

# ***ELSA ECOMO™ 850***

Manual



Data Communications  
Computer Graphics

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# Preface

Thank you for placing your trust in this ELSA product. With the *ECOMO 850* 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.



*Our online services ([www.elsa.com](http://www.elsa.com)) are available to you around the clock should you have any queries regarding the topics discussed in this manual or require any further support. In the 'Support' file section under 'Know-How', you can find answers to frequently asked questions (FAQs). The KnowledgeBase also contains a large pool of information. Current drivers, firmware, tools and manuals can be downloaded at any time.*

Notes:

# 1 Introduction

## 1.1 Monitor Features

To give you an overview of the monitor's capabilities, the following describes the main features of the *ECOMO 850*.

### **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 30 kHz to 96 kHz, and in the vertical bandwidth from 50 Hz to 160 Hz.

### **Resolution**

The *ECOMO 850* supports resolutions at up to 1920x1200 pixels and is thus ideally suited to professional CAD, DIP and DTP applications.

### **On-Screen Display**

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

### **Configuration with Software**

The monitor can be conveniently set up via a serial interface using the enclosed software.

### **Dynamic beam landing correction**

The Dynamic Beam Landing Correction reduces 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.

### **Dynamic Convergence**

The dynamic focus function guarantees that convergence errors are corrected even at the outer edges of the screen. The controlling electronics ensure that the three beams are projected with the highest accuracy.

### **Moiré correction**

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

### **Power Saving (VESA DPMS)**

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

### **TCO '92**

The TCO '92 and other approvals show that this monitor meets all of the requirements for visual ergonomics, low electromagnetic radiation and power saving functionality. Your ELSA monitor complies with the CE radiation norm which officially defines criteria for safety and electromagnetic compatibility.

### **Plug&Play (DDC)**

The *ECOMO 850* 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.

### **Macintosh and the ELSA monitor**

The *ECOMO 850* is a multi-frequency monitor which can also be connected to Apple Macintosh computers. A suitable adapter is required to make this connection (→page 44).

## **1.2 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
- Serial cable for communications between the monitor and control software
- Monitor connecting cable (15-pin VGA D-sub connection)
- Diskette with control software and INF. files

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.

## 1.3 CE and FCC Radiation Norm

### 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. For the FCC IDs see the chapter "Technical Specifications", page 39.

### 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. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause 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:

- Re-orient or relocate the receiving antenna.
- Increase the separation between this equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.
- Caution: To comply with the limits for an FCC Class B computing device, always use a shielded signal cord.



### CAUTION

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:

## 2 Installation

This chapter will assist you to get your monitor working as quickly as possible. It takes just a few straightforward maneuvers to connect the monitor to your computer. Before you start please carefully read the safety and operating hints below.



*Use only the power cord supplied for connection to the mains supply. To reduce the danger from electric shocks, only make use of a properly grounded power socket for the connection.*

*Do not on any account open up the appliance to carry out your own repairs.*

*Very high voltages exist within the appliance, even when disconnected from the mains. Repairs should only be made by trained technicians. Please contact ELSA Services for any repairs.*

*Do not locate the monitor close to sources of electromagnetism. These can include halogen desk lamps or electric motors, but can also include high voltage cables or steel pillars. Magnetic or electromagnetic radiation causes picture distortion and can eventually cause your monitor to fail.*

*Ensure that your monitor has sufficient ventilation. The air vents on your monitor must not be obstructed. Heat produced from the picture tube must be allowed to escape freely.*

*Protect the monitor from damp and dust. Damp can cause short circuits, and a build-up of dust can mean that the monitor is not properly ventilated.*

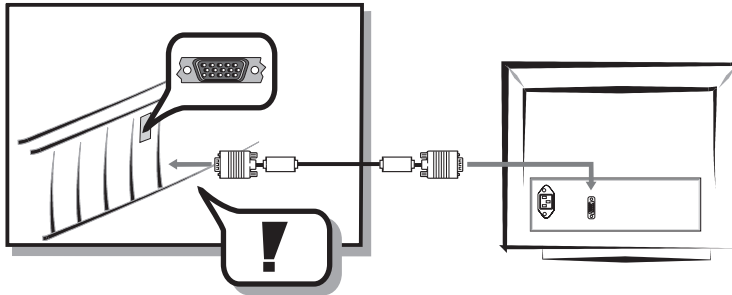
*The power cord must be unobstructed. Avoid allowing heavy objects to stand on it.*



*If the guarantee seal on the back of the monitor is broken, your guarantee will no longer be valid!*

## Connecting to the computer

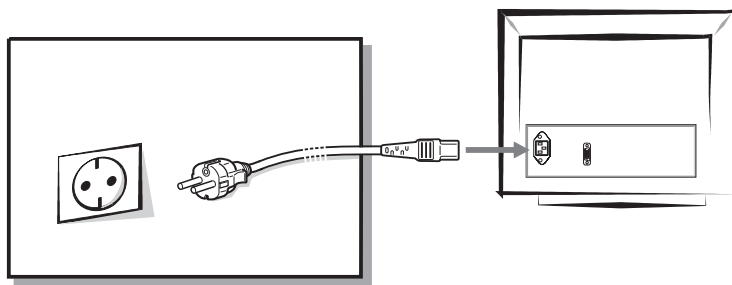
Use the monitor cable to connect your computer with the signal graphics input on the monitor.



*For connecting your monitor to a Macintosh computer, make use of the special adapter available from your dealer. See the chapter ('Connecting the monitor to a Macintosh computer') for information on the connection of this adapter and the dip switch settings.*

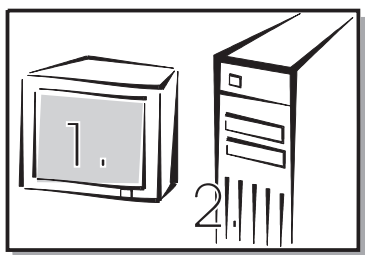
## Connecting to the mains

With the monitor switched off connect the power cord supplied to the monitor and to the mains. The monitor automatically adjusts itself to the rated voltage (110V - 230 V).



## Switch on

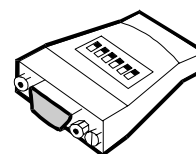
The monitor is now connected to your computer and the mains. First switch on your monitor, then the computer



## Connecting the monitor to a Macintosh computer

Your dealer can supply you with a special adapter for connecting your ELSA monitor to Macintosh computers. The adapter is to be located between the computer's graphics output and the VGA connector cable. The DIP switches on the upper side of the adapter should be set according to the resolution with which your monitor will be operating.

The optional adapter is for connecting your ELSA monitor to Macintosh computers. Set the DIP switches according to the table below.



