APPENDIX H

: USER'S MANUAL

LCD Monitor
User's Guide

Models
KL1723BM

LPP

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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

0Handling

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.

0Cleaning

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.

0Storage

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 40°C/104°F or humidity greater than 90%. Avoid condensation.

SAFETY INSTRUCTIONS

oCaution

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 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.

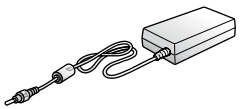
Your new LCD monitor incorporates an active TFT module. It has a 1280 x 1024 pixel resolution, high contrast, wide viewing angle and colors up to 16.2M.

EQUIPMENT CHECK LIST

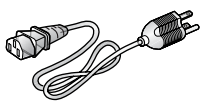
Before operating your display, please check to make sure that all of the items listed are present in your package:

Accessory Box

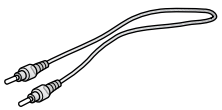
LCD Monitor



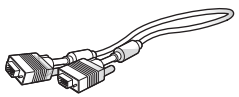
AC to DC Adapter



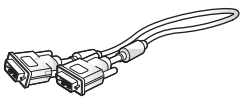
Power Cord



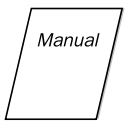
Audio In Cable



Signal Cable(D-SUB)



Signal Cable(DVI-D)



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.

MONITOR FEATURES

* Supports Analog and Digital(DVI-D) IBM compatible PC, Apple MacintoshTM(Adapter optional)
* Supports DPMS for monitor power management
* Support DDC2B
* On Screen Control : Auto-Tune, Contrast, Brightness, H/V Position, H-Size, Phase, Auto-Level, Color Control, Input Select, Volume, Mute, OSD,Position OSD Time-out, Language, Information.
* Built-in color active matrix TFT (Thin Film Transistor) Liquid Crystal Display (LCD) that uses amorphous silicon TFTs as a switching device.
* Built-in 3.1CH Audio Amp.,and Speaker : 3W + 3W + 3W at 1kHz
* Contrast Ratio : 350:1
* Luninance of White : 260cd/m ^{2}
* Resolution : up to 1280 x 1024
* Color : 16.7M Color support.
* Pixel pitch : 0.264mm(H) x 0.264mm(W)
* Scanning frequency : 30kHz ~ 80kHz(H), 55Hz ~ 75Hz(V).
* Universal power supply : AC 100 - 240V allowed.
* Power consumption Normal : 50 Watt Max. Off : 3 Watt Max.
* Outside dimension : 375(W) x 377.9(H) x 25(D)
* Weight (net) : 4.8kg

INSTALLATION

◆ Follow these steps to install the monitor

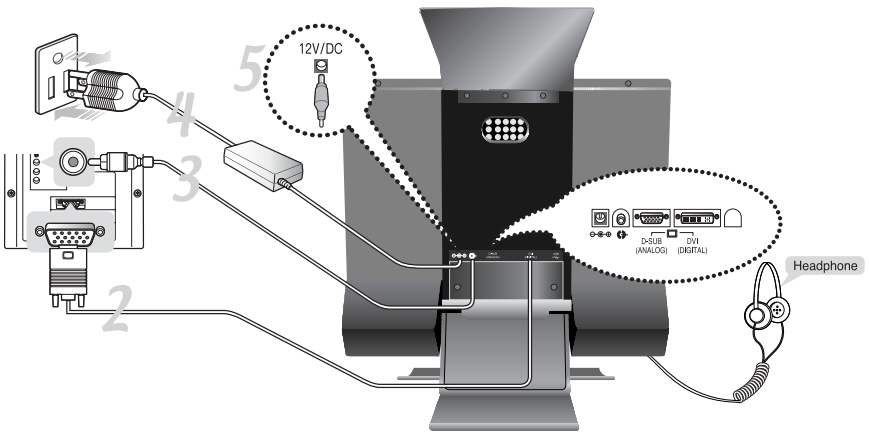
1. Before you connect the the cables, make sure the monitor and system unit power switches turn off.

2. Plug the 15-pin signal cable or 24-pin DVI 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. Connector the power cord to the inlt socket which is located at the AC adapter. Connector the plug into an AC wall outlet.

5. Connector 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 :
- ▲ : Contrast & Brightness control menu will be shown. Press '↵' (Enter) to switch to another menu between Contrast and Brightness.
- ▼ : Audio volume & TEXT/MOVIE control menu will be shown. Press 'MENU' to switch to another menu between Volume and TEXT/MOVIE.

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)

a. No OSD : This button can be used to 'Auto Adjustment' function. (Size, Phase)
b. Main OSD menu : Press this button to exit from the main OSD menu.
c. Control OSD Menu : Return to the previous menu.
Press "AUTO" for 3 sec to select proper video input signal either D-SUB or DVI.

CONTROL BUTTONS

Button Description :

1. Ⓐ : Exits the On Screen Control.
   Do Auto Tune function.
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. ↵ : Display On Screen Control menu.
   Access the control menu.

