

Color Monitor



C190

User's Guide

English

Contents

| | |
|---|----|
| Contents | 1 |
| Safety: Read first..... | 2 |
| Attaching the stand..... | 3 |
| Connecting your monitor | 4 |
| Workplace preparation | 4 |
| Positioning the monitor | 4 |
| Height | 5 |
| Orientation | 5 |
| Working Practices | 5 |
| Rest | 5 |
| Back..... | 5 |
| Hands | 5 |
| Eyesight..... | 5 |
| Screen settings | 5 |
| Installing the Device Driver..... | 6 |
| Installing the Device Driver for Windows 95 or Windows 98 | 6 |
| Installing the Device Driver for Windows 2000 or Windows Me | 7 |
| Installing the device driver in Windows XP | 8 |
| User Controls..... | 9 |
| On-Screen-Display | 10 |
| Activating the On-Screen-Display..... | 10 |
| Main OSD menu controls..... | 10 |
| OSD functions..... | 10 |
| Further information | 14 |
| Display modes | 14 |
| Power Management..... | 14 |
| Troubleshooting..... | 15 |
| Further help | 16 |
| Specifications | 18 |
| Service Information | 19 |
| Notices and Trademarks | 20 |
| Notices..... | 20 |
| Trademarks..... | 21 |

Safety: Read first



Safety: Read first

Before installing this product, read the Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας (safety information).

לפני שתתקין מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza

Antes de instalar este produto, leia as Informações de Segurança.

Läs säkerhetsinformationen innan du installerar den här produkten.

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Ennen kuin asennat t m n tuotteen, lue turvaohjeet kohdasta Safety Information.

Před instalac tohoto produktu si přečtěte př ručku bezpečnostn ch instrukc .

在安装本产品之前，请仔细阅读 Safety Information (安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

مجب، يجب قراءة دات السلامة

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

製品を設置する前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Antes de instalar este producto lea la información de seguridad.

Antes de instalar este produto, leia as Informações de Segurança.

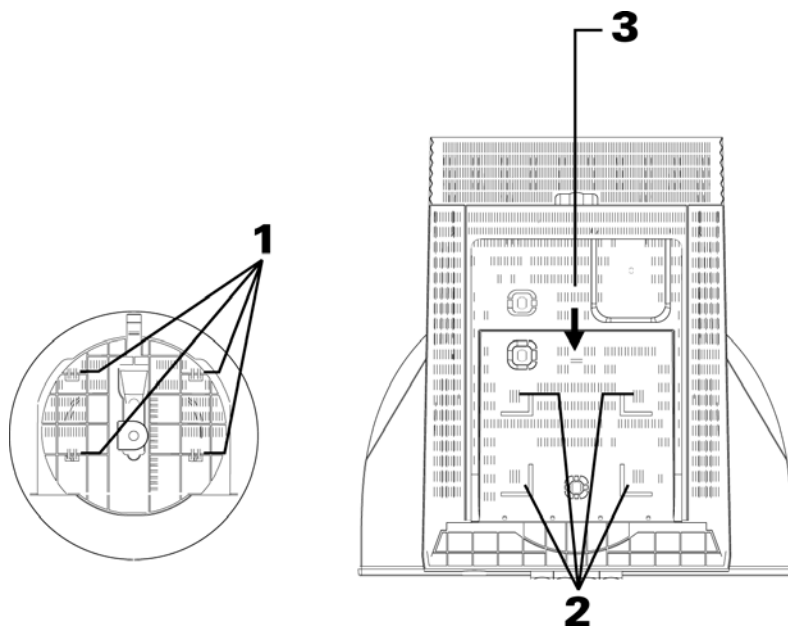
Перед установкой продукта прочтите инструкции по технике безопасности.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Important: Before connecting the monitor, turn off the computer and attached devices. Also ensure the power at the electrical outlet matches the power requirements of the monitor. Refer to the **Specifications** section on page 18 for more details.

