

LCD

MONITOR

AN  
AMERICAN

ERIC

FCC/MELLON

FEB 04 1999

## **IMPORTANT SAFETY INFORMATION**

- Read all of these instructions carefully, and save them for reference. Follow all warnings and instructions marked on the product.
- Unplug the monitor from the system unit before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
- Use only attachments recommended by the manufacturer; unapproved attachments may be hazardous.
- Do not use the monitor near water, for example near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Do not place the monitor on an unstable cart, stand or table. If the monitor falls, it could injure a person or cause serious damage to the appliance. Use only a cart or stand recommended by the manufacturer or sold with the mounting kit approved by the manufacturer and follow the kit instructions.
- Slots and openings in the back and bottom of the cabinet are provided for ventilation. To ensure reliable operation of the monitor and to protect it from overheating, be sure these openings are not blocked or covered. Do not place the monitor on a bed, sofa, rug, or similar surface. Do not place the monitor near or over a radiator or heat register. Do not place the monitor in a bookcase or cabinet unless proper ventilation is provided.
- The monitor should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- The monitor is equipped with a three-wire grounded plug, a plug

with a third (grounding) pin. This is a safety feature. If your outlet does not accommodate the three-wire plug, have an electrician install the correct outlet, or use an adapter to ground the appliance safely. Do not defeat the safety purpose of the grounded plug.

- Do not allow anything to rest on the power cord. Do not locate the monitor where people may walk on the cord.
- To protect the monitor during a lightening storm or when it is left unattended and unused for long periods of time, unplug it from the system unit. This will prevent damage to the monitor from lightening and power surges.
- Do not overload power outlet and extension cords. Overload can result in fire or electric shock.
- Never push any object into the slot in the monitor cabinet. It could touch dangerous voltage points or short out parts resulting in a fire or electric shock. Never spill liquid on the monitor.
- If your monitor don't operate normally, in particular if any unusual sounds or smells come from it, immediately unplug it and contact an authorized technician.
- Do not attempt to service the monitor yourself; openings or removing covers can expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
- Unplug the monitor from the system unit and refer servicing to qualified service personnel under the following conditions:
  - When the power cord or plug is damaged or frayed.
  - If liquid has been spilled into the monitor.
  - If the monitor has been exposed to rain or water.
  - If the monitor does not operate normally and you are following the operating instructions. Adjust only those controls covered by the operating instructions; improper adjustment other controls may

result in damage and may require extensive work by a qualified technician to restore the monitor to normal operation.

- If the monitor has been dropped or the cabinet has been damaged.
- When the video monitor exhibits a distinct change in performance.
- To ensure satisfactory operation, use the monitor only with UL listed computers which have appropriate configured receptacles marked between 100 – 240 VAC,Min. 0.85A.
- This unit is to be used with a power Supply, 'Royal Information Electronics Co.,Ltd.' P/N ADP-02.  
Cette unité doit être utilisée avec une alimentation d'énergie. Royal Information Electronics Co.,Ltd.' P/N ADP-02.

## **FCC Class B Radio Frequency Interference 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 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 on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### **NOTICE**

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

### **Doc compliance notice**

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio interference Regulations of the Canadian Department of Communications.

“Le present appareil numerique n’emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de class B prescrites dans le reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.”

