PLANAR

WS231
User's Manual

PREFACE

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

FCC WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution:

To comply with the limits for an FCC Class B computing device, always use the shielded signal cord supplied with this unit.

The Federal Communications Commission warns that changes or modifications of the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE mark for Class B ITE (Following European standard EN55022/1998; EN61000-3-2/1995; EN61000-3-3/1995, EN55024/1998, EN60950/1992+A1+A2+A3+A4+A11)

Radio Frequency Interference Statement

Warning:

This is a Class B product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Canadian Doc Notice

For Class B Computing Devices

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulation of the Canadian Department of Communications.

"Le présent appareil numérique n'èmet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada"

Important Safety Instructions

Please read the following instructions carefully. This manual should be retained for future use.

1. To clean the LCD Monitor screen, first, make sure the Monitor is in the power off mode. Unplug the Monitor from its power source before cleaning it. Do not spray liquid cleaners directly onto the unit. Stand away from the LCD Monitor and spray cleaning solution onto a rag. Without applying excessive pressure, clean the screen with the slightly dampened rag.

2. Do not place your LCD Monitor near a window. Exposing the Monitor to rain, water, moisture or sunlight can severely damage it.

3. Do not place anything on top of the Monitor-to-PC signal cord. Make sure the cord is placed in an area where it will not be stepped on.

4. Do not apply pressure to the LCD screen. Excessive pressure may cause permanent damage to the display.

5. Do not remove the cover or attempt to service this unit by yourself. You may void the warranty. Servicing of any nature should be performed only by an authorized technician.

6. Safe storage of the LCD Monitor is in a range of minus 20 to plus 65 degrees Celsius (-4°F-149°F). Storing your LCD Monitor outside this range could result in permanent damage.

7. If any of the following occurs, immediately unplug your Monitor and call an authorized technician.

    - The power or Monitor-to-PC signal cord is frayed or damaged.

    - Liquid has been spilled onto the Monitor, or it has been exposed to rain.

    - The Monitor has been dropped or the case has been damaged.

8. The appliance should be disconnected from the mains by pulling the mains power cord/mains plug.

9. The socket-outlet shall be installed near the equipment and shall be easily accessible.

TABLE OF CONTENTS

The LCD Monitor

Your new LCD Monitor!

Your LCD Monitor has been designed to be versatile, ergonomic and user-friendly. The LCD Monitor is capable of displaying most standards, from 640 x 480 VGA to 1600 x 1200 UXGA. The digital controls located on the front panel allow the user to easily adjust the Monitor's display parameters. The LCD Monitor's small footprint allows you more room in your workspace for other peripherals. Lightweight and compact, the LCD Monitor is the perfect solution for all type of users.

Unpacking

Before you unpack your LCD Monitor, prepare a suitable workspace for your LCD Monitor and computer. You need a stable, level and clean surface near a wall outlet. Even though the LCD Monitor uses very little power, you should put it in a location, which allows sufficient airflow to ensure that the LCD Monitor and your computer does not become too hot. Set up your LCD Monitor so that the panel doesn't face a window where sunlight often comes in. The glare caused by sunlight reflecting off the LCD Monitor's screen will make it difficult to see.

After you unpack your LCD Monitor; make sure the following items are included in the box and in good condition:

- LCD Monitor
- AC Adapter
- Monitor-to-PC Analog signal cable (15-pin)
- Monitor-to-PC Digital signal cable (24-pin)
- Power cord
- This user's manual
- CD Manual
- Frequently Asked Questions
- Quick Setup Guide

If you find that any of these items are missing or appear damaged, contact your dealer immediately. Do not throw away the packing material or shipping carton in case you need to ship or store the LCD Monitor in the future.

Identifying Components

The LCD Monitor has been designed to provide easy access to all controls and peripheral ports. The following figures will help you identify the LCD Monitor's controls and ports.
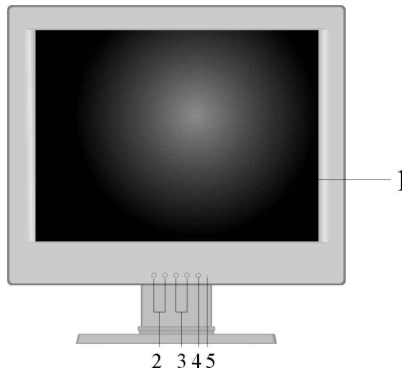
The LCD Monitor — Front View

Figure 1-1: The LCD Monitor Panel and Controls

1. **LCD Screen**
   The RGB LCD Monitor Screen is capable of producing most display standards up to a maximum resolution of 1600 x 1200 (UXGA).

