L4KAS SERIES

Color LCD Monitor

USER'S MANUAL

Preface

Thank you for you purchase of this new type LCD monitor.

Tatung offers the best all kinds of visual displays for all customers around the world. For this LCD monitor to be configured correctly and to ensure your complete understanding for its operation, please take a few minutes reading this manual.

Table of Contents

1. Introduction

Congratulation on your purchase of this new LCD monitor. As one of the most advanced and most versatile visual display available today, the L4KAS TFT-LCD Monitor can automatically identify and adjust its display for almost all kinds of display signals specified by VESA, Apple Computer, and the like. The L4KAS not only provide crisp text and vivid color graphic displays when compared with traditional CRT monitor, but also saves much more apace and power consuming. And additionally, it is much lighter than CRT display.

2. Precautions

1. To prevent damages of the unit and LCD panel, please don't remove screws or cover.
   There are no any user-serviceable parts inside the monitor. Refer servicing to qualified service personnel.

2. The input power source: AC 100~240V full range with 50/60Hz, 35W Max.

3. L4KAS is equipped with a three-pronged grounding plug that will only fit a grounded power outlet.
   This is a safety feature. If you are unable to insert the plug into the outlet, contact an electrician.

4. Please don't put the monitor or any other heavy objects on the power supply cord. A damaged power cord may cause fire or electric shock.

5. Please don't insert sharp objects into the monitor. They may cause serious damages or failure.

6. Please don't allow liquids to fall into the cabinet.
7. To reduce eye fatigue, avoid using the display in direct sunlight or other bright lights.
8. Please don't operate the monitor beyond the specified temperature and humidity rage, etc. (see Sec. 4 Specifications).
9. For proper operation, keep the monitor adequately ventilated.
10. Please don't touch and stretch the LCD panel. Clean the screen with soft clean cloth only. Don't use water and solvents.
11. If the monitor does not operate properly, please turn off its power and then unplug the monitor.

3. Features

1. The L4KAS automatically (※Note) adapts to one of eighteen modes (see sec.8 Timing Charts) which have vertical frequencies ranged from 56Hz to 85Hz and horizontal frequencies ranged from 31.5kHz to 61.2kHz.

※ Note:

The monitor can't differentiate Mode 13 (US Text 720×400) and mode 17 (VGA 640×400 70Hz), it needs user to make selection between these two modes. Please refere to page.11 mode display OSD function.

2. The monitor makes it possible, in many cases, to upgrade graphics adapters or software without needing to replace the monitor, due to its extended compatibility.
3. L4KAS accepts analog signal inputs and can directly replace the CRT ones without any adapter card or hardware reconfiguration. And it can display a wide range of colors from a palette of 16 Million hues depending upon the graphic chips and software used.

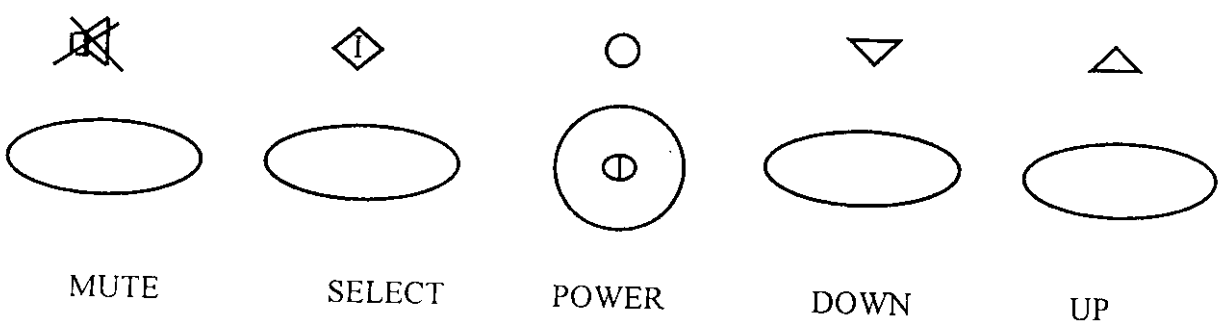
4. Specifications

LCD Panel:	13.8" TFT Color LCD
Resolution:	1024x768 Pixels
Pixel Pitch:	0.273mm(H)x0.273mm(V)
Display Area:	279mm(H)x209mm(V)
Display Colors:	16 Million Colors (with dithering on)
Contrast Ratio:	150:1
Luminance:	200 cd/㎡
Viewing Angle:	Hor. 140°
	Vert. 110°
Response Time:	Tr: 30mS
	Tf: 50mS