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# 1. INTRODUCTION

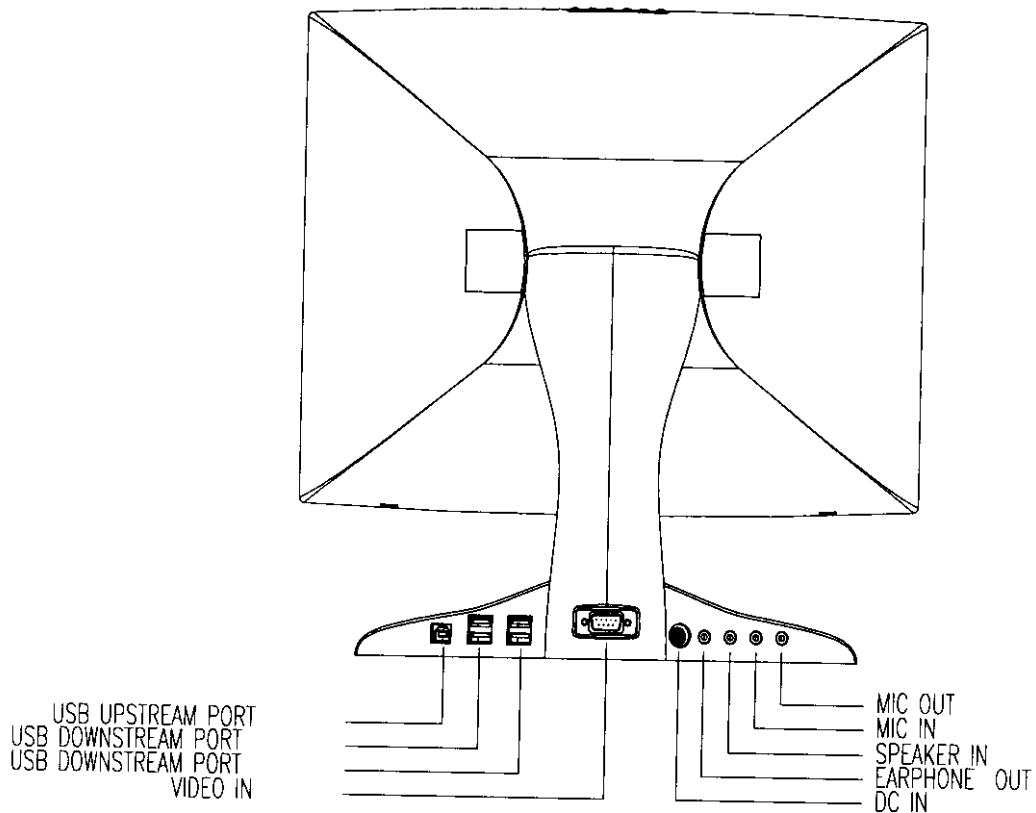
## 1.1 General Information

The **L-50T** is a 15.0-inch intelligent LCD monitor with ultra high resolution of up to 1024 x 768. The microprocessor-based design was implemented with the user in mind.

We invite you, the proud new owner of this fine monitor, to read this user's manual before operating, in order to get the most out of this product.

## 1.2 Features

- ☒ 15.0" Large Size XGA TFT LCD Panel
- ☒ 0.297mm(H) x 0.297mm(V) Pixel pitch TFT LCD Panel
- ☒ Low Radiation
- ☒ Lower Power Consumption
- ☒ Ergonomic Style ID
- ☒ Max.16 million colors
- ☒ Max. 1024x768 NI Resolution
- ☒ Universal auto-switched power Adapter
- ☒ VESA DDC 1/2B compliant
- ☒ VESA DPMS compliant
- ☒ Standard USB function (by order)
- ☒ Incorporated edge type backlight
- ☒ Multi-scan function
- ☒ Low response time
- ☒ High contrast ration
- ☒ Wide viewing angle



