ELSA ECOMO™ 17LCD99

User Manual

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Aachen, September 1999

No. 21611/0999

Preface

Thank you for placing your trust in this ELSA product. With the *ELSA ECOMO 17LCD99* you have selected one of ELSA's high-end monitors. ELSA products are subject to the highest of standards in production and quality control which are the foundation for consistently high product quality. This monitor was especially designed for the demands of professional users, and distinguishes itself with an extraordinary degree of reliability.

If you have questions to the topics covered in this manual or require additional help, our online services are at your disposal around the clock. The complete range of support and services provided by ELSA can be found in the flyer 'ELSA Support' and in the 'ELSA-ServiceDirect' chapter.

In very urgent cases the ELSA Support can be reached under the following number:
+49-(0)241-606-6135

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Introduction

Highlights of the *ELSA ECOMO 17LCD99*

We show here some of the major advantages of the LCD monitor. You will really find some other advantages when you use it.

- The character of low radiation and less flicker reduce the probability of harm for your health compared to traditional CRT monitor.
- The LCD monitor weights only 5.8 kgs, and its compact size requires only minimal desktop space. These two merits make this monitor easier to be transported and can be used in nearly any environmental.
- The LCD monitor operates on low power consumption level offering savings on power bills and the earth resources.
- The special design of the LCD cabinet is both attractive and ergonomic.
- The usage of the LCD monitor is the same as the CRT monitor. There is no need to change the hardware of your computer, just plug&play.

Package contents

Please ensure that the delivery is complete. When opening the package, please check that the following components are included:

- LCD Monitor mounted on its stand
- 15 pin D sub video cord
- AC/DC adapter with 12 V DC output
- AC power cord
- User Manual

Please contact your dealer if any part is missing or damaged.

ELSA reserves the right to make changes to the package contents without prior notice.

CE conformity and FCC radiation standard

CE

This equipment has been tested and found to comply with the limits of the European Council Directive on the approximation of the laws of the member states relating to electromagnetic compatibility (89/336/EEC) according to EN 55022 class B.

FCC

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the Federal Communications Commission (FCC) Rules.

CE and FCC

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. It may interfere with to radio communications if not installed and used in accordance with the instructions. 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 distance between this equipment and the receiver.
- Connect the equipment to an outlet on a circuit other than that to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician.
- Caution: To comply with the limits for an FCC Class B computing device, always use a shielded signal cable.

Caution to the user: The Federal Communications Commission warns the user 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.

Installation

Installation notice

This analog LCD monitor does not require any special drivers. Necessary drivers are supplied by the video card manufacturer and may be found on the diskettes supplied with the video card that came with your computer. Windows 95 and 98 drivers for both the display and the video card are supplied on the Windows 95/98 CD. Unfortunately, Microsoft did not provide a complete listing of the displays on the initial retail release. You may use the standard XGA (1024x768) as the display type. The video card must also be set up correctly in Windows 95 and Windows 98. Consult your video card manual or the Readme file of Windows 95 and 98 for further information on the video card.

Hardware installation

① Turn power off both computer and display before making any connection.

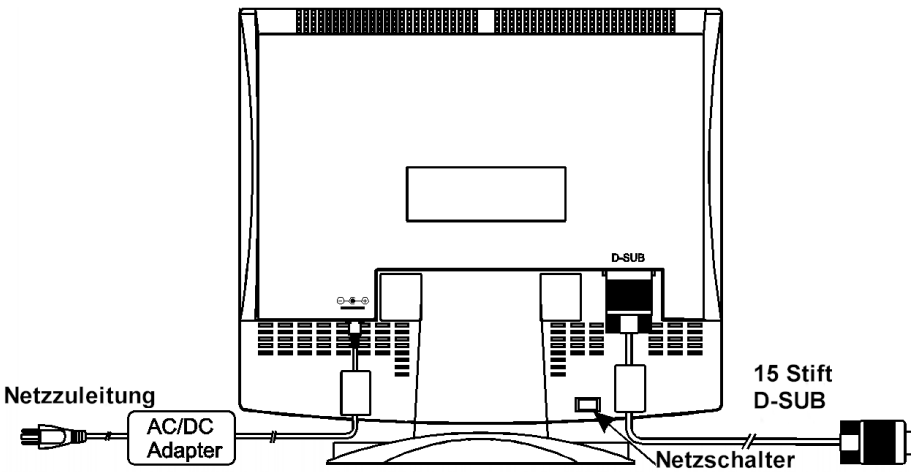
② Install display on the solid horizontal surface such as a table or desk.

③ Connect the power cable and the AC/DC adapter, then connect adapter to the back of the LCD monitor.

④ The LCD monitor comes with a 15-pin video cable, you may use this cable for both IBM PC's & compatibles and Macintosh.

⑤ Connect the monitor to the computer (→page 4)

⑥ Switch on power to the display, then to the monitor.



