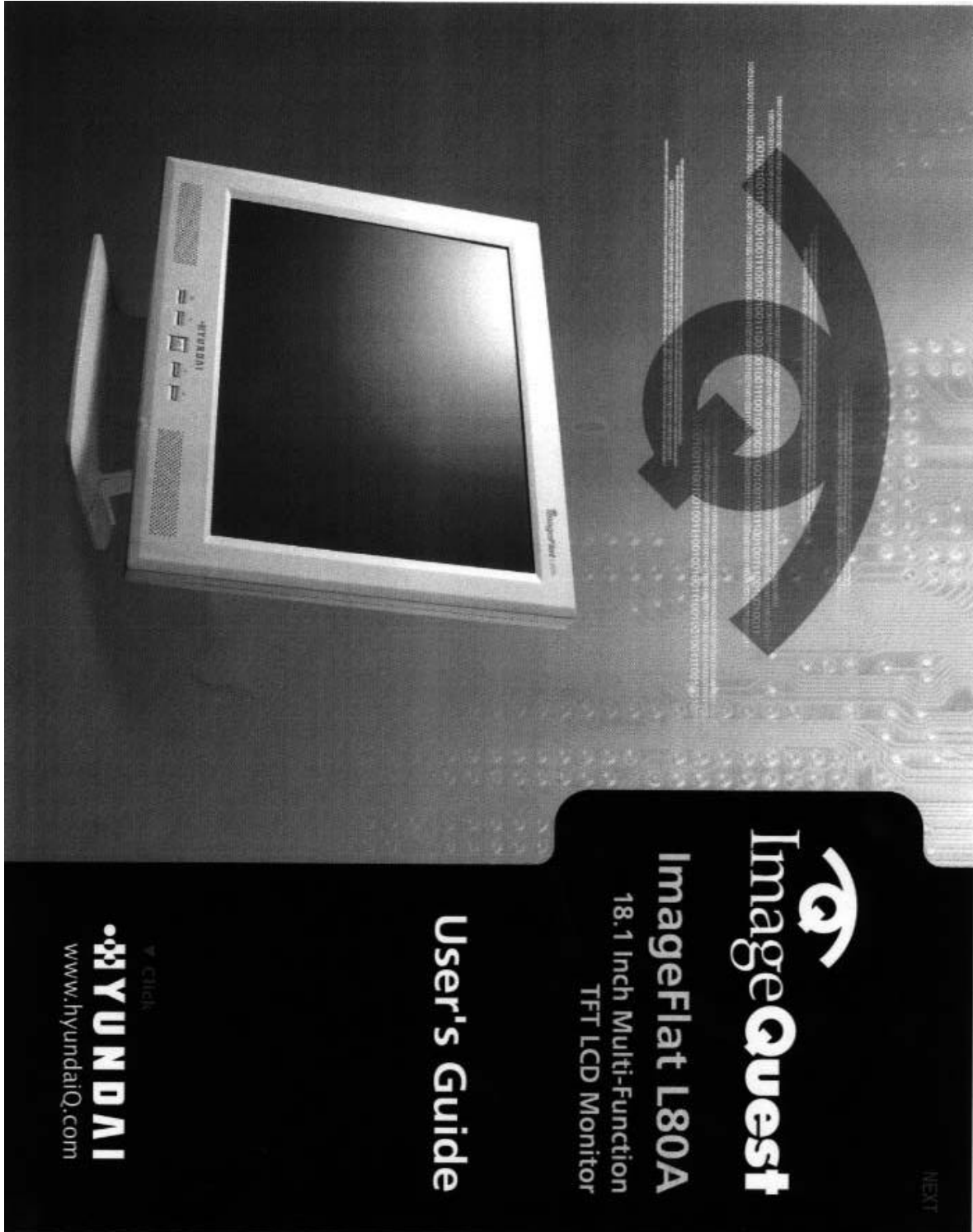


**ATTACHMENT E.**  
**- USER'S MANUAL**



U.S.A.

U.S.FEDERAL COMMUNICATIONS COMMISSION  
RADIO FREQUENCY INTERFERENCE STATEMENT  
INFORMATION TO THE USER

NOTE : 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 receiver.
- Connect the equipment into an outlet of a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for assistance.

Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.  
Connecting of peripherals requires the use of grounded shielded signal cables.

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# DECLARATION OF CONFORMITY

WE  
HYUNDAI ImageQuest CO., LTD.  
Ami-ri Bubal-Eup Icheon-Si Kyungki-Do  
467-860 KOREA

declare under our sole responsibility that the product:

Kind of equipment : COLOR MONITOR

Type-Designation : L18C0D080

to which this declaration relates is in conformity with the following standard(s) or other normative document(s)

Safety : EN60950 : 1992 + A1, A2, A3, A4  
EMC : EN 55 022/1994, EN 50 082-1/1992  
IEC 801-2/1991, IEC 801-3/1984, IEC 801-4/1988  
EN 61000-3-2/1995, EN 61000-3-3/1995

following the provisions of the Low Voltage Directive 73/23/EEC, 93/68/EEC and the EMC Directive 89/336/EEC.

Accredited testlaboratory:  
TÜV Rheinland  
Am Grauen Stein  
51105 Köln

KOREA / Mar. 28, 2000  
*(Place and date of issue)*

HONG KI, KIM  
*Hong Ki Kim*  
*(Name and signature of authorized person)*

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# L80A 18.1" TFT LCD Color Monitor

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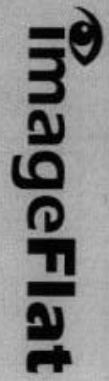
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### 1. Introduction

This manual contains instructions for installing and operating the Hyundai ImageFlat L80A.

Hyundai ImageFlat L80A is a highly ergonomic color display unit.

- 18.1" viewable SXGA LCD
- Supporting full scan flicker-free picture quality
- Advanced Digital On-Screen-Controls
- Connection to PC, S-Vedio, VTR, DVD Player etc.
- Digital signal Input by DVI-D compatibility.
- Fast and Accurate Auto Adjustment
- Most Advanced image scaling
- 100-240V AC input voltage
- VESA DPMS (Display Power Management Signalling)
- VESA DDCl/2B compatibility

This Monitor has been engineered and manufactured to assure your safety. You can prevent serious electrical shock and other hazards by keeping in mind the following:



Do not place anything wet on the monitor or the power cord. Never cover the ventilation openings with any material and never touch them with metallic or inflammable materials.