***Notice: USB function is by order.***

***Figure 1***

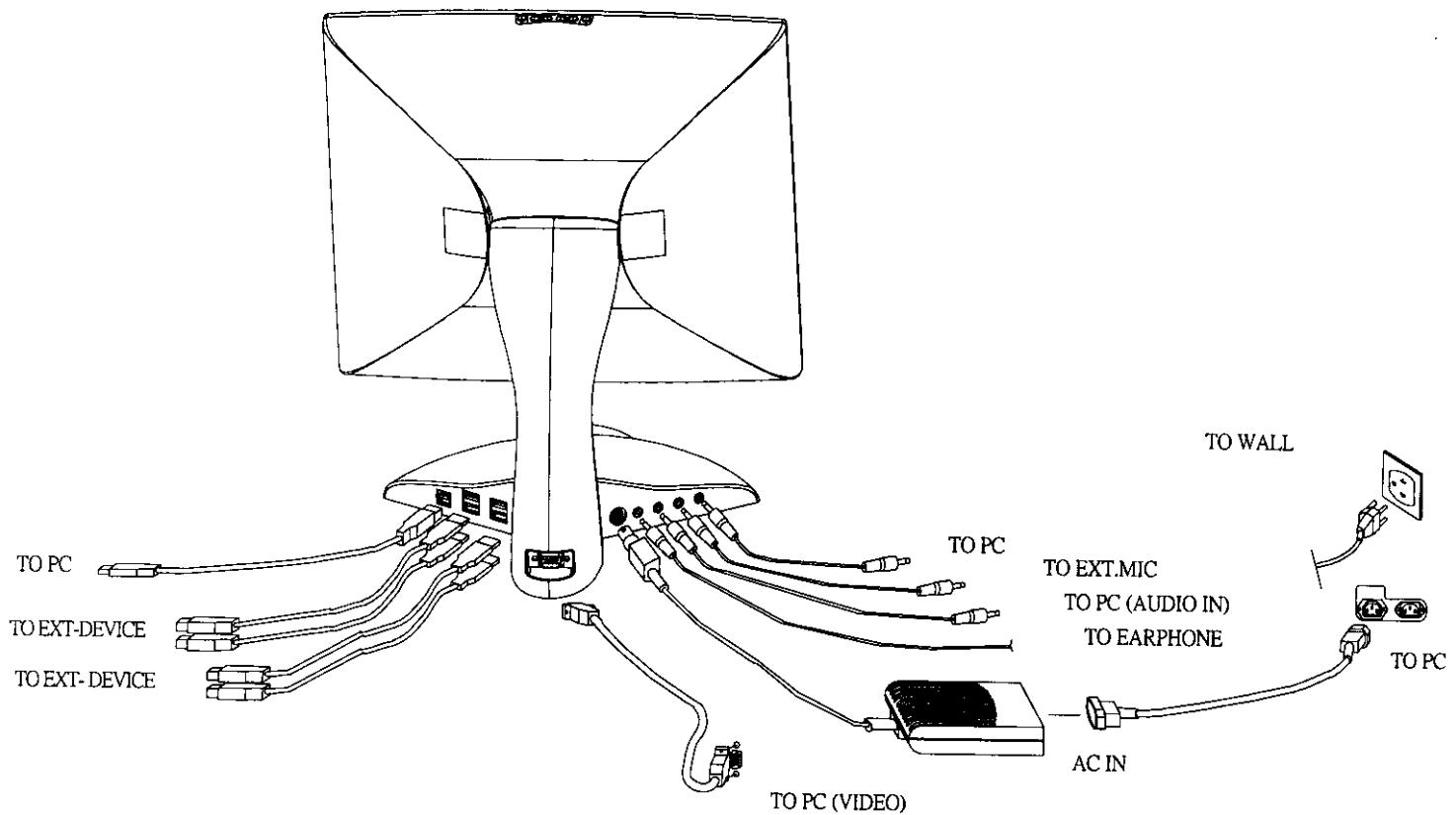
### 1.3 Check list

Before using this monitor, please make sure that all the items listed below are present in your package:

- LCD monitor
- AC power adapter
- This manual
- Video cable
- Power cable
- USB cable (by order)
- Audio cable x 2

## 2. SETUP

### 2.1 LCD Monitor setup



*Notice:USB function is by order. Figure 2*

#### 2.1.1 Power Cable connection

- Plug the power cable into the wall outlet, the other end of the power cable into the AC adapter.
- Plug the other end of the power adapter into the DC-IN of **L-50T** monitor.

#### 2.1.2 Signal Cable connection

Connect the VGA cable to the base of **L-50T** monitor.

#### 2.1.3 Power On

Turn on the power of both your **L-50T** monitor and your computer.

### 3. USER INTERFACE CONTROL

There are six switches, power LED and OSD menu on the L-50T. These are to provide the users an easy way to adjust video and audio. A description of these functions is as follows:

#### 3.1 OSD Controls

To make any adjustment:

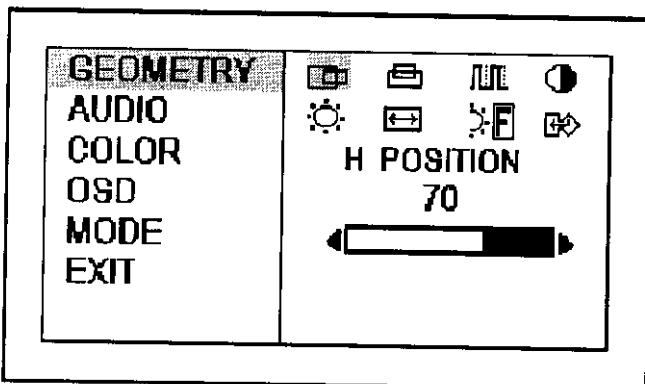
1. Press (◇) to show the OSD menu, and then select one of six functions by pressing (◇) button.
2. Select the item in the function that you wish to adjust by pressing (↑) or (↓) button.
3. Adjust the item that you selected by using the adjust buttons, (<) or (>).
4. New adjustment value will be saved automatically.