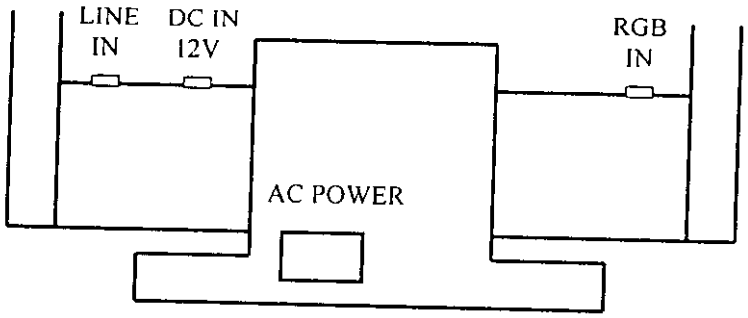
Video Input:	Video: Analog RGB, 0.7 Vpp/75 Ohm Sync: Separate Sync, TTL Level H: 31.5~60.2 kHz V: 56~85 Hz.
Control Keys:	Power, Select, Up, Down, Mute
OSD Functions:	Brightness, Contrast, Color, H Position, V Position, Volume, Clock, Phase, Auto adjust, Reset, Mode display, OSD H/V position, Full screen select, Language select.
Audio:	1 W +1 W
PnP Compatibility:	DDC 1/2B
Power Management:	VESA DPMS
Power Source:	50/60 Hz, AC 100~240V Full Range
Power Consumption:	35 W Max.
Safety standards:	UL/CSA/TUV
EMI Standards:	FCC Class B, CISPR B, VCCI
Environmental Conditions:	
Operating Temperature:	5°C~35°C
Operating Humidity:	20%~80%(non-condensing)
Storage Temperature:	-20°C~60°C
Storage Humidity:	5%~95%
Tilt Base:	30° Up, 10° Down
Outline Dimensions:	378(W) x 152(D) x 357(H) mm (Including Base)
Weight:	4.3Kg (Net weight) 6.7Kg (Including accessories and package)
Accessories:	Signal cable, Audio signal cable and power cord.

5. Control Key and OSD Functions

Front View



Rear View



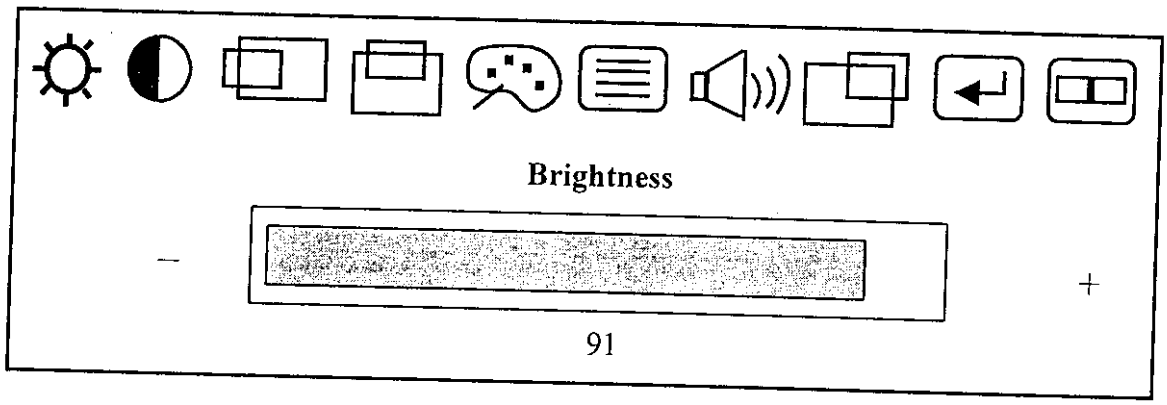
Control Key Functions:

Key	Function Description
Power	Push turn on or turn off the display. The power indicator will light while the display is on.
Select	Select item for user adjustment
Up	Item selection move upward, user-adjustable value increasing or volume increasing
Down	Item selection move downward, user-adjustable value decreasing or volume decreasing
Mute	Turn audio mute on or off

OSD Functions:

(1) Main Menu:

When OSD display is off, pushing 'Select' key will enter 'Main Menu'. The OSD displays as below:



In the 'Main Menu' you may use select key to select one item (icon) for adjustment. The icon selected will turn red. Also, its name and associated bar/value or submenu show up for adjustment or selection.

In the following paragraphs, we will describe each item displayed in the above 'Main Menu'.

1. 

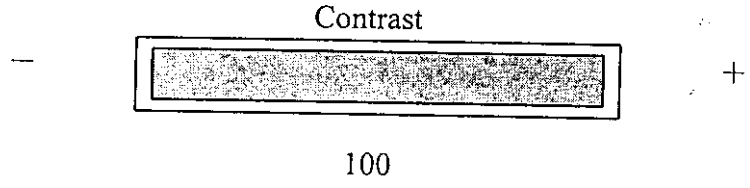
Brightness:

When the 'Brightness' is selected, push up and down key to adjust the brightness of display.

2. 

Contrast:

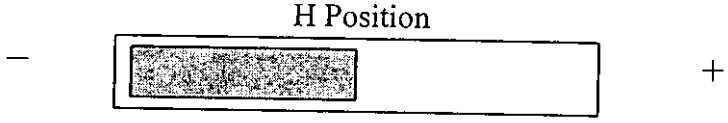
When the 'Contrast' is selected, push up and down key to adjust the contrast of display. The typical setting is 100.

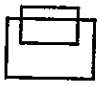


3. 

H Position:

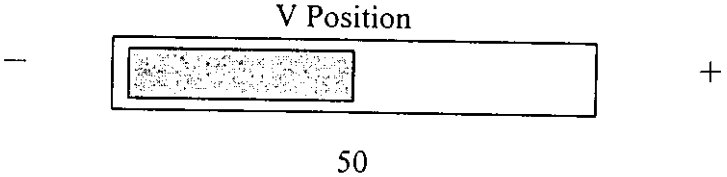
When 'H Position' is selected, push up and down key to adjust the horizontal position of display.



4. 

V Position:

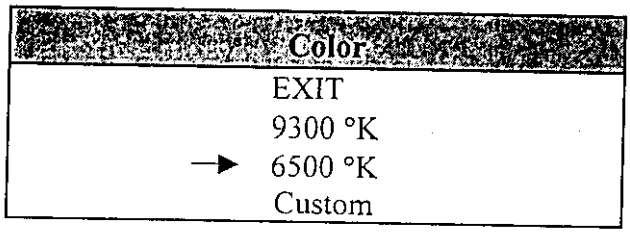
When 'V Position' is selected, push up and down key to adjust the vertical position of display. For standard signal input, the typical setting is 50.



5.

Color:

When 'Color' is selected, there will show up the submenu as below:



The arrow sign points to the color temperature that is active currently.

Push up and down key to select item in this submenu.

The item selected will turn red.

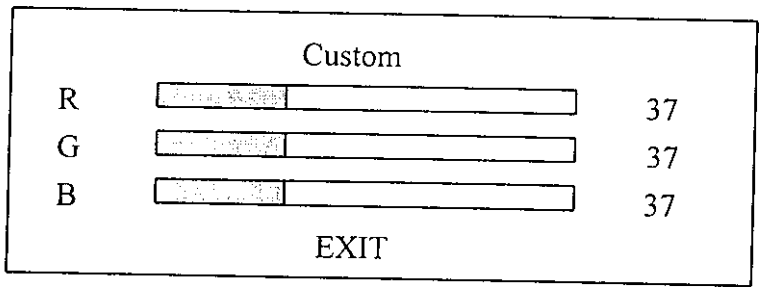
(1) EXIT: Pushing select key will exit this submenu.