Connection to the computer

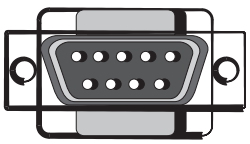
The *ELSA ECOMO 17LCD99* can be connected to any computer with a VGA-compatible graphics board using the supplied video signal cable. It can also process all analog RGB signals that "normal" tube-based monitors support. Apple Macintosh graphics boards and most graphics boards from other manufacturers can be connected by means of a corresponding adapter.

Connection to an IBM-compatible system

⑦ First, ensure that the monitor and the computer are switched off.

⑧ Connect the 15-pin connector on the video signal cable to the corresponding socket on the computer's graphics board.

View of the 15-pin connector on the video signal cable

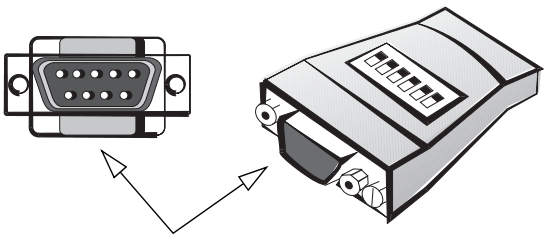


⑨ Switch on the computer first and then the monitor. Conversely—when you have completed your work—switch off the monitor first and then the computer.

Connection to a Macintosh system

Proceed in the same way for a Macintosh computer. However, you require a special ELSA adapter. Place this adapter between the connector on the graphics board and the connector on the video signal cable.

View of the 15-pin connector on the video signal cable

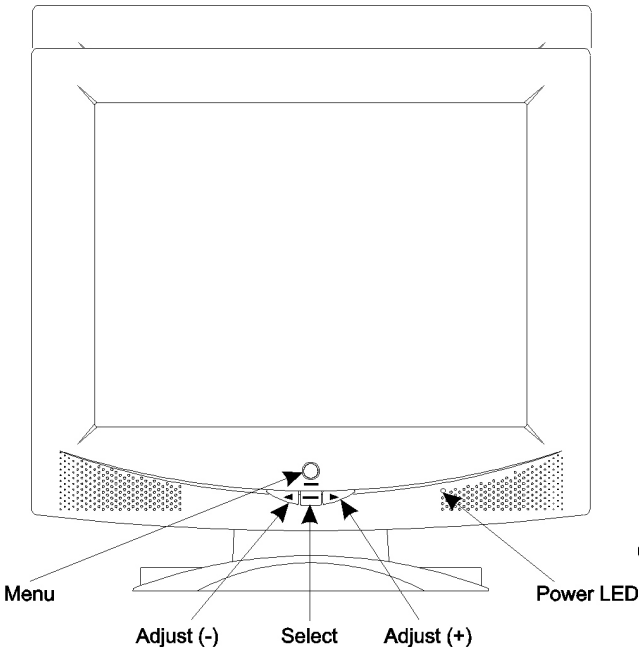


Connection to the port on a Macintosh computer

Aspects of your monitor

The front control panel

The lower front of the monitor features a row of switches and buttons which allow you to tune the picture settings precisely.



Function
Menu Enter or exit the OSD adjustment menu. It also exit from the sub-menu back to previous menu.
Adjust ◀ (-) To scroll down in menu or to decrease value of selected item.
Select To confirm the current selection.
Adjust ▶ (+) To scroll up in menu or to increase value of selected item.
Power indicator The LED will light with green color in normal on state, and will light with orange color in power saving mode.
POWER switch (on the back of the monitor) Pushing the power switch will turn the monitor on. Pushing it again to turn the monitor off.

Screen adjustment operation procedure

① Entering the screen adjustment

The setting switches are normally at stand-by. Press the **Menu** button once to display the main menu of the screen adjustment. The adjustable items will be displayed in the main menu.

② Entering the settings

Use the adjustment buttons to select the desired setting icon and press the **Select** button to enter the sub-menu.

③ Change the settings

Use the adjustment buttons to change the setting values.

④ Save

After finishing the adjustment, press the **Select** button to memorize the setting.

⑤ Return & exit the main menu

To go back to the previous menu or exit the screen adjustment, press the **Menu** button. When no operation is done around 60 sec (default OSD timeout), it goes back to the stand-by mode and no more switching is accepted except **Menu** to restart the setting.