##### 3.1.1 OSD Menu

There are six functions in this OSD menu as follows:

1. GEOMETRY	4. OSD
2. AUDIO	5. MODE
3. COLOR	6. EXIT

##### 3.1.2 Geometry Function



There are eight items in geometry function:

1. H POSITION ( ) : Shifts the picture left or right.
2. V POSITION ( ) : Shifts the picture up or down.
3. CLK PHASE ( ) : Shifts the pixel clock phase when video or OSD jitter happens or focus is not perfect . Video or OSD jitter may cause by the difference of VGA card.

- 4.CONTRAST(  ):Adjusts the contrast control.
- 5.BRIGHTNESS(  ):Adjusts the brightness control.
- 6.RECALL (  ): Recalls all basic geometry control of the optimal pre-programmed ( factory ) setting.
- 7.H SIZE(  ):Adjusts the H size control. If you want to adjust the H size, please move the picture to the center of screen first by adjusting “H POSITION” .
8. TEMP ADJ(  ): Temperature adjustment function. Video jitter may cause by the change in weather. User must adjust this function to solve the video jitter.

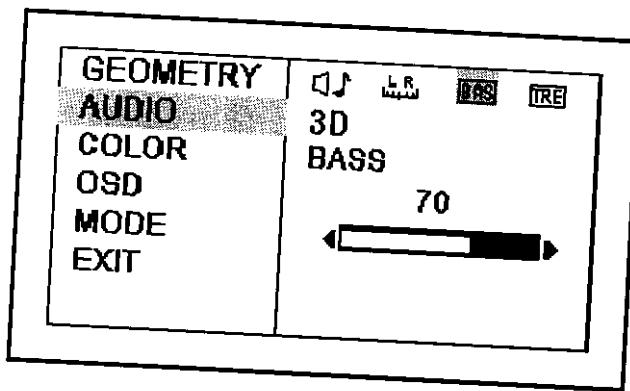
**Notice 1:** When the picture has blue line bars or moire, please make adjustments by following steps.

- a).Move the picture to the center of screen by adjusting “H POSITION” .
- b).Select “H SIZE” item in geometry function.
- c).Use “<” or “>” key to adjust “H SIZE” item to have the numbers of blue line bars become fewer until all blue line bars disappear.
- d).After solve the above problem, please use “CLK PHASE” key to adjust the picture if the picture is not good enough.

**Notice 2:** When the video has some jitter, please make adjustments by following steps.

- a). Select “CLK PHASE” item in geometry function.
- b). Use “<” or “>” key to adjust this item to have the OSD jitter disappear.
- c). Select “TEMP ADJ” item in geometry function.
- d).Use “<” or “>” key to adjust this item to have the video jitter disappear.

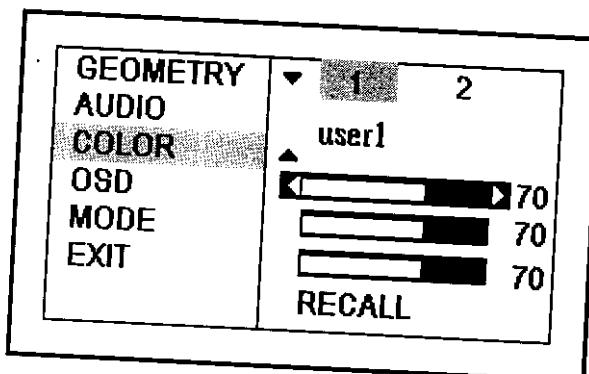
### 3.1.3 AUDIO



There are five items in audio function.

- Main Volume (  ): Adjusts the audio main volume.
- Balance (  ): Adjusts the volume balance between R and L channel
- Bass (  ): Adjusts the bass control.
- Treble (  ): Adjusts the treble control.
- Stereo(3D): Select mono or stereo function.

### 3.1.4 COLOR



There are two user color temperature modes (user1, user2).

#### How to select a color temperature mode

Use the (  ) buttons to choice your desired color mode.

#### Adjusting a user color temperature mode

- RGB

Step1: Select R, G, or B to begin adjusting by pressing (  $\wedge$  ) button.  
Step2: Use the adjust buttons to change color.

