# APPENDIX H

## : USER'S MANUAL

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# FCC COMPLIANCE STATEMENT

Note:
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 this 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 to an outlet on a circuit different from that to which the receiver is connected.

CAUTION TO THE USER:
The Federal Communications Commission warns 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.
If necessary, the user should contact the dealer or an experienced radio/television technician for additional suggestions. The user may find the Federal Communications Commission booklet, **How to Identify and Resolve Radio-TV Interference Problems,** helpful. This booklet is available from the U.S. Government Printing Office, Washington, D.C., Stock No. 004-000-00345-4.

NOTICE OF COMPLIANCE WITH CANADIAN
INTERFERENCE-CAUSING EQUIPMENT
REGULATIONS

# FCC COMPLIANCE STATEMENT

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.

# SAFETY INSTRUCTIONS

## ■ Handling

Due to its fragile glass panel, this monitor must be handled with caution and not be exposed to impact or shock.
Never touch the display area or rub it with a hard object or tool, as the panel is easily scratched.

## ■ Cleaning

The display area is sensitive to scratching. Do not use ketone-type cleaners (i.e. acetone), ethyl alcohol, toluene, ethyl acid or methyl chloride to clean the panel. Doing so may result in permanent damage.

Water, IPA (Iso Prophyl Alcohol) and Hexane are safe cleaners.

Do not allow oil or water to penetrate the display, this will cause staining and discoloration.
Avoid getting food particles and fingerprints on the display area at all times.

## ■ Storage

Store the monitor in a dark place away from sunlight and ultraviolet (UV) radiation, this may cause air bubbles to develop within the glass panel.

Do not store the display in temperatures higher than 40ºC/104ºF or humidity greater than 90%. Avoid condensation.

# SAFETY INSTRUCTIONS

## ■ Caution

1. Do not open any covers on the monitor. No user serviceable parts are inside.

2. In an emergency, disconnect the AC power plug.

3. To avoid electrical shock, disconnect the power cord from the monitor before connecting the signal cable to the computer.

4. Keep away from liquids and flame. Do not immerse this monitor in water or any other liquid. Do not use this device in excessively hot conditions.

5. Handle the power cord with care. Do not bend the power cord excessively or place heavy objects on it. Do not use a damaged power cord, doing so can result in fire or electrical shock hazards. When disconnecting the power cord, always grasp the plug, not the cord.

6. The liquid crystals in the display panel contain several irritants. If the panel is damaged or broken, do not allow the liquid to come in contact with skin, eyes, or mouth. If you come in contact with the liquid, flush the affected area with running water for at least 15 minutes, then consult a doctor.

7. Handle this monitor with care when moving it. When lifting the monitor, support it with one hand holding the stand, and one hand holding the LCD screen.

8. Always disconnect the power cord when moving this monitor.

9. Do not lay this monitor in a horizontal position when operating.

# GENERAL INFORMATION

Your new LCD monitor incorporates the latest state-of the art color Liquid Crystal Display (LCD) technology providing a wider viewing angle with higher contrast ratio.

Your new LCD monitor has many advantages : safe from electromagnetic wave, lights, sharps and slims. This makes the monitor extremely suitable in the environment of administration, transportation system research, etc.

Your new LCD monitor is designed for Analog and DVI input.

Your new LCD monitor does not emit any X-ray radiation and the magnetic emission greatly reduces the eyestrain. Moreover, our On Screen Controls on the side of the panel provide flexibility with simple controls.
You can use these controls to adjust the display as you desire.

Your new LCD monitor incorporates an active TFT module. It has a 1024 x 76 pixel resolution, high contrast, wide viewing angle and colors up to 16.2M.
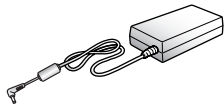
# EQUIPMENT CHECK LIST

Before operating your display, please check to make sure that all of the items listed are present in your package:
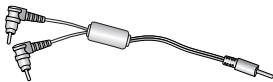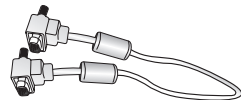
◆ **Accessory Kit**
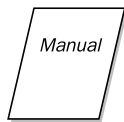
LCD Monitor

AC to DC Adapter          Power Cord

Audio In Cable            Signal Cable(D-SUB)

Manual

Manual

◆ Power Requirements
The monitor is equipped with an auto-sensing power supply for voltage ranging from 100-120VAC / 200-240VAC, 50 /60Hz.
Confirm the power rating of the AC Source before you plug the AC cable to the wall outlet.

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# MONITOR FEATURES

* Supports Analog and IBM compatible PC.

* Supports DPMS for monitor power management

* Support DDC2B

* On Screen Control : Brightness Contrast H/V Position H-Size Phase Color Select Auto Reset Language OSD Adjustment Exit.