### 2. Safety Information

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Avoid operating the monitor in extreme heat, humidity or areas affected by dust.  
Temperature : 5~35°C  
Humidity : 30~80RH



Be sure to turn the monitor off before plugging the power cord into the socket. Make sure that the power cord and the other cords are securely and rightly connected.



Overloaded AC outlets and extension cords are dangerous, as are frayed power cords and broken plugs, which may cause electric shock or fire. Call your service technician for replacement.

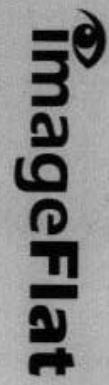


Do not use sharp tools such as a pin or a pencil near the monitor, as they may scratch the LCD surface.



Do not use a solvent, such as benzene, to clean the monitor, as it will damage the LCD surface.



The logo for ImageFlat, featuring a stylized eye icon above the brand name.

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### Cleaning and Maintenance

- To avoid risk of electric shock, do not disassemble the display unit cabinet. The unit is not user-serviceable. Remember to unplug the display unit from the power outlet before cleaning.
- Do not use alcohol (methyl, ethyl or isopropyl) or any strong dissolvent. Do not use thinner or benzene, abrasive cleaners or compressed air.
- Do not wipe the screen with a cloth or sponge that could scratch the surface.
- To clean your antistatic screen, use water and a special microfiber screen cleaning tissue used in optical lens cleaning, or lightly dampen a soft, clean cloth with water or a mild detergent.
- If the instructions above do not help in removing stains, contact an authorized service agent.



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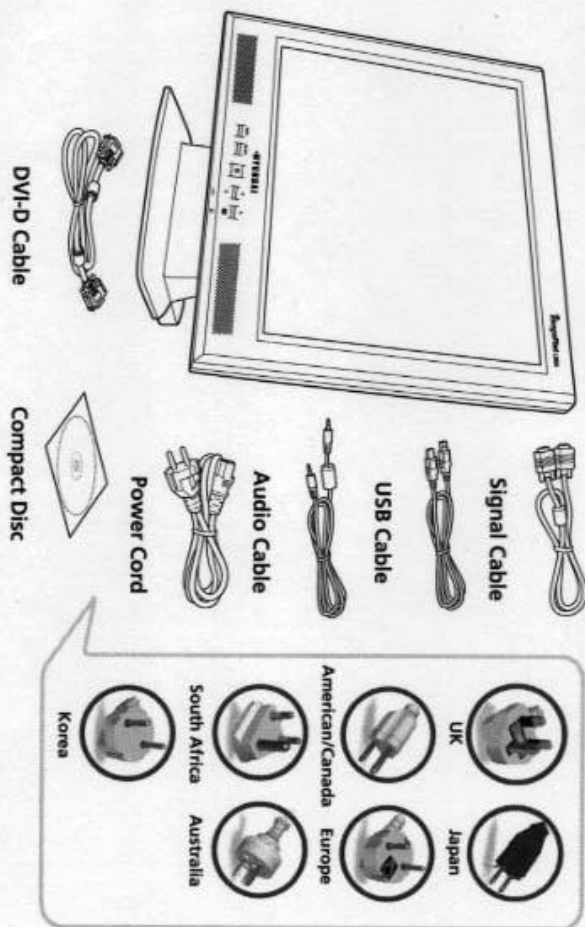
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**3. Installing the monitor**  
**3-1. Packing List**

The following items should be found in the packaging.



**i** Above power cord can be changed upon different voltage areas. Please contact your dealer if anything is missing or damaged.

  
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**3-2. Selecting a suitable location**

- Place the monitor at least 30cm from other electrical or heat-emitting equipment and allow at least 10cm on each side for ventilation.
- Place the monitor in a position where no light shines directly onto or is reflected on the screen.
- To reduce eye strain, avoid installing the display unit against a bright background such as a window.
- Position the monitor so that the top of the screen is no higher than eye level.
- Position the monitor directly in front of you at a comfortable reading distance (around 45 to 90cm)

**3-3. Connecting the monitor**

- 15 pin D-sub / DVI-D cable

**i** Before you start cabling your monitor, check that the power is off on all units. To avoid any possibility of electric shock, always connect your equipment to properly earthed outlets.



1. Insert the other 15-pin /DVI-D signal cable connector into the 15-pin VGA/DVI-D connection on your computer and screw it down. Connect the audio cable to the display unit and the system unit.
2. Plug the power cord connection to connection on the monitor.
3. Plug the other end of the power cord to your computer's mains supply or to a 100V-240V earthed electrical outlet.
4. Turn on the monitor using the power switch and check that the power LED is on. If not, repeat steps 1,2,3 and 4 or refer to the Troubleshooting section of this guide.

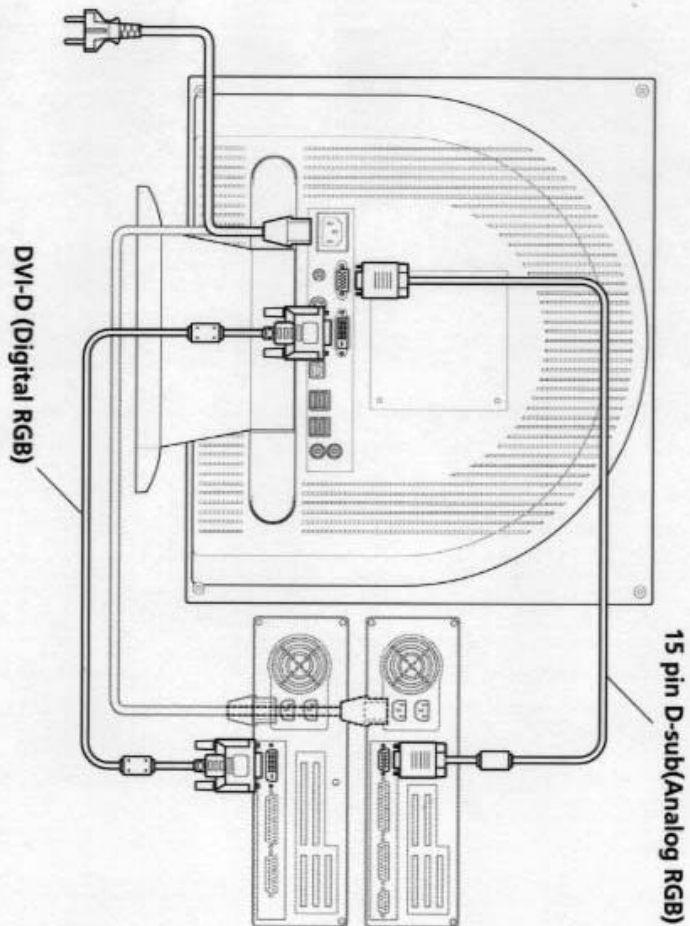
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5. Turn on the power to the computer. The picture will appear within about 10 seconds. Adjust the picture to obtain optimum picture quality. See section Adjusting the picture in this guide for more information.