(2) 9300 °K: Pushing select key will change color temperature of display to 9300 °K

(3) 6500 °K: Pushing select key will change color temperature of display to 6500 °K

(4) Custom:

When 'Custom' is selected, pushing select key will show up an additional submenu and its associated RGB bars/values as below:



Pushing up and down key to select item in this submenu.

The item selected will turn red.

(a) R:

Pushing select key turns 'R' flashing. It can then use up and down key to adjust R channel's gain.

Pushing select key again will stop 'R' from flashing

(b) G: Pushing select key turns 'G' flashing. It can then use up and down key to adjust G channel's gain.

Pushing select key again will stop 'G' from flashing.

(c) B:

Pushing select key turns 'B' flashing. It can then use up and down key to adjust B channel's gain.

Pushing select key again will stop 'B' from flashing.

(d) EXIT:

Pushing select key will exit this submenu.

6. 

Clock/Phase:

When 'Clock/Phase' item is selected, there shows up the submenu as below:

Clock/Phase
EXIT
Clock
Phase

Push up and down key to select item in this submenu.

The item selected will turn red.

(1) EXIT: Pushing select key will exit this submenu.

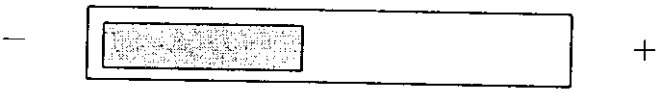
(2) Pushing select key will show up the 'Clock' bar/value. Push up and down key to adjust clock to have correct horizontal size or to eliminate vertical bands of interference in picture. For standard signal input, the typical setting is 50.

Clock

50

(3) Phase: Pushing select key will show up the 'Phase' bar/value. Push up and down key to adjust push to eliminate jitter in picture.

Phase



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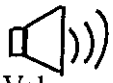
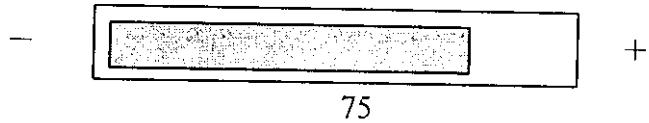
7. 

Volume:

When 'Volume' item is selected, push up and down key to adjust volume.

Volume



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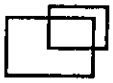
* When not in Main Menu, Volume can be adjusted directly by pushing up and down key.

8. 

Auto Adjust:

When 'Auto Adjust' is selected, there shows up the submenu as below:

Auto Adjust
EXIT
Adjust

Push up and down key to select item in the submenu.

The item selected will turn red.

(1) EXIT: Pushing select key will exit this submenu.

(2) Adjust: Pushing select key to perform auto adjust. It will automatically adjust H Position, V Position, Clock and Phase. To get correct auto adjust result, Choose the display content which covers complete display area including the outmost border and has bright content especially on the border.

9. 

Reset:

When 'Reset' is selected, there shows up the submenu as below:

Reset
EXIT
Reset

Pushing up and down key to select item in this submenu.

The item selected will turn red.

(1) EXIT: Pushing select key will exit this submenu.

(2) Reset: Pushing select key will return the settings of H Position. V Position. Clock and Phase to factory's settings.

10. 

Management:

When 'Management' is selected, there shows up the submenu as below:

Management
EXIT
Mode display
OSD display
Full screen
Language

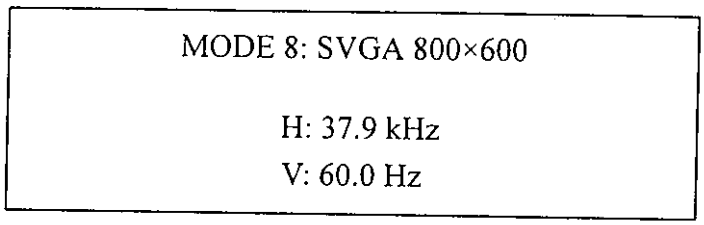
Pushing up and down key to select item is this submenu.

