

FCC Information

This equipment has been tested and found to comply with 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 unacceptable interference to radio and 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 on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced Radio/TV technician for help.

Introduction

Package	4
Features	5
Safety Information	6
Power Management System	7

Installation

Connection to your computer	7
Pin assignment table D-Sub mini 15 pin connector	8

Controls

Function of controls	8
OSD Menu	9

Troubleshooting

Troubleshooting Guide	13
-----------------------------	----

Specifications

Electrical specifications	14
Mechanical specifications	14
Environmental specifications	14

Appendix

Preset timings	15
----------------------	----

Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Warning

If this equipment has more than one interface connector, do not leave cables connected to unused interfaces.

Canadian Notice

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Avis Canadien

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Notice

The information contained in this document is subject to change without notice.

■ Package

First, we would like to thank you for your purchase of this monitor. This monitor is 19inch, high resolution, color display monitor. This manual covers the use, and points of caution, when operating this monitor.

Please take the time to read this manual so that you will obtain the best performance and most use from your monitor. After reading the manual, store it in a safe place for future reference.

This items illustrated below are contained in the carton.

First, be sure that your carton includes the following items.

If any items are missing or damaged, please contact your local dealer or supplier.

■ D19BL

- Color Monitor
- AC Power input cable
- User's Manual (Warranty Registration Card)
- Signal Cable (15pin 3layer D-sub)

■ Features

- 19-inch(18 inch visual)high performance display color monitor
- Automatically scans frequencies from
 - Horizontal frequency: 30 to 96KHz
 - Vertical frequency: 50 to 160Hz
- Compatible with VGA, SVGA, VESA, MAC Standards and maximum resolution modes up to 1600 ×1200
- Supports VESA flicker free modes including 85Hz refresh rate.
- On Screen menu fingertip control system to visually select and adjust screen images using control buttons on front panel and on screen menus.
- Power supply operates on AC 100-240V(±10%), 50/60Hz for use all over the world.
- Equipped with DDC 2B for Plug & Play capability.
- Equipped with an energy-saving feature.
 - Power management circuit signaled by the computer system, will reduce power consumption when the computer system is not in use.
- Monitors with nonglare/antistatic screens are compliant with MPR 1990 Emissions standards and meets requirements for CE Marking.
 - ※ TCO : (option)

■ Safety information

- Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL listed personal computer with similar configuration. Before making the connection ensure that the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor current rating.
For 120Volt applications use only UL listed detachable power cord with NEMA configuration 5-15P type(parallel blades) plug cap.
For 240Volt applications use only UL listed detachable power cord with NEMA configuration 6-15P type(tandem blades) plug cap.
- Use only a power source and connection appropriate for the monitor as indicated on the marking label.
- Slots and openings in the cabinet are provided for ventilation; these openings must not be blocked or covered. Never push objects of any kind into cabinet slots or other openings.
- Never insert anything metallic into the monitor openings. Doing so may create a danger of electric shock.
- To avoid electric shock, never touch the inside of the monitor. Only a qualified technician should open the monitor's case.
- Unplug the monitor from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp, lint-free cloth for cleaning.
- Install the monitor near an outlet that you can reach easily. Disconnect the product by grasping the plug firmly and pulling in from the outlet. Never disconnect it by pulling the cord.

■ Power management system

This monitor meets VESA(Video Electronics Standards Association) DPMS(Display Power Management Signalling)standards. In order for the monitor's power saving feature to function, the video board or computer must also meet VESA[®] DPMS[™] standards.

■ Power management table

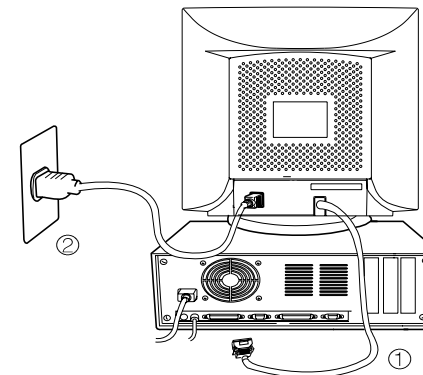
Sync	State	Normal Operation	Power saving function mode		
			Standby	Suspend Mode	Power-Off Mode
	Horizontal	Active	Inactive	Active	Inactive
	Vertical	Active	Active	Inactive	Inactive
	Video	Active	Blanked	Blanked	Blanked
	LED Color	Green	AMBER	AMBER Blinking	AMBER Blinking
	Power Consumption	95W	Less than 15W	Less than 15W	Less than 3W

Note : The monitor automatically goes through the DPMS steps when it is idle.
To release the monitor from the DPMS condition, press any key on the keyboard.

