CAUTION

Symbol Description

Caution! – This symbol alerts you to important operating considerations or a potential operating condition that could damage equipment. Refer to the User's Manual or Operation's Manual for precautionary instructions.

CLASSIFICATION

Class I equipment, No applied parts.

Protection against harmful ingress of water : Ordinary Equipment (IPX0) – No protection.

Not suitable for use in the presence of a flammable anesthetics or oxygen.

Mode of operation : Continuous.

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II FCC COMPLIANCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against radio frequency interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception (this 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 receiver.
- Connect the equipment into an outlet on a circuit different from which the receiver is connected to.
- Consult the dealer or an experienced radio/ television technician for help.

CAUTION

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

CAUTION TO THE USER

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

NOTICE OF COMPLIANCE WITH CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS

DOC COMPLIANCE NOTICE

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

DOC AVIS DE CONFORMATION

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicable aux appareils numeriques de la class B prescrites dan le Reglement sur le brouillage radioelectriques edicte par le ministere des Communications du Canada.

III SAFETY INSTRUCTIONS

• **Power**
- LCD Monitor Rated : 12 V dc , 5.5A maximum.
- Use the type of power indicated on the marking label.

• **Adapter**
-Only use an adapter designed for the LCD monitor (Ault MW116KA1249F51 or Delta ADP-70RB)

-IMPORTANT : Use of another type of adapter will result in malfunction and /or danger.

• **Plugs**
- Do not remove any parts of the monitor's three pronged power plug.
- Disconnect the power plug from the AC outlet when the monitor will not be used for an indefinite period of time.

• **Power and extension cords**
- Use the proper power cord with the correct plug type. If the power source is 120V AC, use a power cord that has UL and CSA approvals. If the power source is a 240V AC supply use the tandem (T blade) type attachment plug with a ground conductor power cord that meets the respective European country's safety regulations, such as VDE for Germany.
- A certified power supply cord not lighter than ordinary polyvinyl chloride flexible cord according to IEC 60227 (designation H05VV-F 3G 0.75mm^2 or H05VVH2-F23G 0. 75mm^2) should be used. Alternative a flexible cord be of synthetic rubber according to IEC60245 (designation H05RR-F3G, 0.75mm^2) shall be used.
- Do not overload wall outlets or power cords. Be sure that the total of all units plugged into the wall outlet does not exceed 7 amperes.
- Be sure that the total ampere ratings on all units plugged into the extension cord does not exceed the rating of the cord.
- If the monitor power supply cord requires a connection to the PC instead of the wall outlet, this equipment is to be used with a UL approved computer which has a receptacle rate of 100-240V AC, 50/60Hz, 1.5A (minimum).
- Do not place anything on the power cord. Do not locate this product where a person may walk or trip over the cord.

• **Environment**
- Place the monitor on a flat and leveled surface.
- Place the monitor in a well-ventilated area.
- Keep the monitor away from:
  Rain or water
  Excessive heat, cold or humidify.
  Areas exposed to direct sunlight.
  Dusty surroundings.
  Equipment that generates strong magnetic fileds.

• **Warning**
1. Do not use in the presence of flammable anesthetics.
2. Do not obstruct the ventilating holes.
3. Do not use if the product has been exposed to liquids.
4. Do not use if the cable have been frayed or damaged.
5. Only connect to the device which has SELV Circuitry or Medical approval.

