

USA

■ ***ELSA ECOMO™ Office***

MANUAL

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Aachen, January 1998↑

Preface

Thank you for placing your trust in this ELSA product. With the *ELSA ECOMO Office* 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 "Advice and assistance" and "ELSA service" chapters.

In very urgent cases the ELSA Hotline can be reached under the following number:

+49-241-606-6135

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Introduction

Monitor Features

To give you an overview of the monitor's capabilities, the following describes the main features of the *ELSA ECOMO Office*.

On-Screen Display

Settings for the monitor can be adjusted quickly and conveniently with the on-screen display menu.

Multi-Mode technology

The multi-mode technology is controlled by the microprocessor. The monitor synchronizes itself automatically to all frequencies in the horizontal bandwidth from 30kHz to 86kHz, and in the vertical bandwidth from 50Hz to 130Hz. The microprocessor control enables the monitor to operate in any frequency mode with the precision of a fixed-frequency monitor.

Storage for graphics modes

Besides the factory settings for popular display standards, the *ECOMO Office* can store user-defined adjustments and other timings.

Static beam landing correction

The Static Beam Landing Correction directly controls the electron beam to avoid false colors, poor focus and variations in brightness.

Dynamic focus

The distance over which the electron beam is projected varies considerably over the width and height of the screen, an effect which is especially significant with larger monitors. The dynamic focus function automatically adjusts the focal length of the beam to ensure that the picture stays sharp, even at the outer edge.

Moiré correction

An adjustable Moiré correction compensates for the unwanted wave-like interference patterns from background rasters.

TCO '95 - The latest standard

Your ELSA monitor complies with the CE radiation norm which officially defines criteria for safety and electromagnetic compatibility. The TCO '95 and similar approvals addi-

tionally define the conditions for visual ergonomics, low radiation, energy saving functions and ecology. Thus the *ELSA ECOMO Office* meets all the requirements laid down in the EU guideline 90/270/EEC for monitors in the working environment.

Plug & Play (DDC)

The *ELSA ECOMO Office* is equipped with the DDC1 and the DDC2b functions (DDC = Display Data Channel), with which the monitor can use to transmit information (e.g. graphics modes supported and timing) to the host computer. This system works only if the host computer (the graphics card) also supports the DDC function.

Power Management (VESA DPMS)

The monitor has a power saving function which reduces the power consumption in stages if the monitor is not in use.

Macintosh and the ELSA monitor

ELSA ECOMO Office is a multi-frequency monitor which can also be connected to Apple Macintosh computers. A suitable adapter is required to make this connection.

Package Contents

Please check that nothing is missing from the package contents. When opening the package please ensure that the following components are included:

- Manual
- Monitor
- Power cord

If any items are missing or damaged, please contact your dealer.

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. The *ECOMO Office* has the following FCC IDs: BGBTFV8705K

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 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.

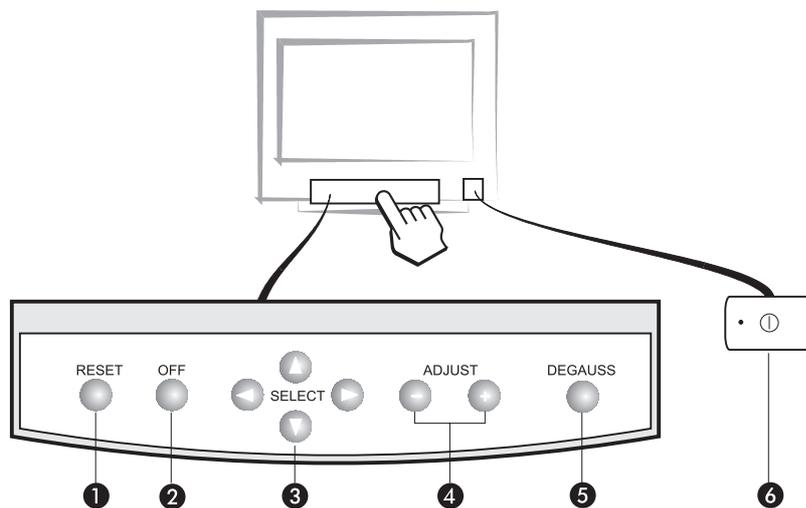
Notes

Aspects of Your Monitor

The Front Control Panel

The lower front of the monitor features a control panel for the monitor picture settings. This panel is behind a protective flap which opens after pressing on the ": : ." marking.