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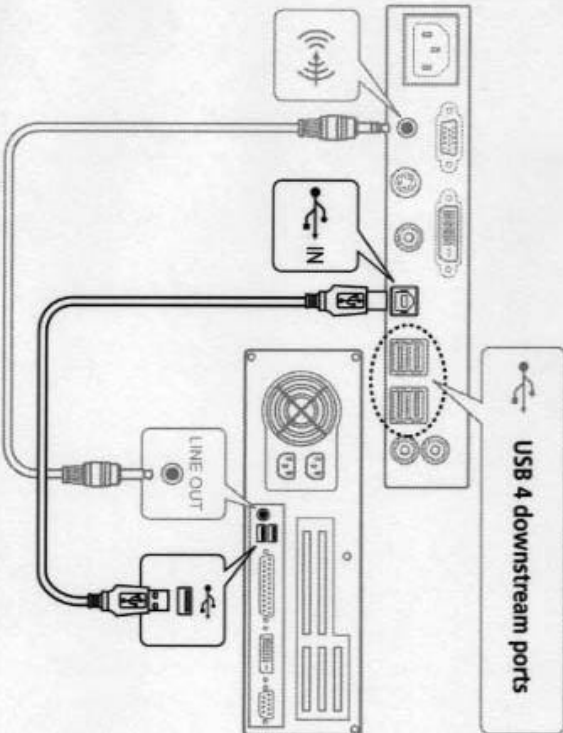
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• USB hub / PC Audio

- The USB hub have 1 upstream port and 4 downstream ports. The upstream port can be connected to the root hub of host PC or other downstream port. 4 downstream ports allow to connect another USB device such as USB mouse, joystick, printer etc.
- 1) The maximum supply current of downstream port is 500mA each when bus-powered mode hub.
  - 2) To activate the USB hub, your host system should have USB capability.



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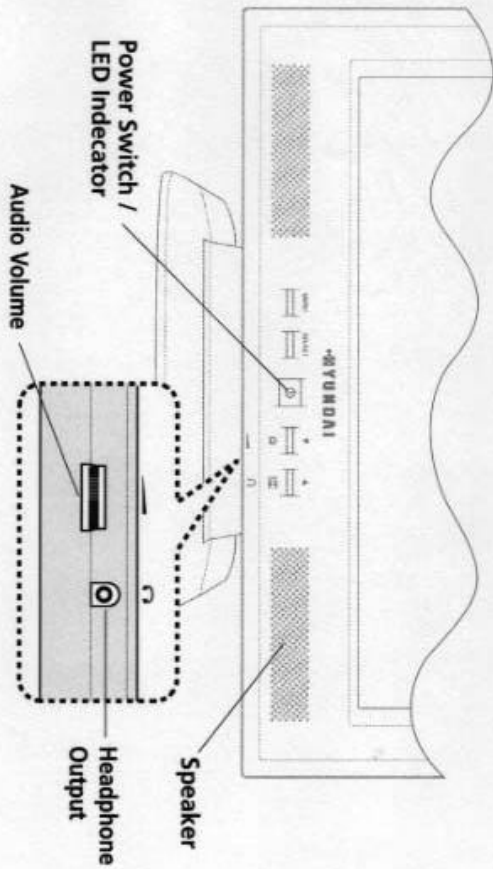
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## • Audio system

This monitor has an audio system including two micro loudspeakers. Each of two micro loudspeakers has an 1Wrms (max.) output power. This system also supports a headphone output jack.

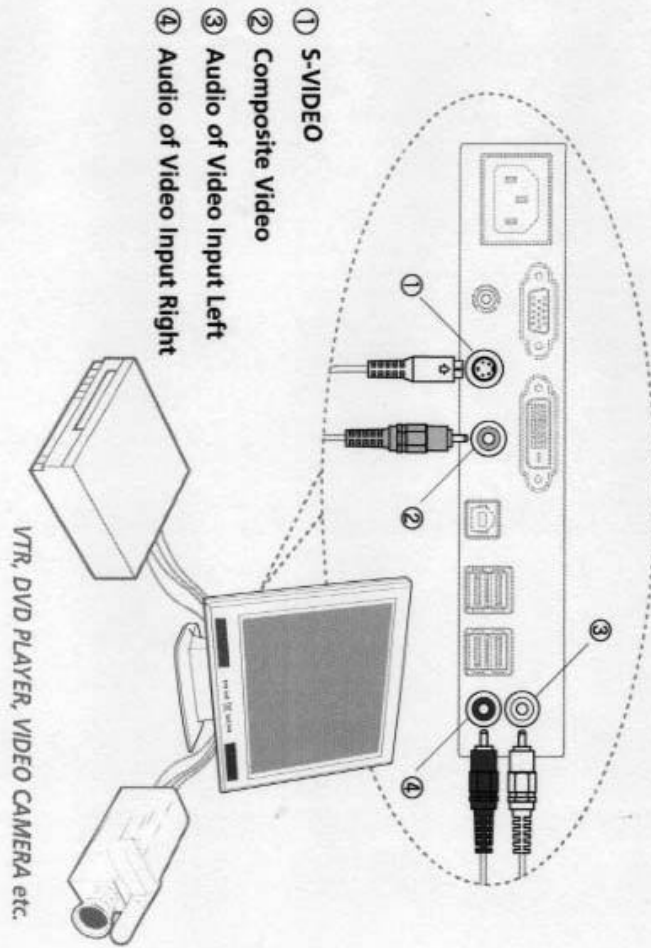
**I** This system has been tuned to get a best tone quality which an audio input level is under 600mVp-p. if the input level is more than 600mVp-p, you must tune down the audio input as the audio output tone may be distorted.



