

ELSA ECOMO™ 440LCD

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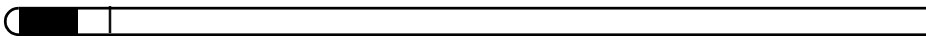
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Aachen, June 2001

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EN

1 Introduction

1.1 FCC compliance statement

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.



To comply with the limits for an FCC Class B computing device, always use the shielded signal cord and shielded power cord supplied with this unit.

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.

DDC 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.



1.2 Safety instructions

1.2.1 Handling

Due to its fragile glass panel, this monitor must be handled with caution and not exposed to impact or shock. Never touch the display area or rub it with a hard, stiff object or tool, as the panel is easily scratched.

1.2.2 Cleaning

The display area is highly prone 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, normal glass cleaner or special TFT cleaners are safe. Do not allow oil or water to penetrate the display, as droplets cause staining and discoloration with time. Keep food particles and fingerprints away from the display area at all times.

1.2.3 Storage

Store the monitor in a dark place away from sunlight and ultraviolet (UV) radiation, as air bubbles may develop within the glass panel with time. Do not store the display in temperatures higher than 40 °C/104 °F, or humidity greater than 90%. Avoid condensation.

1.3 Caution

- Do not open any covers on the monitor. No user serviceable parts are inside.
- In an emergency, disconnect the AC power plug.
- To avoid electrical shock, disconnect the power cord from the AC adapter before connecting the signal cable to the computer.
- 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.
- 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, as doing so can result in fire or electrical shock hazards. When disconnecting the power cord, always grasp the plug, not the cord.

- 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.
- 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.
- Always disconnect the power cord when moving this monitor.
- Do not remove and use the LCD panel separately from its stand.
- Do not lay this monitor in a horizontal position when operating.

1.4

General information

- Your new LCD monitor incorporates the latest state-of-art color Liquid Crystal Display (LCD) technology providing a wider view angle with higher contrast ratio for IBM compatible PCs or Apple Macintosh.
- 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 only analog input support.
- Your new LCD monitor is a type monitor or VESA-compatible wall mountable type.
- 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 16.7 million.

1.5

Equipment checklist

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

- Color TFT LCD monitor (with 15-pin D-SUB cable)

- Accessory box including:
 - AC to DC adapter & power cord
 - Installation guide and driver CD

The monitor is equipped with an auto-sensing power supply for voltage ranging from 100–120 V ac or 200–240 V ac, 50–60 Hz.

Confirm the line voltage designation then attach the power cable to the power jack.

1.6

Monitor features

- Supports analog IBM compatible PC, Apple Macintosh (adapter optional)
- Supports DPMS for monitor power management
- Supports DDC2B
- On-screen control: auto-tune, contrast, brightness, H/V position, H size, phase, auto-level, color control, OSD position, OSD time out, power save delay, language, information.
- Built-in color active matrix TFT (Thin Film Transistor) liquid crystal display (LCD) that uses amorphous silicon TFTs as a switching device.
- Resolution: up to 1280 x 1024
- Color: 16.7 million colors support
- Dot pitch: 0.264 mm (H) x 0.264 mm (W)
- Scanning frequency: 30 kHz to 80 kHz (H), 55 Hz to 75 Hz (V).
- Universal power supply: AC 100 - 240V allowed.
- Power consumption normal: 40 watt max., stand-by: 3 watt max., suspend: 3 watt max., off: 3 watt max.
- Outside dimensions: 413 mm (W) x 418 mm (H) x 175 mm (D) [16.26" (W) x 16.45" (H) x 6.89" (D)]
- Weight (net): 6 kg (13.2 lbs.)

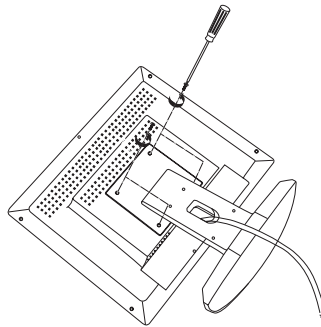
2 VESA wall mount

2.1 Attaching the VESA-compatible wall mounting

Your new LCD monitor is designed for VESA-compatible wall mounting.

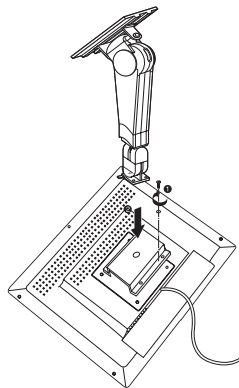
To prepare the monitor for wall mounting:

- ① Remove 4 screws connecting the monitor to the stand and lift off the stand assembly (see fig. 1)



(fig. 1)

- ② Attach VESA-compatible mounting (optional) to the assembly (see fig. 2).