### DIP switch settings connections with Macintosh computers

<b>ELSA ECOMO Monitors</b>	<b>DIP switch setting</b>
17" Multi Mode Start resolution: 1024 x 786	
19" Multi Mode Start resolution: 1152 x 870	
20" Multi Mode Start resolution: 1152 x 870	
21" Multi Mode Start resolution: 1152 x 870	
22" Multi Mode Start resolution: 1152 x 870	
24" Multi Mode Start resolution: 1152 x 870	

### What next?

Because there are so many types of graphics cards you may need to fine tune the monitor picture settings.

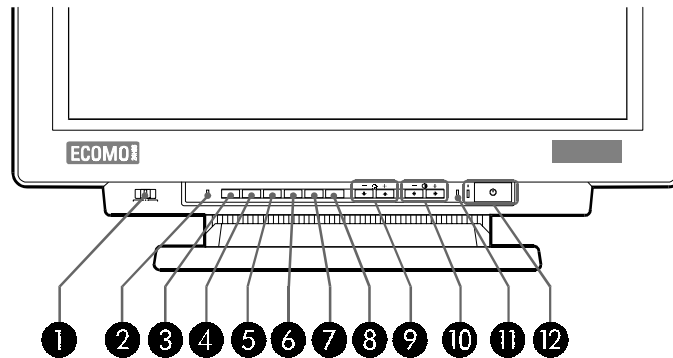
In the following chapters you can read how to fine tune for picture and color. The manual also contains technical information and additional assistance for the operation of your ELSA monitor.

Notes:












## 3 Aspects of Your Monitor

### 3.1 The Front Control Panel

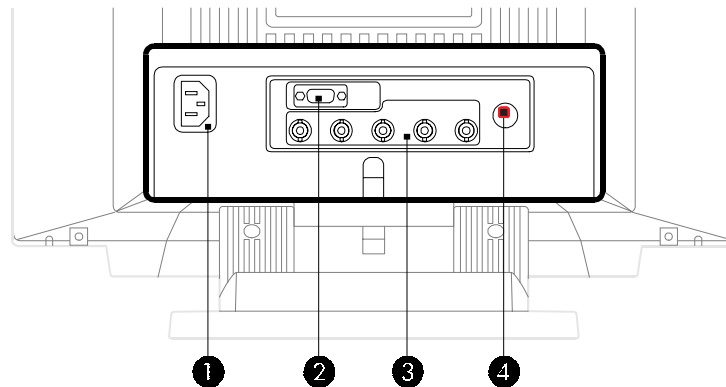
The lower front of the monitor features a selection of switches and keys for fine tuning the picture.



No.	Key	Function
①		<b>Input selection switch</b> Selects the input connector when connected with two computers.
②		<b>Reset</b> Resets the settings to the factory values.
③		<b>Options</b> Calls the on-screen display OPTION.
④		<b>Color</b> Calls the on-screen display COLOR for setting the color temperature.
⑤		<b>Screen</b> Calls the on-screen display SCREEN for setting the horizontal and vertical convergence.
⑥		<b>Geometry</b> Calls the on-screen display GEOMETRY to adjust the picture rotation and pincushion distortion.
⑦		<b>Size</b> Calls the on-screen display SIZE for setting the picture size.

No.	Key	Function
8		<b>Center</b> Calls the on-screen display CENTER for adjusting the position of the picture.
9	 - / + 	<b>Brightness</b> Sets the picture brightness. The - / + (  /  ) keys can also be used for setting other options.
10	 - / + 	<b>Contrast</b> Sets the picture contrast. The - / + (  /  ) keys can also be used for setting other options.
11		<b>Power saving indicator</b> Illuminates when the monitor is in power saving mode.
12		<b>Power switch and indicator</b> Turns the monitor on and off. The indicator illuminates when the monitor is switched on.

## 3.2 The Rear Connectors Panel



### ❶ Power socket

The power cord is to be connected here.

### ❷ Video input 1 (HD15)

This socket is for connecting the monitor with your computer's graphics output. Use only the monitor cable supplied.



### NOTICE

Your monitor's DDC function operates only when the Video input 1 socket is used.

### ❸ Video input 2 (5 BNC)

These five sockets are for the BNC connection to your computer's graphics output.

### ❹ Serial connector (DIN-8P)

Interface for the software-controlled configuration. Use the enclosed serial cable to connect the serial interface of the monitor with a free serial connector on your computer. On the enclosed diskette you will find the program ELSA *SCREENman*, which is a user-friendly program for adjusting your monitor's settings.

In the appendix as of page 43 you will find a detailed description of the interfaces.

Notes:

## 4 The On-Screen Display

The on-screen display appears as soon as one of the control panel keys is pressed. Once within the on-screen display, you can use these keys to make changes to your monitor's configuration.

Alternatively you can make use of the software supplied to make the changes.

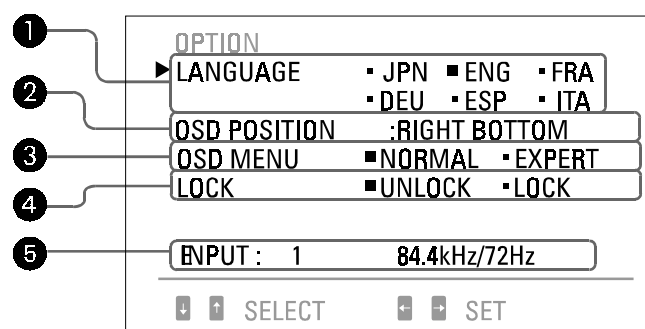


### NOTICE

The on-screen display will be displayed for about 30 s, after which it will automatically be switched off. Alternatively, the on-screen display can be switched off by pressing the key a second time.

### 4.1 The Option Key

The option key is used to define the on-screen display menus.



#### 1 LANGUAGE

This option is for selecting the language used by the on-screen display. The languages available are Japanese, English, French, German, Spanish or Italian.

#### 2 POSITION

This option defines the position of the on-screen display on the monitor.

#### 3 MENU

This option is used to select either the Normal or the Expert modes for settings adjustment.

#### 4 LOCK

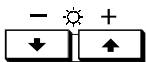
This option can disable and enable the functionality of the control panel keys. This offers the option of limiting the changes which can be made to the screen settings.

#### 5 INPUT

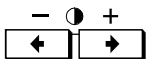
This option informs you which signal input is currently active, and which signal frequency is in use.

## 4.2 Operating the On-Screen Display

Selecting menu pages and items within the on-screen display is carried out with the following key pairs:



These keys are used to move the on-screen cursor up and down. The currently selected parameter is marked with the symbol ► and highlighted in yellow.



These keys alter the settings of the currently selected parameter. The changes to the setting is shown by the length of the bar, i.e. a higher value is indicated by the increase in length of the bar, a lower value by the decrease in the length of the bar. Once the setting is selected, it is highlighted by the green ■ marker.