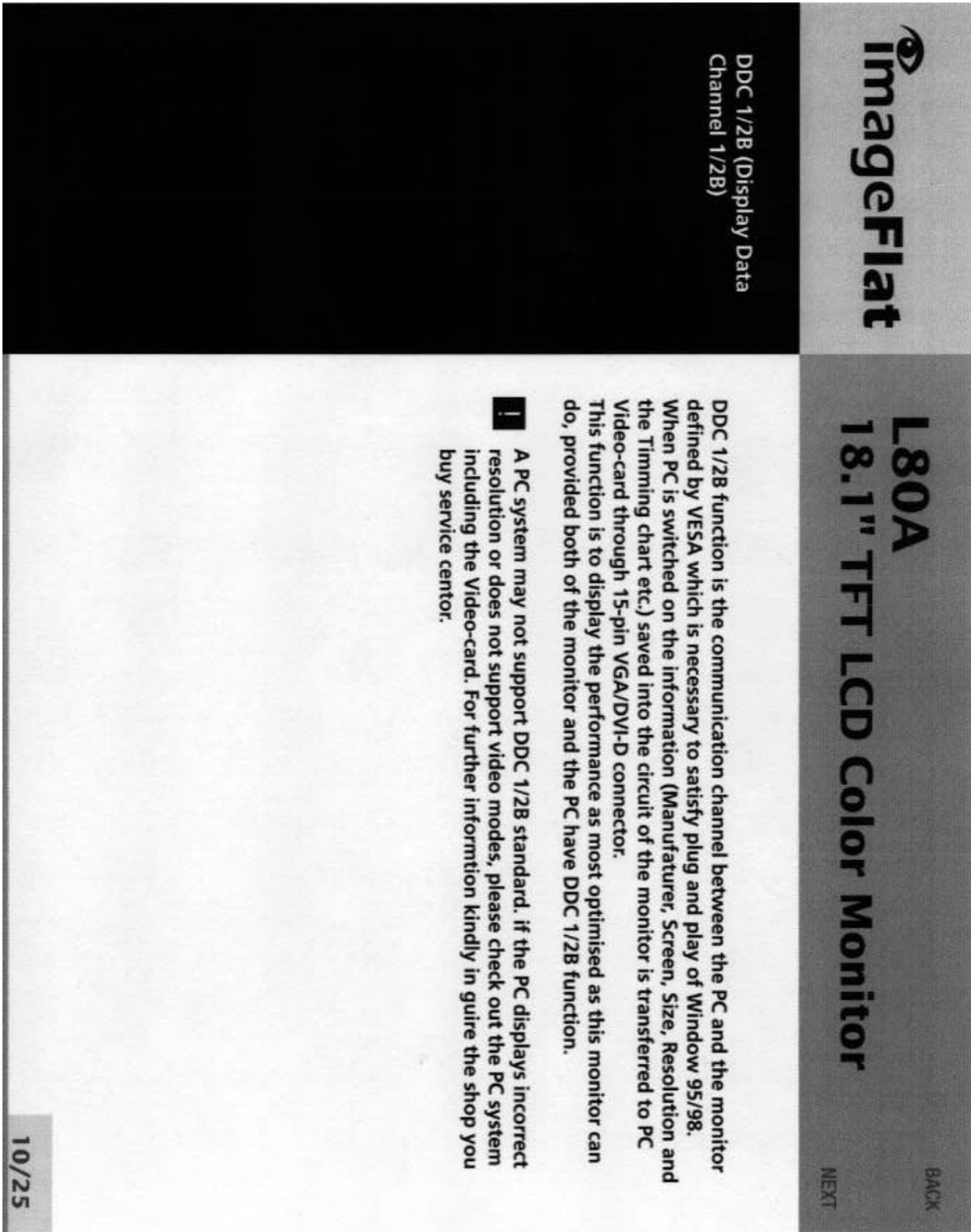
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• Composite / S-Video



**i** Above accessories are not enclosed in this product.



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DDC 1/2B (Display Data)  
Channel 1/2B

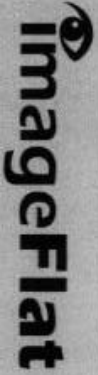
DDC 1/2B function is the communication channel between the PC and the monitor defined by VESA which is necessary to satisfy plug and play of Window 95/98. When PC is switched on the information (Manufacturer, Screen, Size, Resolution and the Timming chart etc.) saved into the circuit of the monitor is transferred to PC Video-card through 15-pin VGA/DVI-D connector. This function is to display the performance as most optimised as this monitor can do, provided both of the monitor and the PC have DDC 1/2B function.

**I** A PC system may not support DDC 1/2B standard. If the PC displays incorrect resolution or does not support video modes, please check out the PC system including the Video-card. For further information kindly inquire the shop you buy service center.

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**3-4. Setting the refresh rate**

Follow the instructions below to set your refresh rate in Windows 98.

1. Go to the configuration window(Start-Settings-Configuration window).
2. Double click on the 'Display' icon.
3. Click on the 'Settings' tab.
4. Click on the 'Advanced' button.
5. Click on 'Adapter' and select 60Hz from the list.
6. Click on 'Apply' to accept the selected value.

Preset Timing Table

▶ **DIGITAL R,G,B INPUT**

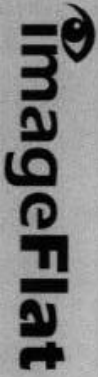
No.	Resolution	Horizontal Frequency	Refresh rate
1	640 x 480	31.5 KHz	60 Hz
2	800 x 600	35.2 KHz	56 Hz
3	800 x 600	37.9 KHz	60 Hz
4	1024 x 768	48.4 KHz	60 Hz
5	1280 x 1024	63.9 KHz	60 Hz

▶ **COMPOSITE /S-VIDEO INPUT**

No.	MODE(Composite/Y/C)	Resolution	H/F	R/R
1	NTSC	720 x 480@59.94Hz	15.7 KHz	60 Hz
2	PAL	720 x 580@50Hz	15.6 KHz	50 Hz

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▶ ANALOG R.G.B INPUT

The recommended setting is a resolution of 1280x1024 and a refresh rate of 60Hz.

No.	Resolution	Horizontal Frequency	Refresh rate
1	640 x 400	31.3 KHz	70 Hz
2	720 x 400	31.5 KHz	70 Hz
3	720 x 400	37.9 KHz	85 Hz
4	640 x 480	31.5 KHz	60 Hz
5	640 x 480	37.5 KHz	75 Hz
6	640 x 480	43.3 KHz	85 Hz
7	640 x 480	35.2 KHz	56 Hz
8	800 x 600	37.9 KHz	60 Hz
9	800 x 600	48.1 KHz	72 Hz
10	800 x 600	46.9 KHz	75 Hz
11	800 x 600	53.7 KHz	85 Hz
12	832 x 624	49.7 KHz	75 Hz
13	1024 x 768	35.5 KHz	87 Hz
14	1024 x 768	48.4 KHz	60 Hz
15	1024 x 768	56.5 KHz	70 Hz
16	1024 x 768	60.0 KHz	75 Hz
17	1024 x 768	68.7 KHz	85 Hz
18	1152 x 870	68.7 KHz	75 Hz
19	1280 x 1024	63.9 KHz	60 Hz
20	1280 x 1024	80.0 KHz	75 Hz

! If the signal from the system doesn't equal to the preset timing mode, adjust the mode with reference to the user guide of videocard because the screen may not be displayed.