■ Connection to your computer

⚠ CAUTION

Ensure that both the PC and the display monitor are switched off.



To attach the monitor to your system, as shown in the following illustrations.

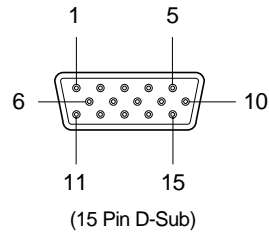
1. Connect the signal cable ① to the 15pin graphics connector of the system and tighten the fastening screws.
2. Insert the AC power cord ② into monitor and then into an AC power outlet.
3. To turn on the monitor, push the power switch.

Note : To attach the monitor to the Macintosh system, please contact an authorized dealer.
(Need to use a special adaptor)

■ Pin assignment table D-Sub Mini 15pin connector

Pin No.	Assignment
1	Red Video
2	Green Video
3	Blue Video
4	Frame Ground
5	Ground
6	Red Video Ground
7	Green Video Ground
8	Blue Video Ground
9	N.C
10	ID
11	Monitor Ground
12	SDA
13	H-Sync
14	V-Sync
15	SCL

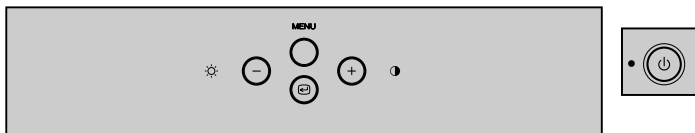
The 15-Pin D-sub connector (male) of the signal cable (IBM Systems)



■ Function of controls

OSD Controls

The OSD appears on the screen when you press MENU button. "ON SCREEN MENU" controls include the following extended controls such as Size, Position, Geometry Distortion, Color Temp., Degauss, Moire on & off, Language, OSD-Position, Recall, Cont. & Brt., etc.



Additional front controls

※ Power Switch : Turn the monitor power on or off, When the power is on, the LED is lit.

Accessing OSD

- Press MENU Button.
- - : Direct Brightness access.
- + : Direct Contrast access.

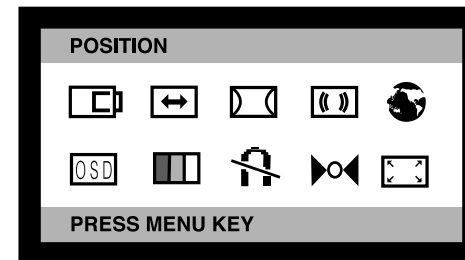
EXIT from OSD

- : Press this button in the main menu and submenu.

■ OSD Menus

Main Menu

OSD main menu allows you to adjust user controls.

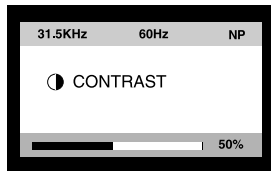


Use the - / + : Control buttons to scroll through all of the menus.

Main Menu control guide

- : Exits the OSD controls.
- - / + : Move the function to choose.
- MENU : Proceed to the selected menu.

Contrast Menu



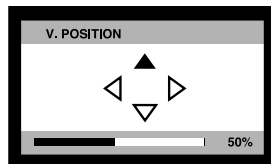
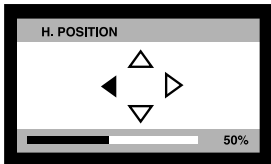
- + : Proceed to the Contrast menu.
- - / + : Increase or decrease the Contrast.


Brightness Menu



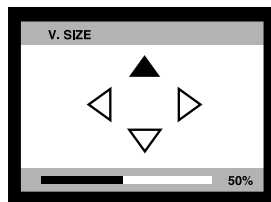
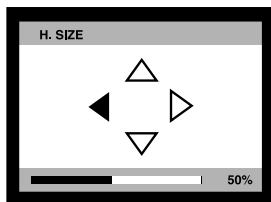
- - : Proceed to the Brightness menu.
- - / + : Increase or decrease the Brightness .


Position Menu




- After choosing  , push MENU button.
- MEUN : Push this button again & again to change the H/V-position.
- - : Moves the image left or down.
- + : Moves the image right or up.

Size Menu

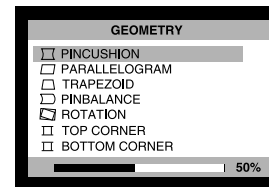


- After choosing  , push MENU button.
- MENU : Push this button again & again to change the H/V-size.
- - : Decrease the Horizontal or Vertical size of the image.
- + : Increase the Horizontal or Vertical size of the image.