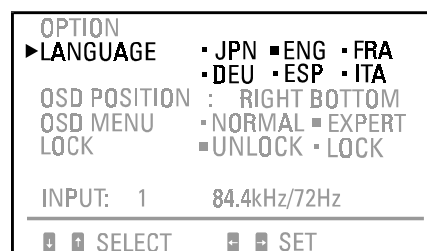
## 4.3 Selecting the Language

The on-screen display can be operated in various languages; Japanese (JPN), English (ENG), French (FRA), German (DEU), Spanish (ESP) or Italian (ITA).



### OPTION Key

Press this key once to display the following menu on the monitor:



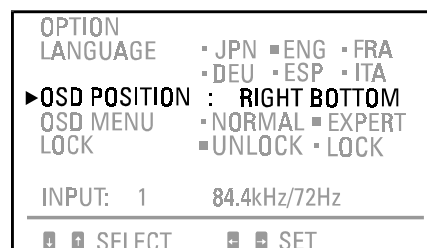
- ① Use the ◀/▶ keys to select the LANGUAGE option.
- ② Set the marker to the desired language with the ◀/▶ keys.

## 4.4 Changing the Position of the On-Screen Display



### OPTION Key

Press this key once to display the following menu on the monitor:



- ① Use the ◀/▶ keys to select the POSITION option.
- ② Move the on-screen display menu with the ◀/▶ keys to the desired position.

# 5 Monitor Settings

The monitor settings can be fine tuned according to your preferences and, especially in Expert mode, the options go into great depth. 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 "emergency" key to restore the factory settings (→page 30).

The range of settings differs between the Normal and the Expert modes. The settings available in the Expert mode are more detailed than in the Normal menu.



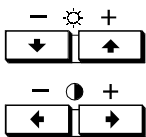
## NOTICE

With the exception of Brightness and Contrast, all settings apply only to the currently active display resolution.

## 5.1 The Normal Menu

### 5.1.1 Characters Displayed are Hardly Recognizable or Readable

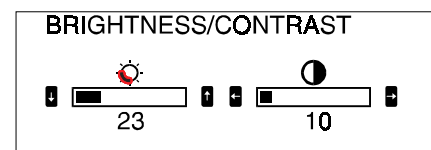
#### Picture Brightness and Contrast



#### Brightness and contrast

(→ Expert menu page 27)

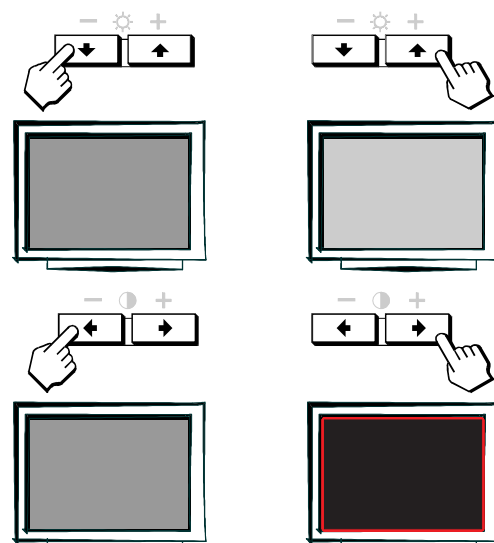
The Brightness and Contrast keys call the following screen menu:



## NOTICE

After pressing a selection key the display menu will appear. The monitor "remembers" the last page selected, and displays it again.

Pressing keys / make the screen brighter or darker.



The keys / increase or decrease the picture contrast.



## NOTICE

The settings for Brightness and Contrast apply to all display resolutions.

## 5.1.2 Centering/Moving the Picture

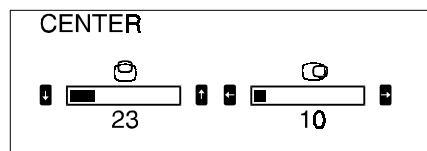
A change of resolution, for example, can make it necessary to adjust the position of the picture.



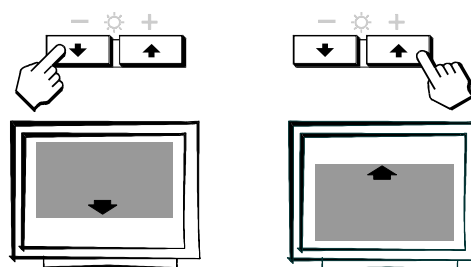
### Position of the Picture

(→ Expert menu page 27)

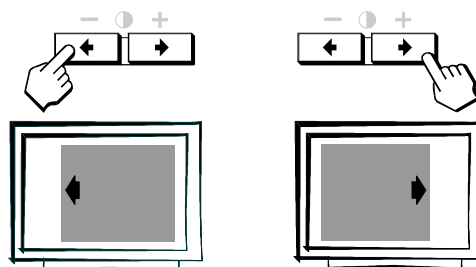
Press this key to reach the following display menu on the monitor.



Press on the / keys to move the picture up and down.



Press on the / keys to move the picture left and right.

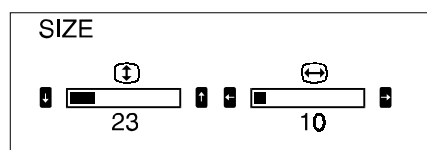


## 5.1.3 The Picture Does Not Fill the Entire Screen

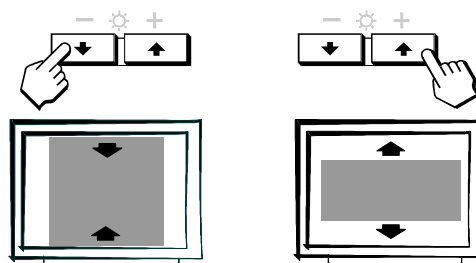
### Picture Size



**Picture Size** (→ Expert menu page 27)

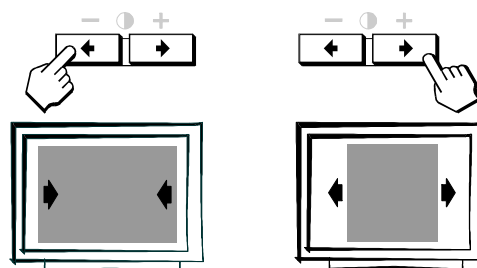
Press this key for the following display menu.



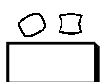
Pressing the / keys reduces or increases the vertical size of the picture.



Pressing the / keys reduces or increases the horizontal size of the picture.



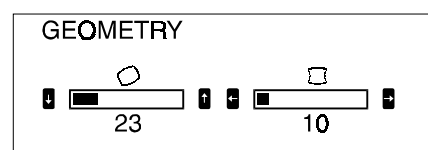
## 5.1.4 The Picture is "Askew"





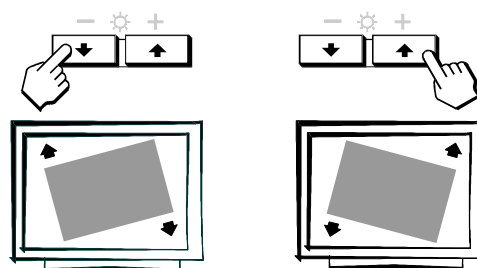
### Picture Rotation

(→ Expert menu page 27)

Press this key for the following display menu:



Press the / keys to rotate the picture anti-clockwise or clockwise.