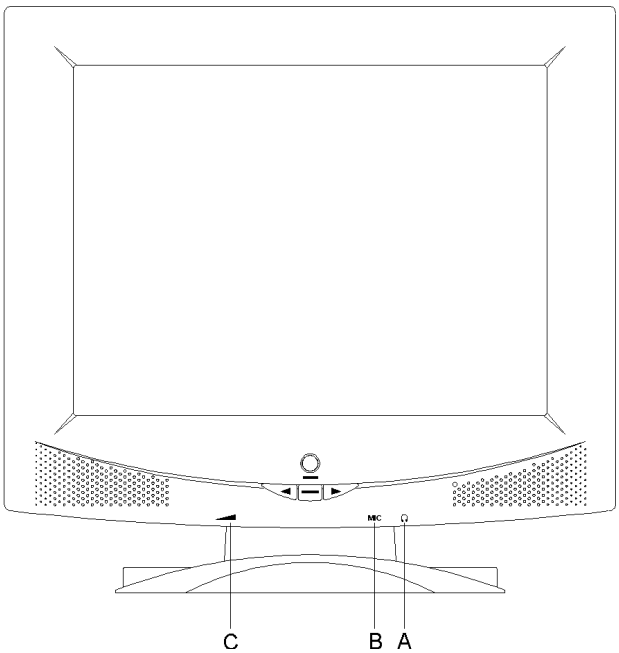
Additional connectors

- Internal 2 x 2 W loudspeaker, 1 microphone connection
- External earphone, microphone connection
- Volume control – to setup the volume
- To connect the earphone plug to the earphone connection at the front of the monitor
- MIC – to connect the microphone to the microphone connection at the front of the monitor

A. Earphone

B. MIC Microphone(build-in)

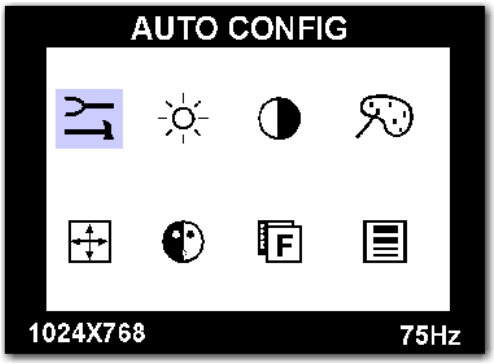
C. Volume Control



Monitor settings

The OSD main menu is displayed on screen when the **Menu** key is pressed. The OSD menu is a combination of graphics and text display. The first line always shows the current selected or active menu item. The bottom line of main menu shows information of the input image.

The adjustment keys are used to scroll through items within the menu. The selected item is highlighted as the scrolling move along. The **Select** key is used to activate the highlighted item. During this state, the **Menu** key is used to closed the OSD menu from the screen. :



There are eight items within the main menu which are:

Symbols	Significance	Explanation
	Auto Config	Auto configure the phase, clock, vertical & horizontal image
	Brightness	Setup the brightness of the panel
	Contrast	Setup the contrast of the panel
	Color	Configure the image color
	Position	Setup the image position within the panel
	Image	Configure the image frequency
	Video Modes	Seleczion of a video mode
	Miscellaneous	Miscellaneous settings

Auto configuration

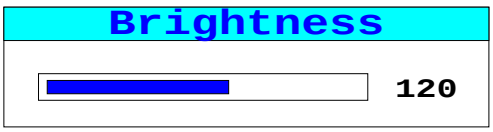
The main menu item 'Auto Config' is used to perform automatic configuration of the phase, clock, vertical and horizontal positioning. A confirmation box is displayed to confirm the user selection. The default selection in the box is 'NO' and is highlighted by a yellow bar. If the **Menu** key is pressed, the main menu is re-displayed and nothing is changed. A message 'Please wait' is displayed after 'YES' is selected and automatic configuration is started. After the process is completed successfully, a message 'Completed' is displayed. Otherwise a message 'Aborted' is displayed to indicate process failed.

The auto configuration function is intended for use on Macintosh and PCs running Windows. It may not function properly if any of the following applies:

- PC running MS-DOS (not windows).
- The background color for the wallpaper or desktop pattern is set to black.

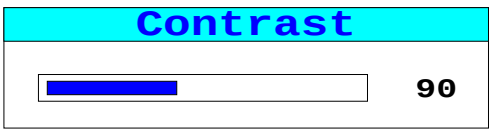
Brightness

The main menu item 'Brightness' is used to adjust the brightness of the panel. A slider with current brightness value is displayed. The range of brightness adjustment value is 0 to 255.



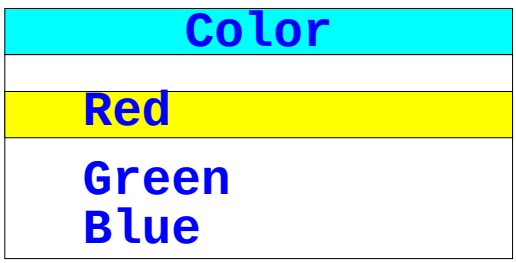
Contrast

The main menu item 'Contrast' is used to adjust the contrast of the panel. A slider with current contrast value is displayed. The range of contrast adjustment value is 0 to 255.



Color

The main menu item 'Color' is a sub-menu which contains items to adjust the PC graphics imaging.



Red

The item 'Red' is used to adjust the gain of red channel in ADC. A slider with current value is displayed. The range of the color red adjustment value is 0 to 255.

