



MCM 1902

Bildschirm / Moniteur / Monitor / Skärm / Beeldscherm

Betriebsanleitung
Operating Manual
Manual de manejo
Användarmanual

Manuel d'utilisation
Istruzioni per l'uso
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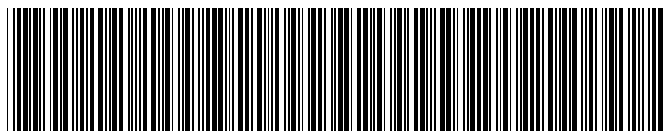
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MCM 1902
Farbbildschirm
Color monitor
Moniteur couleur
Monitor de color
Monitor a colori
Färgskärm
Kleurenbeeldscherm

Betriebsanleitung
Operating Manual

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TCO'95

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Introduction

Your new MCM 1902 monitor supplies you with a high-quality color image with high resolution and ergonomic refresh rates. It possesses a whole range of useful features and functions, e. g.:

- 19" (48 cm) high-resolution CRT (0.26 mm dot pitch)
- automatic scanning of all horizontal frequencies from 30 to 96 kHz and all refresh rates (vertical frequencies) from 50 to 160 Hz
- digital screen controller with microprocessor for storing 20 different display modes
- freely adjustable color alignment for matching the screen colors to the colors of various input and output devices
- convenient operation via integrated OSD (On-Screen-Display) menu
- VESA-DDC compatibility
- power management for reducing power consumption by up to 95% when the PC system is not in use
- compliance with the latest ergonomic standards (ISO 9241-3)
- compliance with the recommendations in accordance with TCO '95

This Operating Manual contains important information you require to start up and run your monitor. The monitor works together closely with the screen controller (graphics card) of your PC. It processes the data supplied to it by the screen controller. The screen controller/the associated driver software is responsible for setting the modes (resolution and refresh rate).

Target group

You don't need to be an "expert" to perform the operations described here. Do, however, read the chapter with the important notes in the Operating Manual of your PC and in this Operating Manual. In the event of any problems occurring, please contact your sales office or our service center.

Further information

Details of how you set the resolution and refresh rate are provided in the documentation on your screen controller/the associated driver software.

Notational conventions

The meanings of the symbols and fonts used in this manual are as follows:



Pay particular attention to texts marked with this symbol. Failure to observe this warning endangers your life, destroys the device, or may lead to loss of data.



This symbol is followed by supplementary information, remarks and tips.

- ▶ Texts which follow this symbol describe activities that must be performed in the order shown.
- "Quotation marks" indicate names of chapters and terms that are being emphasized.

Important notes



In this chapter you will find information regarding safety which is essential to take note of with your monitor.

The chapter also contains information on the licenses issued for your equipment.

Safety

This device complies with the relevant safety regulations for data processing equipment, including electronic office machines for use in an office environment. If you have any questions, contact your sales office or our customer service.

- If the device is brought into the installation site from a cold environment, condensation can form. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.
- During installation and before operating the device, observe the instructions on environmental conditions in the chapter entitled "[Technical data](#)" as well as the instructions in the chapter "[Installing an ergonomic video workstation](#)".
- To ensure adequate ventilation the monitor may only be operated with the monitor foot installed.
- The color monitor must not be exposed to strong magnetic fields (e. g. caused by magnetic paper clip holders or loudspeakers). Strong magnetic fields could result in a permanent blotchy image.
- The monitor is automatically degaussed when switched on. This results in a magnetic field around the metal edge of the picture tube, which may damage the data on data carriers nearby. Therefore, never keep magnetic data carriers near the monitor.
- The device automatically sets itself to the correct voltage within the range from 100 V to 240 V. Ensure that the local mains voltage lies within these limits.
- The device must be installed in such a way that the user has good access to the appliance socket.
- The ON/OFF switch does not disconnect the device from the line voltage. To disconnect the line voltage completely, remove the power plug from the grounded power outlet.
- Lay all cables so that nobody can stand on them or trip over them. When attaching the device, observe the relevant notes in the chapter "[Connecting the monitor](#)".
- If you use a different data cable from the one supplied, ensure that it is adequately shielded. CE conformance and optimum picture quality are guaranteed only if you use the data cable supplied.
- No data transmission cable should be connected or disconnected during a thunderstorm.
- Please ensure that no objects (e. g. necklaces, paperclips etc.) or liquids can get into the interior of the device (electrical shock, short circuit).
- In emergencies (e. g. damaged casing, elements or cables, penetration of liquids or foreign matter), switch off the unit, disconnect the power plug and contact your sales office or our customer service.
- Only qualified technicians may repair the device. Unauthorized opening or incorrect repair may greatly endanger the user (electric shock, fire risk).