Attaching the stand

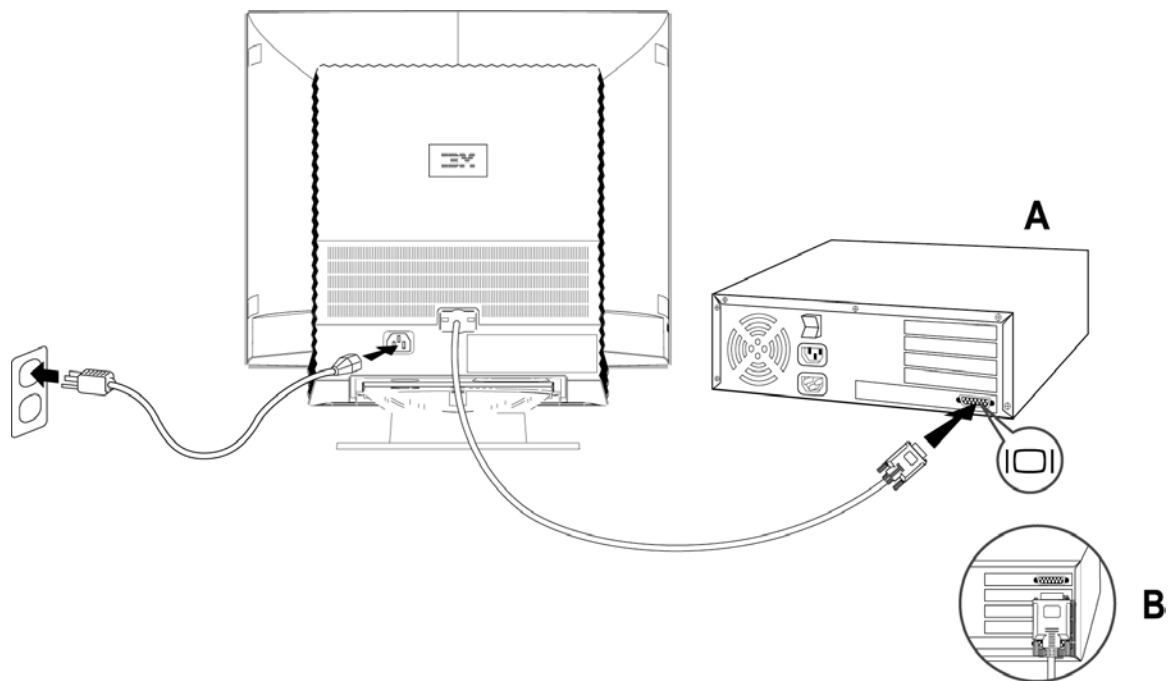
1. Place the monitor face down on a soft surface to prevent the screen being scratched.
2. Insert the hook (1) into the matching slots on the underside of the monitor (2).
3. Slide the base towards the front of the monitor until the latch (3) clicks into the locked position.



Connecting your monitor

1. Connect the signal cable to the video port on the back of your computer (figure A). Your computer may have a video adapter card installed. In this case, attach the signal cable to the connector on the video adapter card (figure B)
2. Connect the power cord to the monitor first, and then firmly insert the plug into a properly grounded electrical outlet.
3. Turn on the monitor, and then the computer.

If your monitor does not seem to be working correctly, refer to the Troubleshooting section for help.



Workplace preparation

Positioning the monitor

Choose a suitable place to position the monitor where it is not near fluorescent desk lighting or any equipment that produces magnetic fields that could cause interference. Ensure that the furniture or equipment can support the weight of the monitor. Allow at least 2 inches (50mm) ventilation space around the monitor.

Height

Position the monitor so that the top of the screen is slightly below your eye level when you sit at your workstation.

Orientation

Choose a position that gives the least reflection from lights and windows, usually at a right angle to any windows. Position the monitor directly in front of you so that you do not have to twist your body. Tilt the monitor to a comfortable viewing angle.

Working Practices

Rest

Take regular breaks. Vary your posture, and stand up and stretch occasionally, as prolonged use of computer workstations can be tiring.

Back

Sit back in the chair and use the backrest.

Hands

Use a light touches on the keyboard, keeping your hands and fingers relaxed. Allow a space in front of the keyboard to rest your wrists when not typing. Consider using a wrist pad.