To shut the flap, push it up and in until it closes with a click.



1 RESET

This key returns all settings you have changed back to the factory settings.

2 OFF

This key turns the on-screen display off.

3 SELECT

The four arrow keys can be used to navigate your way through the on-screen display and its various pages.

4 ADJUST

The minus and plus keys are used for adjusting the individual values.

5 DEGAUSS

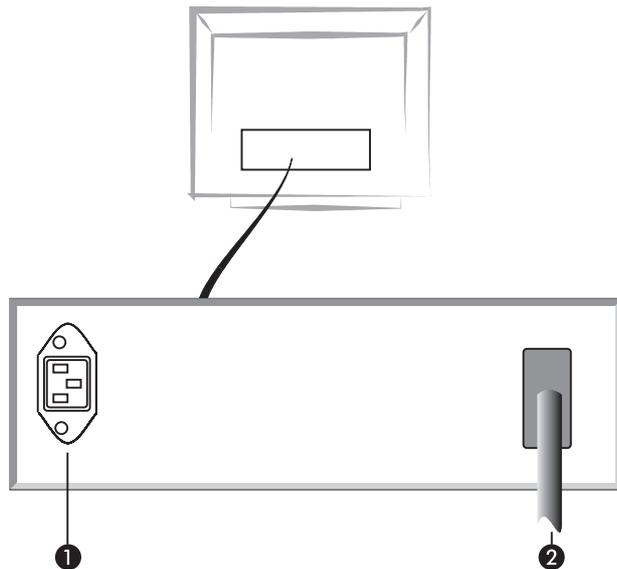
This key is used to demagnetize the monitor's cathode ray tube.

6 Power switch

This switch turns the monitor on and off.

The Rear Connectors Panel

The cable for connecting the monitor with your computer and the socket for the power supply are located on the reverse side of the monitor.



1 Power socket

The power cord is to be connected here.

2 VGA connector cable

This cable is for connecting the monitor with your computer's graphics output.

Monitor Settings

The monitor settings can be fine tuned according to your preferences. Don't be afraid to experiment with the monitor and try out all of the options for adjustment. If a result is not to your liking, just press the RESET key to restore the factory settings.



The on-screen display is activated when any of the selection keys is pressed. The monitor "remembers" which menu page was last activated and subsequently returns to this page.

The On-Screen Display

The on-screen display provides a highly convenient system for fine tuning the monitor settings. Settings which can be altered vary from the simple brightness setting to the most detailed tuning of the correction for pin-cushion and other distortions.

The on-screen display appears as soon as one of the control panel arrow keys is pressed. Once within the on-screen display, you can use these keys to access the individual pages of the menu.

What You Need to Know

You need to know the most important keys for navigating within the pages and from one page to another. If you wish to adjust the monitor settings you should bear the following key functions in mind:

With these keys	you are able to ...
	move from one page to another, back and forth.
	select the setting for adjustment on the current page. The active symbol is displayed in black, the non-active symbols are grayed.
	change the value of a setting or switch a function on or off.

An Overview of the Menu Pages

The following overview is to help you navigate your way through the menu pages.

Page	Setting	Description
▼	Brightness and contrast	page 9
▼	Position and size	page 9
▼	Picture is out of shape	page 10
▼	Picture is distorted	page 11
▼	Moiré	page 12
▼	Color temperature	page 12
▼	Power management	page 13
▼	Clamp position	page 13
▼	Help	page 13

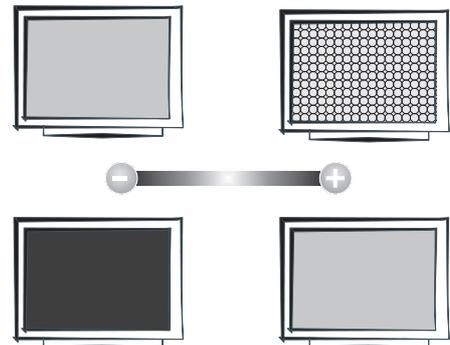
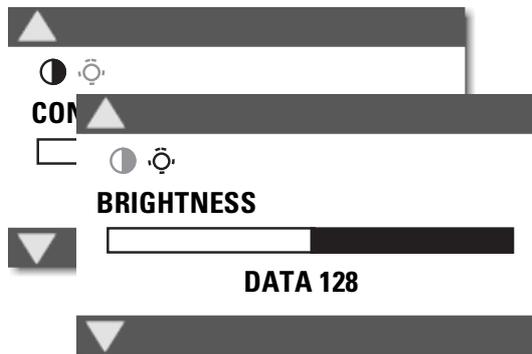
Problems and Solutions

In this chapter you will find all information for adjusting the picture and using the monitor functions. If you are not sure how to operate the OSD, please refer to page 7.