SICHERHEITSMAßNAHMEN UND WARTUNG

- Den Monitor von der Netzspannung trennen, wenn der Monitor längere Zeit nicht benutzt wird.
- Versuchen Sie nicht, die rückseitige Abdeckung zu entfernen, da hierdurch stromführende Teile freigelegt werden und die Gefahr von elektrischen Schlägen besteht. Die rückseitige Abdeckung darf nur von qualifiziertem Wartungspersonal abgenommen.
- Legen sie keine Gegenstände auf das Monitorgehäuse, die in die Belüftungsschlitze fallen konnen oder diese Schlitze abdecken konnen, so daß die entstehende Wärme nicht ausreichend abgeführt werden kann.
- Setzen sie den Monitor nicht Regen oder übermäßiger Feuchtigkeit aus, um die Gefahr eines elektrischen Schlages oder eine dauerhafte Beschädigung des Gerätes zu vermeiden.
- Den Monitor nicht in direktern Sonnenlicht oder in der Nähe von Wärmequellen, z. B. von Heizkörpern, aufstellen.
- Um eine Überhitzung zu vermeiden ist sicherzustellen, daß die Belüftungsöffnungen im Monitorgehäuse nicht verdeckt werden.
- Den Monitor nicht Feuchtigkeit oder Staub aussetzen.
- Den Monitor von magnetischen Gegenstanden wie Lautsprechern, Elektromotoren, transformatoren usw. entfernt halten.
- Bei der Aufstellung des Monitors darauf achten, daß Netzbuchse leicht zuganglich sind.
- Verwenden Sie keine Flussigkeiten auf Alkohol-oder Ammoniakbasis zur Reinigung des Gerates. Falls erforderlich, wischen Sie das Gerat mit einem leicht ngefeuchteten Tuch ab. Trennen Sie den Monitor vorher von der Netzspannung!
- Wenden Sie sich an einen Service-Techniker, wenn der Monitor nicht normal funktioniert, obwohl Sie die Bedienungsanweisungen in diesem Hanbuch befolgt haben.

1 INTRODUCTION

General Information

With incredible style, versatility and visual brilliance, the LCD monitor dual-input flat panel can turn the dream of a perfect display into reality. By incorporating analog and digital interfaces, the LCD monitor provides the utmost in display performance and compatibility of today's analog video standards, while guaranteeing compatibility for tomorrow's advanced digital standards. This sleek ergonomically designed TFT display provides flexible four-way adjustments for optimum desktop use, along with VESA® wall-mounting capabilities to provide a wide array of user options. Furthermore, its portrait mode provides maximum internet browsing convenience with considerably less scrolling required. A maximum resolution of 1600 x 1200 combined with brilliant images that more than exceed the expectations of even the most discriminating users.

The LCD monitor makes an ultimate flat panel solution for those who prefer more desktop working space, the highest video performance and flexibility, due to its smaller footprint and size coupling with crisp, sharp display image quality.

We truly believe you will enjoy using the LCD monitor. Thank you for making our product your choice.

Features

- 20.1" TFT Liquid Crystal Display with anti-glare treatment
- High brightness and contrast
- Super wide 170° viewing angle
- UXGA 1600x 1200 maximum resolution
- UXGA 1600x 1200 optimum resolution
- 8 bits per 1 sub-pixel of grayscale
- Dual Digital and Analog Interfaces
- DVI (Digital Visual Interface) Standard input connector
- Four-way ergonomic adjustment: tilt, height, swivel and pivot
- VESA® standard wall/arm mount ready
- Portrait Display Pivot® software (optional)
- User-friendly control dial and PreVu™ On-Screen Display
- DDC2B Plug & Play
- Optional stereo speakers
- TCO'95 compliant

1 INTRODUCTION

Check List

Before operating this monitor, please make sure that all items listed below are present in your package:

- The LCD monitor
- This user's manual
- Warranty statement
- AC Power cord
- AC/DC adapter
- D-sub 15-pin signal cable
- DVI Cable

Optional Items

These are optional items and can be ordered by contacting dealer directly.

- DVI graphic card
- Stereo speakers
- VESA® standard wall/arm mount kits
- Pivot Driver and Utilities Software

If any of the above items are found missing or if you wish to order the optional items, please contact your dealer.

2 S E T U P

No tools are required to set up the LCD monitor. Simply follow the instructions outlined in the next few pages.

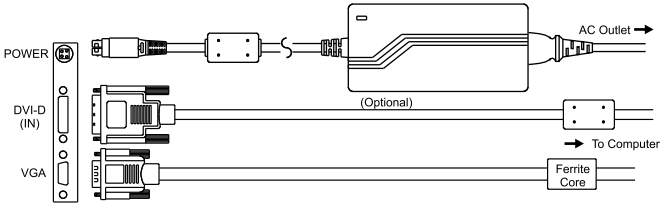
Connectors for the signal cables and power are located on the back of the panel behind the cover door. Please refer to the diagram on this page for the connector configuration.

Connect Signal Cable (VGA)

Attach the VGA signal cable end, which has the ferrite core furthest away from the plug, to the monitor and attach the other end to the graphics card adapter on your computer. Be cautious in inserting the cable properly into both connectors. If the cable does not seem to fit it may be facing the wrong direction. Turn the cable over and try to match the shape of the connector with that of the graphics adapter.