ON-SCREEN DISPLAY

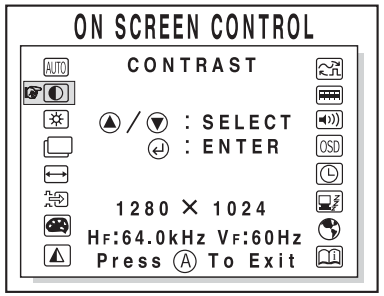
This LCD monitor features an On-Screen Display (OSD) menu. These icons are designed to make your monitor display settings easier. When highlighted, the icons illustrate the control function to assist you in identifying which control needs adjustment.

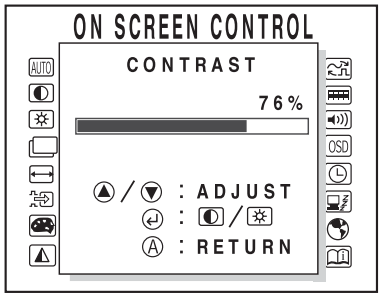
Before activating the OSD menu, the Ⓐ button can be used to automatically adjust the display to the proper size and horizontal and vertical position and color.

The OSD menu activates automatically when you press the Enter button ↵ on the lower left of the monitor. The OSD remains centered on the screen while you make your adjustments. Use either the ▲ or ▼ button to move the highlight to your selection. Ⓐ submenu or control with a status bar will appear. The status bar indicates the direction which adjustments are being made. Use the ▲ or ▼ button to adjust the control.

The Audio Volume and contrast/brightness menu can also be adjusted by simply pressing either the ▲ or ▼ buttons.

When you have finished making adjustments, press the Ⓐ button to save setting and exit back to main menu.





Main Menu

AUTO-TUNE

This control will automatically make adjustments to the horizontal and vertical size, horizontal and vertical position, phase and color.

CONTRAST

This control allows you to make adjustments to the contrast of the display screen.

BRIGHTNESS

Selecting this control menu allows you to make adjustments to the luminosity level of the display screen.

POSITION (HORIZONTAL POSITION and VERTICAL POSITION)

HORIZONTAL POSITION

Select this control menu, and then use the ▲ and ▼ buttons to center the image horizontally on the screen.

VERTICAL POSITION

Select this control menu, and then use the ▲ and ▼ buttons to center the image vertically on the screen.

H-SIZE (HORIZONTAL SIZE)

Select this control menu, and then use the ▲ and ▼ buttons to expend or decrease the image width to horizontally fill the display screen.

PHASE

Select this control menu, and then use the ▲ and ▼ buttons to adjust the screen image until it looks focused, crisp and sharp.

AUTO-LEVEL

This control will automatically make adjustment to the input levels of video signal.(ex. 0.714Vp-p, 1.0Vp-p)

COLOR CONTROL

Select this control menu, then use the ▲ and ▼ buttons to scroll to the desired color temperature. Use the ↵ button to select the 9300K, 6500K, 5500K, or USER for custom setting.

R-GAIN(RED)

Select “USER” then use the ↵ button to scroll up and down the RGB menu to R(Red). Use the ▲ and ▼ buttons to adjust the red level of the display.

G-GAIN(GREEN)

Select “USER” then use the ↵ button to scroll up and down the RGB menu to G(Green). Use the ▲ and ▼ buttons to adjust the red level of the display.

B-GAIN(BLUE)

Select “USER” then use the ↵ button to scroll up and down the RGB menu to B(Blue). Use the ▲ and ▼ buttons to adjust the red level of the display.

MENU DESCRIPTIONS

AUDIO VOLUME

Select this control menu, and then use the ▲ and ▼ buttons to increase or decrease audio sound level. This function can be used by hot key(▼) on the front of onitor.

SOUND MUTE

Select this control menu,and then use the ▲ and ▼ buttons to select stero, woofer sound mute on or off.

OSD POSITION

Select this control menu, and then use the ↵ button to select direction to move the OSD menu. Use the ▲ and ▼ buttons to move the OSD menu.

OSD TIME-OUT

Select this control menu, and then use the ↵ button to select the duration time for the OSD menu. Use the ▲ and ▼ buttons to select the time. (5. 15. 30. 60 SEC)

POWER SAVE DELAY

This feature directs the monitor to stay in the "on" mode, even after the computer goes into "sleep" mode. The user is able to select time of 5 seconds, 1 minute, 60 minutes, or OFF for the display to appear on the monitor screen.

LANGUAGE

Select this control menu, and then use the ▲ and ▼ buttons to choose from English (ENGLISH), German(DEUTSCH), Spanish(ESPAÑOL), Italian(ITALIANO) or French (FRANÇAIS).

INFORMATION

Select this menu allows you to confirm information of the display.

