

P/N : 97E9500152

HL900S
HL900D

User's Reference

TFT LCD Monitor





Contents

FCC STATEMENT

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 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.
- Only shielded interface cable should be used.

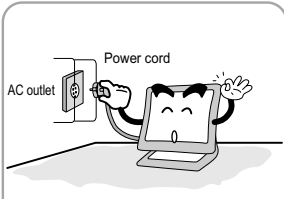
Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the user's authority to operate such equipment.

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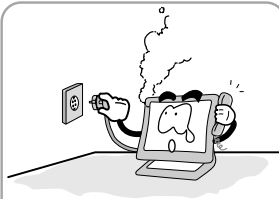
1

Precautions

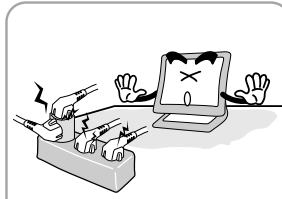
Warning : The following information will help you avoid the risk of electric shock, serious injury, and death.



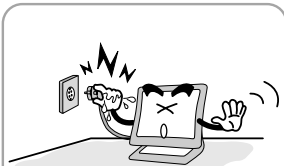
Plug the power cord into a properly grounded outlet. There is the risk of electric shock.



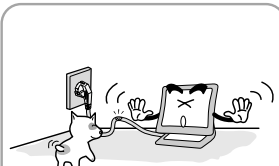
If you hear a noise or smell smoke from the computer or adaptor, unplug the power cord immediately, and call the service center. There is the risk of electric shock or fire.



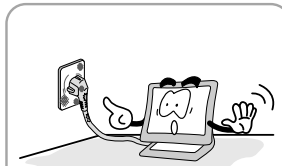
Do not overload an electrical outlet with too many devices. There is the risk of fire.



Do not unplug from the outlet by pulling the power cord or when your hands are wet. There is the risk of electric shock and fire.



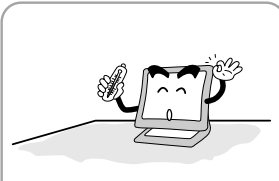
Do not bend the power cord excessively or place heavy objects on it. Keep children and pets away from the power cord as they may damage the power cord. There is the risk of electric shock and fire.



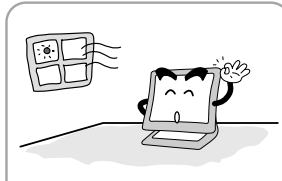
Do not use a damaged power cord or plug. Make sure the plug fits snugly into the outlet. There is the risk of electric shock or fire.



Do not expose the monitor to the direct sun light.



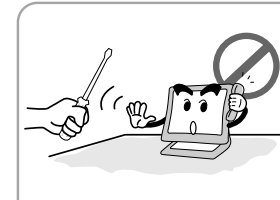
Keep the monitor away from high temperature, humidity, and dust.
 ■ Operating environment
 = 0~25degrees Celsius
 ■ Operating environment
 = 30~80relative humidity.



Do not block the fan louvers. There is the risk of fire or damage to the monitor.

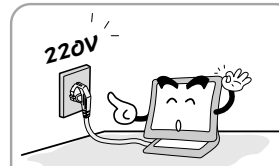


Do not allow any object or liquid to enter inside the monitor. There is the risk of electric shock, fire, or damage to the monitor.



Do not attempt to disassemble, fix, or modify the monitor. There is the risk of electric shock or fire.

Caution : The following information will help you avoid the risk of minor or moderate injury, or damage to the monitor.



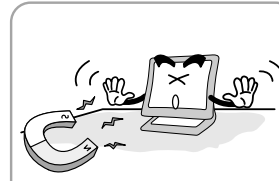
Use a proper voltage/current level indicated



Do not clean the LCD with abrasive chemicals. There is the risk of damage to the LCD.



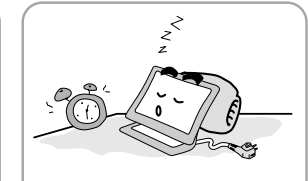
Do not scratch and damage the LCD with sharp objects.



Keep the monitor away from objects and electrical appliances that may generate electromagnetic fields.