Green

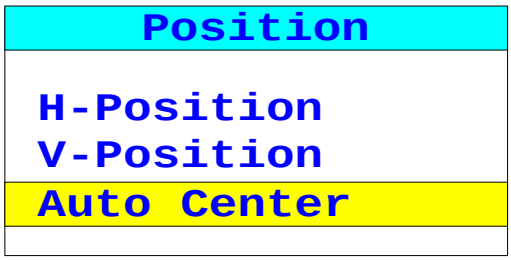
The item 'Green' is used to adjust the gain of green channel in ADC. A slider with current value is displayed. The range of the color green adjustment value is 0 to 255.

Blue

The item 'Blue' is used to adjust the gain of blue channel in ADC. A slider with current value is displayed. The range of the color blue adjustment value is 0 to 255.

Position

The main menu item 'Position' is a sub-menu which has items to adjust picture position within the panel.



The item 'Auto Center' performs automatic adjustment on both horizontal and vertical image position. The item 'H-Position' and 'V-Position' allows user to adjust the horizontal and vertical position manually.

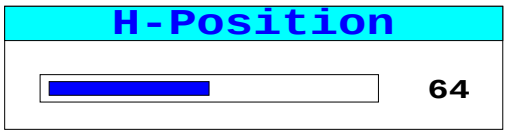
Automatic Position

The item 'Auto Center' is used to center the image automatically. A confirmation box is displayed when the item is activated. The default selection is 'NO'. If 'YES' is selected, the image is centered automatically according to the current graphics resolution.

A message 'Please wait' is displayed during the automatic configuration process. After the process is completed successfully, a message 'Completed' is displayed. Otherwise a message 'Aborted' is displayed to indicate the process failed.

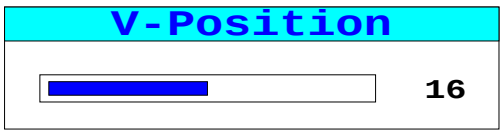
Horizontal Position

The item 'H-Position' is used to adjust the horizontal image position. A slider with current value is displayed. The range of the horizontal position adjustment value is 0 to 127.



Vertical Position

The item 'V-Position' is used to adjust the vertical image position. A slider with current value is displayed. The range of vertical position adjustment value is 0 to 31.



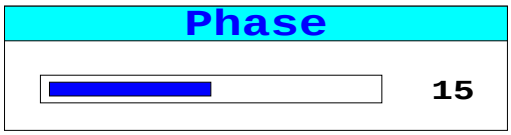
Image

The main menu item 'Image' is a sub-menu which has items to adjust the display image. The item 'Native' is used to enable or disable the native mode of display. The current selection is displayed on the right of the item.

The items, 'Phase' and 'Clock' are used to adjust the phase and frequency of the image. The item 'Auto Phase' is used to perform automatic phase adjustment.

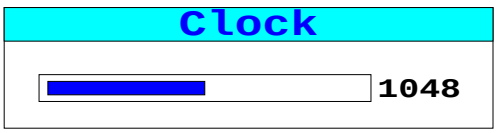
Phase

The item 'Phase' is used to adjust the ADC sample pixel clock. A slider with current value is displayed. The range of phase adjustment value is 0 to 31 for 0 to 360 degrees.



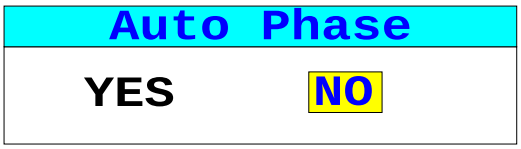
Clock

The item 'Clock' is used to adjust the number of clocks (pixels) per line (sample per line). A slider with current value is displayed.



Auto Phase

The item 'Auto Phase' is used to adjust the ADC sample pixel clock automatically. A confirmation box is displayed to confirm the user selection. The default selection in the box is 'NO' and is highlighted by a yellow bar. If the **Menu** key is pressed, the previous menu is displayed.



A message 'Please wait' is displayed after 'YES' is selected and automatic configuration is started. After the process is completed successfully, a message 'Completed' is displayed. Otherwise a message 'Aborted' is displayed to indicate process failed.

Video modes

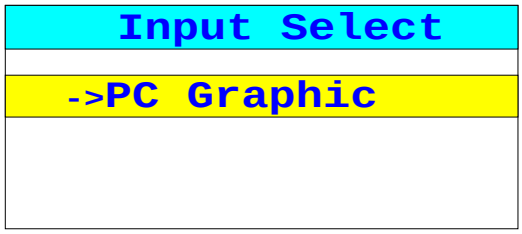
There is a sub-menu which has items used to choose the desired signal port for input. This function is only supported within the PC graphics mode.

VESA/Mac standards

The circuit detects the input format of the selected input source (→"Technical data").

Non VESA/Mac standards

The allowable deviation from VESA/Mac Standards for vertical synchronization frequency will be +- 1 Hz, while the allowable deviation for total horizontal will be +-500 Hz.