Characters Displayed are Hardly Recognizable or Readable

Brightness and Contrast

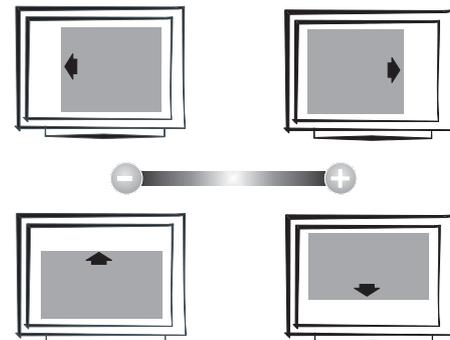
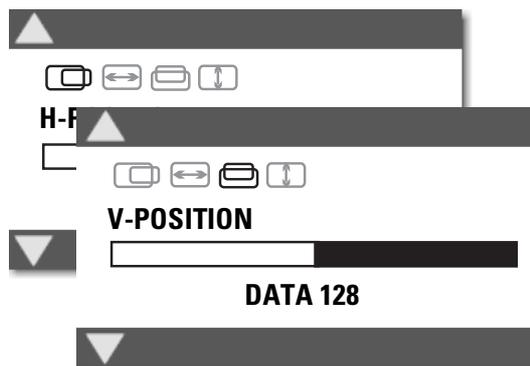
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key.



Centering/Moving the Picture

Picture Position

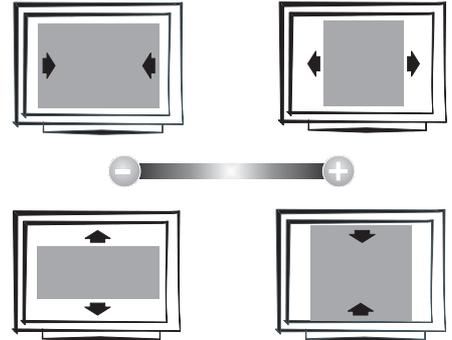
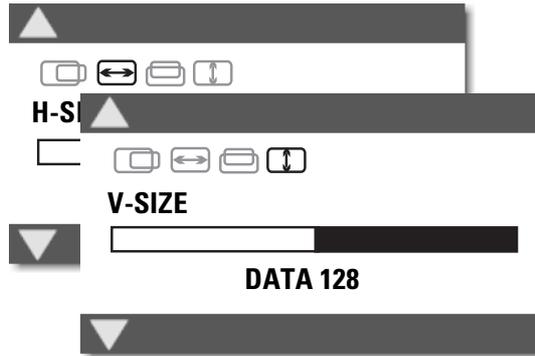
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture Does Not Fill the Entire Screen

Picture Size

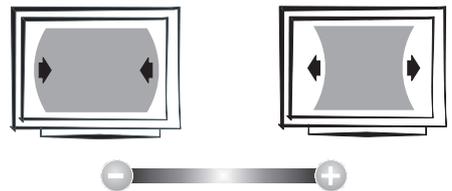
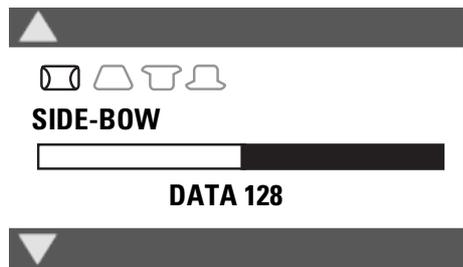
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture Bows Inward or Outwards at the Edges

Pincushion or Barrel Distortion

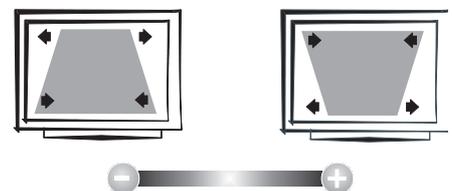
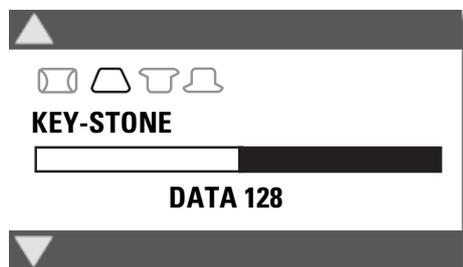
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture Tapers Towards the Top or the Bottom