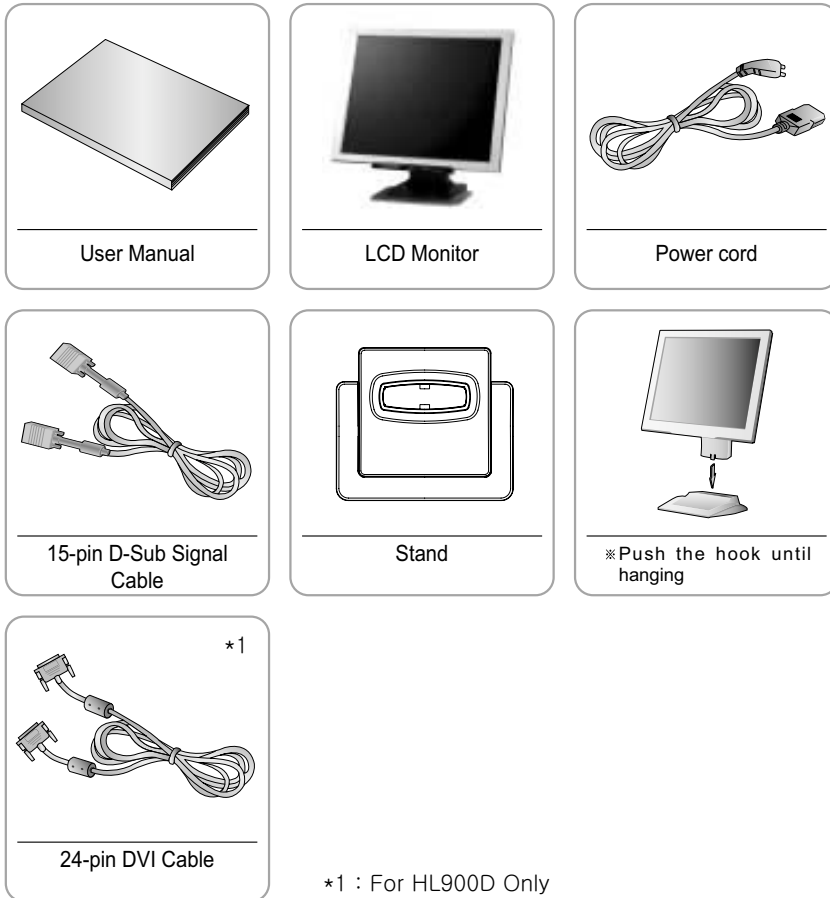
Place the monitor on a flat, stable surface. The monitor may fall and there is the risk of damage or injury



Unplug the power cord when the monitor is not in use for a prolonged period of time.

2

Items



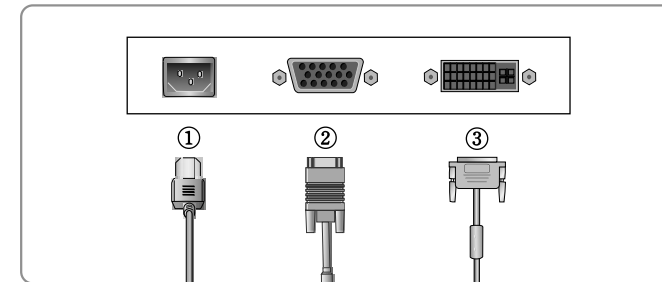
Notice

Please make sure the following items are included with your monitor.
If any items are missing, contact your dealer.

3

Setting up the LCD monitor

How to connect the power cord and the several cables to the LCD monitor.



No.	Name	Cable connections
1	Power	Power Cord
2	PC	15-pin D-Sub Signal Cable
3 *1	DVI	24-pin DVI Cable

*1 : For HL900D Only

Plug & Play

The adoption of the new VESA Plug and Play solution eliminates complicated and time consuming setup. It allows you to install your monitor in a Plug and Play compatible system without the usual hassles and confusion. Your PC system can easily identify and configure itself for use with your display. This monitor automatically tells the PC system its Extended Display Identification Data (EDID) using Display Data Channel (DDC) protocols so the PC system can automatically configure itself to use the flat panel display.

Warm-up Time

All LCD monitors need time to become thermally stable whenever you turn on the monitor after letting the monitor be turned off for a couple of hours. Therefore, to achieve more accurate adjustments for parameters, allow the LCD monitor to be warmed up for at least 30 minutes before making any screen adjustments.