- Tampering with the device, in particular adjusting the high voltage or installing a different type of CRT tube, may result in a large amount of X-ray radiation being emitted. Devices modified in this way no longer comply with their license and may not be used.
- You may set only those resolutions and refresh rates specified in the "[Technical data](#)" chapter. Otherwise you may damage your monitor. If you are in any doubt, contact your sales office or customer service.
- Keep this Operating Manual together with your device. If you pass on the device to third parties, you should also pass on this manual.

Cleaning notes MCM 1902

- Always pull out the power plug before you clean the monitor.
- Do not clean any interior parts yourself, leave this job to a service technician.
- Do not use any cleaning agents that contain abrasives or may corrode plastic.
- Ensure that no liquid will run into the system.
- Ensure that the ventilation areas of the monitor are free.
- When cleaning the surface of the screen, always use a soft, slightly damp cloth in order to avoid scratching the glass.

Wipe the monitor housing with a dry cloth. If the monitor is particularly dirty, use a cloth which has been moistened in mild domestic detergent and then carefully wrung out.

Transport notes

- When transporting the monitor ensure that it is not exposed to strong magnetic fields.
- Transport the monitor with care and only in its original packaging or another corresponding packaging fit to protect it against knocks and jolts.
- Above all, never drop the monitor. If the CRT is damaged, there is a danger of implosion!

Manufacturer's notes

Energy Star



The Siemens multiscan color monitor MCM 1902 is designed to conserve electricity by dropping to less than 15 W when it goes into suspend mode and to less than 5 W when it goes into OFF mode. With this new power management the MCM 1902 qualifies for the U.S. Environmental Protection Agency's (EPA) Energy Star Computers award.

The EPA estimates that computer equipment uses 5 percent of all business electricity and it is growing rapidly. If all desktop PCs and peripherals enter a low-power mode when not in use, the overall savings in electricity could amount to \$ 2 billion annually. These savings could also prevent the emission of 20 million tons of carbon dioxide into the atmosphere - the equivalent of 5 million automobiles.

As an Energy Star Partner, Siemens AG has determined that this product meets the Energy Star guidelines for energy efficiency.

CE certificate



The shipped version of this device complies with the requirements of the EEC directives 89/336/EEC "Electromagnetic compatibility" and 73/23/EEC "Low voltage directive".

Note on X-ray radiation

This device complies with the German X-ray regulations (Röntgenverordnung - RöV). The local dosage emitted is less than 1 $\mu\text{Sv/h}$ (micro-Sievert per hour) at a distance of 0.1m.

FCC Class B Compliance Statement

If there is an FCC statement on the device, then:

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE:

This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Regulations. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Siemens AG is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Siemens AG. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC rules.

Important note on power cable

To guarantee safe operation, use the cable supplied. Use the following guidelines if it is necessary to replace the original cable set.

- The female/male receptacles of the cord set must meet CEE-22 requirements.
- The cable has to be HAR-certified or VDE-certified. The mark HAR or VDE will appear on the outer sheath or on the insulation of one of the inner conductors.
- For devices which are mounted on a desk or table, type SVT or SJT cable sets may be used. For devices which sit on the floor, only SJT type cable sets may be used.
- The cable set must be selected according to the current rating for your device.

Power cable for devices distributed in the US and Canada

In the United States and Canada the cord set must also be UL-listed and CSA-labelled. The voltage rating should be min. 250 volts a.c.

Please consult the following table for the selection criteria for power cables used in the United States and Canada.

Cable type	Size of conductors in cable	Maximum current rating of the device
SJT	18 AWG	10 Amps
	16 AWG	12 Amps
	14 AWG	12 Amps
SVT	18 AWG	10 Amps
	17 AWG	12 Amps

For the United Kingdom

Should the plug on the flexible cord not be of the type for your socket outlets, do not use an adapter but remove the plug from the cord and discard. Carefully prepare the end of the supply cord and fit a suitable plug.

WARNING

THIS APPLIANCE MUST BE EARTHED

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green and Yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The wire which is coloured Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol or coloured Green or Green and Yellow.
- The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black.
- The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Red.

Disposal and recycling

This device has been manufactured to the greatest possible degree from materials which can be recycled or disposed of in a manner that is not environmentally damaging.

The device is taken back after use, so that it can be recycled, provided that it is returned in a condition which is the result of normal use. Any components not recuperated will be disposed of in an environmentally acceptable manner.



We herewith declare that it will be possible to repair any device marked with the eco-label for at least 5 years after production of that device has discontinued.