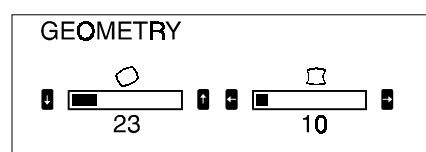
## 5.1.5 The Picture Bows Inward or Outwards at the Edges





### Pincushion Distortion or Barrel Distortion

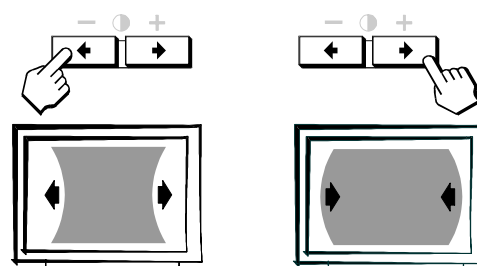
(→ Expert menu page 27)

Press this key for the following display menu:



\* PCC: Pin Cushion Correction

Press the / keys to correct the cushion distortion at the edges of the screen.

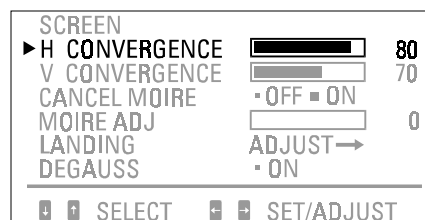


## 5.1.6 The Picture has Blue or Red Borders



### Convergence(→ Expert menu page 27)

Press this key for the following display menu.



If the three electron beams do not meet at exactly the same point on the screen then this so-called convergence results in distinct color "fringes". Convergence can occur in the horizontal and/or the vertical axis. The convergence correction compensates by deflecting the red and blue component beams.

Use the keys to set up the picture so that the red or blue shadows disappear.

Key	Horizontal Convergence	Vertical Convergence
	The red component is moved left, and the blue component is moved right.	The red component is moved down, and the blue component is moved up.
	The red component is moved right, and the blue component is moved left.	The red component is moved up, and the blue component is moved down.



### NOTICE

These settings apply to all resolutions.

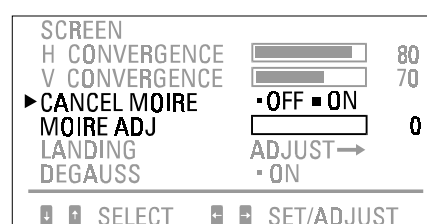
## 5.1.7 The Picture has a Wave-Like Pattern Superimposed on it

Some backgrounds can give rise to the Moiré effect. This effect appears as an irregular wave-like pattern in the picture.



### Moiré correction

Press this key for the following display menu (→ Expert menu page 27).



- ① Use the keys to select MOIRE CORRECTION.
- ② Use the keys to select ON for the MOIRE CORRECTION.

Proceed as follows to adjust the degree of Moiré correction:

- ① Set the Moiré Correction to OFF again.
- ② Use the keys to select MOIRE.
- ③ Use the keys to increase the value for Moiré, starting with 0, until the Moiré effect is eliminated as far as possible.

**NOTICE**

This setting applies only to the current resolution.

**5.1.8****The White Display Appears Dirty**

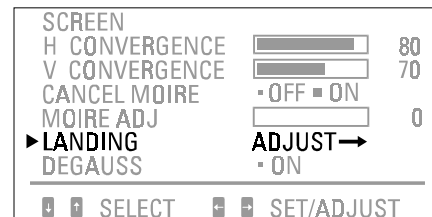
The irregular display of colors can arise for example from external magnetic influences. The false colors can be corrected for with the settings under Landing. The best results will be achieved by carrying out a demagnetization and then carrying out your adjustment after 20 minutes with white on display.

**Landing**

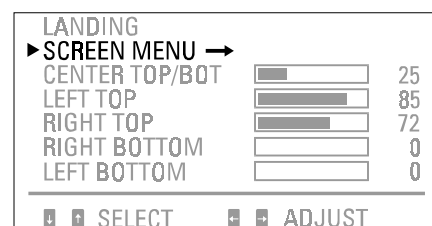
This value adjusts the purity of the colors displayed.

(→ Expert menu page 27)

Press this key for the following display menu:



- ① Use the / keys to select ENTMAGNET.
- ② Press the key.  
The screen will be demagnetized which takes about five seconds.
- ③ Use the / keys to select LANDING.
- ④ Press the key.  
You now have the opportunity to set the color purity in five different areas of the screen.



- ⑤ Use the / keys to select the screen area you wish adjust and set the value with the / keys.

After you have defined your settings, change to PICTURE and press the key to save the values.

### 5.1.9 Colors In Print and On Screen Should Match

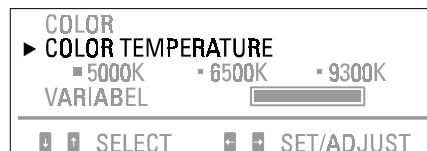
The setting for color temperature enables you to set up your monitor's background white to match the white of the printer paper, so that the colors on screen and on paper match with each other. The values for COLOR-1 to COLOR-3 comply with the common grades of printer paper, the value 6500 K being for standard white. A higher value (for a lower temperature) gives a lower the background white value which corresponds to lower quality (darker) paper.



#### Color Temperature

(→ Expert menu page 27)

Press this key for the following display menu:



You can choose one of the default values or move to the Option VARIABLE and use the keys ◀/▶ to select a value between 5000 and 9300 Kelvin.

## 5.2 The Expert Menu

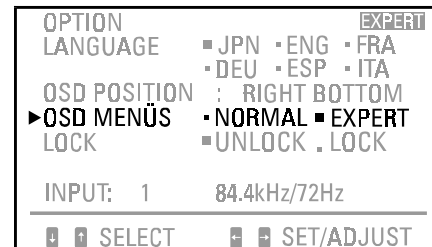
The Expert Menu features options for fine tuning the monitor settings in fine detail.

### 5.2.1 Selecting the Extended Menu



#### The OPTION key

Press this key for the following display menu:



- ① Use the / keys to select the MENÜS option.
- ② Use the / keys to set the marking to EXPERT.

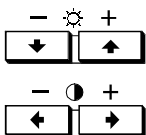


#### NOTICE

All settings can be made in the Expert Menu using the following method:

- Select the desired parameter with the / keys.
- Use the / to define the value.

### 5.2.2 Picture Brightness and Contrast



#### Brightness and contrast

(→ Expert menu page 27)

The Brightness and Contrast keys call the following screen menu:



- ① Use the / keys to select the PRESET option and select a preset number with the / keys.  
To make use of these settings at a later stage simply select the preset number again.
- ② Contrast can be set with the / keys and Brightness is set with the / keys.