2. **Function Control Buttons**
   These two buttons allow you to select one of the control functions. Press either the right or left control button to scroll through the menu items. Press the left function button to activate the OSD Menu.

3. **Adjustment Control Buttons**
   These two buttons allow you to adjust the selected control function to accommodate your specific working environment. Press the right button to increase the setting of the selected control function and press the left button to decrease the setting of the selected control function.

4. **Power Button and Port Select**
    Push the button to turn the Monitor ON or OFF (push and hold the button for 2 seconds to switch between Analog or Digital input mode).

5. **Power-On Indicator**
    This LED indicator lights when the power is on. The LED indicator will blink when the LCD Monitor is in Power Saving mode.
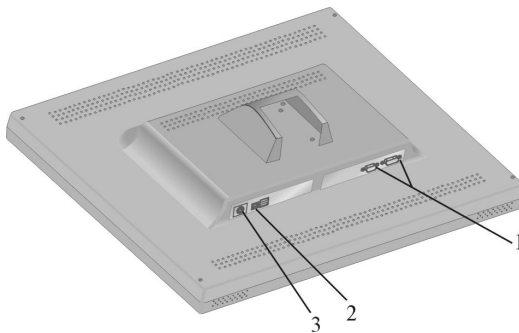
The LCD Monitor — Rear View

Figure 1-2: LCD Monitor's Rear Ports

1. **Input signal ports**
    The monitor has one 15-pin D-sub VGA connector and one 24-pin DVI connector (optional), the 24-pin DVI connector is for Digital signal if your PC has a graphic card with DVI connector.

2. **USB port (Optional)**
    Connect the USB cable from this port to PC HOST.

3. **DC Power Jack**
    Connect the AC power Adapter output cable to this connector

Adjusting the Viewing Angle

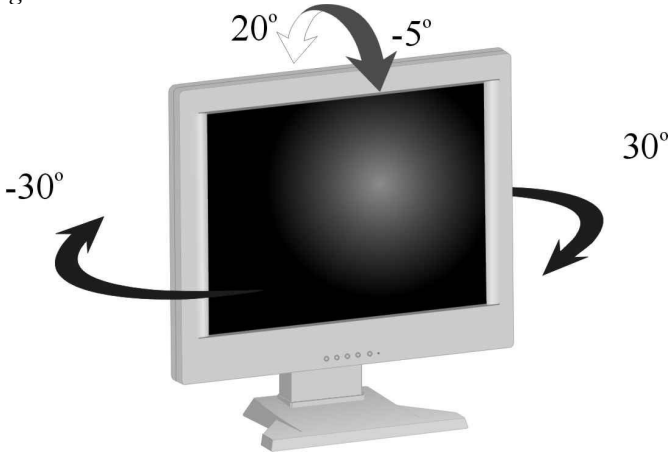Your LCD Monitor is designed to allow you to adjust it to a comfortable viewing angle. Please see *Figure 1-3*.