If you have any questions on disposal, please contact your local office, our service department, or, directly:

Siemens AG
Recycling Center
D-33094 Paderborn
Tel.: ++ 49 5251 - 81 80 10 / Fax: ++ 49 5251 - 81 80 15

Checking the contents of the consignment

- ▶ Unpack all the individual parts.
- ▶ Remove any plastic caps from the plugs for the cables in the consignment.
- ▶ Check the delivery for damage incurred during transport.
- ▶ Check whether the delivery agrees with the details in the delivery note.

The complete shipment comprises:

- one monitor
- one data cable
- one power cable
- a Guarantee Booklet
- this Operating Manual

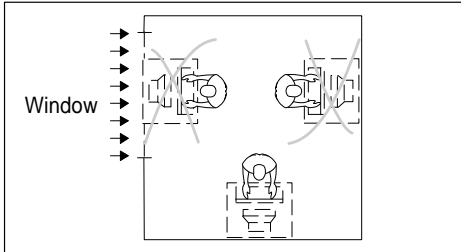
Should you discover that the delivery does not correspond to the delivery note, notify your local sales office immediately.

i

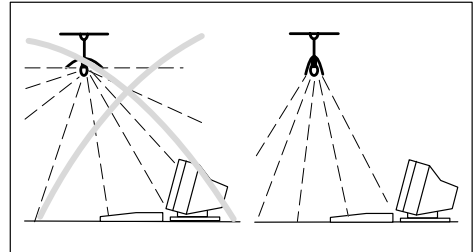
It is recommended not to throw away the original packing material. Keep it for future transportation of the drive.

Installing an ergonomic video workstation

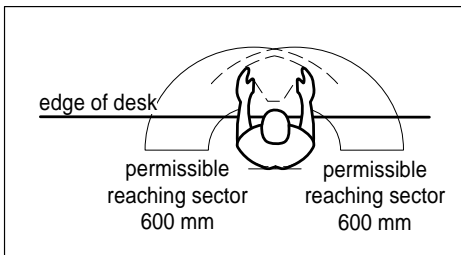
Before you set up your equipment you should select a suitable position for working at the monitor. Please observe the following advices when installing a video workstation.



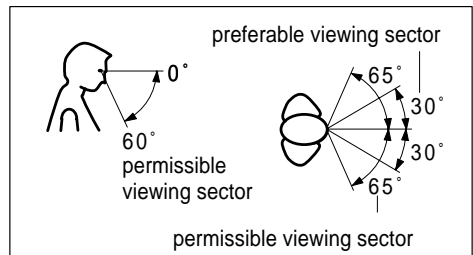
Avoid direct and reflected glare.



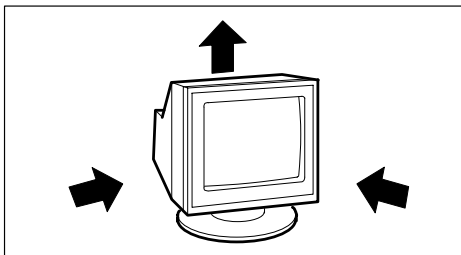
Avoid glare from electric lighting.



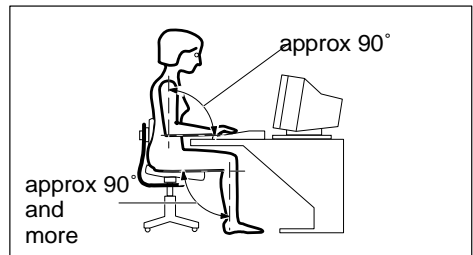
Position the keyboard where it is easiest to reach.



Position the monitor for optimum viewing. The viewing distance to the monitor should be approximately 50 cm.



Keep ventilated areas clear.



Remember to maintain correct posture.

Connecting the monitor

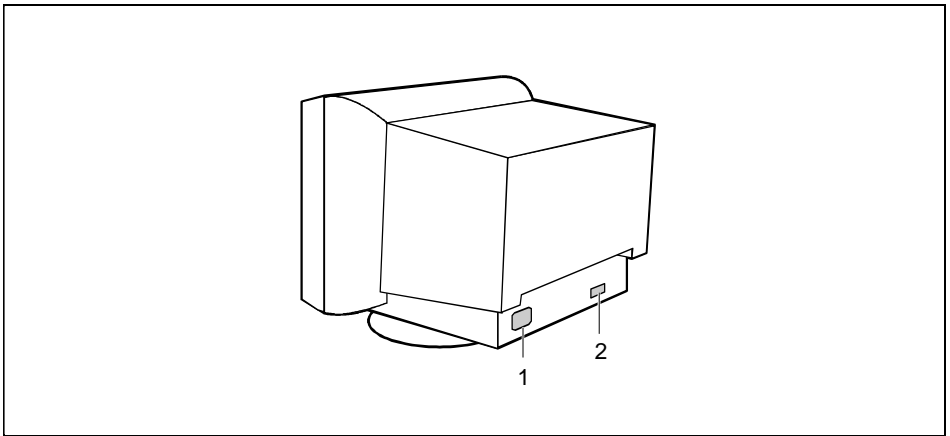
See your PC's operating manual for details of the ports on the system unit.