Connect Power Adapter and Cable

Connect the round shape plug end of the AC/DC adapter to the DC Power input connector of the LCD monitor. Connect the female end of the power cable to the AC power input receptacle on the AC/DC adapter. Then, plug the male end of the power cable into an AC outlet.



Connect DVI Cable

Connect the DVI cable to the DVI connector of the monitor.

If the cable does not seem to fit, it may be facing the wrong direction. Please turn the cable over and try it.ling.

CAUTION: When you disconnect the cord/cables, be sure to hold the connector and not the cable itself.

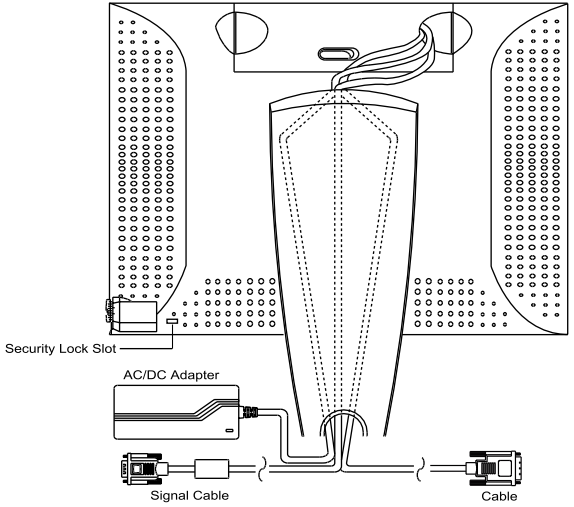
Cable Management

The LCD monitor has built-in cable guides and cover to help you organize and route the cables neatly on your desktop space. The cable cover is located on the back of the monitor stand and it is opened by gently pulling it off the stand. Under the cover, the cables can be held in position by numerous clips.

There are several ways to route the cables and you may use any way you find suitable for your situation. However, the routing method illustrated by the drawing on the right is recommended to give the best result in most situations both aesthetically and functionally. Once the cables are in position, gently snap the cover back on to the stand.

Anti-Theft Security Lock Slot

The LCD monitor is equipped with a security lock slot compatible to Kensington® security lock type. The security cable lock may be available thru your dealer or it can be purchased at most computer peripheral stores near you.



2 S E T U P

Adjust the Four-Way Ergonomic Stand

Adjust the four-way (tilt, height, swivel and pivot) ergonomic stand for your maximum viewing comfort. To minimize eye fatique, we suggest you allow a minimum viewing distance of 18 inches.

CAUTION: In order to protect the LCD, be sure to hold the edge of bezel whenever you adjust it and do not touch the screen.

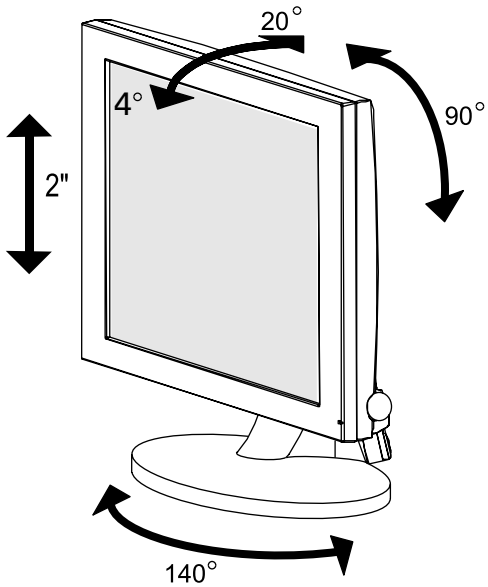
Install the Pivot® Software (Optional)

In order to use the pivot function of the LCD monitor, the Portrait Display Pivot® software, which is included in the *Optional Pivot Software CD*,needs to be installed. Please read the instruction text file (\Pivot\Common\English.txt) in the CD, using any text viewer such Windows® Notepad, before installing the software. Pivot® software is not required for you to use the monitor in traditional landscape orientation. It is recommended that this software is installed only if you are intending to use the monitor in portrait orientation.