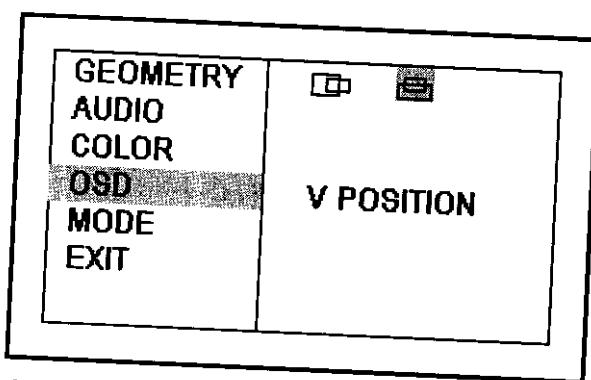
Red Control ( R ) Increases/Decreases the red video gain level.  
Green Control ( G ) Increases/Decreases the green video gain level.  
Blue Control ( B ) Increases/Decreases the blue gain level.

### b. RECALL

This control will recall the preset color temperature value to the selected user color temperature value.

Step1: Select RECALL by pressing (  $\wedge$  ) button.  
Step2: Use the adjust buttons to recall.

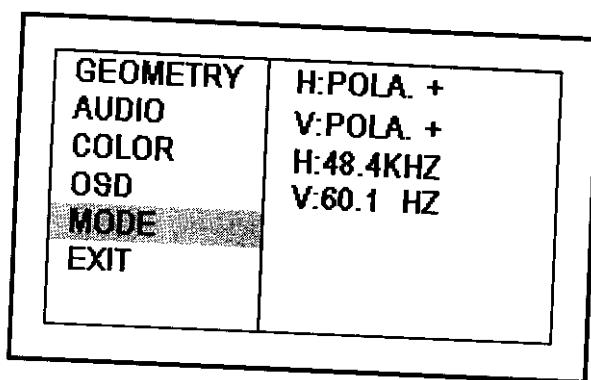
### 3.1.5 OSD POSITION



#### Description of each Control

- H-POSITION( ): shifts the OSD menu left or right.
- V-POSITION( ): shifts the OSD menu up or down.

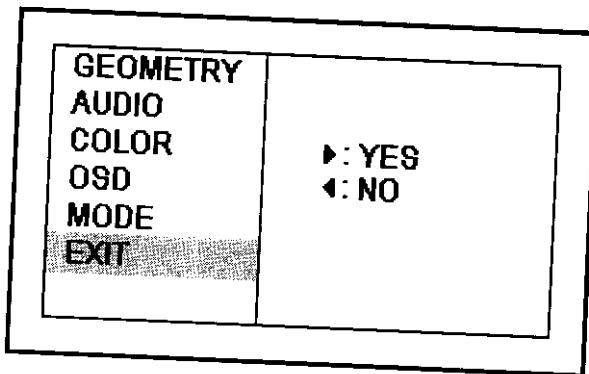
### 3.1.6 MODE



Displays the Vidio mode, polarity and frequency for the current mode.  
Such as:

H: POLA , +  
V: POLA , +  
H: 48.4 KHZ  
V: 60.1 HZ

### 3.1.7 EXIT



>: Exit - Exit from OSD menu.

<: No - Return to OSD menu.

### 3.1.8 Programming L-50T

The **L-50T** has 13 preset modes. If the current video mode is one of the preset modes, the L-50T will store your adjustments automatically into the permanent memory.

If you have altered controlled function and wish to return to the preset modes, a recall function is provided that will allow return to the preset mode.

In addition, the L-50T offers 8 user modes that allow the user to save the display characteristics of any video mode that is not a preset video mode.

We recommend that user choice one of the 13 non-interlance preset modes.show as follows:

Resolution	Frequence	Resolution	Frequence
720x400	31.5KHz/70Hz	800x600	48.1KHz/72.2Hz
640x480	31.4KHz/60Hz	800x600	46.9KHz/75Hz
640x480	37.9KHz/73Hz	800x600	53.7KHz/85Hz
640x480	37.5KHz/75Hz	1024x768	48.4KHz/60Hz
640x480	43.3KHz/85Hz	1024x768	56.5KHz/70.1Hz
800x600	35.2KHz/56.3Hz	1024x768	60KHz/75Hz
800x600	37.9KHz/60.3Hz		

**Notice1:** If user choice a new mode, we recommand user to adjust geometry function as follows:

STEP1:Adjust OSD position to a fit location.

