304	189
VESA-1200-70Hz	70	+	1250	1200	3	1	46	
1600x1200	93.75	+	2160	1600	192	64	304	202.5
VESA-1200-75Hz	75	+	1250	1200	3	1	46	
1920x1200	74.038	+	2080	1920	32	48	80	154
Red. BLKing 60Hz	59.95	–	1235	1200	6	3	26	
1920x1200	74.566	–	2592	1920	200	136	336	193.25
60Hz	59.885	+	1245	1200	6	3	36	

*** DVI signal can not support 1680X1050@75, 1600X1200@70, 1600X1200@75, 1920X1200@60 non reduce mode

Note: Mode 640x350, 640x400 and 720x400 is centered in the middle of the display and cannot be expanded to full screen.

Cosmetic Specification Disclaimer: Planar's cosmetic specification shall match the cosmetic specification authored by the TFT panel manufacturer. Products that contain pixel defects shall not be deemed unsatisfactory whose pixel defects are less than those stipulated by the TFT panel manufacturer.

Support and Service

Planar is a US company based in Beaverton, Oregon and Espoo, Finland with a worldwide sales distribution network.

Visit Planar at **http://www.planar.com/support** for product registration, operations manuals, line drawings, touch screen drivers, warranty information and access to Planar's Technical Library for online troubleshooting.

To speak with Planar Customer Support please have your model and serial number available and dial one of these numbers:

> **Americas Support**
>
> Tel: 1-866-PLANAR1 (866-752-6271) or +1 503-748-1100
> Hours: M-F, 8am - 8pm Eastern Time | M-F, 5am - 5pm Pacific Time
>
> **Europe and Asia-Pacific Support**
> Tel: +358-9-420-01
> Hours: M-F, 7:00am - 4pm CET

Toll or long distance charges may apply.

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Customer Service
24x7 Online Technical Support: **http://www.planar.com/support**

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