Figure 1-3: Angle Settings

Connecting AC Power

Please refer to the following instructions for connecting AC power to the LCD Monitor. Plug the female end of the power cable into the AC power connector. Plug the male end of the power cord into a wall socket. The plug on the power cable will vary according to the electrical standard in your area. Please refer to *Figure 1-4*.
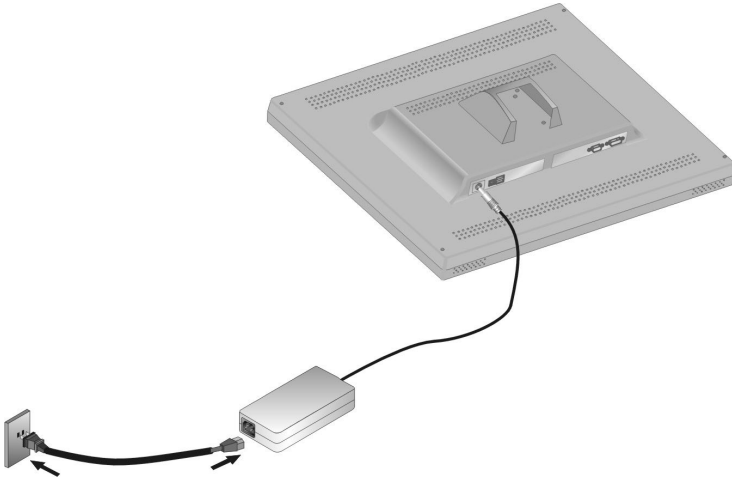
Figure 1-4: Connecting Power to the LCD Monitor

Connecting Video

1. Turn off your PC and the LCD Monitor before connecting your LCD Monitor to the computer.
2. Connect one end of the VGA signal cable to the PC's D-sub VGA port and the other end to the monitor VGA port. Please refer to *Figure 1-5*.
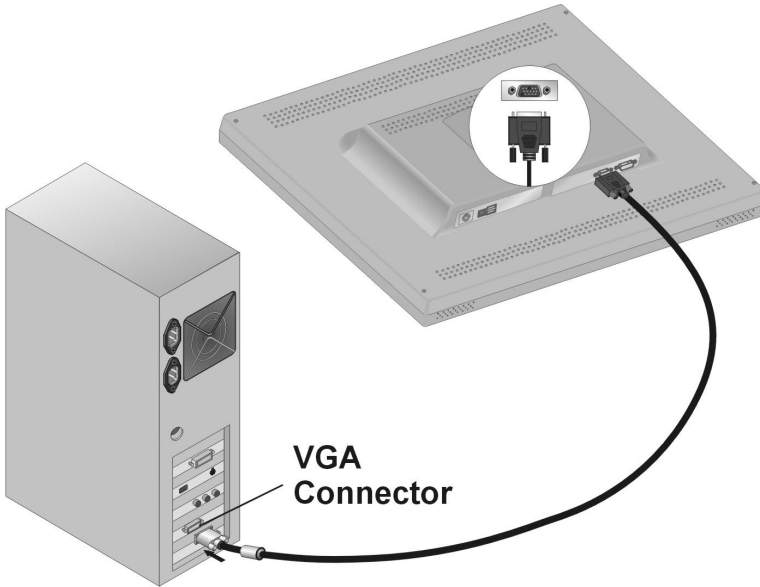
Figure 1-5: Connecting the LCD Monitor to the PC

3. If your PC has a graphic card with a 24-pin DVI connector, you may connect it with the Digital 24-pin DVI signal cable.

4. Make sure the signal cable head is securely connected to the VGA port of your PC. Tighten the connecting screws to ensure a secure connection.

Note *If both analog (15-pin D-sub VGA) and digital (24-pin DVI) input ports are connected at the same time, the signal input can be selected with the port select button. Please go to the next chapter for details.*

Power Management System

The LCD Monitor complies with the VESA DPMS (version 1.0p) power management proposal. The VESA DPMS proposal provides four phases of power saving modes by detecting the horizontal or vertical sync signal. When the LCD Monitor is in power saving mode or detects an incorrect timing, the Monitor screen will go blank, and the power LED indicator will start to blink.

The Display Controls

The LCD Monitor's Display Controls

The LCD Monitor features an intuitive, menu-driven, On-Screen Display (OSD). You can access the OSD any time when the PC is powered on. If the PC is in a power saving mode, or is powered off, the OSD is inaccessible.
The OSD make the adjusting display settings quick and simple. Press the Left *Function* button to access the OSD and the *Function* buttons are used scroll through the menu items. Use the *Adjustment* buttons to make changes to the selected menu item. Please refer to *Figure 2-1*.
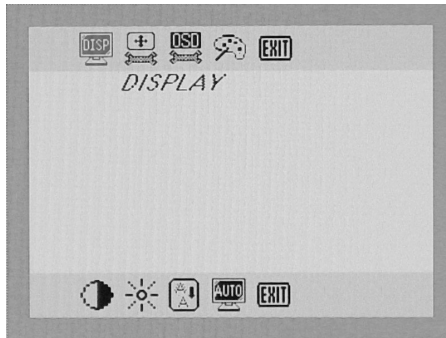
Analog Input Mode (use 15 pin VGA port):