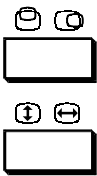


#### NOTICE

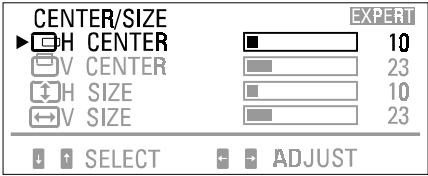
The settings apply to the currently selected preset number in the expert mode.

### 5.2.3 Adjusting the Centering and the Size of the Picture

The expert mode options for adjusting the centering or size of the picture are the same as those in the normal mode.



Use the keys for picture size and centering to call the following display menu:



Symbol	Action
	Setting the horizontal and vertical position
	Setting the width and height of the picture

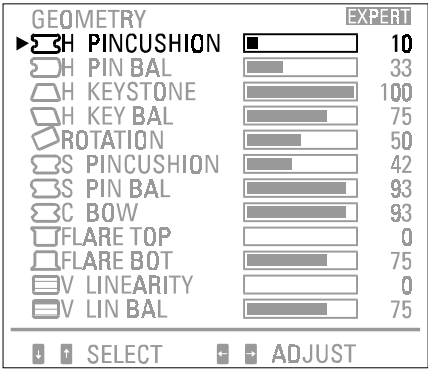


**NOTICE**  
The settings apply only for the current input signal.

### 5.2.4 Picture Rotation and Pincushion/Barrel Distortion



The GEOMETRY key calls the following display menu:



Symbol	Action
	Corrects distortion at the sides of the picture.
	Corrects the difference in width between the upper and lower picture edges.
	Corrects the difference in picture position at the top and bottom of the screen.
	Corrects the picture rotation.
	Corrects wave-like distortions at the sides of the picture
	Corrects the widening of the picture at the top or bottom.
	Corrects the vertical linearity or the balance of the vertical linearity.

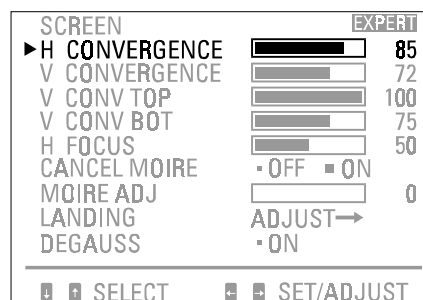


**NOTICE**  
These settings apply only to the current input signal.

## 5.2.5 Screen Quality



The SCREEN key calls the following display menu:



Position	Action
H CONVERGENCE V CONVERGENCE	Adjusts the horizontal and vertical convergence.
V CONV TOP V CONV BOT	Adjusts the vertical convergence at the top and bottom edge of the picture.
H FOCUS	Adjusts the horizontal focussing.
CANCEL MOIRE	Eliminates the Moiré effect when "ON" is selected.
MOIRE ADJ	Reduces the fuzziness of the picture caused by canceling Moiré. Start with a correction of 0 and adjust the setting until the Moiré effect is reduced as far as possible.
LANDING	→ Page 25 – color purity
DEGAUSS	→ Page 31



### NOTICE

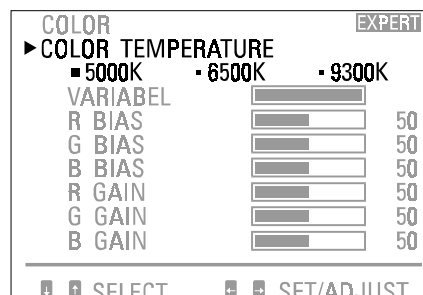
These settings apply to all of the input signals.

## 5.2.6 Color Settings

This screen enables the definition of the color temperature of the background white and also of the red-green-blue values.



The COLOR key calls the following display menu:






First use the keys to select the color temperature required (5000, 6500 or 9300), and then select the parameter to be adjusted.

Position	Action
VARIABLE	Adjusts the selected color to the desired color temperature.
R BIAS	Adjusts the black level of each signal. "++" appears next to the color temperature which has been adjusted
G BIAS	
B BIAS	
R GAIN	Adjusts the white level of each signal. "++" appears next to the color temperature which has been adjusted.
G GAIN	
B GAIN	

## 5.3 Resetting to the Factory Values

If you wish to start afresh with your adjustments, you can either reset all values to the factory settings, or you can reset each value individually.

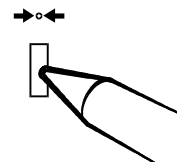
### 5.3.1 Resetting Individual Values

- ① Press the key for the menu which is to be reset.
- ② If the individual value you wish to reset is in a menu with several other parameters, select the value to be reset with the / keys.
- ③ Press the  (Reset) key.




#### NOTICE

To prevent the parameters being reset accidentally, the key is protected and can only be pressed with a thin, blunt tool.




### 5.3.2 Resetting All Values

Make sure that no display menu is on screen, and hold the  (Reset) key pressed down for two seconds or longer

All settings, including brightness and contrast, will be set to the factory values.

### 5.3.3 Resetting the Values for Picture Size, Position, Moiré Effect, and Geometry

Make sure that no display menu is on screen, and hold the  (Reset) key pressed down for two seconds or longer

These parameters for the current resolution will be set to the factory values.



#### NOTICE

The setting for picture rotation will not be reset.

## 5.4 Locking the Control Functions

Most of the function keys on the front of the monitor can be locked. For the following keys:



Input selection switch



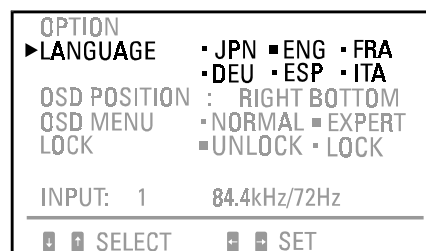
Options



Power switch



Press this key for the following display menu.



- ① Use the / keys to select LOCK.
- ② Use the / keys to set the marking to LOCK.

Once locked, the / keys can no longer be used for adjustments in the OPTION display menu. Pressing a locked control key will prompt the display of the symbol.



### NOTICE

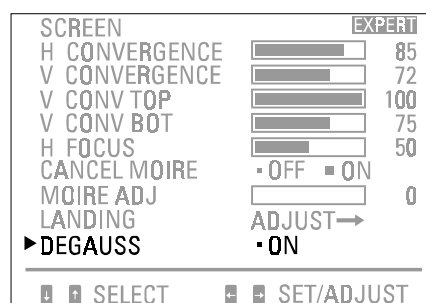
To unlock the control functions again, press the OPTION key and set the marking to UNLOCK.

## 5.5 Demagnetization

Each time the monitor is switched on a demagnetization is carried out. You can also carry out a demagnetization from the menu.



Use the SCREEN key to call the following display menu:



- ① Use the / keys to select the DEGAUSS option.
- ② Press the key.

The demagnetizing process takes about five seconds.