* Built-in color active matrix TFT (Thin Film Transistor) Liquid Crystal Display (LCD) that uses amorphous silicon TFTs as a switching device.

* Built-in Audio Amp. and internal Speaker : 2W+2W(at 1KHz)

* Resolution : up to 1024 x 768

* Color : 16.2M Color support.

* Pixel pitch : 0.297mm

* Scanning frequency : 30kHz ~ 60kHz(H), 55Hz ~ 75Hz(V).

* Universal power supply : AC 100 - 240V allowed.

* Power consumption Normal : 25 Watt Max.

Off : 2.5 Watt Max.

* Outside dimension : 346mm(W) x 345.5mm(H) x 14mm(D)

13.6"(W) x 13.6"(H) x 5.5"(D)

* Weight (net) : 3.0kg (6.6 lbs.)

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# INSTALLATION

## ◆ Follow these steps to install the monitor

1. Before you connect the cables, make sure the monitor and system unit power switches are OFF.

2. Plug the 15-pin signal cable between the rear of your Monitor and system. The adapter may be required for certain Apple Macintosh computers. Tighten the two screws on the cable connector.

3. Plug the Audio Cable between Audio input Jack in the rear of your monitor and audio output of your system.

4. Connect the power cord to the inlet socket which is located at the AC Adapter. Connect the plug into an AC wall outlet.

5. Connect DC Plug of AC Adapter to the DC Jack which is located at the rear of your monitor.
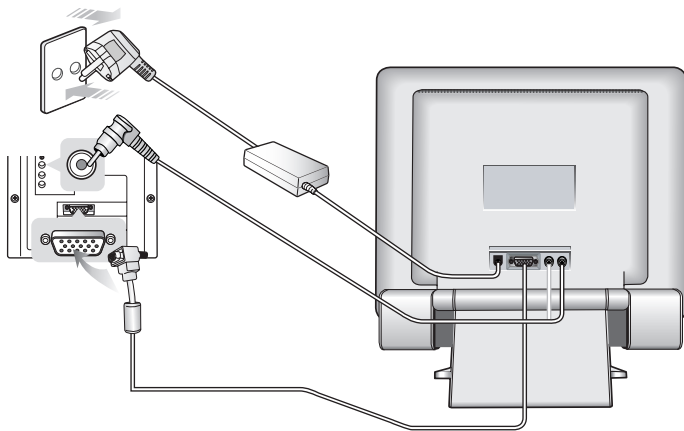
# CONTROL BUTTONS

**OSD Buttons** : The OSD control keys are located on lower left of the monitor.

↵ **(Enter)**

　　a. No OSD : This button will enable the main OSD menu.
　　b. Main OSD menu : Press this button to enter to the selected OSD control menu.
　　c. Cotrol OSD menu : Swap the control item.

▲ or ▼ **(Up/Down)** : Use these buttons to increase or decrease each value.

　　a. No OSD : Audio volume control menu will be shown.
　　b. Main OSD menu : Use these button to move up (or down)the OSD selection menu and adjust the attribute of the monitor while in OSD mode.

A **(Auto)** : No OSD : This button can be used to 'Auto Adjustment' function. (Size, Phase, and Color)

# CONTROL BUTTONS
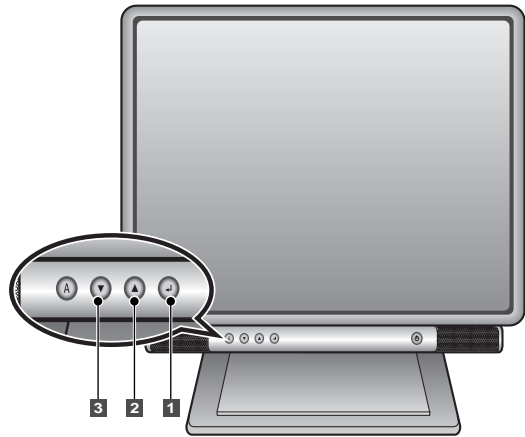
Button Description :

1. ↵  : Display On Screen Control menu.
    Access the control menu.
2. ▲  : Move selected icon up to select one of the controls.
    Increase the control value.
3. ▼  : Move selected icon down to select one of the controls.
    Decrease the control value.
4. Ⓐ  : Do Auto function. (Press and hold this button for two seconds.)

# MONITOR SETTINGS USING THE OSD MENU

You can use the buttons on the control panel to set the screen display via an integrated OSD menu (On-Screen-Display).