Trapezoidal Distortion

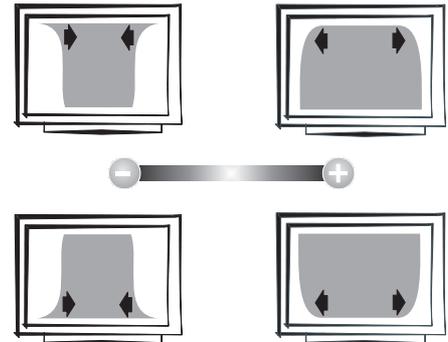
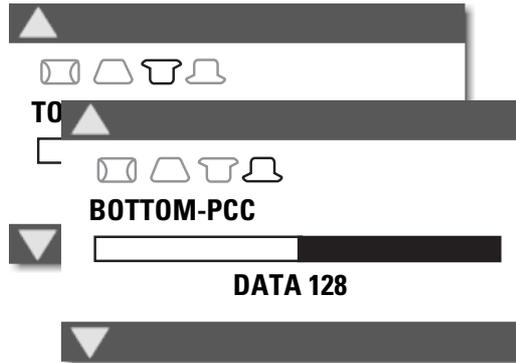
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture Expands or Narrows at the Top or Bottom

Top or Bottom Pincushion

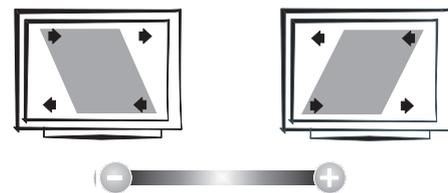
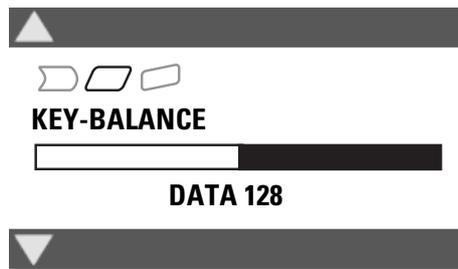
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture is Slanted to the Left or Right

Picture Slant

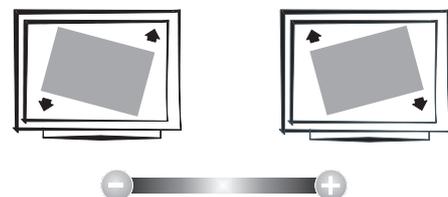
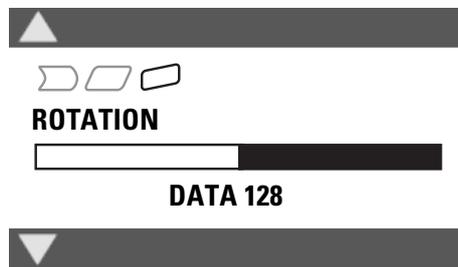
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture is "Askew"

Picture Rotation

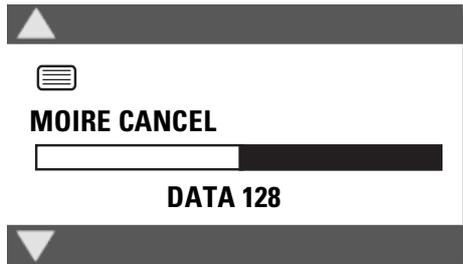
Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key



The Picture has a Wave-Like Pattern Superimposed on it

*Moiré
Correction*

Some backgrounds can give rise to the Moiré effect. This effect appears as an irregular wave-like pattern in the picture. Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key.

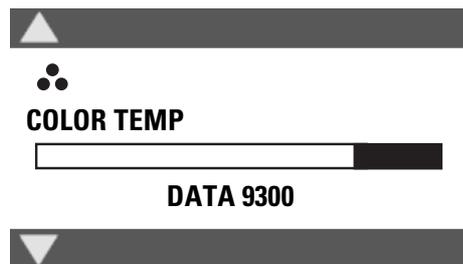


Colors In Print and On Screen Should Match

*Color
Temperature*

The setting for color temperature enables you to set up your monitor's background white to match the white of the printer paper, so that the colors on screen and on paper match with each other. The value is fully adjustable between 9950 and 5000 Kelvin, where 6500 K represents the value for standard white. A higher value (for a lower temperature) gives a lower background white value which corresponds to lower quality (darker) paper.