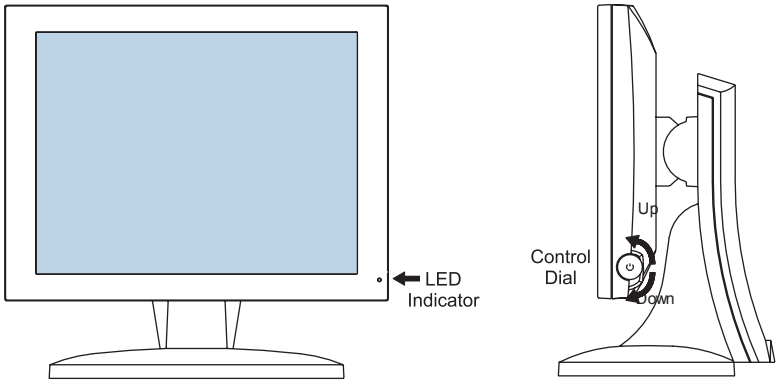
For the latest list of compatible graphic cards and updates to the software, visit *www.portrait.com*.

For any technical support issues with the Pivot® software, please send your question via e-mail: *support@portrait.com*.

CAUTION: Before pivoting to portrait mode, tilt the panel up to the maximum (20°) upward angle so that the corner of it does not touch the base while rotating.



3 CONTROLS & FUNCTIONS



Control Dial

The Control Dial is a multi-functional device located behind the LED Indicator on the right side of the front bezel. It has three movements - rotate upward, rotate downward and press inward as a button.

1. Power On/Off

Press the Control Dial to power the unit on from the off stage (the LED is off). To turn the power off, press the Control Dial and hold for at least 1 second until the LED turns off.

2. OSD Control

While the monitor is on (green LED and image on the screen), pressing on the Control Dial activates the OSD. While the OSD menu is active, use the three way movements of the Control Dial to adjust the monitor.

Rotate Dwonward : Move Up/Right, Increase, Larger, More
Rotate Upward : Move Down/Left, Decrease, Smaller, Less
Button Press : Execute, Do, Save

LED Indicator

This LED indicator turns green when the power is switched ON and the power cord is properly attached. It turns amber when the monitor goes into a power saving mode (Active Off). Please refer to the Power Management section of this manual for more information.

3 CONTROLS & FUNCTIONS

PreVu™ On-Screen Display

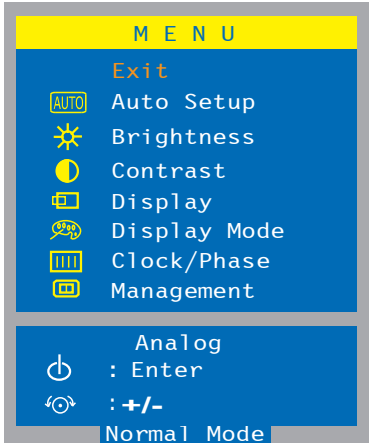
The LCD monitor features an PreVu™ On-Screen Display (OSD) menu with easily identifiable icons designed to make adjusting your monitor display settings a more user-friendly process. When highlighted, the icon illustrates the control function and brief instruction to assist the user in identifying which control needs adjustment.

The OSD menu is activated by pressing the Control Dial inward and you can select and adjust the function of your choice by rotating and clicking the Control Dial. The main menu displays a list of submenu icons and the current video input mode. Rotate the dial to move the highlights to the control you would like to adjust, then press the Control Dial inward to select that control or to activate that function. Depending on the control you selected, a submenu of the control with a status bar will appear. The status bar indicates in which direction, from the factory preset, your adjustments are being made. Rotate the Control Dial to adjust the control.

When you have finished making the adjustments, the setting is saved automatically by exiting the control function. If you do not touch the control dial for 20 seconds, the OSD is automatically exited saving your current settings.

Menu Descriptions

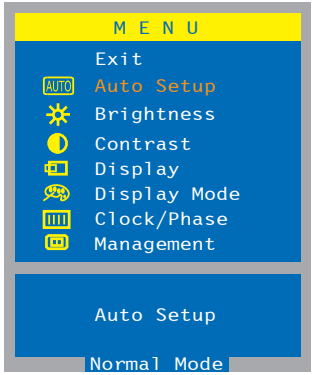
The LCD monitor is capable of accepting both digital and analog signal inputs and therefore has two different sets of OSD control functions. Because the digital signaling always gives optimum display quality without much adjustment, it requires much less OSD functions than the analog input mode. Those functions that are not available in the digital input mode are Auto Setup,Display, Clock/phase, denoted by astrick (*) in the following descriptions. If selected while in digital input mode, you will encounter a “Not Available” message.