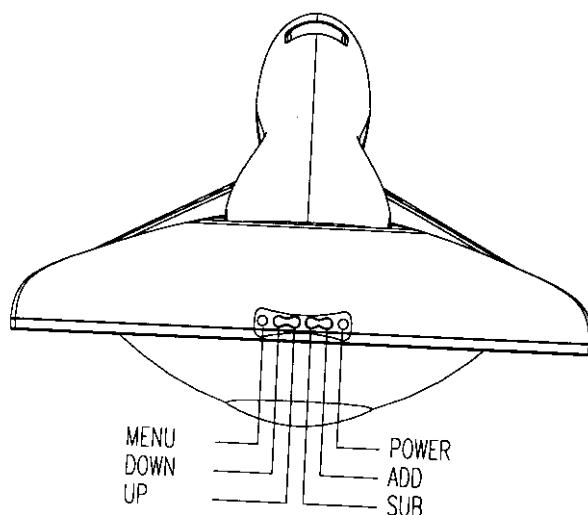
STEP2:Adjust “H POSITION” or “V POSITION” item.

STEP3:Adjust H-SIZE item to get a fit screen size without blue line bar.

STEP4:Adjust “CLK PHASE” and “TEMP ADJ” item to get a good focus.

**Notice2:** We recommand that user doesn't select “INTERLANCE” video signal.

## 3.2 Front Panel Controls



**Figure 3**

### 3.2.1 Menu Button (◇)

1. Press (◇) to show the OSD menu.

2. Press (◇) to select one of six OSD functions.

### **3.2.2 Brightness/Down-up Button ( ^ or v )**

1. Press ( ^ ) or ( v ) to show Brightness menu (  90 ), and then press ( ^ ) or ( v ) to decrease or increase the brightness.
2. Press ( ^ ) or ( v ) to select item which you want to adjust.

### **3.2.3 Contrast/Sub-Add Button ( <,> )**

1. Press ( < ) or ( > ) to show contrast menu (  90 ), and then press ( < ) or ( > ) to decrease or increase the contrast.
2. Press ( < ) or ( > ) to adjust item that you select.

### **3.2.4 Power Button ( ⊖ )**

Press ( ⊖ ) to turn the power on or off.

## **3.3 Power LED**

The green light of power LED indicates the power is switched on and the power cord is properly connected.

The orange light indicates it's in power-off condition, no signal applied or improper connection of the signal cable.

## **4. PLUG AND PLAY**

### **4.1 DDC Function**

The Display Data Channel “DDC” will allow the display to inform the host system about its identity and depending on the level of DDC used, communicate additional levels of display capability.

DDC 1: One uni-directional data channel.

DDC 2: One bi-directional data channel.

L50T can support display type DDC1/2B.

### **4.2 USB Function**

1. Four downstream ports & one upstream port.
2. Self power function.
3. Each downstream port supply 500mA(max).
4. Compatiable with USB version 1.0.
5. Compatiable with DETROIT and MEMPHIS.
6. Compatiable with OHCI and UHCI host controller.

## 5. DISPLAY POWER MANAGEMENT

This monitor meets the power management standards as set by the Video Electronics Standards Association (VESA) and /or the United States Environmental Protection Agency (EPA). This feature is designed to conserve electrical energy by reducing power consumption.

This function is activated by an operating system or Windows utility program which turns off the monitor display and also turns off ,or changes the color of the monitor's power LED.