Miscellaneous

The main menu item 'Misc' is a sub-menu which is used for miscellaneous OSD setting and/or other sub-menus. The following sub-menu items are available: 'Factory Reset', 'OSD Timeout' and 'OSD Position'.

Factory Reset

The item 'Reset' is used to reload all the factory default parameters. All user previous changes are replaced by the defaults. A confirmation box is displayed to confirm the user selection. The default selection in the box is 'NO' and is highlighted by a yellow bar. If the **Menu** key is pressed, the previous menu is displayed.

Panel color

The user may select STANDARD or ENHANCED panel settings, depending on specifications. This function is used for expanding the displayable colors from 260,000 to 16 million (TrueColor).

'OSD Timeout'

The item 'OSD Timeout' is used to setup the OSD idle timeout. If no active action, key press or automatic configuration for a defined period, the OSD menu will be closed. There are four OSD timeout values for selection.

'OSD Position'

The item 'OSD Position' is used to setup the OSD menu position. The horizontal and vertical position of the OSD menu are adjusted separately. Each position adjustment item will bring up the slider window and. The maximum value of the sliders are based on the size of the OSD menu.

System info

This menu provides you with detailled information regarding the current input format and version.

An optimized working environment

You have already taken a significant step towards this goal: you have acquired a monitor with technology guaranteeing optimized ergonomics and a minimum of stress at your place of work. Equally important is the overall arrangement of your working environment, which includes some basic rules about working with a monitor.

The ELSA ECOMO 17LCD99 complies with the latest EU ergonomics guidelines (90/270/EEC) for work places with monitors, which came into effect on the 1.1.97.

Monitor picture quality

The screen must display a stable picture. How can you check this ? Simply focus on a fixed point next to your screen. If you can see a perceptible flickering of the picture, you can try and adjust the brightness and contrast to stabilize the picture. If this does not help, then try to increase the display refresh rate with your graphics card driver.

Tips for an ergonomic working environment

Lighting in your working environment

The lighting in your place of work should not perceptibly flicker. Avoid placing monitors directly next to windows and be sure that there is the possibility to reduce the intrusion of strong sunlight such as with a blind. When arranging desks, make sure that the direction of view is parallel with the lighting. The direction of view to the monitor should be parallel to the windows. Glare and reflections can be reduced by an anti-reflective layer (Lambda/4 anti-reflection) on the screen.

You can check whether or not your place of work meets these basic rules:

- Are you facing a window when looking at your monitor ?
- Does your monitor screen show any reflections from windows or lighting ?

The work desk

The top of the work desk should be at a height of 72 cm. The desk top should be around 80 cm deep and of sufficient length. There should be a suitable separation between the operator and the monitor which, for a 17'' monitor, is recommended to be at least 45 cm and for a 21'' monitor, should be about 80 cm.

The seating position

The seating position is most important for work in comfort and without problems. A rule of thumb is: sit with a straight back and ensure that your arms and legs are bent at approximately 90°. Your feet should also rest flat on the floor.

It is important that you frequently shift your seating position—to practice the so-called "dynamic sitting"—and that you stand up once in a while.

Cleaning your monitor

When cleaning the monitor, please follow these guidelines:

- Always unplug the monitor before cleaning
- Wipe the screen and cabinet front and sides with a soft cloth
- If the screen requires more than dusting, apply household window cleaner to a soft cloth to clean the monitor screen

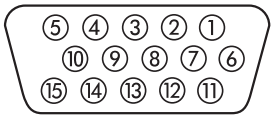
Do not use benzene, thinner or any volatile substances to clean the unit as the finish may be permanently marked. Never leave the monitor in contact with rubber or vinyl for an extended period.

Technical data

Those of you with a technical bent will find more detailed information regarding the *ELSA ECOMO 17LCD99* in this chapter. All interfaces and their assignments are described in detail.

LCD panel type	Sharp 15.0'' TFT
Resolution	XGA, 1024 x 768 max.
Pixel dimension	0.297 mm (H) x 0.297 mm (V)
LCD display color	262,144 Colors max. (18 bit)
OSD control	Brightness, contrast , color, position image, auto config, input, miscellaneous
Manual control buttons	Menu, select, adjust, power
Viewing angle	H: ± 70× max. V: ±60× max.
Tilt	+30×, -5×
Contrast ratio	300 : 1 typ.
Brightness	$200^{cd}/m^2$ typical
Response time	Rise:10ms typ. Decay: 35ms typ.
Active display area	304.1 mm (H) x 228.1 mm (V)
AC/DC adapter	Input: AC 100 ~ 240V, 50 ~ 60 Hz Output: +12 V DC.
Input signal	Video: Analog 0.7 Vp-p. 75 ohm Sync. : TTL level, positive/negative, Separate sync
Input connector	15-pin D sub
Power management	VESA DPMS compatible
Regulation	UL, CSA, CE, TÜV/GS
	EMI: FCC-B
Dimensions	38.9 cm (W) x 39.2 cm (H) x 19.5 cm (D).
Weight	5.8 kgs. (LCD module only)
Accessory	VGA cable, AC/DC adapter, power cord.
Temperature	Operation : 0 ~ 40×C
Plug&play	DDC2B