3 CONTROLS & FUNCTIONS

Auto Setup*

Selecting and executing this control makes automatic adjustments to the horizontal and vertical size, horizontal and vertical positions, frequency and phase for a quick and easy setup of the display. There will be a few seconds of delay while the Auto Setup function is in process.



Brightness

Selecting this control allows you to make adjustments to the luminosity level of the display screen in the scale of 0 to 100.

Rotating the Control Dial up/down to adjust the Brightness any time while the OSD is off.

Contrast

Selecting this control allows you to make adjustments to the contrast level of the display screen in the scale of 0 to 100.

DISPLAY*

Selecting this control, then rotate contral dial to select the Horizontal or Vertical position control on the screen.

H-Position (Horizontal Position)*

Select this control and then use the Control Dial to center the image horizontally on the screen.

3 CONTROLS & FUNCTIONS

V-Position (Vertical Position)*

Select this control and then use the Control Dial to center the image vertically on the screen.

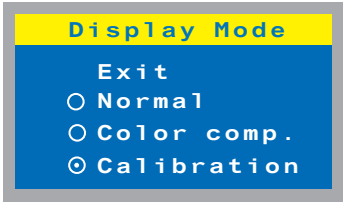
Display mode

Select this control, then use the control dial to select:

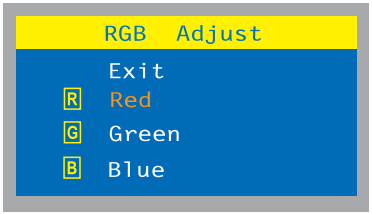
Normal : Adjust red, green, blue by user's preference.

Color comp. : Red, green, blue by fixed ratio.

Calibration : Calibrate monitor setting by using external device.



USER : Adjust the Red (R-Gain), G (G-Gain) and B (B- Gain) individually to get the grey matching personal preference.



Phase*

Selecting this control allows you to adjust the ADC(analog/ digital conversion) sampling clock phase so that the screen image appear crisp and focused. Normally, the Auto Tune is sufficient to complete this task in the automatic way without user intervention; the Phase control allows you to adjust it manually in more precise manner.

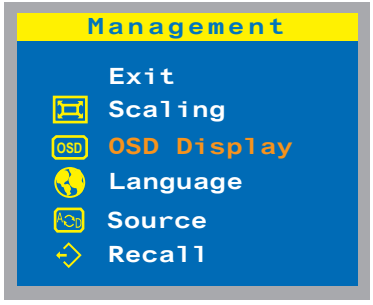
3 CONTROLS & FUNCTIONS

Clock*

Selecting this control allows you to adjust the frequency, sampling rate of horizontal pixels, to equal the video source's value, thus minimizing the screen artifacts of shimmering vertical lines.

Management

Selecting this control, then use Control Dial to select Scaling, OSD Display, Language, Source or Recall.

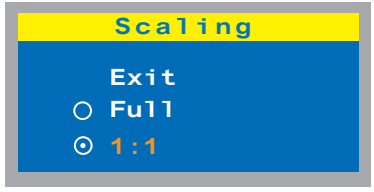


Scaling

Selecting this control to choose a scaling.

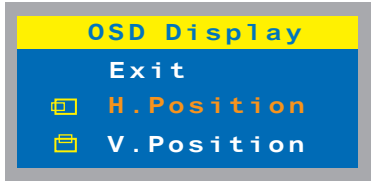
Full : Extend source image to full screen.

1:1 : Display source image directly.



OSD Display

Selecting this submenu allows you to adjust various settings of the OSD to make the display adjustment process an easier task.



3 CONTROLS & FUNCTIONS

H.Position (OSD Horizontal Position)

Selecting this control allows you to move the OSD menu horizontally on the screen.

V.Position (OSD Vertical Position)

Selecting this control allows you to move the OSD menu vertically on the screen.

Language

Selecting this control, then rotate the Control Dial to select the language you want. Press the Control Dial to excute when selected.