4

Adjusting The Monitor

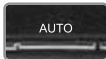
The Function Control Buttons



How to use the Function Key.



1. First click : The OSD main menu appears.
2. Second click : The OSD menu disappears.



When you push Auto button, this will optimize image quality automatically.



You can change the display mode. (PC ↔ Digital) *1



Power On/Off toggle button.



Select a command function.



1. Automatic adjust color(white level) for various input source's white level.
2. Move the on-screen highlighted command item to the next one.
3. Decrease the current option value.

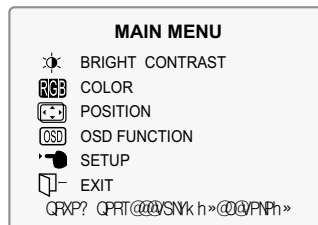


1. Move the on-screen highlighted command item to the Previous one.
2. Increase the current option value.

*1 : For HL900D Only

Main OSD Menu

When you push the menu button, you can see below main OSD menu.



BRIGHTNESS/CONTRAST

- Brightness : Changes the overall light intensity of the images being displayed.
- Contrast : Changes the ratio of light intensity between the brightest white and darkest black.
- Gamma : Changes the gamma value.



Adjusting Gamma Value is useful in case of game or movie screen.

COLOR *1

- The tone of color can be changed from bluish white to reddish white.
- Color1 - Blue type
- Color2 - Red type
- RED, GREEN, BLUE - You can adjust red, green and blue values that you want.

POSITION & CLOCK/PHASE *1

CLOCK/PHASE

- When image is not clear, you can use clock/phase menu.
- CLOCK/PHASE : Although 'Auto Adjustment' automatically finds the optimum values of Clock and Phase parameters as well as image position, it may be necessary for you to adjust those parameters manually. It is recommended for you to use 'Auto Adjustment' first. If the adjustment results are not satisfactory, then use Clock and Phase adjustment features to get the best adjustment results. Bear in mind that Clock and Phase adjustment may change the width of the image and affect image position as well. If the image is clear while out of center by a couple of pixels, use image position to center the image.

POSITION

- Changes the location of the image.
- H-Position : Moves to the Left/Right
- V-Position : Moves to the Bottom/Top



If image is not clear (noise), you can adjust Clock/Phase.

OSD FUNCTION ADJUSTMENT

- Sets the OSD menu display position.
- OSD Position : Moves the OSD menu to the horizontal or vertical direction.
- OSD TIME : Shows the OSD TIME displays from 5 to 60sec.
- LANGUAGE : Selects language in OSD menu.

SETUP MENU

- White balance : Automatic djust color (white level) for various input source's white level.*1
- Input source : Selects input signal.*2
- Information : displays monitor's information.
- Recall : Discards current setting and replaced all paramotors with the factory default values.

*1 : For PC mode Only. *2 : For HL900D Only.

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Appendix

Display Modes

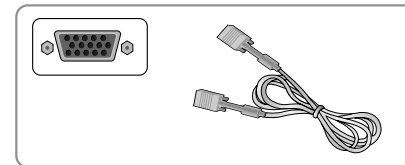
Mode	Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	Pixel Clock Frequency(MHz)	Sync Polarity(H/V)
VGA	720 X 400	31.468	70.087	28.322	-/+
	640 X 480	31.468	59.940	25.175	-/-
		35.000	66.670	30.240	-/-
SVGA	800 X 600	37.879	60.300	40.000	+/+
		48.077	72.188	50.000	+/+
		46.875	75.000	49.500	+/+
XGA	1024 X 768	48.363	60.004	65.000	-/-
		56.476	70.000	75.000	-/-
		60.023	75.029	78.750	+/+
SXGA	1280 X 1024	63.981	60.020	108.000	+,-/+,-
		79.976	75.025	135.000	+/+

※ The optimal resolution is 1280 × 1024@60Hz

15-pin D-Sub Connector

- Input signal : Analog RGB
- 15-pin D-Sub connector

Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
1	Analog Red Input	6	Analog Red Ground	11	Ground
2	Analog Green Input	7	Analog Green Ground	12	DDC Data
3	Analog Blue Input	8	Analog Blue Ground	13	Horizontal Sync
4	Ground	9	No Connect	14	Vertical Sync
5	DDC Ground	10	Sync Ground	15	DDC Clock