The item selected will turn red.

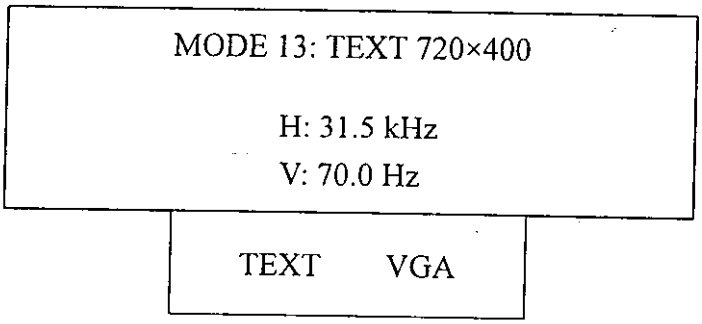
(1) EXIT: Pushing select key will exit this submenu.

(2) Mode Display:

Pushing select key will display mode name and H/V frequency of current input signal.



※ The monitor can't differentiate Mode 13 (US Text 720×400) and mode 17 (VGA 640×400 70Hz) automatically. When the input signal is one of these two modes, there shows up an additional OSD block below mode display OSD block.

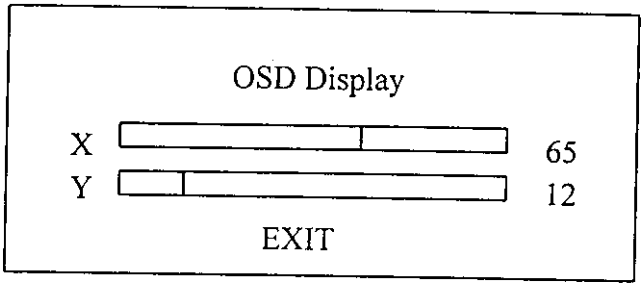


If the display has vertical bands interference, user can use up or down key to select between "TEXT" (Mode 13 US TEXT 720×400) or "VGA" (Mode 17 VGA 640×400 70Hz) to have an display free of vertical bands interference. The item selected will turn red. Accordingly, the mode display will change to mode 13 (if select "TEXT"), to mode 17 (if select "VGA").

Pushing select key will clear the mode display OSD and return to the submenu.

(3) OSD Display:

Pushing select key will show up the following submenu and its associated bar/value:



Pushing up and down key to select 'X' 、'Y' and 'EXIT'
The item selected will turn red.

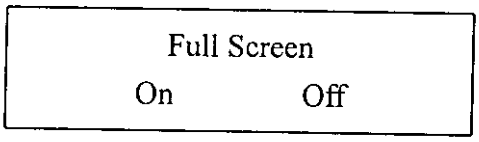
(a) X: Pushing select key will turn 'X' flashing. It then can use up and down key to adjust OSD horizontal position. Pushing select key again will stop 'X' from flashing.

(b) Y: Pushing select key will turn 'Y' flashing. It can then use up and down key to adjust OSD vertical position. Pushing select key again will stop 'Y' from flashing.

(c) EXIT: Pushing select key will exit this submenu.

(4) Full Screen:

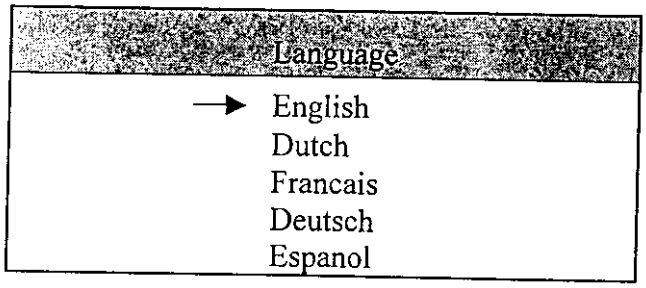
Pushing select key will show up the OSD as below:



Push up and down key to select on or off. Pushing select key again will return to the management submenu.

(5) Language:

When 'Language' is selected, pushing select key will show up Language submenu as below:



The arrow sign points to the language that is active currently.

Push up and down key to select the language you like to used in OSD. The item selected will turn red. Pushing select key again will change OSD language to the language you select then return to management submenu.