Source

Selecting this control allows you to select between Digital DVI and Analog RGB singal inputs.

Recall

Selecting this control restores all of the OSD control adjustments to the factory default settings.

Exit

Selecting this exits the OSD.

4 TIMING GUIDE

Definition

The LCD monitor is a dual input type LCD monitor that is capable of accepting both the traditional analog RGB video signals and the new digital DVI (Digital Visual Interface) signaling. For digital DVI input, the LCD monitor will support resolutions used in the digital DVI standard up to 1600 x 1200. Due to its digital design and the implementation of this new digital standard interface, setting frequency mode is not necessary for an user and it will be handled automatically between the monitor and the digital graphic card adapter.

For analog RGB input, the LCD monitor operates at horizontal frequencies between 30kHz and 92kHz, vertical frequencies between 50Hz and 85Hz. Because of its microprocessor-based design, it offers auto-synchronization and auto-sizing capabilities. This monitor offers 20 preprogrammed settings that are listed in the table to the right.

These preset modes cover most of the common video modes supported by popular graphics adapters. However, each adapter's implementation of these video modes may vary slightly in timings. If you find it necessary to make minor display adjustments (frequency, phase and position), please refer to the Chapter 3 for instructions on making these adjustments.

Note that the monitor is not limited to these preset facotry timing modes. In fact, because the monitor is multi-scanning, it can accept any signal within its specified frequency range. Due to its Auto Adjustment capability, the monitor sets up clock frequency, phase, position and contrast level automatically when a new video mode is encountered.

Mode Name	Resolution		Frequency	
	H	V	H(kHz)	V(Hz)
VGA	720	400	31.5	70
	640	480	31.5	60
VESA	640	480	37.9	72
	640	480	37.5	75
	640	480	43.3	85
	800	600	35.1	56
	800	600	37.9	60
	800	600	48.1	72
	800	600	46.9	75
	800	600	53.7	85
	1024	768	48.4	60
	1024	768	56.5	70
	1024	768	60.0	75
	1024	768	68.7	85
	1280	1024	64.0	60
	1280	1024	80.0	75
	1600	1200	75.0	60
Mac	640	480	35.0	67
	832	624	49.7	75
	1024	768	60.2	75

5 POWER MANAGEMENT

Definition

The power management feature of the LCD monitor enables the monitor to recognize Energy Star® video adapter and power down to less than 8 watts of power consumption. An Energy Star® compatible video adapter achieves the signaling by setting horizontal, or vertical, or both synchronization signals to inactive. The LCD monitor recognizes all two types of signals and enters into the appropriate mode. In Active Off mode, the LCD monitor still maintains a detection and is always ready for fast recovery when both synchronization signals are active again.

LED Indicator (Power Management Active)

The power management feature of the LCD monitor is comprised of two stages: On (green) and Active Off (amber). In the Active Off mode, the high voltage function of the monitor shuts down while the low power detection circuitry remains active. This circuit allows the monitor to "wake up" when the mouse is moved or a key on the keyboard is pressed.

Power Mode	LED Color	Power Consumption
On	Green	< 80W
Active Off	Amber	< 8W

APPENDIX A: SPECIFICATIONS

Panel Size/Type	20.1" TFT Active Matrix LCD, anti- glare and hard(2H) coated
Display Size (h x v)	16.1" x 12" (408mm x 306mm)
Pixel Pitch (h x v)	0.255mm x 0.255mm
Optimum Resolution	UXGA 1600 x 1200
Maximum Resoluti	UXGA 1600 x 1200
Contrast Ratio	1000:1 (Typical)
Brightness	700 cd/m^2 (Typical)
Gray Scale	8 bits per 1 sub-pixel
Viewing Angle	+85° to -85° (Left/Right) +85° to -85° (Up/Down)
Digital Signal Input	DVI Connecter
Analog Signal Input	0.7 Vpp/75 Ohm Separate and Composite TTL level H. Freq.: 30 ~ 92kHz V. Freq.: 50 ~ 85Hz (UXGA:50 ~ 60Hz) Composite sync Sync on Green (SOG)
Power Consumption	On: <80W Active Off: <8w
Power (AC/DC Adapter)	Input: 100~240VAC, 60/50Hz, Output:12VDC
Plug & Play	VESA® DDC2B
Operating Temperature	41°F to 95°F (5°C to 35°C)
Operating Humidity	20% to 80% (No Condensation)
Operating Altitude	10,000 ft.
Storage temperature	-4°F to 131°F (-20°C to 55°C)
Storage humidity	10% to 90% (No Condensation)
Storage Altitude	30,000 ft.
Transportation temperature	-4°F to 131°F (-20°C to 55°C)
Transportation humidity	10% to 90% (No Condensation)
Transportation Altitude	30,000 ft.
Dimensions (w x h x d)	17.8" x 18.4" x 9.9" - with the base (453mm x 467mm x 251mm)
Net Weight	24 lbs. (11 kg)
Compliance	FCC-B, CSA(C-UL), UL, CE, TUV/GS,TCO '95,EPA Energy Star®