Position and size Menu control guide

-  : Exit to the main menu.
- - / + : Refer to - / +
- MENU : Toggle Horizontal and Vertical directly.


Geometry Menu



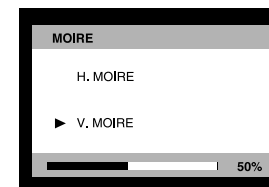
The Geometry controls allow you to adjust the curvature or angle of displayed image.


- After choosing  , push MENU button.
- Pincushion : Increase or decrease the curvature of the sides either inward or outward.
- Parallelogram : Increase or decrease the tilt of the sides either to the left or right.
- Trapezoid : Increase or decreases the bottom of the screen to be the same as the top.
- Pin Balance : Increase or decrease the curvature of the sides.
- Top Corner : Increase or decreases the curvature of the top sides.
- Bottom Corner : Increase or decrease the curvature of the bottom sides.
- Rotation : Rotate the entire display to clockwise or counterclockwise.

Geometry Menu control guide

-  : Exit to the main menu.
- - / + : Move the function to choose.
- MENU : Function to choose.
- - / + : Increase or decrease the adjustment.


Moire Menu



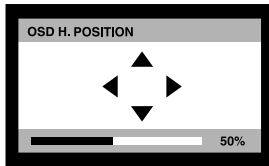
- After choosing  , push MENU button.
- Select ON or OFF with - / + key.
- Select H.MOIRE or V.MOIRE with - / + key.
- - / + : Adjust the Moire Control.


Language Menu



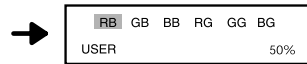
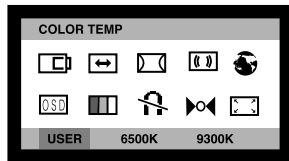
- After choosing , push MENU button.
- - / + : Select the language.

OSD Position Menu







- After choosing , push MENU button.
- MENU : Push this button again & again to change the HV-OSD position.
- - : Move the OSD position left or down.
- + : Move the OSD position right or up.

Color Temp Menu



※ **Presetting** : Select the desired color setting. The bar is replaced by the color setting choice.
 " USER, 6500K, 9300K "
 Color adjustment is available only in USER mode.

- - / + : Move the bar with - or + key to select the user
- MENU : Press MENU button to access the sub-menu.
- - / + : Increase or decrease the selected color adjustment.
-  : Exit to the main menu.

Controls	ICON	Function
Degauss		This control removes the build-up of magnetic fields that can affect color purity and convergence. Note : The picture shakes while degaussing is taking place. After internal degaussing the circuitry takes about 30 minutes to regain its maximum power.
Recall		This controls recalls certain factory setting such as size, position, geometry and color by pressing MENU button. If the monitor is operating in a user mode, this controls has no effect.
Zoom		-/+ : Increase or decrease the Vertical and Horizontal size of image at the same time.

■ Troubleshooting guide

If your monitor is not performing properly, please use the following troubleshooting chart for quick solutions to common problems.

Problem	Possible cause	Remedy
No Picture	Is the power cord connected?	Connect power cord.
	Is the power switch on?	Turn on power switch.
	Is the signal cable properly connected?	Connect signal cable properly
Picture is unstable	Is the monitor in the power save mode?	Press any key on the keyboard or move the mouse.
	Is the signal cable properly connected?	Connect signal cable properly
The display image is not centered, too small or large.	Are there signals, which are outside of the required frequency range?	Input signals which are within the range of the monitor.
	Is the signal connector pin assignments correct?	Use correct signal connector.
The color of image on screen is abnormal.	Are there signals, which are outside of the required frequency range?	Use correct signal which within the frequency range of the monitor (If the signal is correct, adjust the controls to desired image.)
	Is the magnetic object nearby?	Move object far away.
	Is the pin arrangement of the signal connector correct?	Use correct signal cable. Use degauss control.