Notes:

## 6 The Power Saving Function

The *ECOMO 850* is equipped with a power saving function which reduces the power consumption in three stages. If the monitor detects that no input signal is available, and one or both of the synchronizing signals from the host computer or graphics board are missing, then the power consumption is reduced according to the following scheme:

	Power saving function	Power consumption	Time to reactivate	Power saving indicator	Power indicator
1	Normal operation	$\leq 200$ W	—	off	Green on
2	Standby Stage 1	$\leq 140$ W	approx. 3 s	Orange on	Green on
3	Suspend Stage 2	$\leq 15$ W	approx. 3 s	Orange on	Green on
4	Active off Stage 3	$\leq 8$ W	approx. 10 s	Orange on	Off
5	Power-off	0 W	—	Off	Off



### NOTICE

The power saving function requires a graphics board with suitable software which can control one or both of the synchronization signals.

Notes:

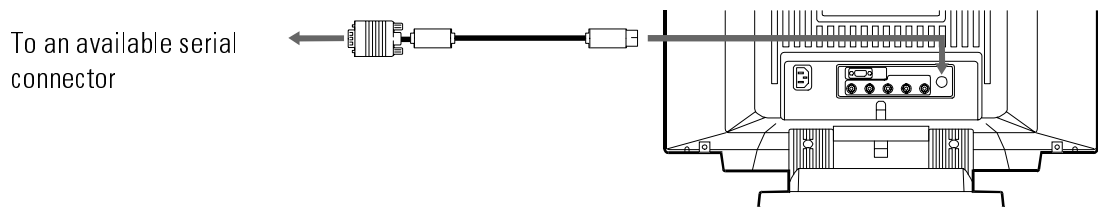
# 7 ELSA SCREENman

The program *ELSA SCREENman* enables you to control brightness, contrast, convergence, color temperature, the position and size of the picture, pincushion and picture rotation directly from your computer. *ELSA SCREENman* is included on the enclosed program diskette.

## 7.1 Hardware and Software Installation

### 7.1.1 Connect the Monitor and Computer

Before starting *SCREENman*, the monitor and computer have to be connected. Use the supplied cable to connect the socket at the rear of the monitor with an available serial connector on your computer.



### 7.1.2 Installing the Software

To install the software, please copy all the files from the WINTOOL directory on the program diskette into your computer's WINDOWS\SYSTEM directory.



#### NOTICE

If you have an ELSA graphics board installed in your system, you may find the files SACCRUN1.DLL or ELSA.HLP in your WINDOWS\SYSTEM directory. Please make use of the most up-to-date version.

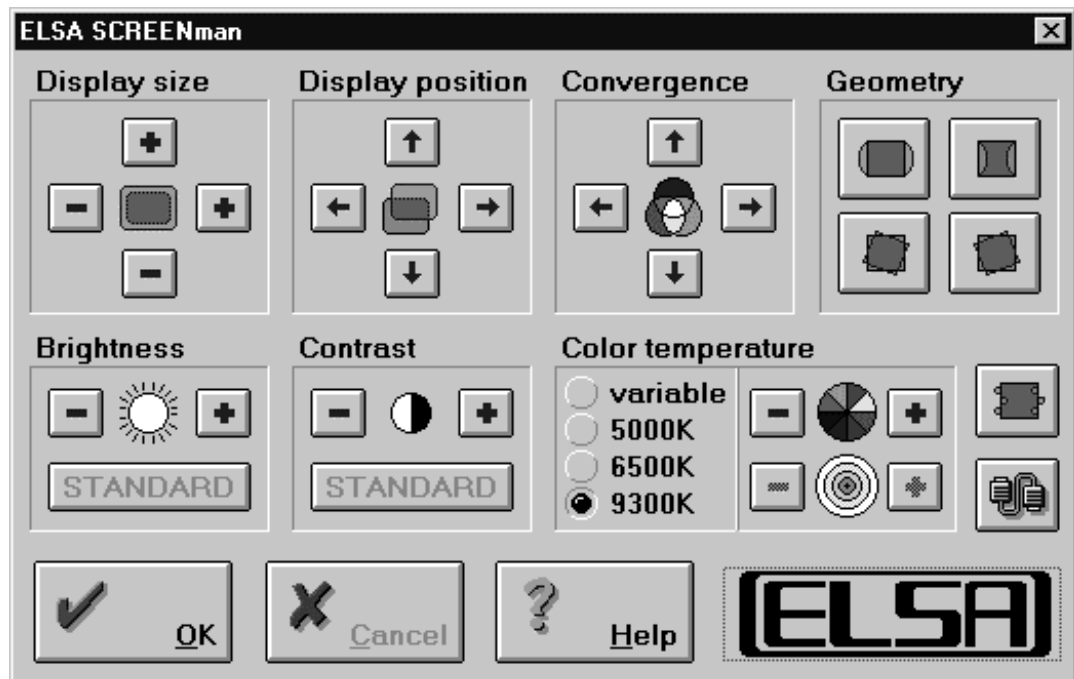
You will find more information in the README-file.

### 7.1.3 Setting up *ELSA SCREENman* as a Program Symbol

- ① Start Windows and click on an unoccupied part of the desktop with the right-hand mouse button.
- ② In the dialog which appears, select **New/Shortcut** to open the shortcut installation dialog.
- ③ In the command line, enter:  
`disk drive\WINDOWS\SYSTEM\SCRNMAN.EXE` (where `disk drive` is the letter for the drive from which you run Windows) and click on **Next**.
- ④ In the following dialog, you will be asked to name the shortcut. Enter a suitable string (e.g. *ELSA SCREENman*).
- ⑤ Click on **Next** again.

A symbol will be generated and laid on the desktop which can be used to start *ELSA SCREENman*.

You can change the language used by *ELSA SCREENman* with SYSTEM menu entry (ALT-SPACEBAR).



*The ELSA SCREENman is a useful control center*

## 8 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.



### NOTICE

The *ECOMO 850* complies with the latest EU ergonomics directive (90/270/EEC) for work places with monitors.

### 8.1 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.

### 8.2 Tips for an Ergonomic Working Environment

#### 8.2.1 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 e.g. 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?

#### 8.2.2 Your Place of Work

##### 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 monitors over 17" is recommended to be at least 60 cm.

### The Seating Position

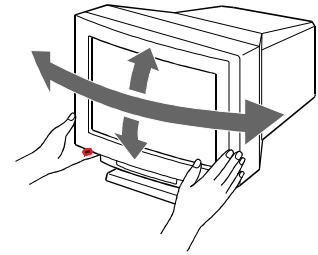
The seating position is most important for work in comfortable and without problems. A rule of thumb is: sit with a straight back and ensure that your arms and legs are bent at approximately 90°. Your feet should also rest flat on the floor.

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 850* 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.*

## 8.3 Cleaning your Monitor

The surface of your monitor's screen is coated with an anti-reflective layer. To avoid damaging this layer, please do not touch the screen with any rough, sharp or pointed objects, for example screw drivers, pens, etc.