◆ The OSD menu is available in different languages (default setting: English).

| MENU | DOWN | UP | AUTO | ○POWER |
|------|------|-----|------|--------|
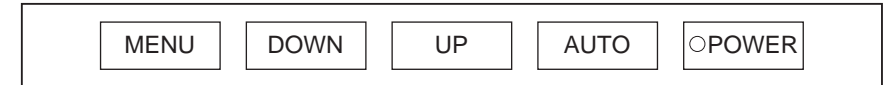
## MENU ( ↵ )
You use this button to switch the OSD menu on and to select the highlighted function.

## DOWN ( ▼ )
You use these buttons to mark the symbol for a function and can then make the settings for the selected function.

## UP ( ▲ )
The buttons allow also the volume adjustment while audio playback.

## AUTO  Ⓐ
With the AUTO button you can start the auto-adjustment for the current resolution. To do this, you must press the button briefly. During the auto-adjustment the display Auto Adjusting is shown.

## VOLUME
By pressing the DOWN/UP buttons directly you can adjust the volume without pressing the MENU button before.

# MENU DESCRIPTIONS

**To set the OSD menu, perform the following steps:**

◆ Press the MENU ↵ button to activate the OSD menu.
The main menu appears on the screen with icons for the setting functions.

The last icon set  is marked (in this case BRIGHTNESS).
• If necessary, use the DOWN ⊙ or UP ⊙ button to mark an other icon.
• Press the MENU ↵ button to activate the highlighted icon.
• Use the DOWN ⊙ or UP ⊙ button to make the desired setting.
• Select the EXIT symbol to exit the OSD menu.
All changes are stored immediately.

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# MENU DESCRIPTIONS

All possible adjustments of the monitor using the OSD menu are described in the following.

| Icon | Description |
|---|---|
| ☼ | Setting the brightness of the display (BRIGHTNESS) |
| ◑ | Setting the contrast of the display (CONTRAST) |
| ⊡ | Shifting the picture to the left or to the right (H.POSITION) |
| ⊡ | Shifting the picture up or down (V.POSITION) |
| ⊟ | Adjusting the horizontal size (H.SIZE) |
| ⚙ | Setting picture definition and eliminating picture interference (PHASE) |
| 🎨 | Adjusting the colours (COLOR SELECT) |
| | Set one of the preset colour temperatures or select the colours RED, GREEN and BLUE to define the colour ratios. |
| | Setting colour temperature to COOL (more blue) |
| | Setting colour temperature to WARM (more red) |
| 🖽 | Performing auto-adjustment (AUTO) |
| →R← | Activating the factory settings (RESET) |
| 🌐 | Setting language for the OSD menu (LANGUAGE) |
| 🖨 | Setting position of the OSD menu to screen (OSD ADJUSTMENT) |
| 🖼 | Exiting the OSD menu (EXIT) |

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# POWER MANAGEMENT

## LED INDICATOR (POWER MANAGEMENT ACTIVE)

The power management feature is comprised of two stages : On or Out Of Range (Green), Off (Green blinking).

In the off mode, all circuitry in the monitor is shut down, except for a low power detection circuit. This circuit allows the monitor to wake up when the mouse is moved or a key on the keyboard is pressed.

| Power Mode | H-Sync | V-Sync | Video | LED Color |
|---|---|---|---|---|
| Normal | Pulse | Pulse | Active | Green |
| Out Of Range | Pulse | Pulse | Active | Red |
| Off | Pulse | No Pulse | Blanked | Red |
| Off | No Pulse | Pulse | Blanked | Red |
| Off | No Pulse | No Pulse | Blanked | Red |

# PRESET OPERATING MODES

The picture position and size have been set to optimum values at the factory for the operating modes listed above. Depending on the screen controller used, it may be necessary to adjust the display position and size. If you need to do so, refer to the section entitled "Changing the monitor setting" below.

| Horizontal frequency | Refresh rate | Screen resolution |
|---|---|---|
| 31.47kHz | 70.00kHz | 720X400 |
| 31.47kHz | 60.00kHz | 640X480 |
| 37.86kHz | 72.00kHz | 640X480 |
| 37.50kHz | 75.00kHz | 640X480 |
| 35.16kHz | 56.25kHz | 800X600 |
| 37.88kHz | 60.00kHz | 800X600 |
| 48.08kHz | 72.00kHz | 800X600 |
| 46.88kHz | 75.00kHz | 800X600 |
| 48.36kHz | 60.00kHz | 1024X768 |
| 56.48kHz | 70.00kHz | 1024X768 |
| 60.02kHz | 75.00kHz | 1024X768 |

For ergoncomic reasons, a screen resolution of 1024X768 pixels is recommended. Because of the technology used(active matrix) an LCD monitor provides a totally flicker-free picture even with a refresh rate of 60 Hz.