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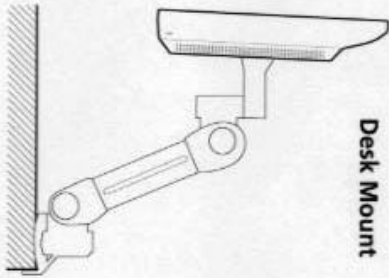
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## 3-5. VESA MOUNTING

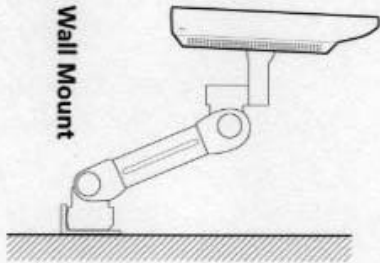
- This display unit supports VESA FPM/PMI standard for 100mmx100mm screw mounting by giving 4 screw holes inside the base stand of the unit. The base stand shall be removed before connecting to Specialty Flat Panel Monitor Mounting Device.
- For buying VESA Flat Panel Monitor Mounting Devices, please contact following information.

**\* Ergotron, Inc.**  
• Address : Ergotron Europe Kuiperbergweg 50 1101 AG Amsterdam The Netherlands  
• Tel : +3 1 20 696 60 65 • Fax : +3 1 20 609 04 59 • E-mail : [Info.eu@ergotron.com](mailto:Info.eu@ergotron.com)

**Desk Mount**



**Wall Mount**

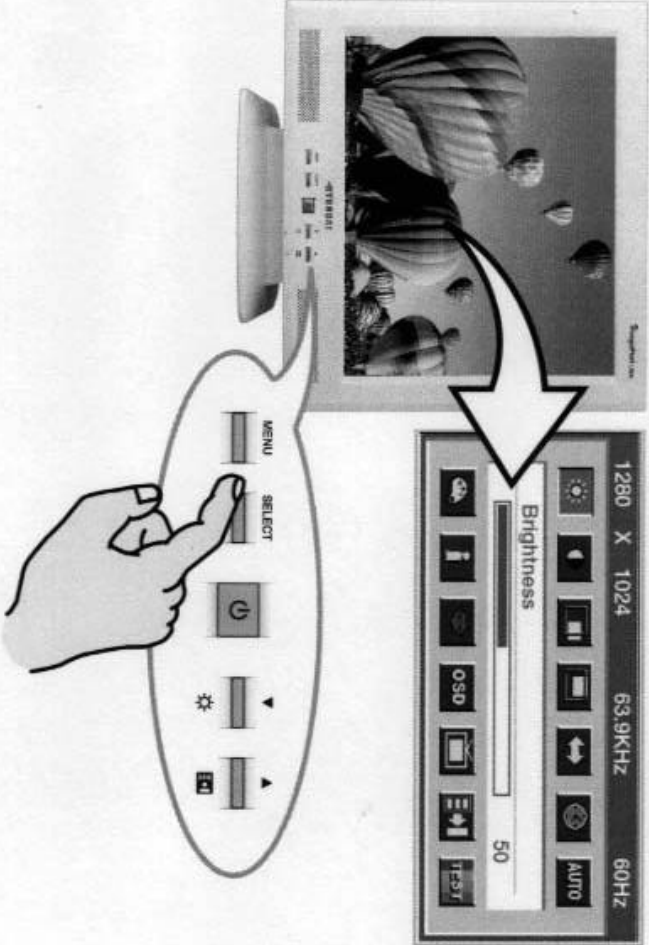


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**18.1" TFT LCD Color Monitor**

**4. Adjusting the picture**

You can adjust the screen display by using the buttons located below the screen.



The diagram illustrates the process of adjusting the screen display. A hand is shown pressing the 'MENU' button on the monitor's control panel. An inset shows the OSD menu with the 'Brightness' slider set to 50. The OSD menu also displays '1280 X 1024', '63.9KHz', and '60Hz'. Other buttons in the OSD menu include 'OSD', 'TEST', and 'AUTO'. The monitor screen shows a hot air balloon scene.

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### 4-1. Using the On Screen Display

1. Push the MENU button to call the OSD to the screen. The resolution and frequency are displayed at the top of the menu box for your information.

**I** *The resolution is displayed only when the monitor works in the preset mode.*

2. Push the ▲ or ▼ button to choose the item you want to adjust. The selected item is highlighted.
3. Push the SELECT button to adjust the highlighted item.
4. Use the ▲ or ▼ button to adjust the selection.
5. Push the MENU button to return to the previous menu if you are in a submenu.
6. The display unit automatically saves the new settings in 1 second after your last adjustments and the menu disappears. You can also push the MENU button to make the menu disappear.

### 4-2. Direct access buttons




**BRIGHTNESS**  
Use the button ▼ to select the brightness adjustment.  
Adjust with ▲ or ▼ button.



**SOURCE SELECT**  
Use the button ▲ to choose the SOURCE SELECT adjustment. Push the SELECT button to apply it after choosing one of Analog/Digital RGB, Composite/S-Video with ▲ or ▼ button.

**I** When the screen is not displayed, you can know the current video status by pushing SELECT button and change to the input signal which you want.



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### 4-3. OSD Adjustments

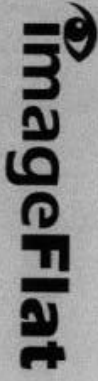
- Analog R.G.B INPUT

*You can play the movie file to see how to adjust the picture image by clicking each icon or title hereunder.*

The OSD adjustments available to you are listed below.