Use the selection keys to access the following menu page, and adjust the settings with the plus or minus key.



Let the Monitor Rest While Inactive

Power Management Function

Use the selection keys to access the following menu page, and switch between the settings with the plus or minus key.



The Power Management Function of the ECOMO Office has three different modes, each with a different power consumption. The power consumption within these modes is different. You can find detailed information in the chapter "Technical Data".

The Picture is Distorted and Unstable

Clamp Pulse Position

The Clamp Pulse Position function aids the control of the impulse signal for the electron beam. This impulse signal can be clearly differentiated from false interference signals if the pulse is preceded or followed by an identifying lesser pulse (front porch, back porch).

Use the selection keys to access the following menu page. Press the minus key to set the clamp pulse position signal to precede the impulse signal. Press the plus key to set the clamp pulse position signal to follow the impulse signal



System Information

Help

Use the selection keys to access the following menu page. Here you will be informed

- about the active horizontal and vertical frequency
- about the year and month of manufacture



Locking the Control Functions

Adjust Lock

Use the minus key and right arrow key together to access the following menu page. Pressing the plus key locks all control functions except the Luminance settings and Help page. Pressing the minus key unlocks the control function.



After locking the control function you can only adjust the luminance and reach the Help menu page.



Resetting to the Factory Values

The reset key returns all setting to their original factory values. The following values can also be reset individually:

- Rotation
- Brightness and
- Contrast

The appropriate menu page has to be active. Reset the values by pressing the plus and minus keys simultaneously.

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 Office 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.

The Seating Position

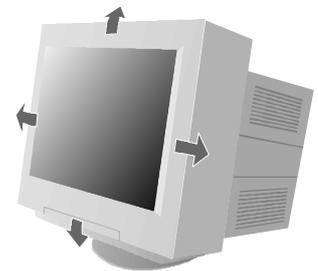
The seating position is most important for work in comfort and without problems. A rule of thumb is: sit with a straight back and ensure that your arms and legs are bent at approximately 90°. Your feet should also rest flat on the floor.

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.

The Monitor Position

The *ECOMO Office* can be tilted and swiveled so that you can set up the monitor position to your liking.

When swiveling or tilting, please support the monitor with both hands



When selecting the monitor position, be sure not to place it directly on the computer housing.



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

CRT	Diagonal	43.2cm / 17", visible area 40.6cm / 16"		
	Gun	In-Line		
	Deflection angle	90 °		
	Phosphors	Red, Green, Blue (P22, medium short persistence)		
	Phospor Color	Red	Green	Blue
	Coordinates	X = 0,625 Y = 0,34	X = 0,29 Y = 0,605	X = 0,15 Y = 0,07
	Stripe pitch	0,25mm		
	Face plate	anti-glare, anti-reflection, anti-static coating		
	Focusing method	Dynamic Beam Forming		
	Input signal	Video	0,7V RGB analog	
Synchronization		Separated H, V sync. or Composite sync.		
Interface	Input Connector	DB9-15P		
	Input Impedance	75Ω (Video) 1kΩ (sync)		
Frequency range	Horizontal: 30 - 86kHz, Vertical: 50 - 130Hz			
Resolution	Horizontal: up to 1280 pixels, Vertical: up to 1024 lines			
Warm-up time	30 min. to reach optimum performance temperature			
Brightness	100cd/m ² , standard full white video			
Video bandwidth	130MHz			
Blanking time	Horizontal	< 2,9μs		
	Vertical	< 500μs		
Display size	330 mm x 225 mm			
Color temperature	9950K-5000K	Gamma value (γ) = 1,98		
	9300K	6500K	5000K	Gamma value (γ) = 1,98
	X = 0,345 ± 0,02	X = 0,316 ± 0,02	X = 0,283 ± 0,02	
	Y = 0,359 ± 0,02	Y = 0,326 ± 0,02	Y = 0,297 ± 0,02	
Power supply	AC 100-120 V/220-240 V (10 %, 50-60 Hz, 105 W (typ.)			
Operating environment	Temperature	5° - 35 °C		
	Humidity	10 - 90 % (non condensing)		
Housing	410 x 406 x 425mm (WxHxD)			
Weight	22 kg approx.			
Tilt/swivel base	Tilt angle	-5° - +15°		
	Swivel angle	± 90°		
Approvals/	Safety (CE)	EN 60950		
	EMI (CE/FCC)	EN 55022 Klasse B, EN 50082-1, EN 60555-2 FCC Class B		
	X-Ray	Röv vom 8.1.1987		
	Others	TCO '95		
		VESA DPMS EPA Energy Star MPR-II ISO 9241-3 (TÜV Ergonomie geprüft) ZHI/618 NUTEK Spec. 803299/94		