# PIN ASSIGNMENT

VGA Connector(Cable Side)

| Pin | 1 | Red |
|-----|----|-----|
| Pin | 2 | Green |
| Pin | 3 | Blue |
| Pin | 4 | No Connection |
| Pin | 5 | Ground |
| Pin | 6 | Red Ground |
| Pin | 7 | Green Ground |
| Pin | 8 | Blue Ground |
| Pin | 9 | No Connection |
| Pin | 10 | Ground |
| Pin | 11 | Ground |
| Pin | 12 | DDC SDA |
| Pin | 13 | Horizontal Sync. |
| Pin | 14 | Vertical Sync. |
| Pin | 15 | DDC SCL |

VGA CONNECTOR
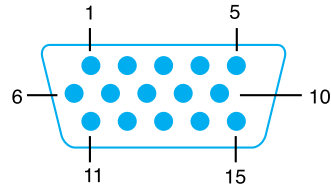
POWER JACK(Monitor Side)

| 1 | Ground |
|---|--------|
| 2 | DC+12V input |

# SPECIFICATIONS

| LCD | Type | 15" diagonal viewable screen TFT (Thin Film Transistor), Active Matrix Panel, 0.297 pixel pitch |
| | Color Filter Colors | R,G,B vertical stripe 262K |
| | Glass surface | Anti-glare hard coating |
| Viewing Angles | Left / Right Up / Down | 60° / 60° 40° / 60° |
| Contrast Ratio | Typ. | 400:1 |
| Luminance of White | Typ. | 250cd/m$^2$ |
| Compatibility | PC | IBM XT, AT, 386, 486, Pentium or PS/2 and compatibles(from VGA up to 1024 x 768 @ 75Hz NI.) |
| Refresh Rate | Max. | 1024 x 768 @ 75Hz NI (60Hz for optimal display) |
| Connectors | Input Signal Power Audio | 15-pin D-SUB Jack Type DC+12V In Stereo input |
| Power | Input Output Consumption | AC 100-240V 50-60Hz DC 12V 25 watts (Maximum) |
| Display Area | Max. | 304mm(H) x 228mm(V) |
| Operating | Temperature Humidity Altitude | 32°F to 104°F(0℃ to 40℃) 20% RH to 80% RH (no condensation) To 10,000 feet |
| Storage Conditions | Temperature Humidity | -14°F to 104°F (-20℃ to 40℃) 5% RH to 90% RH (no condensation) |
| Dimension | | 346mm(W) x 345mm(H) x 182mm(D) 13.6"(W) x 13.6"(H) x 7.2"(D) |
| Weight | Net | 3.0Kg (6.6 lbs) |

# TROUBLESHOOTING

◆ **No power.**
✓ Flip the power switch ON. The Power LED turns on.
✓ Make sure AC power cord is securely connected to a power outlet.

◆ **Power on but no screen image.**
✓ Make sure the video cable attached with this monitor is tightly secured to the video output port on the back of the computer.
✓ Adjust the brightness and contrast.

◆ **Image is unstable, unfocused.**
✓ Use "AUTO-TUNE" to adjust automatically.
✓ If the image is still unstable after "AUTO-TUNE" processing, please adjust "PHASE" manually to get image focused.
✓ Check whether the resolution or refresh rate in windows display setting is beyond supported range(please refer to the specification of supported mode).

◆ **Flickering.**
✓ Not enough power is being supplied to the LCD Monitor.
Connect the LCD Monitor to a different outlet. If a surge
protector is being used, there may be too many devices plugged in.
✓ See Timing Guide in this manual with a list of refresh rates and frequency settings showing the recommended setting for the LCD Monitor.

◆ **Wrong or abnormal colors.**
✓ If any colors (Red, Green, or Blue) are missing, check the video cable to make sure it is securely connected. Loose pins in the cable connector could cause a bad connection.

# TROUBLESHOOTING

✓ Connect the LCD Monitor to another computer.
✓ Check the graphics card for proper sync scheme (or sync polarities) to match the LCD Monitor's specifications.

◆ **Double (split) screen image.**
✓ Make sure your graphics card is set to Non-Interlaced mode.

◆ **Entire screen image rolls (scrolls) vertically.**
✓ Make sure the input signals are within the LCD monitor's specified frequency range.
(Maximum: VESA, MAC 1024 x 768@75Hz)
✓ Connect the video cable securely.
✓ Try the this Monitor with another power source.

◆ **Control buttons do not work.**
✓ Press only one button at a time.

◆ **No Sound**
✓ Make Sure the audio cable is properly connected between this monitor and your system.
✓ Check the audio volume of this monitor and your system.

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**ABOUT THE LCD**

The LCD contains over 2,359,296 thin-film transistors (TFTs).
A small number of missing, discolored, or lighted dots on the screen is an intrinsic characteristic of TFT LCD technology and is not an LCD defect.
If you display a fixed pattern for more than 10 hours, its image may remain on the screen in overlap mode when you display something else.

# MEMO