Please note the information provided in the "[Safety](#)" section in the chapter "[Important notes](#)" at the beginning of this manual.

Do not cover the ventilation openings of the monitor.

If you are assembling monitors beside each other, there must be a minimum distance of 30 cm between monitors of the same constructional type, to avoid image distortion. With different monitors, the distance must be increased, if necessary.



1 = Power connector

2 = D-SUB connector (15-pin)

- ▶ Be sure that the monitor and the system unit are switched off.



The system unit's power plug must be pulled out!

The data cable supplied has two 15-pin D-SUB connectors for connection to the monitor and to the system unit.



CE conformance and optimum picture quality are guaranteed only if you use the data cable supplied.

- ▶ Connect one of the connectors of the data cable to the D-SUB connector on the monitor (2) and secure the connector by tightening the safety screws.
- ▶ Connect the other connector of the data cable to the active monitor port on the system unit and secure the connector by tightening the safety screws.



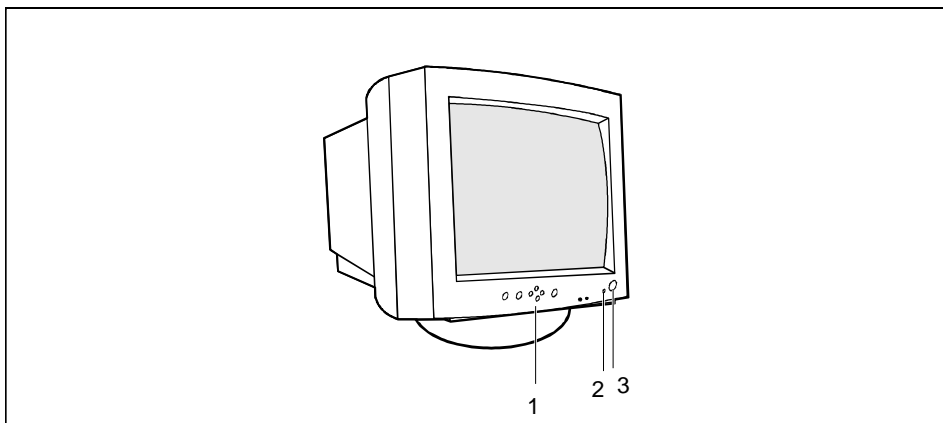
If your system unit has two monitor ports ("onboard" screen controller and separate graphics card), the monitor port for the separate graphics card is usually active.

- ▶ Plug the power cable supplied into the power connector (1) of the monitor.
- ▶ Plug the power cable into the monitor connector at the rear of the system unit.
- ▶ Plug the power connector of the system unit into a properly grounded power outlet.



When you start working with your monitor for the first time you should install the appropriate graphics drivers for your application software. Details of how to do this are provided in the documentation on your screen controller/the associated driver software.

Operation of the monitor



1 = Control panel with buttons for screen setting

2 = Power indicator
3 = ON/OFF switch

Switching the monitor on

- ▶ Press the ON/OFF switch (3).

The power indicator (2) lights up green when the system unit is turned on.



If your PC has a power management function (energy-saving mode), you should read the notes on power management of the monitor in this chapter.

When you start your system, several mode changes will usually be carried out when various programs are called automatically (different settings for resolution and image refresh rate). Do not be confused by the unusual displays. They are not error messages.

Switching the monitor off

- ▶ Press the ON/OFF switch (3).

The power indicator (2) is dark.

Notes on power management

If your PC has a VESA DPMS (Video Electronics Standard Association, Display Power Management Signaling) power management function (energy-saving mode), your monitor will fully support this function. The monitor has a four-stage power management system.

Stage	ON	Standby mode	Suspend mode	OFF mode
Power indicator	Green	Amber	Amber / green flashing	Amber flashing
Function	Monitor operating normally	Monitor is dark	Monitor is dark	Monitor is dark
Power consumption	normal < 110 W	reduced to < 70 W	reduced to < 15 W	reduced to < 5 W

If your PC detects inactivity (no input) it sends an appropriate signal to the monitor to reduce the power consumption. The power indicator of the monitor changes color to indicate the status change. If there is still no input, power consumption is further reduced (OFF mode).