	<b>BRIGHTNESS*</b> Adjusts the brightness of the screen.
	<b>CONTRAST</b> Adjusts the contrast of the screen.
	<b>H-POSITION</b> Adjusts the horizontal position of the entire screen image.
	<b>V-POSITION</b> Adjusts the vertical position of the entire screen image.
	<b>CLOCK (WIDTH)</b> Adjusts the horizontal size of the entire screen image.
	<b>CLOCK-PHASE</b> Adjusts the noise of the screen image.
	<b>AUTO ADJUST*</b> Adjust the shape of screen automatically.
	<b>COLOR CONTROL *</b> Color temperature affects the tint of the image. With lower color temperatures the image turns reddish and with higher temperatures bluish.

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There are three color settings available: Mode 1(a cool white), Mode 2(a warm white) or USER. With the USER setting you can set individual values for red, green and blue.

**INFORMATION**  
 Information shows the horizontal and vertical frequency of your display unit. The Information menu lists modes which are preset at the factory and modes which have been defined by user. It also shows you the mode your display unit is currently operating in. you can set the display mode (frequency and refresh rate) in Windows.

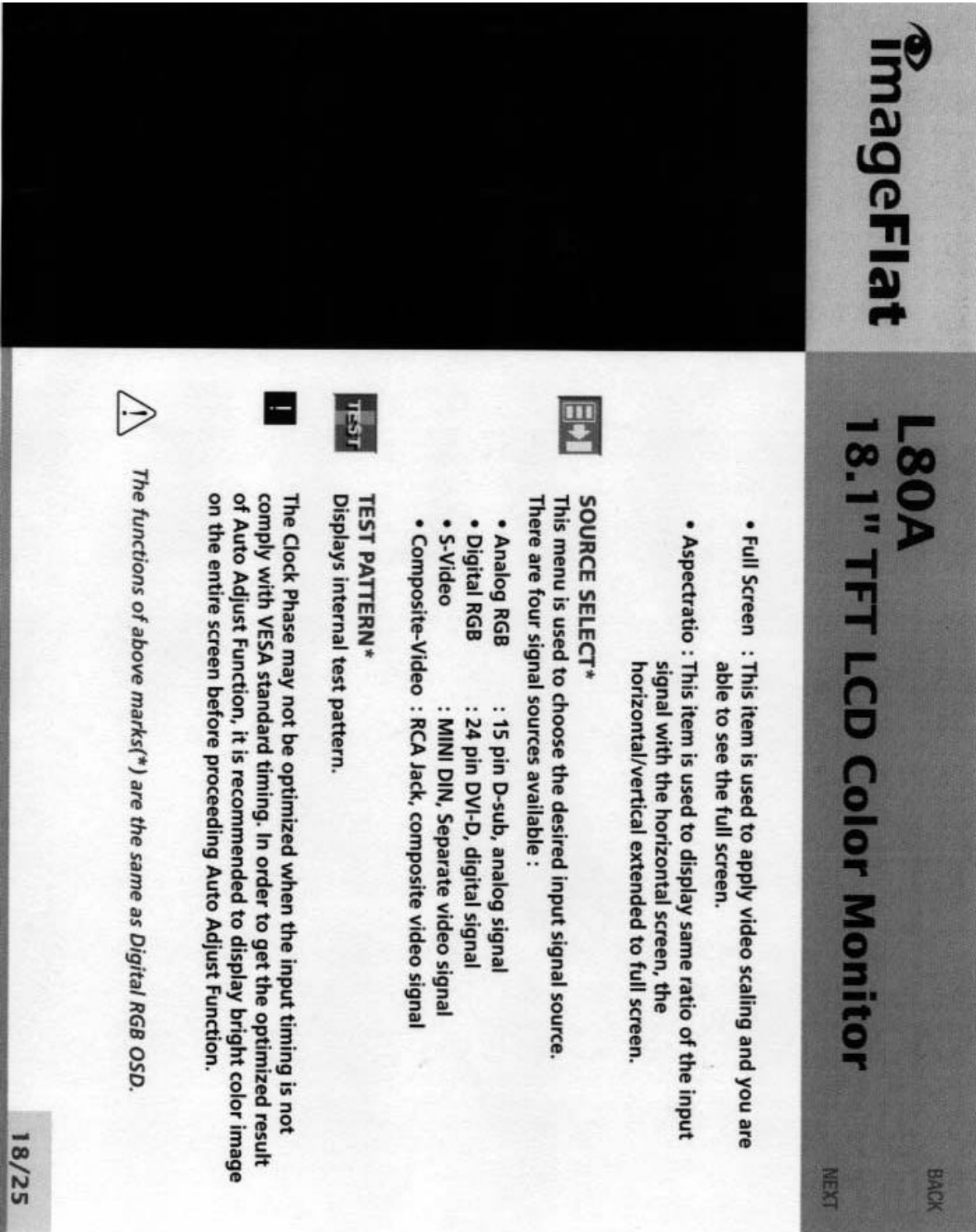
**LANGUAGE\***  
 You can select the language in which adjustment menus are displayed. The following languages are available: English, French, German, Italian, Spanish, Swedish, Finnish, Danish, Portuguese and Japanese or Korean.

**OSD ADJUST\***  
 You can adjust the OSD menu's horizontal or vertical position on the screen. You can also adjust display time of the OSD menu from 5 to 50 seconds.

**SCALING MODE\***  
 This menu is used to choose the desired image size(input video scaling). There are three video scaling modes available :

- One to One : This item is not applied to video scaling.  
 The right resolution of input signal.

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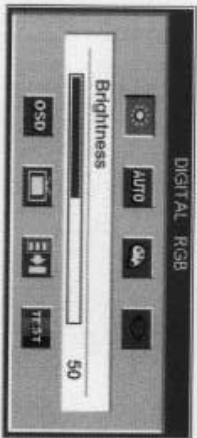


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- DIGITAL RGB
- COMPOSITE/VIDEO