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	Green
Off	Pulse	No Pulse	Blanked	Green blinked per 1 second
Off	No Pulse	Pulse	Blanked	Green blinked per 1 second
Off	No Pulse	No Pulse	Blanked	Green blinked per 1 second

TIMING GUIDE

The LCD is a multi-frequency display. It operates at horizontal frequencies between 30KHz ~ 80KHz and vertical frequencies between 55Hz ~ 75Hz. Because of its microprocessor-based design, it offers auto-synchronization and auto-sizing capabilities. This monitor offers 10 pre-programmed settings that are listed in the following timing table.

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. If you find it necessary to make minor display adjustments (for example, horizontal and vertical position), please refer to the On Screen Display section of this manual for instructions.

If you would like to use one of the preset timing modes, please refer to your video card manufacturer's installation guide for instructions on how to make these changes. The video card controls the refresh rate. Most video cards provide a software utility or hardware DIP switches that allows you to change the frequency used for each resolution.

REFERENCE

Timing Table

Mode Name	VGA	VESA								MAC
	1	2	3	4	5	5	6	8	9	10
Resolution (H)	720	640	640	800	800	1024	1024	1280	1280	832
(V)	400	480	480	600	600	768	768	1024	1024	64
Frequency (H)	31.5	31.5	37.5	37.9	46.9	48.4	60	64	80	49.7
(V)	70[Hz]	60[Hz]	75[Hz]	60[Hz]	75[Hz]	60[Hz]	75[Hz]	60[Hz]	75[Hz]	75[Hz]

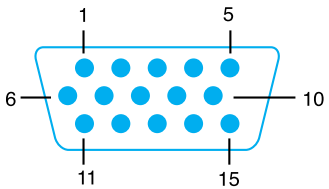
Note;
* If you use a Macintosh™, you may need a Mac adapter.

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

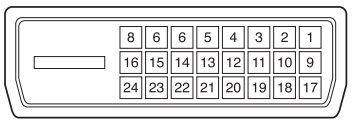
VGA CONNECTOR



POWER JACK(Monitor Side)

1	Ground
2	DC+12V input

DVI Connector(Cable Side)



DVI-D Connector (TMDS Single Link)					
Pin	Signal	Pin	Signal	Pin	Signal
1	T.M.D.S. Data2-	9	T.M.D.S. Data1-	17	T.M.D.S. Data0-
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2/4 Shield	11	T.M.D.S. Data1/3 Shield	19	T.M.D.S. Data0/5 Shield
4	T.M.D.S. Data4-(N.C)	12	T.M.D.S. Data3-(N.C)	20	T.M.D.S. Data5-(N.C)
5	T.M.D.S. Data4+(N.C)	13	T.M.D.S. Data3+(N.C)	21	T.M.D.S. Data5+(N.C)
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	GND(for +5V)	23	T.M.D.S. Clock+
8	N.C	16	Hot Plug Detect	24	T.M.D.S. Clock-

Note: When resolutions are shown that are lower than the pixel count of the LCD panel, text may appear choppy or bold. This is normal for all current flat panel technologies when displaying non-native resolutions on a full screen (below than 1280 x 1024 resolution). In flat panel technologies, each dot on the screen is actually one pixel, so to expand resolutions to full screen, an interpolation of the resolution must be down. When the interpolated resolution is not an exact multiple of the native resolution, the mathematical interpolation necessary may cause some lines to appear thicker than others.

REFERENCE

SPECIFICATIONS

LCD	Type Color Filter Colors Glass surface	17 diagonal viewable screen TFT (Thin Film Transistor), Active Matrix Panel, 0.264 x 0.264mm pixel pitch R,G,B vertical stripe 16.7M Anti-glare coating
Viewing Angles	Left / Right Up / Down	70 ° / 70 ° 70 ° / 70 °
Contrast Ratio	Typ.	350:1
Luminance of White	Typ.	260cd/m ^{2}
Compatibility	PC	IBM XT, AT, 386, Pentium or PS/2 and compatibles(from VGA and DVI up to 1280 x 1024 @ 75Hz NI.)
Refresh Rate	Max.	1280 x 1024 @ 75Hz NI (60Hz for optimal display)
Connectors	Input Signal Power Audio	15-pin D-SUB/24-pin DVI-D Jack Type DC+12V In Stereo input, Headphone output
Power	Input	AC 100-240V 50-60Hz DC 12V 50 watts (Maximum)
Display Area	Max.	337.920mm(H) x 270.34mm(V)
Operating	Temperature Humidity Altitude	32 °F to 104 °F(0°C to 40 °C) 20% RH to 80% RH (no condensation) To 10,000 feet
Storage Conditions	Temperature Humidity	-14 °F to 104 °F (-20 °C to 40 °C) 5% RH to 90% RH (no condensation)
Dimension		375(W) x 377.9(H) x 25(D)
Weight	Net	4.8Kg

REFERENCE

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.

REFERENCE

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 1280 x 1024@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.

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