Once an input is made at the PC the screen contents are redrawn and full power is restored.

The length of the individual stages is determined by the power management system of the PC. For detailed information on how energy-saving mode operates refer to the Operating Manual or Technical Manual of your PC.



The service life of your monitor will be extended if the OFF mode is switched to after 30 minutes at the earliest (setting in screen saver or in your PC's BIOS setup).

When the monitor is switched to OFF mode by the power management system a power consumption of up to 5 W is maintained to feed the circuit for redrawing the screen contents.

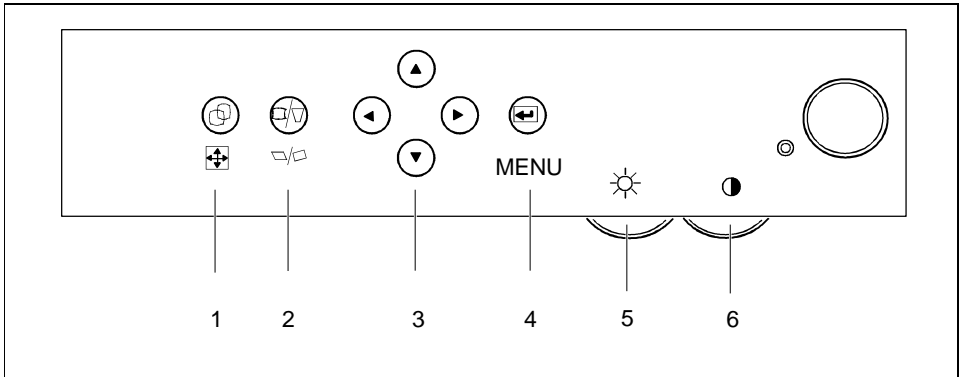
Changing the monitor settings

With the buttons and controls on the control panel, you can change the monitor settings. The picture geometry, contrast and brightness are adjusted directly with the corresponding buttons or controls.

The other settings are carried out via an integrated OSD menu (On-Screen Display).



The OSD menu is available in seven languages. The English menu names are used in the following description (default setting). How you set a different language for the OSD menu is described in the section "Selecting the menu language".



1 = Position/Size button

2 = Equalization/Rotation button

3 = Arrow buttons

4 = Menu key

5 = Brightness control

6 = Contrast control

Settings with buttons and controls

The following settings can be made directly with the corresponding buttons or controls. All changes are stored automatically. When doing so, the power indicator flashes amber.

Adjusting the brightness and contrast



You will increase the life of your screen if you adjust the contrast and brightness to low or medium.

- ▶ Turn the brightness control clockwise to increase the brightness or counter-clockwise to reduce it.
- ▶ Turn the contrast control clockwise to increase the contrast or counter-clockwise to reduce it.

Adjusting the horizontal and vertical position (Position)

- ▶ With the menu off, press the Position/Size button once.

The *Position* setting window will appear.

- ▶ Press the ▼ or ▲ button to adjust the vertical position of the monitor's entire display.
- ▶ Press the ◀ or ▶ button to adjust the horizontal position of the monitor's entire display.
- ▶ Press the Position/Size button twice to close the setting window.

Adjusting the horizontal and vertical size (Size)

- ▶ With the menu off, press the Position/Size button once twice.

The *Size* setting window will appear.

- ▶ Press the ▼ or ▲ button to adjust the vertical size of the monitor's entire display.
- ▶ Press the ◀ or ▶ button to adjust the horizontal size of the monitor's entire display.
- ▶ Press the Position/Size button once to close the setting window.

Correcting pincushion/trapezoid distortion (Pincushion/Trapezoid)

Pincushion distortion is when the sides of the screen displays are bent inward or outward. Trapezoid distortion is when the top or bottom of the screen display is too wide or too narrow.

- ▶ With the menu off, press the Equalization/Rotation button once.

The *Pincushion/Trapezoid* setting window will appear.

- ▶ Press the ▼ or ▲ button to correct the trapezoid distortion.
- ▶ Press the ◀ or ▶ to correct the pincushion distortion.
- ▶ Press the Equalization/Rotation button twice to close the setting window.

Correcting parallelogram/tilt distortion (Parallel/Rotation)

Parallelogram distortion is when the screen display is shifted to the right or left. Tilt distortion must be set when the screen display is not axially symmetrical.