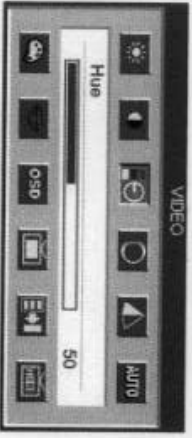


DIGITAL RGB

Brightness 50

AUTO

OSD



VIDEO

Hue 50

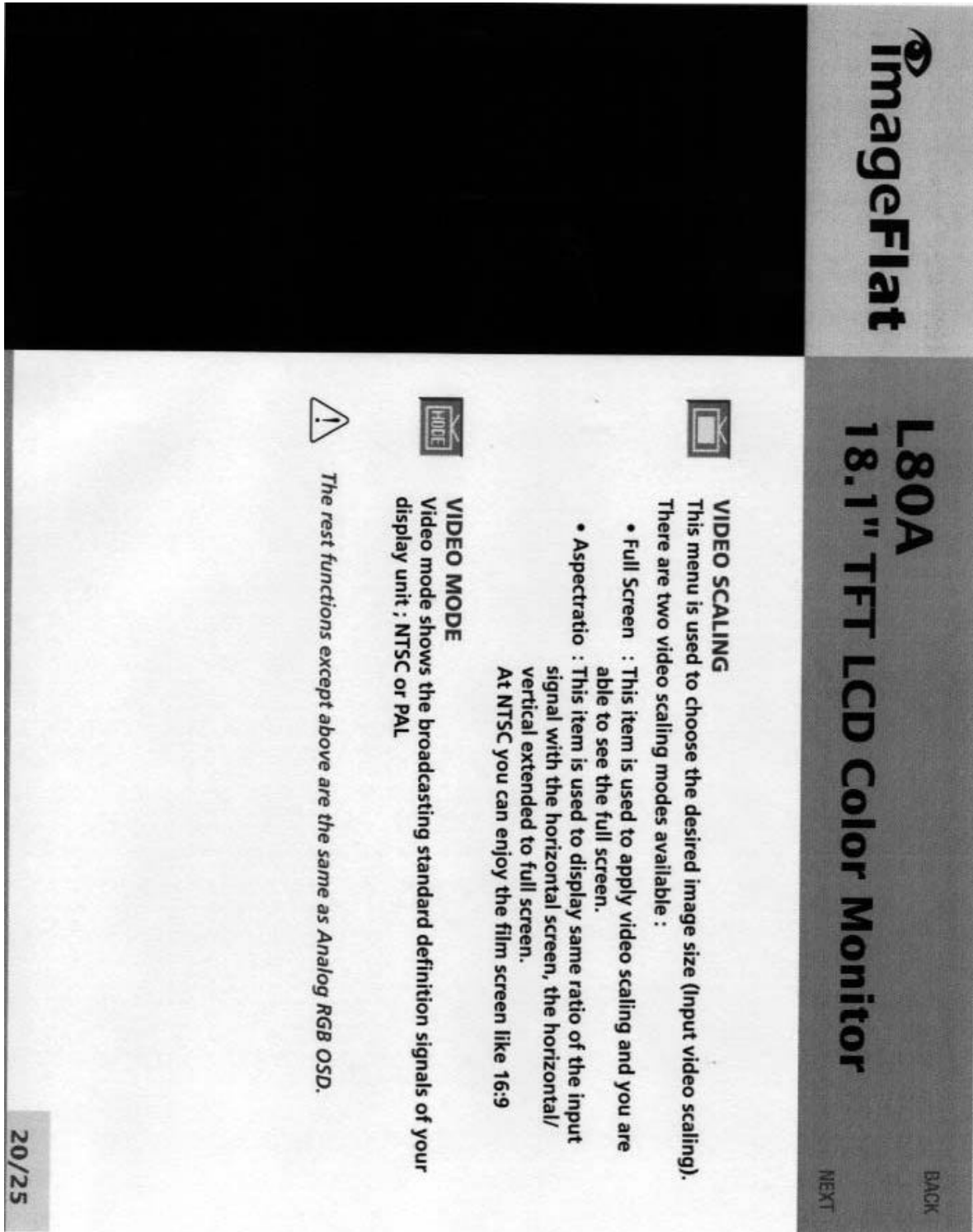
AUTO

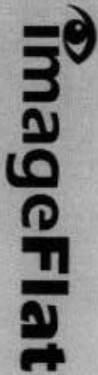
OSD

- HUE**  
Adjusts the hue of the video image.
- SATURATION**  
Adjusts the saturation of the video image.
- SHAPNESS**  
Adjusts the shapness and softness of the video image.

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### 5. Display power management

Reducing power consumption

If the power management function of your computer is enabled, your monitor turns on and off automatically. You can control power management features from your computer.

Your computer may have power management features which enable the computer or monitor to enter a power saving mode when the system is idle. You can reactivate the system by pressing any key or moving the mouse.

▶ **ANALOG R.G.B INPUT**

The monitor requires a signal based on VESA DPMMS (Display Power Management Signaling) proposal, and runs in three stages :

- On : Normal Operation
- Suspend : State of substantial power reduction with longer recovery time
- Off : Non Operation

This monitor shall comply with the following specifications. (Non operating Audio, USB HUB)

Mode	LED	Power consumption
Normal	Green	50 W
Suspend	Green/Orange blinking (0.5sec.)	≤ 10 W
Off	Orange	≤ 5 W
Unplugged	Not illuminated	0 W

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### ▶ DIGITAL RGB


The following digital monitor power management (hereinafter DMPM) definition is for power management as applied over the T.M.D.S. link for any monitor type. The monitor requires a signal based on DMPM proposal, and runs in two stages ;

- On : Normal Operation
- Off : Non Operation

This monitor shall comply with the following specifications. (Non operating Audio, USB HUB)

Mode	LED	Power consumption
Normal	Green	50 W
Off	Orange	≤ 5 W

**I** The power button does not disconnect the monitor from the mains. The only way to isolate the monitor completely from the mains supply is to unplug the mains cable.



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### 6. Troubleshooting

**If your monitor is not functioning properly, you may be able to solve the problem by following the suggestions below :**

Problem	Possible solution
Blank screen	<p>If the power LED is not lit, push the Soft power switch or check the AC cord to turn the monitor on. If the display unit is powered through the computer, check that the computer is switched on.</p> <p>The display unit might be in standby mode. Push one of the keyboard keys. Check that the keyboard is properly connected to the computer.</p> <p>Check that the signal cable connector is properly connected and that the connection pins are not bent or damaged. If the connector is loose, tighten the connector's screws.</p> <p>Check that the power cable is correctly connected to the display unit and to the power outlet.</p>
Error message: <i>Video mode not supported</i>	<p>Check the resolution and the frequency on the video port of your computer.</p> <p>Compare these values with the data in the Preset Timing Table.</p>
The display does not enter power management mode	<p>The video signal from the computer does not comply with VESA DPMS standard. Either the computer or the graphics adapter is not using the VESA DPMS power management function.</p>