Figure 2-1: The OSD Main Menu

Main Menu Description:

• DISPLAY	Display Setting parameters including Contrast, Brightness, Dos Graph/Text, and Auto Adjust.
• GEOMETRIC	These setting parameters including Scale, Clock, Phase, H-Position, V-Position.
• OSD-ADJUST	OSD H-Position, OSD V-Position, Language, Information, Reset.
• COLOR	Color temperature for standard CIE 9300°K, 6500°K, or user defined.
• EXIT	

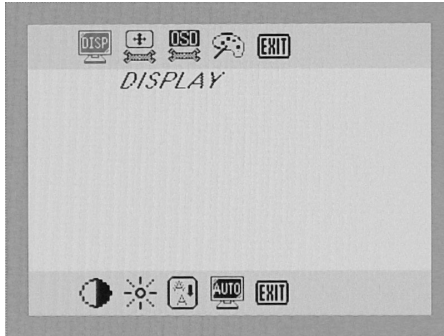**The submenus for each are further described below:**

Display Setting sub Menu

Figure 2-2: The Display Setting sub Menu

Description:

• CONTRAST	Contrast adjustment.
• BRIGHTNESS	Backlight brightness adjustment.
• GRAPH/TEXT	DOS 640x400 or 720x400 mode selection.
• AUTO ADJUST	To Auto-adjust the geometric parameters.
• EXIT	

Geometric sub Menu

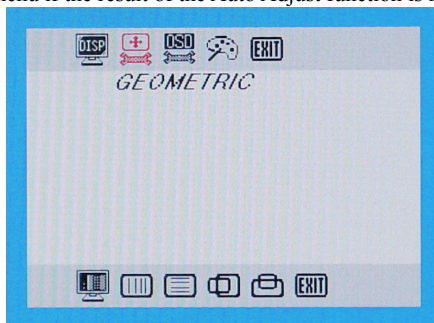You should only use this menu if the result of the Auto Adjust function is not satisfactory.

Figure 2-3: The Geometric sub Menu

Description:

• SCALE	Full Screen or native display selection.
• CLOCK	To adjust the pixel alignment of the display.
• PHASE	To adjust the display for focus and clarity.
• H-POSITION	Horizontal position adjustment.
• V-POSITION	Vertical position adjustment.
• EXIT	

OSD Adjust sub Menu

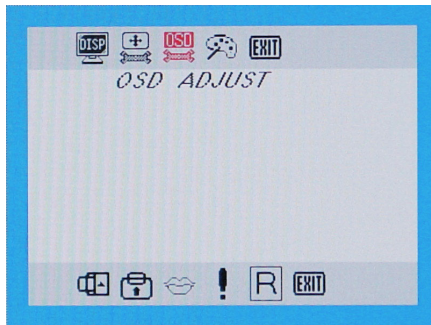*Figure 2-4: The OSD Adjust sub Menu*

Description

• H-POSITION	OSD Horizontal position adjustment.
• V-POSITION	OSD Vertical position adjustment.
• LANGUAGE	To select different languages of OSD menu.
• INFORMATION	To get the information of display mode and firmware version.
• RESET	To set the display parameters to the factory default values.
• EXIT	

Color temp. Sub Menu

Figure 2-5: The Color temp. Menu

Description:

• 9300	CIE 9300°K color.
• 6500	CIE 6500°K color.
• R	User color R-Sub contrast adjustment.
• G	User color G-Sub contrast adjustment.
• B	User color B-Sub contrast adjustment.
• EXIT	

Digital Input Mode (use 24 pin DVI port):
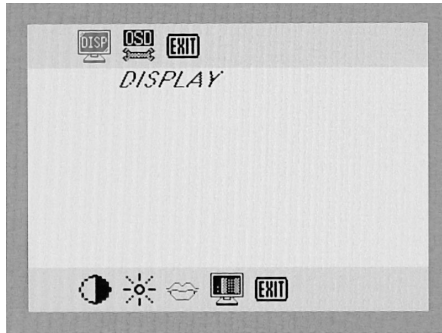
Figure 2-6: The OSD Main Menu