Eyesight

Working with monitors, in common with any prolonged close work, can be visually demanding. Look away from the screen, periodically and have your eyesight checked regularly.

Screen settings

Set the screen brightness and contrast to a comfortable level. You may have to adjust this as the lighting changes during the day. Many application programs let you select color combinations, which can help you to view in comfort.

Installing the Device Driver

Installing the Device Driver for Windows 95 or Windows 98

To install the device driver in Microsoft® Windows®95 or Windows98, do the following:

Note: You must download files from the IBM Monitor CD to use the Plug and Play feature in Windows 95 or Windows 98.

1. Turn off the computer and all attached devices.
2. Ensure that the monitor is connected correctly.
3. Turn on the monitor and then the system unit. Allow your computer to start the Windows 95 or Windows 98 operating system.

Your computer's Plug and Play code might warn you that your system hardware has changed. This means that it has detected your new monitor for the first time.

4. Open the **Display Properties** window by clicking **Start, Settings, Control Panel** and then double clicking on the **Display** icon.
5. Click the **Settings** tab.

If you are using Windows 95:

6. 1. Click the **Change Display Type** button.
2. Click the **Change Monitor Type** button.

• If you are using Windows 98:

6. 1. Click the **Advanced** button.
2. Click the **Monitor** tab.
3. Open the **Upgrade Device Wizard** window by clicking on **Change** button and then select the **Next** button.
4. Click "Display a list of the known drivers for this device so that I can choose a specific driver" and then select the **Next** button.
7. Insert the IBM Monitor CD into the CD drive and click the **Have Disk** button.
8. Click **OK**.
9. Ensure that the CD drive letter is selected, and then select "DRIVERS" folder.
10. Select **IBM C190 CRT monitor** and click **OK**. The files will be copied from the CD to your hard disk drive.
11. Close all open windows and remove the CD.
12. Restart the computer.
The system will automatically select the maximum refresh rate and corresponding Color Matching Profiles.

Installing the Device Driver for Windows 2000 or Windows Me

To install the device driver in Microsoft® Windows®2000 Professional or Microsoft Windows Millennium Edition (Me), do the following:

Note: You must download files from the IBM Monitor CD to use the Plug and Play feature in Windows 2000 or Windows Me.

1. Turn off the computer and all attached devices.
2. Ensure that the monitor is connected correctly.
3. Turn on the monitor and then the system unit. Allow your computer to start the Windows 2000 or Windows Me operating system.
4. Open the **Display Properties** window by clicking **Start, Settings, Control Panel** and then double-clicking the **Display** icon.
5. Click the **Settings** tab.
6. Click the **Advanced** button.
7. Click the **Monitor** tab.
8. Click the **Properties** button.
9. Click the **Driver** tab.
10. Open the **Upgrade Device Driver Wizard** window by clicking on **Update Driver** and then click the **Next** button.
11. Select "Display a list of the known drivers for this device so that I can choose a specific driver" and then click the **Next** button.
12. Insert the IBM Monitor CD into the CD drive and click the **Have Disk** button.
13. Click **OK**.
14. Ensure that the CD drive letter is selected, and then select the "DRIVERS" folder.
15. Select **IBM C190 CRT monitor** and click **OK**. The files will be copied from the CD to your hard disk drive.
16. Close all open windows and remove the CD.
17. Restart the computer.

The system will automatically select the maximum refresh rate and corresponding Color Matching Profiles.

Installing the device driver in Windows XP

To install the device driver in Microsoft® Windows XP, do the following:

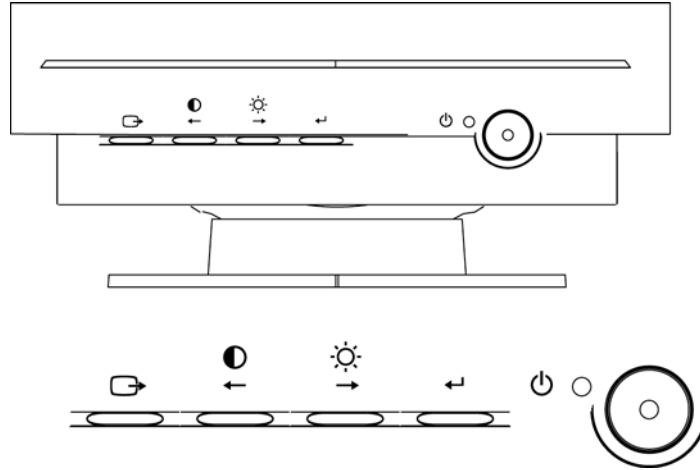
Note: You must download files from the IBM Monitor CD to use the Plug and Play feature in XP.