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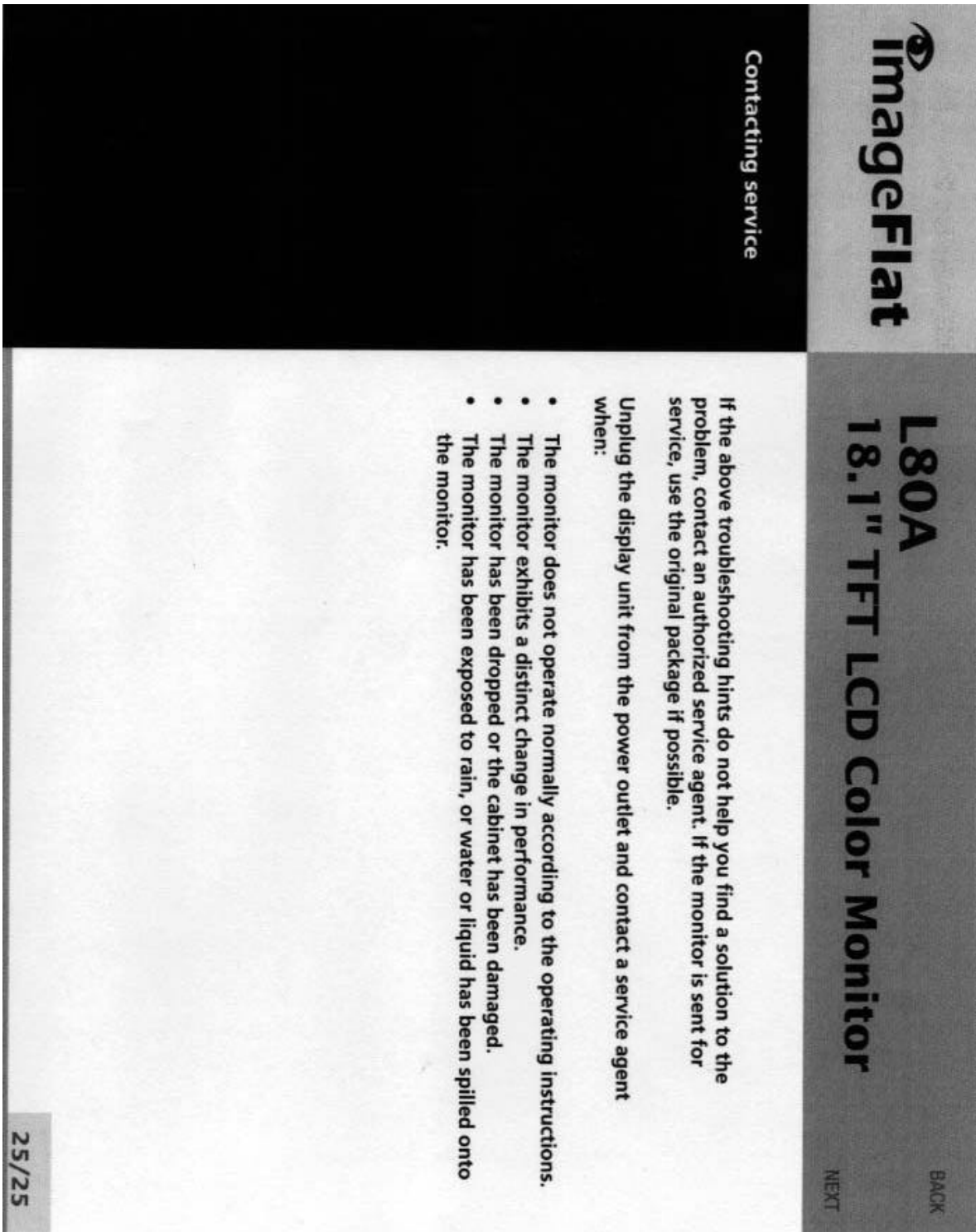
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Problem	Possible solution
Color defects	Check that the signal cable connector is properly connected and that the connection pins are not bent or damaged. Try another color temperature.
Size, position, shape or quality unsatisfactory	Adjust the picture characteristics as described in the section <i>Adjusting the picture</i> .
Duplicated images	A problem with your graphics adapter or display unit. Contact your service representative.
Image is not stable	Check that the display resolution and frequency from your PC or graphic adapter is an available mode for your monitor. In your PC, you can check through Control panel, Display, Settings. If the setting is not correct, use your computer utility program to change the display settings.

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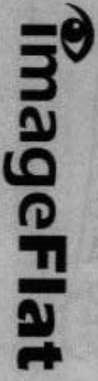
**Contacting service**

If the above troubleshooting hints do not help you find a solution to the problem, contact an authorized service agent. If the monitor is sent for service, use the original package if possible.

Unplug the display unit from the power outlet and contact a service agent when:

- The monitor does not operate normally according to the operating instructions.
- The monitor exhibits a distinct change in performance.
- The monitor has been dropped or the cabinet has been damaged.
- The monitor has been exposed to rain, or water or liquid has been spilled onto the monitor.

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### 7. Specifications

LCD	18.1" viewable, Diagonal, Dot pitch 0.297 mm, AM-TFT
Brightness	190cd/m <sup>2</sup> (Min.), 200cd/m <sup>2</sup> (Typ.)
Contrast Ratio	400 : 1 (Typ.)
Response Time	55msec (Typ.)
Display area	359 X 287 mm
Number of color	16.7 Million colors
Input signals	R,G,B Analog, Digital signal(DVI-D), CVBS/S-VHS(NTSC, PAL)
Frequency rate	Horizontal : 31.0 to 80KHz, Vertical : 56 to 87Hz
Maximum bandwidth	135 MHz
Maximum resolution	1280X1024@75Hz
Input voltage	100-240 V AC, 2.5A / 60W
Power Management	VESA DPMS
Plug & Play	VESA DDC 1/2B
OSD menu	BRIGHTNESS, CONTRAST, H/V, POSITION, CLOCK, CLOCK-PHASE, AUTO ADJUST, COLOR CONTROL, INFORMATION, LANGUAGE, OSD ADJUST, SCALING MODE, SOURCE SELECT, TEST, HUE, SATURATION, SHARPNESS, VIDEO MODE
Audio system	2ch X 2 watts / Ear Phone Jack
USB	1up X 4down
VESA FPM/PMI	100 mm X 100 mm screw mounting
Ergonomics, Safety and EMC	TCO, FCC Class B, CE, VCCI dUL, TÜV-GS, NEMKO, DEMKO, FIMKO, SEMKO, PCBC, GOST-R
Operating Temperature	5 ~ 35° C
Weight	8.1Kg unpacked, 10.0Kg packed
Dimensions (W X H X D mm)	440 X 435 X 202 mm

• Specification is subject to change without notice for performance improvement.