- ▶ With the menu off, press the Equalization/Rotation button twice.

The *Parallel/Rotation* setting window will appear.

- ▶ Press the ▼ or ▲ button to correct the tilt distortion.
- ▶ Press the ◀ or ▶ to correct the parallelogram distortion.
- ▶ Press the Equalization/Rotation button once to close the setting window.

Settings with the OSD menu



To set the OSD menu, perform the following steps:

- ▶ With the menu switched off, press the menu button  to open the OSD menu.
- ▶ Press the ◀ or ▶ button to select the function you want. (If you wish to exit the OSD menu, select *EXIT*.)
- ▶ Press the menu button .

The setting window will appear.

- ▶ Set the respective function as described in the following.

All changes are stored automatically. When doing so, the power indicator flashes amber.

- ▶ Press the menu button  to return to the OSD menu, then press the menu button  again to turn off the menu.

Setting color temperature (Color Temperature)

The "warmth" of the screen colors is set using the color temperature. The color temperature can be set within the range from 5000 K to 9300 K in 100 K steps (K = Kelvin).

- ▶ Call the *Color Temperature* setting window.
- ▶ Press the ◀ or ▶ button to adjust the color temperature.

Setting colors (Color Control)

In addition to the color temperature, the color location/hue and saturation of the screen colors can also be set.

- ▶ Call the *Color Control* setting window.
- ▶ Press the ◀ or ▶ button to adjust the saturation.
- ▶ Press the ▼ or ▲ button to adjust the hue.

Degaussing the monitor (Degauss)

The monitor is degaussed every time you switch it on. When color shifts occur in the screen display due to the influence of magnetic fields, the screen must be degaussed manually.

- ▶ Call the *Degauss* setting window.

The *Degaussing...* screen is displayed and the screen is degaussed.

The *Degauss* window reappears after a few seconds.



During degaussing a muffled noise is produced, the colors may change and the picture may wobble. These effects are normal.

There is no malfunction.

Do not use the function more often than once every half hour, as otherwise the full effect is not ensured.

Activating the factory settings (Recall)

There are factory settings for the picture position, picture sides (pincushion, trapezoid, parallelogram), asymmetrical pincushion distortion, tilt distortion and moiré reduction.

- ▶ Call the *Recall* setting window.
- ▶ Press the ◀ button for *YES* to activate the factory settings, or press the ▶ button for *NO* to retain your own settings.

If you have selected *YES*, all settings listed above will be reset to the factory settings. All other settings will remain the same.

Setting menu position (Menu Position)

This function allows you to move the menu window on the screen.

- ▶ Call the *Menu Position* setting window.
- ▶ Press the ▼, ▲, ◀ or ▶ button to move the menu window on the screen.

Setting menu duration (Menu Duration)

With this function you can set how long the OSD menu is to be displayed each time (3, 7, 10, 20 or 50 seconds).

- ▶ Call the *Menu Duration* setting window.
- ▶ Press the ◀ or ▶ button to choose the duration (in seconds).

Correcting unsymmetrical pincushion distortion (Pinbalance)

Unsymmetrical pin balance is when the sides of the screen displays are bent inward or outward on one side.

- ▶ Call the *Pinbalance* setting window.
- ▶ Press the ◀ or ▶ button to adjust the pinbalance setting.

Setting moiré reduction (Clear Moiré)

If the picture you see on screen has light and dark stripes, this may be due to what is known as the moiré effect. This effect usually has physical causes, being triggered by interference between the pixels in the matrix and the video signal. The intensity of the moiré effect is dependent on the screen resolution and horizontal frequency.


- ▶ Call the *Clear Moiré* setting window.
- ▶ Press the ◀ or ▶ button to correct the vertical moiré effect.
- ▶ Press the ▼ or ▲ button to correct the horizontal moiré effect.

Selecting the menu language (7 Languages)

The OSD menu is available in seven languages (default setting: English). If you want to set a different language, proceed as follows:

- ▶ Call the *7 Languages* setting window.
- ▶ Press the ▼ or ▲ button to choose another language.

Displaying preset operating modes (Display Timing)

With this function you can display the preset operating modes of the monitor (also see "[Technical data](#)" chapter, "[Preset operating modes](#)" section). If the *Display Timing* window is only selected without pressing the  menu key, the current operating mode is displayed.



The window is only used to display the information. You cannot select a different setting here. Details of how you set the resolution and refresh rate are provided in the documentation on your screen controller/the associated driver software.

- ▶ Call the *Display Timing* setting window.
- ▶ Press the ▼ or ▲ key to scroll through the stored user settings (*User*) and factory settings (*Factory*).