1. Turn off the computer and all attached devices.
2. Ensure that the monitor is connected correctly.
3. Turn on the monitor and then the system unit. Allow your computer to start the Windows XP operating system.
4. Open the **Display Properties** window by clicking **Start, Settings, Control Panel** and then double-clicking the **Display** icon.
5. Click the **Settings** tab.
6. Click the **Advanced** button.
7. Click the **Monitor** tab.
8. Click the **Properties** button.
9. Click the **Driver** tab.
10. Open the **Hardware Update Wizard** window by clicking on **Update Driver** and then click the **Next** button.
11. Select "Install from a list or Specific location (Advanced)" and then click the **Next** button.
12. Insert the IBM Monitor CD into the CD drive and click the **Have Disk** button.
13. Click **OK**.
14. Ensure that the CD drive letter is selected, and then select the "DRIVERS" folder.
15. Select **IBM C190 CRT monitor** and click **OK**. The files will be copied from the CD to your hard disk drive.
16. Close all open windows and remove the CD.
17. Restart the computer.

The system will automatically select the maximum refresh rate and corresponding Color Matching Profiles.

User Controls

The image is already optimised for many display modes. However, the controls can be used to adjust the image to your liking.



OSD Key Function

| Icon | Control | Description |
|------|--|--|
| | Power switch | Switches the monitor on and off. |
| | OSD/OK | Activates the On-Screen-Display/ Select control icon / Save Adjustment |
| | Move right; Brightness adjustment selection | Moves the highlight to the icon to the right, or on adjustment screens increases the effect of the adjustment. |
| | Move left; Contrast adjustment selection | Moves the highlight to the icon to the left, or on adjustment screens decrease the effect of the adjustment. |
| | Exit | Exit OSD control. |


Hotkey Functions

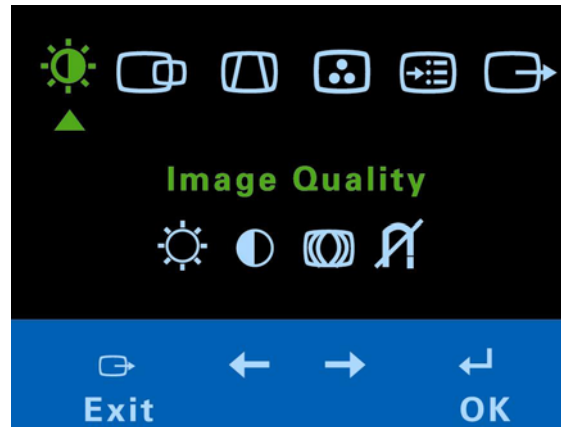
Brightness and contrast can be adjusted as follows, without the need to display the OSD: Select the function and use the buttons to adjust. If adjustment is not made within 15 seconds, the current settings will be saved and the control screen will disappear automatically.



| <i>Icon</i> | <i>Control</i> | <i>Description</i> |
|-------------|----------------|--|
| | BRIGHTNESS | Adjusts the background brightness |
| | CONTRAST | Adjusts the contrast between foreground and background |

On-Screen-Display







Activating the On-Screen-Display

The monitor controls are accessed by pressing button  to enable OSD (On-Screen-Display). The main menu will be displayed as follows.



Each Sub-Menu icon is selected by highlighting it via the “←” “→” control and pressing button “”. To exit the main or Sub-Menu then press the exit button “”.