Use a soft cotton cloth with a mild detergent to clean the screen. Do not press too hard on the screen as small dust particles may cause scratches.



*Do not use benzene, thinner or any volatile substances to clean the unit as the finish may be permanently marked.*


# 9 Technical Specifications

<b>CRT</b>	Diagonal	61 cm / 24", visible area 57 cm / 22,5"
	Gun	In line
	Deflection angle	90 °
	Phosphors	Red, Green, Blue (P22, medium short persistence)
	Stripe pitch	0.25-0.28 mm
	Face plate	anti-glare, anti-reflection and anti-static coating
	Focusing method	Dynamic Beam Forming
<b>Input signal</b>	Video	0,7 and 1,0 V p-p analog RGB
	Sync	Sync. on green or separated H, V sync. or composite sync.
<b>Interface</b>	Input connector	5 BNC connectors, DB9-15P, DIN-8P (serial)
	Input impedance	75 $\Omega$ (video) 1k $\Omega$ (sync)
<b>Scanning frequency</b>	Horizontal	30 - 96 kHz
	Vertical	50 - 160 Hz
<b>Resolution</b>	Horizontal	max. 1920 dot
	Vertical	max. 1200 dot
<b>Warm-up time</b>	30 min. to reach optimum performance temperature	
<b>Brightness</b>	100 cd/m <sup>2</sup> , standard full white video	
<b>Video bandwidth</b>	50 Hz - 170 Hz	
<b>Blanking time</b>	Horizontal	< 2,9 $\mu$ s
	Vertical	< 500 $\mu$ s
<b>Display size</b>	484 mm x 306 mm, ratio 16:10, e.g. 1792 dot x 1120 line	
<b>Color temperature</b>	1 = 5000 K	2 = 6500 K
	3 = 9300 K	Gamma value ( $\gamma$ ) = 3.01
	X = 0,346 $\pm$ 0,03	X = 0,313 $\pm$ 0,03
	Y = 0,359 $\pm$ 0,03	Y = 0,329 $\pm$ 0,03
		Y = 0,298 $\pm$ 0,03
<b>Power Supply</b>	AC 100-120 V/220-240 V $\pm$ 10 %, 50-60 Hz, 120 W (approx.)	
<b>Operating Environment</b>	Temperature	10° - 35 °C
	Humidity	10 - 80 % (non-condensing)
<b>Housing</b>	580 x 500 x 548 mm (WxHxD)	
<b>Weight</b>	41 kg approx.	
<b>Tilt/swivel base</b>	Tilt angle	-5° - +15°
	Swivel angle	$\pm$ 155°
<b>Approvals</b>	Safety (CE)	EN 60950
	EMI (CE/FCC)	EN 55022 class B, EN 50082-1, EN 60555-2 FCC Class B (FCC-ID: AK8GDMW900TC)
	X-Ray	DHHS, DNHW, PTB
	Others	TCO '92
		VESA DPMS
		EPA Energy Star
		MPR-II
		ISO 9241-3 (TÜV-ERGO)
		ZHI/618
		NUTEK 803299/94

Notes:

# 10 Trouble Shooting

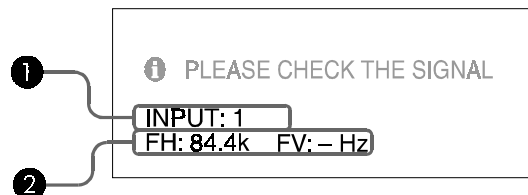
## 10.1 Problem Solving

What happened	What you can do
<b>No picture</b> <b>Power and Power Saving indicators off</b> <b>Power Saving indicator blinking</b>	<p>Check that the power cord is properly connected and the monitor is switched on.</p> <p>Check if</p> <ul style="list-style-type: none"> <li>– the monitor cable is connected.</li> <li>– the BNC cables are wrongly connected or the green connector is loose/not attached.</li> <li>– the computer is switched on.</li> <li>– the Power Management function is active.</li> </ul>
<b>Power indicator is blinking green</b>	Check that the video frequency is within the range specified for this monitor (horizontal: 30 - 96 kHz, vertical: 50 - 160 kHz).
<b>The Power indicator or the Power Saving indicator is blinking orange</b>	Turn the monitor off and on. If the indicator is off, the monitor is in the normal condition. If the indicator continues to blink, please contact ELSA Support.
<b>Despite all measures taken, the monitor does not work in normal condition,</b>	Unplug the video input 1 and 2 connectors and wait for 5 seconds. Then press and hold the  key for 2 seconds. If the color bars appear, the monitor should be in order again. Turn the monitor off and on and the monitor should return to the normal operating condition. If the color bars do not appear there may be a fault with the monitor.
<b>The picture is unstable</b>	<p>Check if</p> <ul style="list-style-type: none"> <li>– the BNC cables are wrongly connected.</li> <li>– the input frequency is outside the tolerance.</li> </ul>
<b>Missing color (with BNC connection)</b>	<ul style="list-style-type: none"> <li>– One or more of the BNC cables is loose/swapped.</li> </ul>
<b>The colors are not uniform</b>	<ul style="list-style-type: none"> <li>– Demagnetize the monitor (→page 31). If your monitor is near to devices creating magnetic fields (e.g. loudspeakers) or if you change the direction of the monitor, the colors may not appear to be uniform. This function demagnetizes the CRT's metal frame to obtain a neutral field. If a second demagnetization is required, allow a minimum interval of 20 minutes for the best result.</li> <li>– Adjust the landing (color purity) (→page 29).</li> </ul>
<b>White does not look white</b>	<ul style="list-style-type: none"> <li>– Adjust the color purity and color temperature (→pages 25 and 29).</li> <li>– The five BNC connectors have to be connected in the right order (working from the power cable, the order is red-green-blue-HD-VD).</li> </ul>
<b>Ghost images</b>	This problem can arise with extended monitor cables and/or video switch boxes. Cables which are too long, or interference-prone connections should be avoided.
<b>You cannot adjust the monitor with the keys on the front panel</b>	If the control lock function is set to on, set it to off in the display menu OPTION (→page 31). Now you can adjust the monitor.

## 10.2 Input Signal Warning Function

If there is a problem with the input signal, the following message will appear:

This message will disappear after about 30 s.



Item ❶ shows the setting of the input select switch.

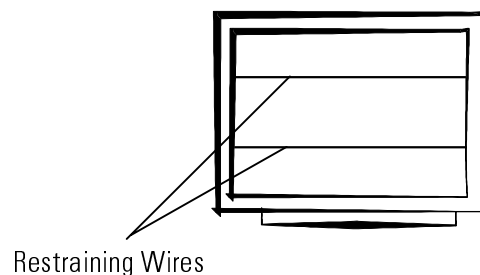
Item ❷ shows the status of the input signal:

<b>FH: – kHz</b>	This indicates that no horizontal sync. signal is available.
<b>FV: – Hz</b>	This indicates that no vertical sync. signal is available.
<b>OUT OF SCAN RANGE</b>	This indicates that the input signal is not supported by this monitor.
<b>NO CONNECTION</b>	This indicates that the supplied video signal cable is disconnected from the HD15 connector when the input select switch is set to '1'.