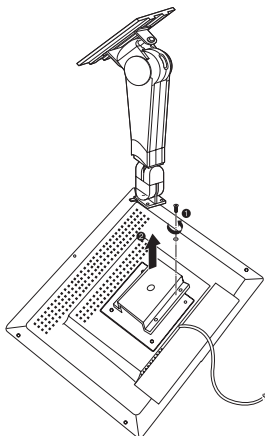


(fig. 2)

2.2

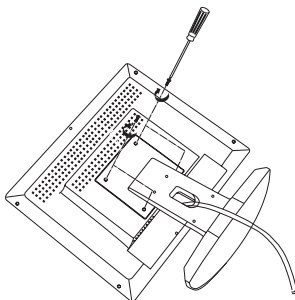
To reattach for stand type monitor

- ① Remove 4 screws from the assembly (see fig. 3)



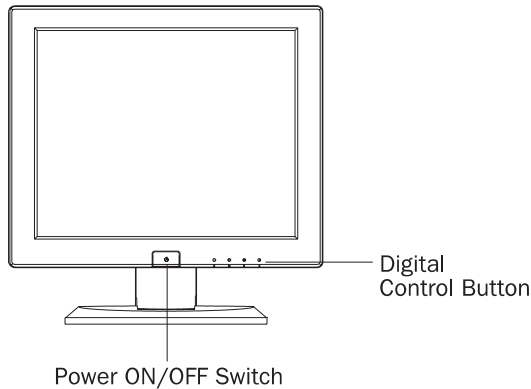
(fig. 3)

- ② Attach the stand assembly, and then install 4 screws. (see fig. 4)







(fig. 4)

3 Front controls




Button description:

- ❶  : Exits the on-screen control.
Do auto-tune function (press and hold down for two seconds).
- ❷  : Move selected icon down to select one of the controls.
Decrease the control value.
- ❸  : Move selected icon up to select one of the controls.
Increase the control value.
- ❹  : Display on-screen control menu.
Select control menu.


3.1 On-screen display

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

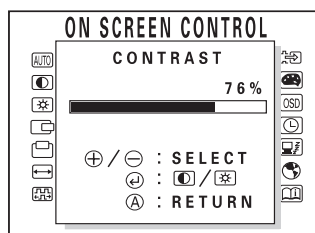
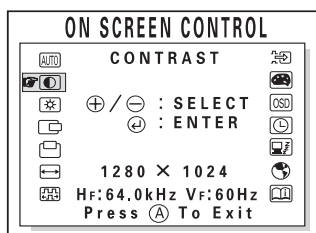
Before activating the OSD menu, the  button can be used to automatically adjust the display to the proper size and horizontal and vertical position (press button for 2 seconds.).

The OSD menu activates automatically when you press the Enter button on the Bottom 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. A submenu or control with a status bar will appear. The status bar indicates in which direction, from the factory preset, which adjustments are being made. Use the '+' or '-' button to adjust the control.

The contrast and brightness menu can also be adjusted by simply pressing either the '+' or '-' button.

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

3.2 Menu descriptions



AUTO-TUNE

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

CONTRAST

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

BRIGHTNESS

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

H POSITION (horizontal position)

Select this control and then use the and buttons to center the image horizontally on the screen.

V POSITION (vertical position)

Select this control and then use the '+' and '-' buttons to center the image vertically on the screen.

H SIZE (horizontal size)

Select this control and then use the '+' and '-' buttons to expand or decrease the image width to horizontally fill the display screen.


PHASE

Select this control 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. 0.714 V p-p, 1.0 V p-p).


COLOR CONTROL

Select this control, 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 '+' or '-' button 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 '+' or '-' button to adjust the green 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 '+' or '-' button to adjust the blue level of the display.

OSD POSITION

Select this control and then use the  button to select the direction to move the OSD menu. Use the '+' and '-' buttons to move the OSD menu.

OSD TIME-OUT

Select this control 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, or 60 seconds).

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 and then use the and buttons to choose from English, German, Spanish, Italian or French.

INFORMATION

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

You can get the best quality of the image under full-screen image with a running computer. The 'auto tune' function may not work properly if the background color is dark or if the input image does not fill the screen (e.g. DOS text mode). We strongly recommend that you just run the 'auto level and auto tune' function to get the best image quality when you unpack the monitor or when you install different graphics board or PC.

4 Troubleshooting

4.1 No power

- Switch the power switch to 'On'. The power LED turns on.
- Make sure AC power cord is securely connected to the power jack and to a power outlet.