Main Menu Description:

• DISPLAY	Display Setting parameters including Contrast, Brightness, Language, and Scale.
• OSD-ADJUST	OSD H-Position, OSD V-Position, Language, Information, Reset.
• EXIT	

The submenus for each are further described below:

Display Setting sub Menu

Figure 2-7: The Display Setting sub Menu

Description:

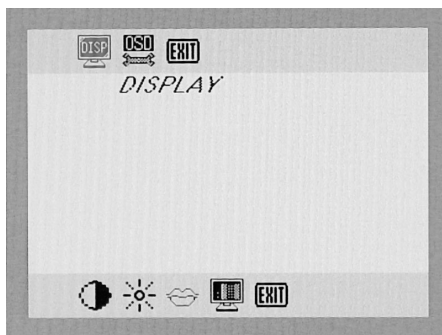|	
• CONTRAST	Contrast adjustment.
• BRIGHTNESS	Backlight brightness adjustment.
• LANGUAGE	To select different languages of OSD menu.
• SCALE	Full screen or native display selection.
• EXIT	

OSD Adjust sub Menu
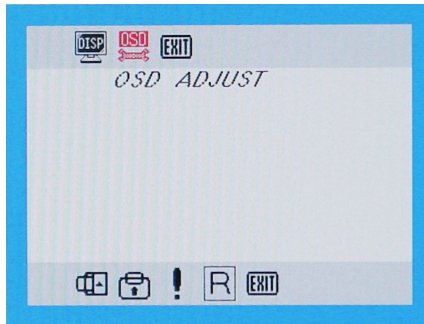
Figure 2-8: The OSD Adjust sub Menu

Description

• H-POSITION	OSD Horizontal position adjustment.
• V-POSITION	OSD Vertical position adjustment.
• INFORMATION	To get the information of display mode and firmware version.
• RESET	To set the display parameters to the factory default values.
• EXIT	

Note:

1. When there is no input signal

    When the monitor is ON and there is no Video signal received, the following message will be displayed.

| (Analog mode) | (Digital mode) |

Figure 2-9: When there is no input signal

The hotkey descriptions

Figure 2-10: The Hotkeys

1. Main Menu pop up /Auto-Adjust Hotkey
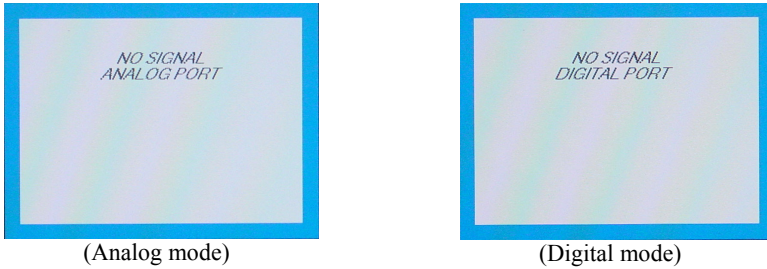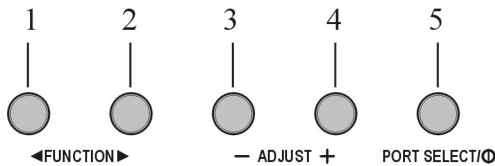   Press this button to activate the OSD Main
    Menu. Press and hold this button for 2
    seconds to activate the Auto Adjust
    feature.
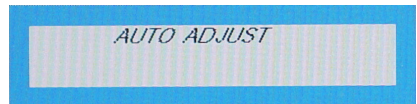
Figure 2-11

2. Contrast Adjust Hotkey
    Press this button to activate the Contrast
    Adjust function, use -/+ adjustment
    control buttons to increase or decrease the
    display's contrast.