Power Management Function

With the Power Management function activated, the monitor is able to reduce the power consumption after a period of inactivity with the host computer. The power consumption can be reduced in three stages.

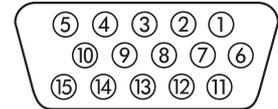
Mode	switches on,	Features
Stand-by mode	if the horizontal synch signal goes off (controlled by software, e.g. Windows 95), the monitor reverts to stand-by mode.	In stand-by mode the screen is blank and the power-on indicator blinks every half second. When the horizontal synch signal is restored the picture is displayed immediately.
Suspend mode	if the vertical synch signal goes off, the monitor reverts to suspend mode after a pause of 40 s.	In suspend mode the screen is blank and the power-on indicator blinks every two seconds. When the vertical synch signal is restored the picture is displayed immediately. In this mode the power consumption is reduced to less than 15 Watts.
Power-off mode	if after 40 s both synch signals are switched off, the monitor reverts to the power-off mode.	When the monitor is in Power-off mode, the screen is blank and the power-on indicator will blink for 3 seconds of On-time and 1 second of Off-time. When both synch signals are restored, the picture will be displayed within several seconds. In this mode the power consumption is reduced to less than 8 Watts.

Internal Preset-Memory Capability

To minimize adjustment needs, the factory has preset popular display standards into the monitor, as shown in the table. If any of these display standards are detected, the picture size and centering are automatically adjusted. All of the factory presets may be overwritten by adjusting the user controls. The monitor is capable of automatically storing additional display standards. The new display information must differ from any of the existing display standards by at least 1 kHz for the horizontal scan frequency or 5 Hz for the vertical scan frequency or the synch signal polarities must be different.

Resolution	Horizontal Frequency	Vertical Frequency	Polarity	
			H	V
640 x 480 (N.I.)	31,5	60,0	-	-
832 x 624 (N.I.)	49,7	74,5	-	-
1024 x 768 (N.I.)	60,0	75	+	+

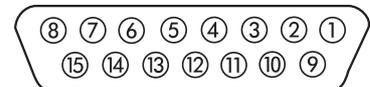
The VGA D-shell connection



Pin assignment

Pin	Signal	Pin	Signal
1	RED	9	Not used
2	GREEN	10	Sync ground
3	BLUE	11	Ground
4	Ground	12	Bi-directional data (SDA; DDC1/2B)
5	DDC ground	13	Horizontal synchronization
6	Red ground	14	Vertical Synchronization
7	Green ground	15	Serial clock (SCL; DDC2B)
8	Blue ground		

Connection to an Apple Macintosh Computer



Pin assignment

Pin	Signal	Pin	Signal
1	Red Ground	9	BLUE Video
2	RED Video	10	Sense 2
3	C-Sync	11	C & V Sync Ground
4	Sense 0	12	V-Sync
5	GREEN Video (Mono Video)	13	Blue Ground
6	Green Ground	14	H-Sync Ground
7	Sense 1	15	H-Sync
8	Not Connected		