## 10.3 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 the aperture grille CRT technology.

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



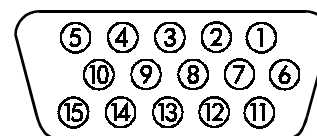
# 11

## Appendix

### Monitor Inputs

#### VGA D-Sub Input

Signal Input 1 is a 15-pin VGA socket for analog RGB video signals (0.714 V p-p, positive) and sync signals.

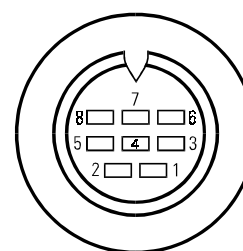


#### Pin Assignment

Pin	Signal	Pin	Signal
1	RED	9	Not Connected
2	GREEN (composite green signal with synchronization)	10	Sync Ground
3	BLUE	11	Ground
4	Ground	12	Serial 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		

#### Serial Input (DIN-8P) for the Interface Function

The serial input is for the software-controlled configuration of the monitor settings. A specialized cable and software are required for this function.



This function is not supported by this monitor at this time.

#### Pin Assignment

Pin	Signal	Pin	Signal
1	Data Terminal Ready (DTR)	5	Receive Data (RXD)
2	Not Connected	6	Ground (GND)
3	Transmit Data (TXD)	7	Not Connected
4	Ground (GND)	8	Not Connected

## BNC Connectors

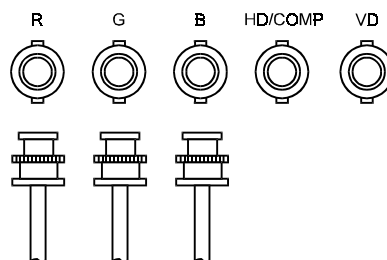
The second input for the video signal is the BNC connection with via five sockets. The connection cable between the monitor and your graphics card can be supplied by your dealer.



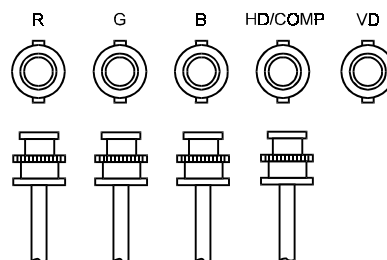
### NOTICE

The BNC connection does not support the DDC functions.

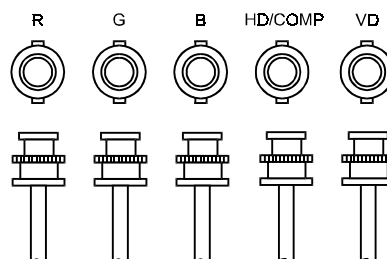
### Connecting the BNC cables when using a composite green signal with sync



### Connecting the BNC cable when using an externally composed sync

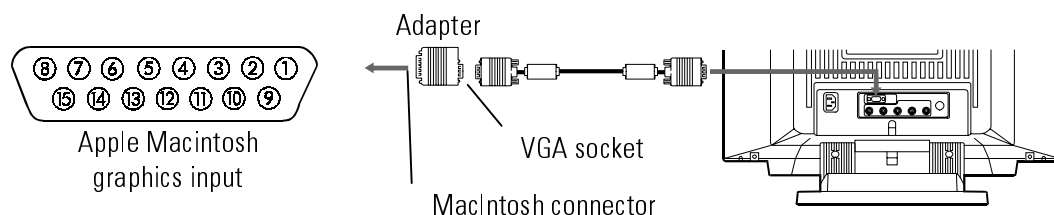


### Connecting the BNC cable when using a separate horizontal and vertical sync



## Connection to an Apple Macintosh Computer

The ELSA monitor can be connected to Macintosh computers. The graphics output from the Macintosh uses a 15-pin socket. You will need an adapter to connect with the VGA socket on the monitor. Consult your dealer for more details.



### Pin assignment

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

## Factory Settings

The following table lists the 11 sets of factory settings:

Resolution		Horizontal Refresh $\pm 1$ kHz	Vertical Refresh $\pm 5$ Hz	Polarity H V	
640 x 480	N.I.	31,5	59,8	–	–
1280 x 1024	N.I.	80,0	75,0	+	+
1600 x 1200	N.I.	93,8	75,0	+	+
1920 x 1080	N.I.	67,5	60,0	–	–
1920 x 1080	N.I.	84,4	72,0	–	–
1600 x 1024	N.I.	81,2	76,0	–	–
1920 x 1200	N.I.	95,0	76,0	–	–
720 x 400	N.I.	31,5	70,1	–	+
1920 x 1035	I.	33,8	60,0	–	–

## Product Support

If you have questions about your product, please have the following information ready:

- Exact model name of your ELSA monitor.
- The graphics board type and BIOS version (displayed when your computer is booting).
- Operating system, hardware environment and bus system.

### Who to contact?

First contact the dealer or company where you bought your ELSA monitor. If you then still have questions, contact one of the following:

#### ELSA in the Internet

The ELSA Internet site: → [www.elsa.com](http://www.elsa.com)

#### ELSA by Mail

Or write to: → ELSA AG  
Sonnenweg 11  
52070 Aachen  
Germany

#### ELSA Support Hotline

If very urgent, call: → +49-241-606-6135  
Mondays to Fridays:  
9:00 am until 5:00 pm (CET)

**ELSA World Wide**

You can contact the ELSA subsidiaries:

**USA**

ELSA, Inc.  
1630 Zanker Road  
San Jose, CA 95112  
USA  
Tel.: +1-408-961-4600  
Tel.: +1-800-272-ELSA (3572) toll free  
Fax: +1-408-895-4700  
[www.elsa.com/AMERICA](http://www.elsa.com/AMERICA)

**Taiwan**

ELSA Asia, Inc.  
7F-11, No. 188, Sec. 5  
Nanking East Road  
Taipei 105  
Taiwan, R.O.C.  
Tel.: +886-2-(2)7685730  
Fax: +886-2-(2)7660873  
[www.elsa.com/ASIA/](http://www.elsa.com/ASIA/)

**Japan**

ELSA Japan, Inc.  
Mita Suzuki Building 3F  
5-20-14 Shiba, Minato-ku  
Tokyo 108-0014  
Japan  
Tel.: +81-3-5765-7391  
Fax: +81-3-5765-7235  
[www.elsa.com/JAPAN/](http://www.elsa.com/JAPAN/)

## **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*<sup>1)</sup> 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<sup>2)</sup>. 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<sup>3)</sup> 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.

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

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](http://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 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), or
- 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 back-ups 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 con-

clusion 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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