6. Connections

Your monitor has four connecting cables:
A AC power cord a DC power cord, A RGB signal cable and a stereo audio signal cable.

To ensure safety and correct operation, always follow the following steps when connecting the monitor:

1. Disconnect the AC power cords from your computer and monitor.

2. Connect the RGB signal cable between the monitor's 'RGB IN' connector and the computer's graphics adapter. Secure the connections by tightening the two screws on the cable's both ends.

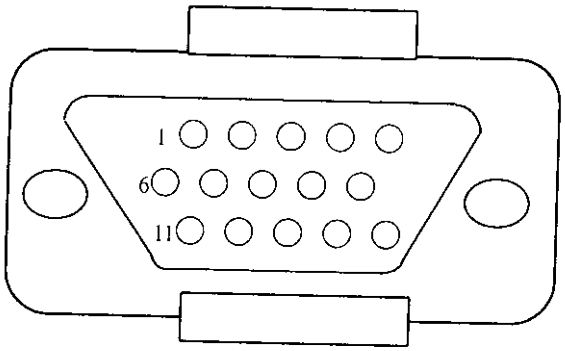
3. Connect the stereo audio signal cable between the monitor's sound card 'LINE OUT' connector.

4. Be sure that DC power cable from the base of monitor has been plugged into 'DC 12V IN' connector of the monitor. Then plug the power cords of the computer and monitor into grounded AC outlets.

7. Pin Assignments and Signal Levels

'R.G.B IN' connector

A. (Min D-SUB Type 15-P)



PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	* RED	9	+ 5V FROM PC
2	* GREEN	10	GROUND
3	* BLUE	11	NO-CONNECTION
4	NO-CONNECTION	12	SDA
5	RETURN	13	H. SYNC.
6	GROUND	14	V. SYNC.
7	GROUND	15	SCL
8	GROUND		

SIGNAL LEVEL

1. The signal level of pin 1.2.3. is 0.7 Vp-p.
2. The signal level of pin 13.14. is 5 Vp-p

B. 'LINE IN' connector

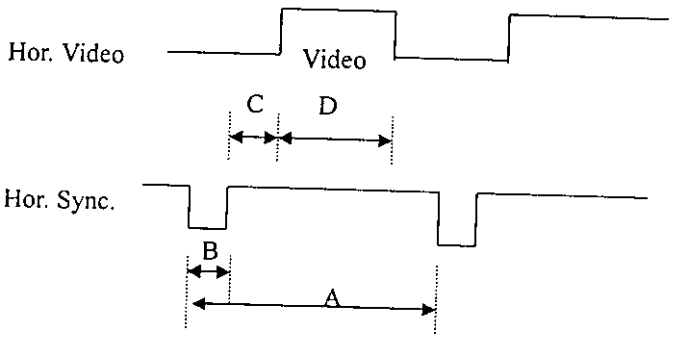
SINGAL LEVEL

The signal level of L. R is 700 mV (rms)

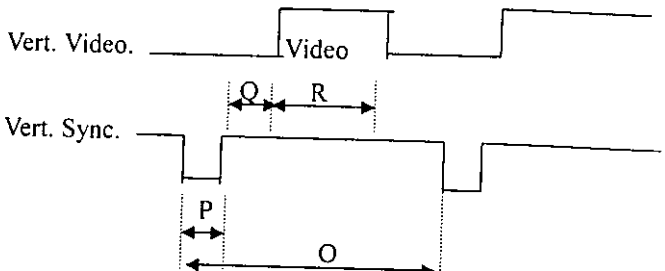
8. Timing Charts

SEPARATE SYNC.