Main OSD menu controls

| ICON | Control | Function instruction |
|---|---------------------|---|
|  | Image Quality | Adjusts Brightness, Contrast, Moiré, and Degauss. |
|  | Image Position/Size | Adjusts Horizontal / Vertical Position, Horizontal/Vertical Size, Zoom and Rotation. |
|  | Image Shape | Adjusts Parallelogram, Trapezoid, Pincushion, Pincushion balance, and Geometry reset. |
|  | Color | Adjusts Preset color point, Custom, Reset User color. |
|  | Options | Adjusts Information, Menu Languages, Accessibility, Factory Default, Menu Position |
|  | Exit | Closes the OSD menu. |

OSD functions



Note: After a function is selected, use the “←” “→” buttons to increase or decrease the adjustment. If the OK  or Cancel  button is not pushed within the menu time out period, the current setup will be saved and the control screen will disappear automatically.

Image Quality














|  | Image Quality | | | |
|---|---------------|---|-------------------|---|
| Sub menu | | | | |
| Icon | Control | Function | Sub menu function | |
|  | Brightness | Adjusts overall screen brightness. | Left |  |
| | | | Right |  |
|  | Contrast | Adjusts difference between light and dark areas. | Left |  |
| | | | Right |  |
|  | Moiré | Reduces elliptical or wavy interference patterns. | Horizontal |  /  |
| | | | Vertical |  /  |
| | | | Save | |
|  | Degauss | Demagnetizes screen to reduce image distortion. | Yes/No Option | |

Image Position/Size




































|  | Image Position/Size | | | |
|---|---------------------|--|--|---|
| Sub menu | | | | |
| Icon | Control | Function | Sub menu function | |
|  | Horizontal Position | Moves image left or right | Left |  |
| | | | Right |  |
|  | Vertical Position | Moves image up or down | Left |  |
| | | | Right |  |
|  | Horizontal Size | Adjusts image width | Left |  |
| | | | Right |  |
|  | Vertical Size | Adjusts image height | Left |  |
| | | | Right |  |
|  | Zoom | Adjusts image width and height |  /  | |
|  | Rotation | Turns image clockwise or counterclockwise. |  /  | |












Image shape

|  | Image Shape | | | |
|---|--------------------|---|--|---|
| Sub menu | | | | |
| Icon | Control | Function | Sub menu function | |
|  | Parallelogram | Leans image to the left or right. | Left |  |
| | | | Right |  |
|  | Trapezoid | Adjusts top or bottom image width. | Left |  |
| | | | Right |  |
|  | Pincushion | Expands or contracts image sides. |  | |
|  | Pincushion balance | Moves image center left or right. |  | |
|  | Geometry reset | Resets image shape to original settings | Yes/No Option | |

Color

|  | Color | | | |
|---|--------------------|---------------------------------------|---|--|
| Sub menu | | | | |
| Icon | Control | Function | Sub menu function | |
|  | Preset Color Point | Select from standard white color | With three choices 9300K / 6500K / 5500K | |
|  | Custom | Adjusts red green and blue intensity | Red / Green / Blue / Save | |
|  | Reset User Color | Resets custom color to original value | Yes / No Option | |

Options

|  | Options | | | |
|--|-----------------|--|--|---|
| Sub menu | | | | |
| Icon | Control | Function | Sub menu function | |
|  | Information | Shows resolution, refresh rate, product details. | | |
|  | Menu Language | Changes language of menu. | English, French, Italian, German, Spanish. | |
|  | Accessibility | Changes Menu timings | Button repeat rate | Off /Default/Slow Option |
| | | | Menu time out | 5/10/15/20/25/30 second options |
|  | Factory Default | Resets monitor to original settings | Yes / No Option | |
|  | Menu Position | Adjusts menu location. | Horizontal |  /  |
| | | | Vertical |  /  |
| | | | Save | |
|  | Exit. | Closes the OSD menu. | | |

Further information

Display modes

The display mode and monitor uses are controlled by the computer. Therefore, refer to your computer documentation for details on how to change display modes.

The image size, position and shape may change when the display mode changes. This is normal and the image can be readjusted using the monitor controls.