Setting the video signal (Video Input Level)

If required, the entry level of the video signal can be changed from 0.7 V (default) to 1 V. If the monitor is operated on a PC, use the default setting of 0.7 V.

- ▶ Call the *Video Input Level* setting window.
- ▶ Press the ◀ or ▶ button to choose another entry level.

Setting synchronization (Sync Input Type)

If you connect the monitor to a computer which does not comply with the industry standard, you may have to change the synchronization type. By default the monitor is set to separate horizontal and vertical synchronization (*Separate*).

- ▶ Call the *Sync Input Type* setting window.
- ▶ Press the ▼ or ▲ key to select the synchronization type (*Separate* or *Sync On Green*).

Notes on ergonomic color adjustment

If you select colors for the display in your application programs, take note of the information below.

The primary colors blue and red on a dark background do not produce the minimum required contrast of 3:1 and are therefore not suitable for continuous text and data entry.

When using several colors for characters and background and giving the primary colors full modulation, you can obtain very suitable color combinations (see the following table):

Background	Characters							
	black	white	purple	blue	cyan	green	yellow	red
black		+	+	-	+	+	+	-
white	+		+	+	-	-	-	+
purple	+	+		-	-	-	-	-
blue	-	+	-		+	-	+	-
cyan	+	-	-	+		-	-	-
green	+	-	-	+	-		-	-
yellow	+	-	+	+	-	-		+
red	-	+	-	-	-	-	+	

- + Color combination very suitable; light background colors are only suitable for devices which are operated with a refresh rate of at least 75 Hz.
- Color combination not suitable because color locations are too close together, thin characters are not identifiable or rigorous focusing is demanded of the human eye.

Technical data

Dimensions and weight

CRT:	48 cm (19")
Visible diagonals:	46 cm
Dot pitch:	0.26 mm
Maximal resolution:	1600 x 1200 pixels
Preset display area:	352 mm x 264 mm
Dimensions (W x H x D):	469 mm x 471 mm x 493.5 mm
Weight:	22.5 kg
Accessories:	power cable (1.8 m) data cable (1.8 m)
Storable display modes:	20 (9 of which are preset)

Electrical data

Video:	analog, positive, $0.7 V_{pp}$, 75 Ohm
Synchronization:	Separate Sync. TTL Composite Sync. TTL/ Sync. on Green
Line frequency:	30 kHz 96 kHz (multi-scanning)
Refresh rate:	50 Hz 160 Hz
Maximum pixel rate:	207 MHz
Power supply:	switches automatically 100 V - 127 V, 50 Hz - 60 Hz \pm 3 Hz, < 2 A 200 V - 240 V, 50 Hz - 60 Hz \pm 3 Hz, < 1 A
Power consumption: (see power management):	< 110 W (ON, Normal mode) < 70 W (Standby mode) < 15 W (Suspend mode) < 5 W (OFF mode)

Environmental conditions

Environment class 3K2, IEC 721

Rated range of operation:	15 °C 35 °C
Humidity:	20 % 85 %
Limit range of operation:	5 °C 40 °C
Humidity:	20 % 85 %

Condensation must be avoided.

VESA-DDC-compatible VGA interface

Your monitor is equipped with a VESA-DDC-compatible VGA interface. VESA-DDC (Video Electronics Standard Association, Display Data Channel) is used as the communications interface between the monitor and the PC. If your PC is equipped with a VESA-DDC-compatible VGA interface, it can automatically read the data for ensuring optimum operation from your monitor and select the appropriate settings.



If the monitor MCM 1902 is not yet displayed in the list of monitors, you can select one of the following monitors instead:

Siemens Nixdorf MCM 2109, MCM 2107, MCM 2105, MCM 2102, MCM 1706,
MCM 1705, MCM 1704, MCM 1703, MCM 1702

Preset operating modes

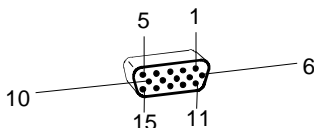
i

The display position and size have been set to optimum values at the factory for the operating modes listed above. Depending on the screen controller used, it may be necessary to adjust the display position and size. In this case, you can change and save the settings (see "Operation of the monitor").