■ Electrical Specifications

ITEM		D19BL
CRT Type		19", 90° deflection, Flat
CRT Horizontal Dot pitch		0.20mm
CRT Surface		Anti-Reflection & Anti-Static
Input Signal	Sync	H/V Separate, TTL, positive/negative H/V Composite, TTL, positive/negative
	Video	RGB Analog (0.7Vp-p), positive 75 Ω Terminated
Scanning frequency	Horizontal	30KHz~96KHz (Automatically)
	Vertical	50Hz~160Hz (Automatically)
Maximum Resolution		1600Dots × 1200Lines (Non-interlace)
Pixel Clock(Max.)		210 MHz
Display Size (Standard)		Horizontal 350mm, Vertical 262mm
Power Consumption(Normal)		95 W
Power Supply		AC 100-240V(±10%), 50/60Hz ±3Hz
Input Connector		D-Sub, 15Pin Connectors (3layer)
Display Colors		Unlimited

■ Mechanical Specifications

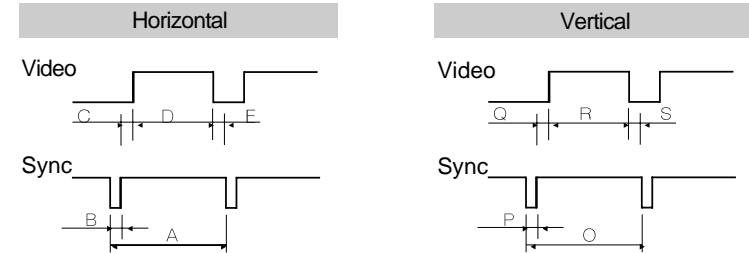
ITEM		D19BL
Dimension	Unit	18.5"(W) × 18.4"(D) × 18.3"(H) 470mm(W) × 466.5mm(D) × 466mm(H)
	Carton	22.6"(W) × 24.4"(D) × 22.2"(H) 573mm(W) × 620mm(D) × 564mm(H)
Weight	Net	21.5Kg (47.3lbs)
	Gross	25Kg (55lbs)

■ Environmental Specifications

ITEM		D19BL
Temperature	Operating	32°F to 104°F (0°C to 40°C)
	Storage	-4°F to 140°F (-20°C to 60°C)
Humidity		10% to 85% R.H. Non-condensing

■ Preset Timings

This Monitor D19BL has preset modes for the 10 most popular industry standards for "Plug and Play" capability.



Resolution Timing	IBM		VESA				
	VGA/70Hz 720 × 400	VGA/60Hz 640 × 480	640/75Hz 640 × 480	640/85Hz 640 × 480	800/75Hz 800 × 600	800/85Hz 800 × 600	1024/75Hz 1024 × 768
H-Freq	31.469	31.469	37.5	43.269	46.875	53.674	60.023
A _μ sec	31.777	31.777	26.667	23.111	21.333	18.631	16.660
B _μ sec	3.813	3.813	2.032	1.556	1.616	1.138	1.219
C _μ sec	1.907	1.907	3.81	2.222	3.232	2.702	2.235
D _μ sec	25.422	25.422	20.317	17.778	16.162	14.222	13.003
E _μ sec	0.636	0.636	0.508	1.556	0.323	0.569	0.203
V-Freq	70.09	59.94	75	85.008	75	85.061	75.029
Omsec	14.268	16.684	13.333	11.764	13.333	11.756	13.328
Pmsec	0.064	0.064	0.08	0.069	0.064	0.056	0.050
Qmsec	1.08	1.048	0.427	0.578	0.448	0.503	0.466
Rmsec	12.711	15.253	12.8	11.093	12.8	11.179	12.795
Smsec	0.413	0.318	0.027	0.023	0.021	0.019	0.017
Pixel rate	28.322	25.175	31.500	36	49.5	56.25	78.750
H-Polarity	Negative	Negative	Negative	Negative	Positive	Positive	Positive
V-Polarity	Positive	Negative	Negative	Negative	Positive	Positive	Positive

Resolution Timing	VESA			
	1024/85Hz 1024 × 768	1280/75Hz 1280 × 1024	1280/85Hz 1280 × 1024	1600/75Hz 1600 × 1200
H-Freq	68.677	79.976	91.146	93.75
A _μ sec	14.561	12.504	10.971	10.667
B _μ sec	1.016	1.067	1.016	0.948
C _μ sec	2.201	1.837	1.422	1.501
D _μ sec	10.836	9.481	8.127	7.901
E _μ sec	0.508	0.119	0.406	0.316
V-Freq	84.997	75.025	85.024	75.000
Omsec	11.765	13.329	11.761	13.333
Pmsec	0.044	0.038	0.033	0.032
Qmsec	0.524	0.475	0.579	0.491
Rmsec	11.183	12.804	11.235	12.800
Smsec	0.015	0.013	0.011	0.011
Pixel rate	94.5	135	157.5	202.5
H-Polarity	Positive	Positive	Positive	Positive
V-Polarity	Positive	Positive	Positive	Positive