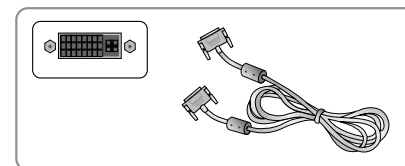


15-pin D-Sub Signal Cable

24-pin DVI Connector *1

- Input signal : Digital
- 24-pin DVI connector

Pin No.	Signal Name	Pin No.	Signal Name	Pin No.	Signal Name
1	TMDS DATA2-	9	TMDS DATA1-	17	TMDS DATA-
2	TMDS DATA2+	10	TMDS DATA1+	18	TMDS DATA+
3	DGND	11	DGND	19	DGND
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	DDC CLOCK	14	+5V POWER	22	DGND
7	DDC DATA	15	AGND	23	TMDS CLOCK+
8	Analog vertical Sync	16	NC	24	TMDS CLOCK-



24-pin DVI Cable

*1 : For HL900D Only

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Troubleshooting

DPMS Power Saving Mode

This monitor has a built-in power management system called DPMS Power Saving Mode. This system saves energy by switching your monitor into a low-power mode when it has not been used for a certain period of time. The available modes are “ON”, “Standby”, “Suspend”, and “OFF”.

State	Signal			Power Consumption	Recovery Time	LED Color and Operating status
	H-sync	V-sync	RGB			
ON	Active	Active	Active	Under 40Watt	-	Green
Standby mode	Inactive	Active	Blanked	Less than 2Watt	Within 2Sec	Amber
Suspend mode	Active	Inactive	Blanked			Amber
OFF	Inactive	Inactive	Blanked			Amber

What you see	Suggested Actions
Screen is blank and power indicator is off	Ensure that the power cord is firmly connected and the LCD monitor is on.
“OUT OF RANGE” message	<ul style="list-style-type: none"> • Check the maximum resolution and the frequency of the video adaptor. • Compare these values with the data in the Display Modes Timing Chart.
“NO SIGNAL” message	<ul style="list-style-type: none"> • Ensure that the signal cable is firmly connected to the PC or video sources. • Ensure that the PC or video sources are turned on.
Image is not stable and may appear to vibrate	<ul style="list-style-type: none"> • Check that the display resolution and frequency from your PC or video board is an available mode for your monitor. On your computer check : Control Panel, Display, Settings • Note : Your monitor supports multiscan display functions within the following frequency domain:
The image is too light or too dark	<ul style="list-style-type: none"> • Adjust the Brightness and Contrast. • Refer to the Brightness/Contrast
The image color is not good	<ul style="list-style-type: none"> • Adjust the Color • Refer to the Color
Image is not centered on the screen	<ul style="list-style-type: none"> • Executes Auto Configuration.
Screen is blank and power indicator light is steady amber or blinks every 0.5 or 1 seconds	<ul style="list-style-type: none"> • The monitor is using its power management system. • Move the computer’s mouse or press a key on the keyboard.

Appendix A. Specifications

MODE		Analog	Digital *1
Panel	Type	TFT active matrix	
	Size	19 inch	
		376.32 × 301.056(mm)	
	Pixel Pitch	0.294 × 0.294(mm)	
Display Color	8-bit (16,777,216 colors)		
Display Resolution	Basic	1280 × 1024@60Hz	
	Maximum	1280 × 1024@75Hz	1280 × 1024@60Hz
Frequency	Horizontal	31.5 ~ 80KHz	31 ~ 64KHz
	Vertical	56 ~ 75Hz	59 ~ 61Hz
Connectors		15-pin D-Sub Connector	24-pin DVI Connector
Tilting Degree (U/D)		-5° ~ 30° Degree	
Plug&Play		VESA DDC 1/2B	
Power	Input	Internal type : 100~240VAC, 50/60Hz, 0.5A	
	Consumption	Under 40W	
	Standby mode	2W less	
Power Management		VESA DPMS	
Environmental Consideration	Temperature	0~25° C (32° F~77° F)	
	Humidity	90% less	
Dimensions	Outside	426mm(W) × 193mm(H) × 406mm(D)	
Weight	Monitor	5.0Kg	
	Carton	1.5Kg	

※ The specification of this monitor is subject to be changed without notice to improve performance.

*1 : For HL900D Only.