Figure 2-12

3. Brightness Adjust Hotkey
    Press this button to activate the Brightness
    Adjust function, use -/+ adjustment
    control buttons to increase or decrease
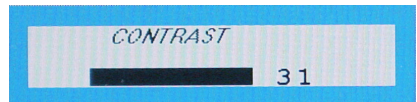   display brightness.
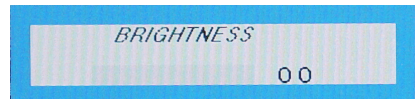
Figure 2-13

4. Port Select/Power switch Hotkey
    Press and release this button immediately to select either Digital or Analog input mode.
    Press and hold this button for 2 seconds to power on or power off the monitor.

Technical Information

TFT LCD Monitor Specifications

Model	FMT2315U
LCD Panel	23.1" UXGA
Control Functions Power	Software switch with LED indicator
On-Screen Display (OSD)	DISPLAY--------------CONTRAST/BRIGHTNESS/AUDIO VOLUME /GRAPH./TEXT/AUTO ADJUST GEOMETRIC--------SCALE/CLOCK/PHASE/H-POSITION /V-POSITION OSD ADJUST-------OSD H-POSITION/OSD V-POSITION /LANGUAGE/INFORMATION /RESET COLOR---------------USER (9300/6500)/R/G/B LANGUAGE---------ENGLISH/日本語/DEUTSCH/FRANÇAIS /NEDERLANDS /SVENSKA
Display Area (mm)	470.4 x 352.8 mm (23.1 inch diagonal)
Display Colors	16.7M
Video Interface	Analog port: VGA Compatible Analog RGB (15-pin D-Sub) Separate Sync. /Composite Digital port: DDWG compliant Single Link Tmds Digital Visual Interface (DVI) (with port AUTO-detection)
Scanning Frequency H/V, Hz (Analog mode)	24-80kHz 50-90

Model	FMT2315U
Scanning Frequency H/V, Hz (Digital mode)	30-80kHz 56-85
Power Management	Meets VESA DPMS
Power Consumption (ON mode/OFF mode)	88W (max.)/5W (max.) (Measured from AC inlet)
Dimensions WxHxD mm	568 x 570 x 240
Net Weight (Kg) Approx.	15 Kg
Power Supply	12V /6A, 72W Universal Input AC Adapter (External)
Options	Wall-mounted bracket, Arm-mounted bracket (VESA Compliance) USB Hub (1 up and 2 down streams)
Environment	Operating Temperature: 0 to 40° C Relative Humidity: 10% to 90%
Audio (Two 1 Watt speakers with amplifier)	Yes
Regulatory	UL/cUL, TÜV-GS, CE, FCC/B, VCCI, FCC B DoC TÜV-Ergonomics, Energy Star Program

Supported Timing

Timing for Model FMT2315U (UXGA Resolution)

Item	Standards	Resolution	Dot Clock (MHz)	Vertical Scanning Frequency (Hz)	Horizontal Scanning Frequency (kHz)	Sync Polarity or composite sync (H/V)	Operating Mode
1	NEC PC98	640x400	25.20	70.15	31.50	-/-	A
2	NEC PC98	640x400	21.05	56.42	24.83	-/-	A
3	MAC 13" mode	640x480	30.24	66.67	35.00	-/-	A/D
4	MAC 16" mode	832x624	57.28	74.55	49.73	-/-	A/D
5	MAC 17" mode	1024x768	80.00	75.02	60.24	-/-	A/D
6	VGA	640x350	25.18	70.09	31.47	+/-	A/D
7	VESA	640x350	31.50	85.08	37.86	+/-	A/D
8	VGA	640x400	25.18	70.09	31.47	-/+	A
9	VESA	640x400	31.50	85.08	37.86	-/+	A
10	VGA	640x480	25.18	59.94	31.47	-/-	A/D
11	VESA	640x480	31.50	72.81	37.86	-/-	A/D
12	VESA	640x480	31.50	75.00	37.50	-/-	A/D
13	VESA	640x480	36.00	85.01	43.27	-/-	A/D
14	VESA	800x600	36.00	56.25	35.16	+/+	A/D
15	SVGA	800x600	40.00	60.32	37.88	+/+	A/D
16	VESA	800x600	50.00	72.19	48.08	+/+	A/D
17	VESA	800x600	49.50	75.00	46.88	+/+	A/D
18	VESA	800x600	56.25	85.06	53.67	+/+	A
19	VGA	720x400	28.32	70.09	31.47	-/+	A
20	VESA	720x400	35.50	85.04	37.93	-/+	A/D
21	XGA	1024x768	65.00	60.00	48.36	-/-	A/D
22	VESA	1024x768	75.00	70.07	56.48	-/-	A/D
23	VESA	1024x768	78.75	75.03	60.02	+/+	A/D
24		1024x768	71.64	66.13	53.96	+/+	A/D
25	VESA	1152x864	108.0	75.00	67.50	+/+	A/D
26	VESA	1152x864	121.5	85.00	77.09	+/+	A/D
27	VESA	1024x768	94.50	85.00	68.68	+/+	A/D