The VGA D-Shell socket



Pin Assignment

Connection	Signal	Connection	Signal
1	Red	9	+5 V
2	Green	10	Sync ground
3	Blue	11	Monitor ID2
4	Monitor ID0	12	Bidirectional data (SDA, DDC1/2B)
5	DDC ground	13	Horizontal synchronization
6	Red ground	14	Vertical synchronization
7	Green ground	15	Data timing (SCL, DDC2B)
8	Blue ground		

The *ELSA ECOMO 17LCD99* issues analog signals in accordance with the requirements of Guideline RS-170. The synchronization information is sent separately. If your monitor provides a switch for the input impedance, you should select '75 Ohms' (= '75 Ω') for the R, G and B video inputs and '2 kOhm' (= '2 kΩ') for the sync inputs. You should only try other switch settings at the sync inputs if your monitor expects sync levels other than those used by normal monitors and does not produce a stable display. The switches are labeled “Low” and “High” only on some monitors. You can then refer to your monitor manual to find out what input impedance level this refers to, or you can experiment to find a position in which a stable image appears in all graphics modes.

Applicable video timing

The following table lists the better display quality modes that the LCD monitor provides. If the other video modes are input, the monitor will stop working or display unsatisfactory picture quality.

VESA modes				
		Horizontal	Vertical	
Mode	Resolution	Nominal Frequency +/- 0,5 KHz	Nominal Frequency +/- 1 Hz	Nominal pixel clock (MHz)
DOS	720x400@870Hz	31.5	70	28.322
VGA	640x480@60Hz	31.5	60	25.175
	640x480@72Hz	37.9	72	31.500
	640x480@75Hz	37.5	75	31.500
SVGA	800x600@56Hz	35.2	56	36.000
	800x600@60Hz	37.9	60	40.000

VESA modes				
	800x600@72Hz	48.0	72	50.000
	800x600@75Hz	46.8	75	49.500
XGA	1024x768@60Hz	48.4	60	65.000
	1024x768@70Hz	56.5	70	75.000
	1024x768@75Hz	60.0	75	78.750

IBM modes					
			Horizontal	Vertical	
Mode	Resolution	Total	Nominal Frequency +/- 0,5 KHz	Nominal Frequency +/- 1Hz	Nominal pixel clock (MHz)
EGA	640x350@70Hz	800x449	31.469	70.086	25.175
CGA	640x400@70Hz		31.469	70.086	25.175
DOS	720x400@70Hz	900x449	31.469	70.087	28.322
VGA	640x480@60Hz	800x525	31.469	59.940	25.175
XGA	1024x768@72Hz		57.515	72.1	75.000

MAC modes					
VGA	640x480@60 Hz	800x525	31,469	59,940	25,175
	640x480@67 Hz	864x525	35,000	66,667	30,240
SVGA	832x624@75 Hz	1152x667	49,725	74,551	57,2832
XGA	1024x768@60 Hz	1312x813	48,780	60,001	64,000
	1024x768@75 Hz	1328x804	60,241	74,927	80,000

Troubleshooting

Problem solving

In the event that you experience trouble with your display, check the following items before contacting the dealer from whom the display was purchased. The most common problems usually involve an incorrect connection from the video card to the display. We recommend that you also consult your video card user's manual during the troubleshooting procedure. Do not exceed the maximum refresh rate recommended for the display.

Problem	Troubleshooting tip
No image on display screen	Check that the power cord of the computer has been connected securely into wall outlet or grounded extension cable or strip. Check that the power switch of the display has been pressed and LED on the front of display is lit. Check that the video (signal) cable from the display has been securely and correctly connected. Check that the video card is firmly seated in card slot of computer motherboard. Check that the video input from the video card falls within the timing range of the display.
Abnormal image	Check that the video input from the video card falls within the timing range of the display. Check that the video (signal) cable from the display has been securely and correctly connected to the video connector at the rear side of the computer.
Colors of image on screen are abnormal	Check that the video (signal) cable from the displays has been securely and correctly connected to the 15-pin video connector at the rear side of the computer.
Disturbances on screen	OSD adjustment is incorrect.
Under certain conditions after the Auto Setup it may occur that some pixels flicker	Choose a picture with high contrast before you start the Auto Setup function. Pay attention that the monitor's contrast value is not set too high. A test picture on the *ELSA ECOMOware* CD containing fine lines and patterns facilitates auto-adjustment of the monitor picture. You will find this test picture in the directory \\DRIVERS\117LCD.

Appendix

TCO '95 - Ecological requirements for personal computers

Congratulations! You have just purchased a TCO '95 approved and labeled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and to the further development of environmentally adapted electronic products.