4.2 The power is 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.

4.3 Image is unstable, unfocused

- Use the 'auto-tune' to adjust automatically.
- If the image is still unstable after 'auto tune' processing, adjust 'phase' manually to get image focused.
- Check whether the resolution or refresh rate in windows display setting is beyond the supported range (please refer to the specification of supported mode).
- Please refer to the FAQs on the ELSA support website at www.elsa.com.

4.4 Flickering

- Due to TFT display technology, no flickering can noticed, even at lower refresh rates.
- See the 'Timing guide' in this manual with a list of refresh rates and frequency settings showing the recommended setting for the monitor. An optimal setting of 1024 x 768 at 60 Hz is recommended for this monitor.

4.5 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.

- Connect the monitor to another computer.
- Check the graphics board for proper sync scheme (or sync polarities) to match the monitor's specifications.

4.6 Double (split) screen image

- Make sure your graphics board is set to non-interlaced mode.

4.7 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 at 75 Hz).
- Connect the video cable securely.
- Try the monitor with another power source.

4.8 Control buttons do not work

- Press only one button at a time.

4.9 About the LCD

The LCD contains over 3,932,160 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.

5 Technical data

5.1 Power management

The power management feature of this LCD monitor is comprised of three stages: On or Out of range (green), Standby (amber), Suspend or Active off (amber/green blinking).

In the standby, suspend or active 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	LED status
On (normal operation)	green
Out of range	green
Standby	amber
Suspend	green (blinks amber once per second)
Active off	green (blinks amber once per tow seconds)

5.2 Timing guide

The LCD is a multi-frequency display. It operates at horizontal frequencies between 30 kHz and 80 kHz and vertical frequencies between 55 Hz and 75 Hz. 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 timing table below.

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 (e.g. horizontal and vertical position), please refer to the on-screen display section of this manual for instructions.

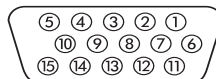
If you would like to use one of the preset timing modes, please refer to your graphics board manufacturer's installation guide for instructions on how to make these changes. The graphics board controls the refresh rate. Most gra-

phics boards provide a software utility or hardware DIP switches that allow you to change the frequency used for each resolution.

	Resolution		Frequency (Hz)		Clock	Polar-ity	Remarks
	Horizon-tal	Vertical	Horizon-tal	Vertical	(MHz)	(H/V)	
VGA	720	400	31.5k	70	28.32	-/+	
VESA	640	480	31.5k	60	25.17	-/-	
	640	480	37.5k	75	31.50	-/-	
	800	600	37.9k	60	40.00	+/+	
	800	600	46.9k	75	49.50	+/+	
	1024	768	48.4k	60	65.00	-/-	
	1024	768	60.0k	75	78.75	+/+	
	1280	1024	64.0k	60	108.0	+/+	
	1280	1024	80.0k	75	135.0	+/+	recom-mended
	832	624	49.7k	75	57..28	-/-	

5.3

The VGA D-shell connector



Pin assignments

Pin	Signal	Pin	Signal
1	red	9	+5V
2	green	10	sync ground
3	blue	11	not assigned
4	not assigned	12	bidirectional data (SDA, DDC2)
5	ground	13	horizontal synchronization
6	red ground	14	vertical synchronization
7	green ground	15	data clock (SCL, DDC2)
8	blue ground		



When resolutions are shown that are lower than the pixel count of the LCD panel, text may appear choppy or bold. This is normal all current flat panel technologies when displaying non-native resolutions on a full screen (less

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.

5.4

Specifications

LCD	Type Color filter Colors Glass surface	17" diagonal viewable screen TFT (thin film transistor) , Active Matrix Panel, 0.264 mm pixel pitch R,G,B verticle stripe 16.7 million Anti-glare coating
Viewing angles (CR > or= 5)	Left/right Up/down	80 °/80 ° 80 °/80 °
Contrast ratio	Typ.	350:1
Luminance of white	Typ.	200cd/m2
Compatibility	PC	IBM XT, AT, 386, 486, Pentium or PS/2 and compatibles (from VGA up to 1280 x 1024 at 75 Hz NI.)
Refresh rate	Max.	1280 x 1024 at 75 Hz NI (60 Hz for optimal display)
Connectors	Input signal power	15-pin D-SUB Jack type DC + 12V In
Power	Input Output Consumption	AC 100–240V 50–60Hz DC 12V 40 watts
Display area	Max.	337.7 mm (H) x 270.3 mm (V)
Operating	Temperature Humidity Altitude	32 °F to 104 °F (0 to 40 °C) 20% RH to 90% RH (non-condensing) To 10,000 feet
Storage conditions	Temperature Humidity	-14 °F to 104 °F (-20 to 40 °C) 5% RH to 90% (non-condensing)
Dimensions		413 mm (W) x 418 mm (H) x 175 mm (D)
Weight	Net	6.0 kg (13.2lbs)