WARNING: Do not disassemble this monitor. Contact your dealer if needed.

Attention: According to factory specifications, during the precise manufacturing process of LCD panels, inevitably there will be some defective color pixels.

APPENDIX B: TROUBLESHOOTING

THE FOLLOWING QUESTIONS AND ANSWERS ARE SOME OF THE MOST COMMON PROBLEMS RELATED TO YOUR LCD MONITOR. ANY PROBLEMS RELATED TO YOUR COMPUTER CAN BE FOUND IN THE COMPUTER MANUFACTURER'S USER MANUAL

The monitor is switched on, but the Power LED Indicator is not lit and there is no display on the screen.

Make sure all of the power connections are secure. If the monitor is plugged into a surge protector, make sure the surge protector is switched on.

Both the monitor and computer are switched on, and the Power LED indicator is green and lit, but there is no display on the screen.

Adjust the brightness control to the highest setting. If you see a faint gray color appearing on the screen, the monitor is functioning properly but not receiving proper signal from the video card.

Both the monitor and computer are switched on, and the Power LED indicator is lit with amber color, but there is no display on the screen.

Check the signal cable connections at both the monitor and computer and make sure they are secure. Also, the computer may be in a power saving mode. Try to reactivate the system by moving the mouse or a keystroke on the keyboard.

It's also possible that input selection (digital or analog) is different than the actual signal present. Press the Control Dial and the monitor will attempt to detect which input signal is active.

The display appears to be discolored or missing some colors. What can I do to correct this?

Check your connector cable and graphics card and/or graphics card driver.

This LCD monitor has two video input connectors, analog and digital. Why are there two and which one should I use?

The traditional analog D-sub 15-pin connector of the LCD monitor allows you to connect this monitor to VGA graphics adapters which are widely used in most computers today. The DVI connector provides superb image quality with its pure digital signaling. If the best consistent display quality is required, it is highly recommended that the DVI input coupled with DVI digital graphic adapter is used with this monitor.

APPENDIX B: TROUBLESHOOTING

What is DVI? What is DFP?

Digital Video Interface (DVI) and Digital Flat Panel (DFP) are new industry standard digital display signaling protocol based on Silicon Image's TMDS technology. DVI and DFP are differentiated by different connectors each has adapted. The LCD monitor DVI connector is compatible to DFP by using the optional adapter. For more information on DVI, visit *www.ddwg.org*. For more information on DFP, visit the VESA® 's web site, *www.vesa.org*.

Why do the letters and icons look soft on the edges when I change to resolutions other than the native/ optimum resolution of the panel?

Unlike traditional CRT monitors, a LCD monitor has a native (physical) resolution which pixels are produced by cells in fixed positions. When a resolution different than the native resolution is chosen, the LCD monitor uses various interpolation methods to achieve the pseudo resolution. To achieve the optimum viewing quality, choosing the native resolution of the panel, 1280 x 1024, is recommended.

Can I use this display with Linux, Mac™OS and other operating systems?

Yes. If a DVI or DFP connection is not available, then use the VGA input. For some computers an appropriate cable or adapter may be required.

How do I change the resolution the monitor displays?

The resolution displayed on a monitor is controlled by the video card display driver and operating system. The monitor simply responds to the signal it receives from the video card and is not able to change the resolution on its own. Most video card manufacturers provide software drivers and utilities that allow you to use different resolutions for different applications. Please consult your video card manual or dealer for more information.