Item	Standards	Resolution	Dot Clock (MHz)	Vertical Scanning Frequency (Hz)	Horizontal Scanning Frequency (kHz)	Sync Polarity or composite sync (H/V)	Operating Mode
28	VESA	1280x960	108.0	60.0	60.0	+/+	A/D
29	VESA	1280x1024	108.0	60.02	63.98	+/+	A/D
30	VESA	1280x1024	127.0	69.85	74.88	+/+	A/D
31	VESA	1280x1024	135.0	75.03	79.98	+/+	A/D
32	SUN	1024x768	64.13	59.98	48.29	H+V	A
33	SUN	1024x768	74.25	70.04	56.59	H+V	A
34	SUN	1024x768	84.38	77.07	62.04	H+V	A
35	SUN	1280x1024	117.0	67.19	71.69	H+V	A
36	SUN	1280x1024	135.0	76.10	81.13	H+V	A
37	VESA	1600x1200	162.0	60.00	75.00	+/+	A/D

*A=Analog Mode; D=Digital Mode

 *Once a mode is optimized, there is no need to make any further adjustment as long as the VGA card remains unchanged.

*Specifications are subject to change without notice.

Troubleshooting

Troubleshooting Procedures

This LCD Monitor was pre-adjusted in the factory with standard VGA timing. Due to output timing differences among various VGA cards, you may initially experience an unstable or unclear display when a new display mode or new VGA card is selected.

Note *This LCD Monitor Supports Multiple VGA Modes. Refer to Addendum for a listing of the factory preset modes supported by this LCD Monitor.*

PROBLEM: Display is Unclear and Unstable

To stabilize and clarify your display, follow this procedure in this order:

1. It's best to adjust the display on a screen displaying of vertical lines. In Windows, load a wallpaper bitmap that has vertical lines in it. (Or you can the select window shut down screen)

2. After you have the wallpaper loaded, open the OSD and select the "Clock" function. Press the top (or bottom) Adjustment Control button and continue pressing the button until you see vertical dark and light lines across the screen.

3. When you can see distinct light and dark vertical bands, stop pressing the Adjustment Control button. Now press the opposite (top or bottom) Adjustment Control button. The vertical dark and light bands will decrease in number. Keep pressing the button until the distinct bands disappear and you have a clear display.

4. Next press the Function Control button to choose the "Phase" function. The Phase will adjust the horizontal display. Press the top (or bottom) Adjustment Control button and you will see horizontal dark and light lines appear. The number of lines increases as you press the button. Now press the bottom (or top) Adjustment Control button until the lines disappear and you have a clear display.

PROBLEM: There is no LCD Display

If there is no display on the LCD, please perform the following steps:

1. Make sure that the power indicator on the LCD Monitor is lit, all connections are secure, and the system is running on the correct timing. Refer to the Addendum for information on timing.

2. Turn off the LCD Monitor and then turn it back on again. Press the upper Function Control button (refer to Chapter 2) once and then press either the upper or lower Adjustment Control button several times. If there is still no display, press the other Adjustment Control button several times.

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

4. If the PC (or Notebook PC) doesn't function with the CRT monitor neither, check BIOS to see if there is a *Simultaneous Display* setting under the display mode item. Set the BIOS display mode to *Simultaneous Display* or *CRT* and try again. If there is still no display, then there may be a problem with your system. Contact technical support.

5. If the power LED is not lit, check to see if the AC power connector is securely connected. If the power LED is not lit, please contact your dealer for assistance.

Planar Systems, Inc

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