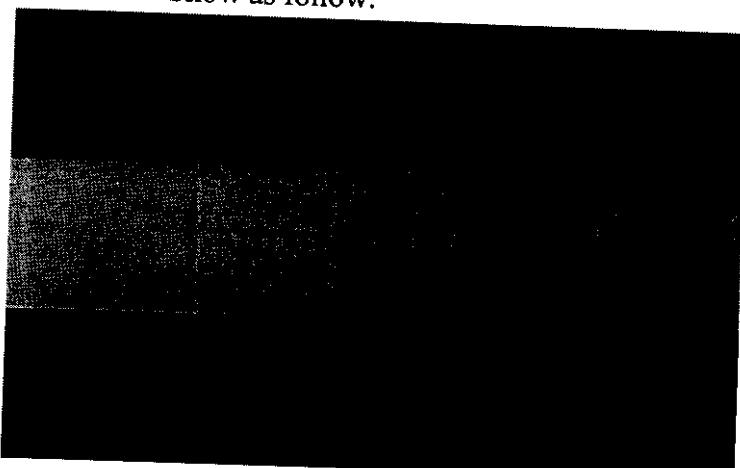
Mode	signal					power	
	H-SYNC	V-SYNC	Video	USB	Audio	Indicafor	Consumption
ON	Yes	Yes	Actived	No	Yes	Green	<30W
	Yes	Yes	Actived	Yes	Yes	Green	<50W
Stand-by	No	Yes	Blanked	No	No	Amber	<5W
Suspend	Yes	No	Blanked	No	No	Amber	<5W
OFF	No	No	Blanked	No	No	Amber	<5W
Out of Range	Yes	Yes	Blanked	No	No	Green	<5W

Notice 1: "Out of range " mean H SYNC >62KHz ,

H SYNC<29KHz,V SYNC>120Hz or V SYNC<48Hz.

Notice 2: If power on without H and V-sync. There is an OSD warning picture appear on the screen.

Show as follow:



## 6. TROUBLESHOOTING

**Problem** : No picture appears on the screen.

- If power LED is off, check if power cable is securely connected.
- If power LED is amber in color, check if video cable is securely connected. Also check if your computer is switched on.
- If power LED is green in color, check if H SYNC frequency is out of range.
- Adjust the brightness and contrast controls.

**Problem** : Picture is unstable (noise, jitter etc)

- Check the timing of your computer and see if they are compatible with L-50T.
- Adjust “CLK PHASE” item in geometry function.

**Problem** : No sound appears.

- Ensure the audio input/output cables are correctly connected.
- Adjust “MAIN VOLUME” item in audio function.

## 7. APPENDIX:

### TECHNICAL INFORMATION

#### Precautions

- Only a qualified service technician should open the monitor case. Components inside the monitor can cause serious electric shock. Do not attempt to remove the back cover of the monitor by yourself. Contact your monitor dealer or authorized service personnel if your monitor needs to be repaired.
- To prevent fire or shock hazard, do not expose this monitor to rain or moisture.

#### Specifications

##### LCD Panel:

1. Display Area	: 304.1 (H) x 228.1(V)mm
2. Number of pixels	: 1024 x 768
3. Pixel pitch	: 0.297(H) x 0.297(V)mm
4. Contrast ratio	: 200:1(Typ., perpendicular)
5. Best contrast ratio	: 350:1 (Typ., down side 10° )
6. Viewing angle(more than the contrast ratio of 10:1)	
Horizontal	: 55°(typ.,left side, right side)
Vertical	: 50°(typ.,up side),45(Type., down side)
7. Response time	: 15ms (Typ.), “white” to “black”
8. Luminance	: 200cd/m^2(Typ.)

##### Video and Synchronization Signals:

1. Signal cable	: 15-pin D-type connector
2. Video	: Analog levels
3. Horizontal Sync	: TTL Positive/Negative
4. Vertical Sync	: TTL Positive/Negative
5. Pixel frequency	: 80MHz(max)
6. Display colors	: Limited by VGA card
7. Video signal input	: 0.7 Vpp

##### Display Data Channel:

1. Compatibility	: VESA DDC 1/2B
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**Scanning Frequency:**

1. Horizontal : 30 KHz to 61 KHz
2. Vertical : 50 Hz to 85 Hz

**USB Function(optional)**

1. Compatibility : USB V1.0

**Power Supply:**

1. Input voltage : 13Vdc, 5Vdc
2. Consumption : 50 Watts maximum

**Environment:**

1. Operating Temperature: 0°C to 40°C  
Operating Humidity : 10% to 90%
2. Storage temperature : -20°C ~ 60°C

**Weight:**

Approx. 4.3kgs(NET)

**Regulatory:**

1. Optional FCC-B/UL/CSA
2. Optional TÜV-GS
3. Optional CE
4. Optional MPRII
5. Optional TCO

**Video Pin Assignments**

Pin No	Signal	Pin No	Signal
1	Red Input	9	NC
2	Green Input	10	GND
3	Bule Input	11	NC
4	NC	12	SDA
5	GND	13	Horizontal Sync
6	Red Reture	14	Vertical Sync
7	Green Reture	15	SCL
8	Bule Reture		