Why do we have environmentally-labeled computers ?

In many countries, environmental labeling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem as far as computers and other electronic equipment are concerned is that environmentally harmful substances are used both in the products and during their manufacture. Since it has not been possible so far for the majority of electronic equipment to be recycled in a satisfactory way, most of these potentially damaging substances sooner or later enter Nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from both the working and natural environment viewpoints. Since all types of conventional electricity generation have a negative effect on the environment (acidic and climate-influencing emissions, radioactive waste, etc.) it is vital to conserve energy. Electronic equipment in offices consumes an enormous amount of energy, since it is often routinely left running continuously.

What does labeling involve ?

This product meets the requirements for the TCO '95 scheme, which provides for international environmental labeling of personal computers. The labeling scheme was developed as a joint effort of the TCO (The Swedish Confederation of Professional Employees), Naturskyddsforeningen (The Swedish Society for Nature Conservation) and NUTEK (The National Board for Industrial and Technical Development in Sweden).

The requirements cover a wide range of issues: environment, ergonomics, usability, emission of electrical and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands concern among other things restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons), and chlorinated solvents. The product must be prepared for recycling and the manufacturer

is obliged to have an environmental plan, which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display after a certain period of inactivity shall reduce its power consumption to a lower level, in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labeled products must meet strict environmental demands, for example in respect of the reduction of electric and magnetic fields, along with physical and visual ergonomics and good usability.

You will find a brief summary of the environmental requirements met by this product below. The complete environmental criteria document may be ordered from:

- TCO Development Unit
  11494 Stockholm
  Sweden

  Fax: +46-87829207
  E-Mail (Internet): development@tco.se
  http://www.tco-info.com/

Environmental requirements

brominated flame retardants are present in printed circuit boards, cabling, casings and housings, and are added to delay the spread of fire. Up to 30 % of the plastic in a computer casing can consist of flame-retardant substances. These are related to another group of environmental toxins, PCB, and are suspected of giving rise to similar harm, including reproductive damage in fish-eating birds and mammals. Flame retardants have been found in human blood and researchers fear that they can disturb fetus development. Bio-accumulative* TCO '95 demands require that plastic components weighing more than 25 grams must not contain flame retardants with organically bound chlorine or bromine.

- **Lead** – can be found in picture tubes, display screens, solder and capacitors. Lead damages the nervous system and higher doses causes lead poisoning. The relevant bio-accumulative* TCO '95 requirement permits the inclusion of lead, as no replacement has yet been developed.
- **Cadmium** – is present in rechargeable batteries and in color-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant bio-accumulative* TCO '95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The color-generating layers of display screens must not contain any cadmium.
- **Mercury** – is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses. The relevant bio-accumulative* TCO

'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of mercury. The relevant bio-accumulative* TCO '95 demands require that no mercury is present in any of the electrical or electronic components concerned with the display unit.

- **CFCs (Freons)** – are sometimes used for washing printed circuit boards and in the manufacture of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on Earth of ultra-violet light with consequent increased risks of skin cancer (malignant melanoma). The relevant TCO '95 requirement: Neither CFCs nor HCFCs may be used during manufacture of the product or its packaging.

* Bio-accumulative is defined as substances which accumulate within living organisms.

ELSA-ServiceDirect for *ELSA ECOMO* monitors

3-year warranty including ELSA-Onsite

As of the purchase date 01.01.1998, ELSA grants a three-year warranty on *ELSA ECOMO*[1)] monitors including ELSA-ServiceDirect. ELSA strives to offer its customers top product quality with its extensive quality assurance measures. If, however, the customer makes a complaint, this service program guarantees perfect support and repair procedures to minimize any inconvenience. As well as repairs carried out free of charge, the following ServiceDirect services are offered within the extended scope of the warranty.

ELSA-Onsite: 3 years of onsite service for ELSA monitors—free of charge

You can avail of the numerous advantages of our onsite services for *ELSA ECOMO* monitors throughout Europe[2)]. If you discover a fault with your monitor, you first contact our support team. If your monitor requires repairs within the warranty period of three years, you are provided with a replacement unit within 24 hours[3)] which we deliver to your workplace. Your repaired monitor will be returned to you as soon as possible. The advantage of this offer is that you have no downtime or transport expenses. ELSA's customer service ensures that all transporting procedures are dealt with in the correct manner.

Your direct contact partner at ELSA-ServiceDirect

As an ELSA customer, you will receive support and advice from ELSA's customer service at all stages of the warranty services being carried out.

The ELSA Support hotline is the first number to dial if you discover a malfunction or fault on your monitor.

Monitor Support Hotline
+49-(0)241-606-6135

If you have general questions on ServiceDirect, on the progress of repair work, contact the ELSA service hotline.