Horizontal frequency:	Refresh rate	Screen resolution
31.5 kHz \pm 0.5 kHz	60 Hz \pm 2 Hz	640 x 480
31.5 kHz \pm 0.5 kHz	70 Hz \pm 2 Hz	720 x 400
50.6 kHz \pm 0.5 kHz	100 Hz \pm 2 Hz	640 x 480
53.7 kHz \pm 0.5 kHz	85 Hz \pm 2 Hz	800 x 600
63.0 kHz \pm 0.5 kHz	100 Hz \pm 2 Hz	800 x 600
68.7 kHz \pm 0.5 kHz	85 Hz \pm 2 Hz	1024 x 768
80.8 kHz \pm 0.5 kHz	100 Hz \pm 2 Hz	1024 x 768
91.2 kHz \pm 0.5 kHz	85 Hz \pm 2 Hz	1280 x 1024
93.1 kHz \pm 0.5 kHz	100 Hz \pm 2 Hz	1152 x 864

For ergonomic reasons we recommend a refresh rate of at least 75 Hz and a maximum resolution of 1280 x 1024 pixels.

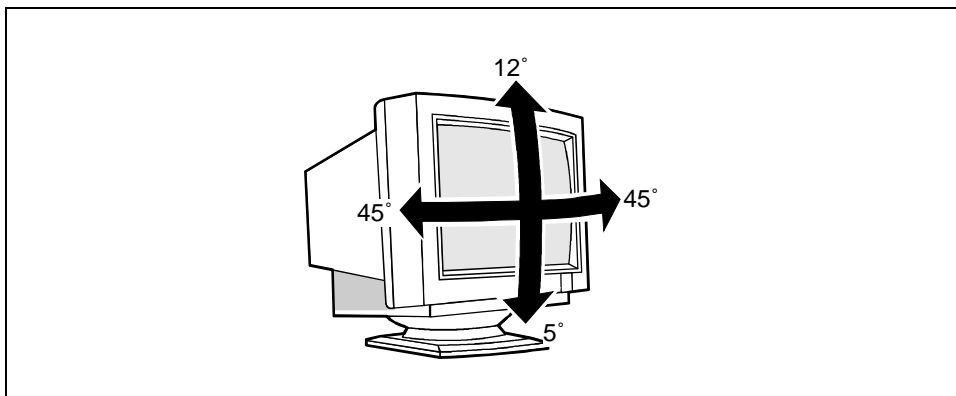
Pin assignment D-SUB (15-pin)



Pin	Meaning
1	Red video input
2	Green video input / Sync. on green
3	Blue video input
4	Monitor ground
5	DCC return
6	Red video ground
7	Green video ground
8	Blue video ground

Pin	Meaning
9	no pin
10	Logic ground
11	Monitor ground
12	DDC data (SDA)
13	H. sync (H/V comp. Sync.)
14	V. sync
15	DDC Clock (SCL)

Tilting and turning area



The specified tilting area refers to the zero position of the monitor foot marked with an arrow.

Error handling

Should an error occur, first check the following points. If the distortion is still not eliminated, the monitor should, if possible, be checked on another PC and/or with another data cable.

If you cannot solve the problem, contact customer service.

The screen is blank (power indicator does not light)

- ▶ Check whether the monitor is switched on.
- ▶ Check whether the system unit is switched on.
- ▶ Check whether the power cable on the monitor is connected correctly.

The screen is blank (power indicator lights)

- ▶ Check whether the system unit is switched on.
- ▶ Check whether the data cable for the monitor is correctly attached to the monitor and the monitor port on the system unit.
- ▶ Check whether the monitor connection of the system unit used is active.
- ▶ Press any key on the PC keyboard - the PC may be in energy saving mode.
- ▶ Change the brightness and/or the contrast; the monitor may be adjusted to the maximum dark setting.

The screen display is too small or not centered

The monitor recognizes an undefined mode (see "[Technical data](#)").

- ▶ Set the picture size and position with the Picture position/size button (see "[Operation of the monitor](#)").

Picture geometry is defective

- ▶ Set the picture geometry properly with the Picture correction/rotation button (see "[Operation of the monitor](#)").

Colors are impure

- ▶ Degauss the monitor with the OSD menu (see "[Operation of the monitor](#)").

White does not look white

- ▶ Set the color temperature with the OSD menu (see "[Operation of the monitor](#)").

Screen display has lines (Moiré), is dull or blurred

- ▶ Set the brightness and contrast with the controls (see "[Operation of the monitor](#)").
- ▶ Degauss the monitor with the OSD menu (see "[Operation of the monitor](#)").
- ▶ Adjust the moiré reduction function (see "[Operation of the monitor](#)").

The screen display is flickering

- ▶ Set an ergonomic refresh rate (≥ 75 Hz) using the PC software (see documentation for your PC or your screen controller/graphics card).

A muffled noise can be heard after switch-on

The monitor is degaussed every time you switch it on. This produces the noise. There is no malfunction.