HORIZONTAL



VERTICAL



de	Mode Name Resolution	H. Freq (kHz) V. Freq (Hz)	H. Polarity V. Polarity	Pixel Clock (MHZ)	Hor. (A) Total Clock No.	Hor. (D) Display Clock No.	Hor. (C) Back Porch CLK No.	Hor (B) Sync. Width CLK No.	Vert. (O) Total Line No.	Vert. (R) Display Line No.	Vert. (Q) Back Porch Line No.	Vert. (P) Sync. Width Line No.
1	VGA 60Hz 640x480	31.469 59.941	- -	25.175	800	640	40	96	525	480	25	2
2	VGA 72Hz 640x480	37.804 72.81	- -	31.5	832	640	120	40	520	480	20	3
3	VGA 75Hz 640x480	37.5 75.0	- -	31.5	840	640	120	64	500	480	16	3
4	VGA 85Hz 640x480	43.269 85.008	- -	36.0	832	640	80	56	509	480	25	3
5	SVGA 56Hz 800x600	35.156 56.25	+ +	36.0	1024	800	128	72	625	600	22	2
6	SVGA 60HZ 800x600	37.879 60.317	+ +	40.0	1056	800	88	128	628	600	23	4
7	SVGA 72Hz 800x600	48.077 72.188	+ +	50.0	1040	800	64	120	666	600	23	6
8	SVGA 75Hz 800x600	46.875 75.0	+ +	49.5	1056	800	160	80	625	600	21	3
9	SVGA 85Hz 800x600	53.674 85.061	+ +	56.25	1048	800	152	64	631	600	27	3
0	XGA 60HZ 1024x768	48.363 60.004	- -	65.0	1344	1024	160	136	806	768	29	6
1	XGA 70Hz 1024x768	56.476 70.069	- -	75.0	1328	1024	144	136	806	768	29	6
2	XGA 75Hz 1024x768	60.023 75.029	+ +	78.75	1312	1024	176	96	800	768	28	3
3	US TEXT 720x400	31.469 70.087	- +	28.322	900	720	54	108	449	400	35	2
4	MAC VGA 640x480	35.0 66.667	- -	30.24	864	640	96	64	525	480	39	3
5	MAC XGA 832x624	49.725 74.550	- -	57.283	1152	832	224	64	667	624	39	3
6	MAC XGA 1024x768	60.241 74.927	- -	80.0	1328	1024	176	96	804	768	30	3
	VGA 70Hz 640x400	31.469 70.087	- +	25.175	800	640	48	96	449	400	35	2
	VGA 70Hz 640x350	31.469 70.087	+ -	25.175	800	640	48	96	449	350	60	2

9. Trouble Shooting

Problem	Possible cause	Remedy
(1) No Image	DC power cord disconnected? AC power cord disconnected? Power key pressed? RGB signal cable properly connected? Monitor in power saving mode? Invalid signal?	Connect AC power cord. Connect DC power cord. Press power key. Connect RGB signal cable properly. Press computer key board's any key to exit power saving mode. Change computer's graph card signal mode to one of standard signal modes specified in P.---
(1) Vertical bands interference in picture	Clock not set correctly.	Re-adjust clock to eliminate vertical bands interference.
(2) Horizontal size not correct.	Clock not set correctly.	Re-adjust clock to eliminate vertical bands interference, then also lead to correct horizontal size.
(3) Shifted horizontal or vertical position.	Horizontal or vertical position not set correctly.	Re- adjust horizontal or vertial position.
(4) Small picture in center of screen.	Not select full screen function in signal modes other than 1024x768	Toggle 'full screen' to 'ON'
(5) Jitter in picture	Phase not set correctly.	Adjust phase to eliminate jitter.
(6) No sound	Stereo audio cable disconnected? Volume too low? Muted?	Connect stereo audio cable. Increase volume. Press mute key to exit mute state.
(7) Sound distorted too much when volume maximum.	Stereo audio cable be connecte to speaker connector of sound card of computer?	Connect the cable to 'LINE OUT' connecter.

10. Automatic Power Saving Description

Complies with VESA DPMS, NUTEK and EPA requirements.

	Hor. Sync.	Vert. Sync.	LED Color	Power (Watts)
Normal	Yes	Yes	Green	< 35W
Stand-by	No	Yes	Amber	< 5W
Suspend	Yes	No	Amber	< 5W
Off	No	No	Amber	< 5W

Response Time (Secs)	Recovery Time (Secs)
-	-
5	3
5	3
5	3