How do I change the frequency or refresh rate the monitor uses? (Analog D-sub 15-pin Input)

The refresh rate is controlled by the video card. Most video cards provide a software utility or hardware DIP switches that allows you to change the frequency used for each resolution. For LCD monitors, there is no benefit to increase the refresh rate because there is no flicker with this type of monitor. In fact, 60Hz is the recommended refresh rate for LCD monitors.

APPENDIX B: TROUBLESHOOTING

How do I change the frequency or refresh rate the monitor uses? (Digital DVI Input)

Due to its digital design and the implementation of the new digital standard interface, the LCD monitor supports fixed frequency used in the DVI Standard up to 1280 x 1024. Unlike traditional CRT monitors in which electron beams are constantly scanned across the screen, there is no need to change the refresh rate of the digital input LCD monitor because screen flicker is not a problem for this type of monitor. The LCD monitor also supports lower resolutions (1024 x 768, 800 x 600, 640 x 480, etc.) by scaling these lower resolution modes up to the 1280 x 1024 resolution required by the monitor.

The screen flashes during boot-up or resolution changes.

While booting up or changing resolution, the graphic card re-initializes its video memory and this is sometimes observed as screen flashes. The effect of this phenomenon varies from card to card and it is not considerd a problem.

If you are unable to correct the problem using the TROUBLESHOOTING section.

Please refer to the cover of this manual for any warranty information or number to call about obtaining service on your LCD Monitor.

APPENDIX C: TCO '95

Congratulations! You have just purchased a TCO'95 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also, to the further development of environmentally adapted electronics products.

Why do we have environmentally labelled computers?

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during the manufacturing. Since it has not been possible for the majority of electronics equipment to be recycled in a satisfactory way, most of these potentially damaging substances sooner or later enter Nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of conventional electricity generation have a negative effect on the environment (acidic and climate-influencing emissions, radioactive waste, etc.), it is vital to conserve energy. Electronics equipment in offices consume an enormous amount of energy since they are often left running continuously.

What does labelling involve?

This product meets the requirements for the TCO'95 scheme which provides for international and environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees). Naturskyddsforeningen (The Swedish Society for Nature Conservation) and NUTEK (The National Board for Industrial and Technical Development in Sweden).

The requirements cover a wide range of issues: environment, ergonomics, usability, emission of electrical and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands concern restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CfCs (freons) and chlorinated solvents, among other things, The product must be prepared for recycling and the manufacturer is obliged to have an environmental plan which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, physical and visual ergonomics and good usability.

APPENDIX C: TCO '95

On the back page of this folder, you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development Unit
S-114 94 Stockholm
Sweden
Fax: +46 8 782 92 07
Email (Internet): development@tco.se

Current information regarding TCO'95 approved and labelled products may also be obtained via the Internet, using the address:
http://www.tco-info.com/

TCO'95 is a co-operative project between **TCO** (The Swedish Confederation of Professional Employees), **Naturskyddsforeningen** (The Swedish Society for Nature Conservation) and **NUTEK** (The National Board for Industrial and Technical Development in Sweden).

Environmental equirements

Brominated flame retardants
Brominated flame retardants are present in printed circuit boards, cables, wires, casings and housings. Inturn, they delay the spread of fire. Up to thirty percent of the plastic in a computer casing can consist of flame retardant substances. These are related to another group of environmental toxins, PCBs, which are suspected to give rise to similar harm, including reproductive damage in fisheating birds and mammals, due to the bio-accumulative[1)] processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

TCO'95 demand requires that plastic components weighing more than 25 grams must not contain organically bound chlorine and bromine.

Lead[2)]
Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning.

TCO'95 requirement permits the inclusion of lead since no replacement has yet been developed.

APPENDIX C: TCO '95

Cadmium[2)]
Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses.

TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The colour-generating layers of display screens must not contain any cadmium.

Mercury[2)]
Mercury is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses.

TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of mercury. It also demands that no mercury is present in any of the electrical or electronics components concerned with the display unit.

CFCs (freons)
CFCs (freons) are sometimes used for washing printed circuit boards and in the manufacturing of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on Earth of ultraviolet light with consequent increased risks of skin cancer (malignant melanoma).

The relevant TCO'95 requirement: Neither CFCs nor HCFCs may be used during the manufacturing of the product or its packaging.

[1)] Bio-accumulative is defined as substances which accumulate within living organisms
[2)] Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.