To ensure flicker-free operation, select the highest (non-interlaced) refresh rate both the computer and the monitor can support, (generally 75 Hz or higher), for the addressability that your application requires.

For the display modes listed below, the screen image has been optimised during manufacture.

| Resolution | Refresh Rate | Horizontal Frequency |
|-------------|--------------|----------------------|
| 720 x 400 | 70Hz | 31.5kHz |
| 640 x 480 | 60Hz | 31.5kHz |
| 640 x 480 | 85Hz | 43.3kHz |
| 800 x 600 | 75Hz | 46.9kHz |
| 800 x 600 | 85Hz | 53.7kHz |
| 1024 x 768 | 75Hz | 60.0kHz |
| 1024 x 768 | 85Hz | 68.6kHz |
| 1280 x 1024 | 75Hz | 80.0kHz |
| 1280 x 1024 | 85Hz | 91.1kHz |
| 1600 x 1200 | 75Hz | 93.8kHz |

Table1. Factory Preset Mode

Power Management

To benefit from power management, the monitor must be used in conjunction with a computer that implements the Video Electronics Standards Association (VESA) Display Power Management Signalling (DPMS) Standard.

The power management feature is invoked when the computer recognizes that you have not used your mouse or keyboard for a user-definable period of time. There are several states as described in the table below.

| State | Power indicator | Screen | Restoring Operation | Compliance |
|-------|-----------------|--------|--------------------------------|--------------|
| On | Green | Normal | Press a key or move the mouse. | ENERGY STAR® |
| Off | Amber | Blank | | |

Troubleshooting

If you have a problem setting up or using your monitor, you may be able to solve it yourself. Before calling your retailer or IBM you should try the suggested actions that are appropriate to your problem.

| Problem | Possible Cause | Suggested Action | Reference |
|--|---|---|--|
| Screen is blank and power indicator is off. | No power to monitor. | <ul style="list-style-type: none"> • Ensure the electrical outlet and the monitor are both switched on. • Check power cord is firmly plugged into the monitor and the electrical outlet. • If the power cord plug has a removable fuse, replace it. • Try another power cord. • Try another electrical outlet. | Connecting you monitor starting on page 4. |
| Screen is blank and power indicator is steady green. | Brightness and Contrast may be too low. | <ul style="list-style-type: none"> • Adjust brightness and contrast. | User controls section starting on page 9. |
| SIGNAL OUT OF RANGE message is displayed. | Display mode of the computer is outside the range of the monitor. | <ul style="list-style-type: none"> • Reconfigure the computer to use a supported display mode. | Further information section starting on page 14. |
| CHECK SIGNAL CABLE message is displayed. | Video cable connection. | <ul style="list-style-type: none"> • Check the signal cable is firmly connected to the computer. • Check no pins are bent in the signal cable connector. | |
| Screen is blank and power indicator is amber. | The monitor is in Power Management Standby/Suspend or Off state. | <ul style="list-style-type: none"> • Press any key on the keyboard or move the mouse to restore operation. | |
| | No video signal from the computer. | <ul style="list-style-type: none"> • Check the computer is powered on. • Check the signal cable is firmly connected to the computer. • Check no pins are bent in the signal cable connector. | |
| Image appears to be flickering. | The monitor is operating in an interlaced or low refresh rate display mode. | <ul style="list-style-type: none"> • Reconfigure the computer to use a non-interlaced display mode with a refresh rate of at least 75 Hz. | Further information section starting on page 14. |

| Problem | Possible Cause | Suggested Action | Reference |
|---------------------------------|--|--|-----------|
| | The monitor may be affected by interference from nearby equipment. | <ul style="list-style-type: none"> • Move fluorescent desk lighting or any equipment that produces magnetic fields further away from the monitor. • If another monitor is close by, separate the two monitors by at least 300mm (12 in.) for optimal performance. | |
| Image appears to be discolored. | The monitor may be affected by interference from nearby equipment. | <ul style="list-style-type: none"> • Move any equipment that produces magnetic fields (For example, sub woofer loud speakers) further away from the monitor. • If another monitor is close by, separate the two monitors by at least 300mm (12 in.) for optimal performance. | |
| | Magnetization of monitor components has built up. | Degauss the monitor using OSD manual demagnetize function. This function can only be used once in a 30 minute period. | |

Further help

If you are unable to correct the problem yourself, you may seek further help as follows:

Call IBM HELPCENTER.