ELSA Service Hotline
+49-(0)241-606-5112

1) Applies to all *ELSA ECOMO* monitors purchased after January 1, 1998.
2) For *ELSA ECOMO 21H97,* a 4 week DoA warranty is granted outside of Germany instead.
3) Provided that the complete documentation reaches the ELSA support team by 11.00 a.m. by mail or directly via the computer graphics faxline— Tel.: +49-(0)241-606-6399. Please note that warranty services are only granted for faults which are covered within the framework of our General Terms of Warranty, valid for the Federal Republic of Germany (refer to our Internet site: www.elsa.com).

If the ELSA service cannot find fault with the unit claimed to be defective, we will invoice you for DM 200 plus V.A.T. to cover inspection costs and replacement of the unit.

Warranty conditions

The ELSA AG warranty, valid as of June 01, 1998, is given to purchasers of ELSA products in addition to the warranty conditions provided by law and in accordance with the following conditions:

1 Warranty coverage

a) The warranty covers the equipment delivered and all its parts. Parts will, at our sole discretion, be replaced or repaired free of charge if, despite proven proper handling and adherence to the operating instructions, these parts became defective due to fabrication and/or material defects. Also we reserve the right to replace the defective product by a successor product or repay the original purchase price to the buyer in exchange to the defective product. Operating manuals and possibly supplied software are excluded from the warranty.

b) Material and service charges shall be covered by us, but not shipping and handling costs involved in transport from the buyer to the service station and/or to us.

c) Replaced parts become property of ELSA.

d) ELSA are authorized to carry out technical changes (e.g. firmware updates) beyond repair and replacement of defective parts in order to bring the equipment up to the current technical state. This does not result in any additional charge for the customer. A legal claim to this service does not exist.

2 Warranty period

The warranty period for ELSA products is six years. Excepted from this warranty period are ELSA color monitors and ELSA videoconferencing systems with a warranty period of three years. This period begins at the day of delivery from the ELSA dealer. Warranty services do not result in an extension of the warranty period nor do they initiate a new warranty period. The warranty period for installed replacement parts ends with the warranty period of the device as a whole.

3 Warranty procedure

a) If defects appear during the warranty period, the warranty claims must be made immediately, at the latest within a period of 7 days.

b) In the case of any externally visible damage arising from transport (e.g. damage to the housing), the transport company representative and ELSA should be informed immediately. On discovery of damage which is not externally visible, the transport company and ELSA are to be immediately informed in writing, at the latest within 7 days of delivery.

c) Transport to and from the location where the warranty claim is accepted and/or the repaired device is exchanged, is at the purchaser's own risk and cost.

d) Warranty claims are only valid if the original purchase receipt is returned with the device.

4 Suspension of the warranty

All warranty claims will be deemed invalid

a) if the device is damaged or destroyed as a result of acts of nature or by environmental influences (moisture, electric shock, dust, etc.),

b) if the device was stored or operated under conditions not in compliance with the technical specifications,

c) if the damage occurred due to incorrect handling, especially to non-observance of the system description and the operating instructions,

d) if the device was opened, repaired or modified by persons not authorized by ELSA,

e) if the device shows any kind of mechanical damage,

f) if in the case of an ELSA Monitor, damage to the cathode ray tube (CRT) has been caused especially by mechanical load (e.g. from shock to the pitch mask assembly or damage to the glass tube), by strong magnetic fields near the CRT (colored dots on the screen), or through the permanent display of an unchanging image (phosphor burnt),

g) if, and in as far as, the luminance of the TFT panel backlighting gradually decreases with time, or

h) if the warranty claim has not been reported in accordance with 3a) or 3b).

5 Operating mistakes

If it becomes apparent that the reported malfunction of the device has been caused by unsuitable software, hardware, installation or operation, ELSA reserves the right to charge the purchaser for the resulting testing costs.

6 Additional regulations

a) The above conditions define the complete scope of ELSA's legal liability.

b) The warranty gives no entitlement to additional claims, such as any refund in full or in part. Compensation claims, regardless of the legal basis, are excluded. This does not apply if e.g. injury to persons or damage to private property are specifically covered by the product liability law, or in cases of intentional act or culpable negligence.

c) Claims for compensation of lost profits, indirect or consequential detriments, are excluded.

d) ELSA is not liable for lost data or retrieval of lost data in cases of slight and ordinary negligence.

e) In the case that the intentional or culpable negligence of ELSA employees has caused a loss of data, ELSA will be liable for those costs typical to the recovery of data where periodic security data backups have been made.

f) The warranty is valid only for the first purchaser and is not transferable.

g) The court of jurisdiction is located in Aachen, Germany in the case that the purchaser is a merchant. If the purchaser does not have a court of jurisdiction in the Federal Republic of Germany or if he moves his domicile out of Germany after conclusion of the contract, ELSA's court of jurisdiction applies. This is also applicable if the purchaser's domicile is not known at the time of institution of proceedings.

h) The law of the Federal Republic of Germany is applicable. The UN commercial law does not apply to dealings between ELSA and the purchaser.