H-Sync = Line refresh rate, V-Sync = Display refresh rate

Notes

Trouble Shooting

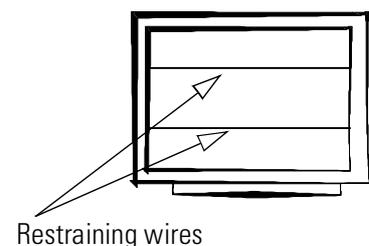
Problem Solving

What happened	What you can do
No picture <ul style="list-style-type: none"> ■ LED off ■ LED blinking 	Check that the power cord is properly connected and the monitor is switched on. Check if <ul style="list-style-type: none"> ■ the monitor cable is connected. ■ the computer is switched on. ■ the Power Management Function is active.
Unstable picture	<ul style="list-style-type: none"> ■ Check if the input signal frequency range is within the range specified.
Display is missing, center shifts, or too small or too large of a display size	<ul style="list-style-type: none"> ■ Push the Reset for a standard signal. ■ Adjust H-SIZE, V-SIZE, H-POSITION and V-POSITION with non-standard signals. Make sure you wait a few seconds after adjusting the size of the image before changing or disconnecting the signal or powering OFF the monitor..
Picture has a greenish color	Set Clamp Position to BACK.
The left corner of the screen is too pale	Set Clamp Position to FRONT.

Restraining Wires

You may notice two thin, horizontal lines in the picture. This is not a defect, but a phenomenon common to monitors which use aperture grille CRT technology.

These lines are shadows produced by the restraining wires which reduce the aperture grille's sensitivity to vibration.



Messages On Screen

The *ECOMO Office* can take care of itself. When the monitor has no synch signal, an incorrect connection, or the signal frequency is out of range, the following messages appear on the screen:

Situation 1: Power Save is OFF

When POWER SAVE is OFF and there is no synch signal, the following screen is displayed.



**ATTN. NO SIGNAL.
CHECK INPUT SIGNAL
CONNECTION OR
POWER SAVE MODE
HAS BEEN ENABLED**

Situation 2: Power Save is ON

When POWER SAVE is ON and there is no synch signal, the message shown below left is displayed for 30 seconds. 10 seconds before the POWER SAVE function activates, the right-hand message is displayed.



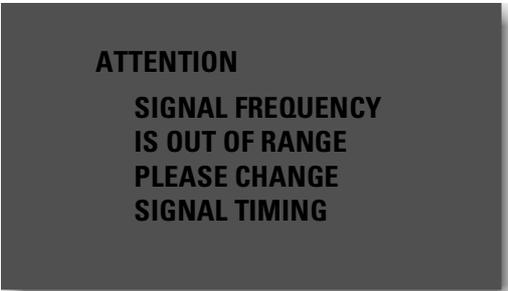
**ATTN. NO SIGNAL.
CHECK INPUT SIGNAL
CONNECTION OR
POWER SAVE MODE
HAS BEEN ENABLED**



POWER SAVE

Situation 3: Power Save is ON or OFF

When signal frequency is out of range, the following screen is displayed.



**ATTENTION
SIGNAL FREQUENCY
IS OUT OF RANGE
PLEASE CHANGE
SIGNAL TIMING**

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
S - 11494 Stockholm
Sweden
Fax: +46-87829207
EMail (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.

Advice And Assistance

If you encounter any problems during the installation or operation of your ELSA monitor, please consult this manual first. If you have further questions, you can contact our Support team. Ensure that you can provide the following information

- Exact model name of your ELSA monitor.
- Operating system, hardware environment and bus system.
- A detailed error description.

Who to contact?

First you should contact the dealer where you bought your ELSA expansion board. If there are still questions remaining, contact one of the following:

■ ELSA on the Net

ELSA Web server	http://www.elsa.de
ELSA LocalWeb	+49-241-938800
	ISDN X75, V120
	Analog K56flex, V.34
	Protocol PPP or MLPPP
	User name: gast or guest
	no password

■ ELSA and CompuServe

The ELSA forum in CompuServe	GO ELSA
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■ ELSA Support Faxline

By fax to the ELSA support faxline	+49-241-606-6399
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■ ELSA by mail

Or write to ELSA	ELSA AG
	Support Computergrafik
	Sonnenweg 11
	D-52070 Aachen
	Germany

■ ELSA Hotline

In urgent cases, call the ELSA hotline	+49-241-606-6135
Monday to Thursday:	9:00 AM to 4:30 PM
Fridays, from:	9:00 AM to 1:30 PM

Repair?

If you are not sure whether your ELSA monitor is defective, please contact your local dealer. In some cases the package contents may include material which informs you how to proceed in the case of repair. Please check your package contents.

Warranty Conditions

The ELSA AG warranty, valid as of 01.01.98, 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 CRT color monitors and ELSA video conferencing systems with a warranty period of 36 months. Also excepted are the ELSA TFT Monitors with a warranty period of 12 months. 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 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.

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