In the US call 1-800-772-2227

In Canada (Toronto only) call 416-383-3344

(All other areas) call 1-800-565-3344

In other countries, contact your dealer, retailer, or other IBM authorized servicer.

Before calling please have available as much of the following information as possible:

1. Type, model and serial number from the label on the back of your monitor.
2. Purchase receipt.
3. Description of problem.
4. Computer type and model.
5. System configuration (additional hardware etc.).
6. System BIOS version number.
7. Operating System and version number.
8. Display driver version number.
9. Video Adapter Type

If possible, stay by your computer system. Your technical support representative might want to go through the problem with you during the call.

More help, late- breaking news and details of the latest accessories for these products may be found on the Worldwide Web at:

<http://www.pc.ibm.com/us/accessories>

Specifications

The C190 (MT6739) color monitor uses a 19-inch FFSM CRT with a viewable image size of 457.3mm (18.0 in.).

| | | |
|--------------------------------|---|--|
| Dimensions | Width: Depth: Height: | 456 mm (17.95 in.) 458 mm (18.03 in.) 468 mm (18.42 in.) |
| Weight | Packing: Unpacking: | 24.6 kg (54.23 lb) 21.25 kg (46.85 lb) |
| Tilt Swivel | Forward tilt: Backward tilt: Swivel: | 4.5° 15° +90°/-90° |
| Image | Maximum Height: Maximum Width: Dot Pitch: | 274.5 mm (10.80 in.) 365.8 mm (14.40 in.) 0.25 mm (0.0098 in.) |
| Power Input | Supply Voltage: Max Supply Current: | 100-240 V ac, 50-60Hz 1.6A at 100 V ac |
| Video Input | Input Signal: Horiz. Addressability: Vert. Addressability: Clock Rate | Analog Direct Drive, 75 ohm 0-0.7 V 1600 pels (maximum) 1200 lines (maximum) 202.5 Mhz |
| Communications | VESA DDC | 2B |
| Synchronization Range | Horiz. Frequency: Vert. Frequency: | 30 kHz-96 kHz 50 Hz-160 Hz |
| Power Consumption (Typical) | Normal Operation: Off: | <100 W <2 W |
| Environment | Operating Temperature: Storage Temperature: Shipping Temperature: Operating Humidity: Storage Humidity: Shipping Humidity: Emissions: | 5 to 40 °C (41 to 104 °F) -20 to 65 °C (-4 to 149 °F) -20 to 65 °C (-4 to 149 °F) 10 to 90 % 10 to 95 % 10 to 95 % TCO03/TCO99 |

Service Information

The following parts are for use by IBM Service, or IBM authorized dealers, to support the customer warranty. Parts are for service use only.

| Part Number | Machine type-6739 | Description |
|--------------------|--------------------------|--------------------|
| 31P9687 | 6739 K0N | Two Tone Black |
| 31P9688 | 6739 60N | Stealth Black |
| 31P9721 | 6739 70N | Stealth Black |
| 31P9689 | 6739 K0E | Two Tone Black |
| 31P9690 | 6739 60E | Stealth Black |
| 31P9691 | 6739 K0S | Two Tone Black |
| 31P9692 | 6739 60S | Stealth Black |
| 31P9696 | Tilt/Swivel | Stealth Black |

Notices and Trademarks

This section contains information on notices and trademarks.

Notices

IBM may not offer the products, services, or features discussed in this document in all countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.*

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any references in this publication to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product, and use of those Web sites is at your own risk.

Trademarks

The following terms, used in this publication, are trademarks or service marks of the IBM Corporation in the United States, other countries, or both:

IBM logo, HelpCenter and IBM.

ENERGY STAR is a U.S. Govt. registered trademark.

Microsoft Windows, and Windows NT are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, and service names may be trademarks or service marks of others.

© Copyright International Business Machines Corporation 2003. All rights reserved.