

Matrox RT.X2

Installation Manual

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1

Welcome to Matrox RT.X2

This chapter provides an overview of the Matrox RT.X2 documentation, and lists the contents of your RT.X2 kit and the RT.X2 system requirements.

About this manual

This manual provides you with information about installing your Matrox RT.X2 hardware and software. For information on how to use Matrox RT.X2 with Adobe Premiere Pro and other supported programs, see your *Matrox RT.X2 User Guide*.

Style conventions

The following style conventions are used in this manual:

- The names of files, directory paths, and manuals appear in *italics*. For example:
 - The data is stored in the *sample.wav* file.
 - The file is located in your *C:\Windows\System* directory.
 - Please refer to your *Matrox RT.X2 User Guide*.
- Menus and commands that you need to choose are displayed in the form **Menu > Command**. For example, **File > Save** means click **File** in the menu bar, then click **Save** in the menu that appears.
- The names of keys are displayed in small capital bold letters, such as the **CTRL** key.
- A plus (+) sign is used to indicate combinations of keys and/or mouse operations. For example:
 - **CTRL+C** means to hold down the **CTRL** key while pressing the **C** key.
 - **SHIFT+click** means to hold down the **SHIFT** key while you click an item with the mouse.

Last-minute information

Any important information that wasn't available for inclusion in this manual by publication time is provided to you in the *Matrox RT.X2 Release Notes*.

Hardware supplied

Your Matrox RT.X2 kit includes the following hardware:

- RT.X2 card with internal power supply cable, and two small screws for securing the RT.X2 card to your computer frame.
- RT.X2 breakout box with attached cables (includes 6-pin IEEE-1394 cable for connecting the RT.X2 breakout box to your computer's 1394 port, and two audio connectors).
- Two S-Video adapter cables for connecting S-Video devices to your RT.X2 breakout box.

System requirements

Matrox RT.X2 requires a computer with the following minimum system configuration:

- Intel Xeon, Intel Pentium D, AMD Opteron, or AMD Athlon 64 X2.
- Dual-CPU or one dual-core CPU, depending on processor used.
- 2 GB of physical memory (RAM).
- One free PCI Express expansion slot.
- Display card that supports Microsoft DirectX 9 and has at least 256 MB of onboard memory (512 MB of onboard memory is recommended).
- DVD-ROM drive for the software installation.¹
- Microsoft Windows XP with Service Pack 2.
- Adobe Premiere Pro 2.0.
- NTFS-formatted A/V drives, and an NTFS-formatted drive on which to install Adobe Premiere Pro and Matrox RT.X2 software (usually the system drive).



Note We recommend that you install a fan for added ventilation as explained in “[Providing adequate ventilation](#)” on page 6.

Check our website for equipment information

For up-to-date information about recommended computer systems, motherboards, and other RT.X2-compatible devices such as display cards and storage devices, check the Matrox Video Support site at www.matrox.com/video/support.

¹ A DVD-ROM burner is required if you want to use Adobe Premiere Pro’s Export to DVD feature.

Your notes

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Installing Your Matrox RT.X2 Hardware

This chapter describes how to install your Matrox RT.X2 card.

Before you install your Matrox RT.X2 card

Read the following information carefully before attempting to install your Matrox RT.X2 card in your computer system.

Start with a functioning system

Before attempting any Matrox RT.X2 installation, you should have a computer system with Windows XP Professional fully installed and functioning smoothly. This will avoid potential problems later on.

Avoid costly damage

Static electricity from your body can damage your Matrox RT.X2 card or your computer. Although you may not notice it, static electricity is generated every time you move. It's often too small to cause a spark, but it can still cause damage to sensitive electronic components or at least reduce their lifespan.

To avoid damage, please observe the following precautions:

- Do not remove your Matrox RT.X2 card from its antistatic bag until you're ready to install it. Before removing the card, place the package within easy reach of the area where you intend to perform the installation.
- You should avoid touching the chips and other components on the circuit board. Try to handle the card by its edges.
- Try to work in an area where the relative humidity is at least 50%.
- Do not wear wool or synthetic clothing. These fabrics tend to generate more static electricity than cotton, which is best for this kind of work.
- Turn off the power switches on your computer and its connected components.

Once you've opened your computer, drain static electricity from your body by touching a bare metal surface on your computer chassis before you install or remove any parts of your system. If you have a grounding wrist strap, use it while handling and installing any components in your computer.

Providing adequate ventilation

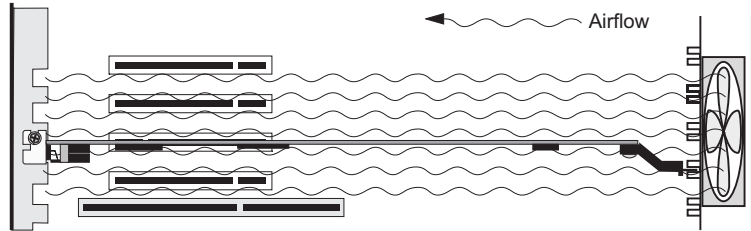
Because your Matrox RT.X2 card produces a significant amount of heat, forced air ventilation is extremely important. Inadequate ventilation may result in erratic operating behavior.



Note Your Matrox RT.X2 card is equipped with a temperature sensor to let you monitor the operating temperature of your Matrox RT.X2 system. This temperature is displayed in the Matrox X.info program. For details, see the chapter "Monitoring Your Matrox RT.X2 System" in your *Matrox RT.X2 User Guide*.

To provide as much airflow as possible over the card, it's recommended that you install a fan as explained below:

- Position a fan directly facing the back of the Matrox RT.X2 card. You should make sure the fan directs air over the card. When installed, this fan works in conjunction with your PC exhaust fan (located at the back of the PC case) to blow warmed air away from your RT.X2 card.



- Choose a fan that has a minimum rating of 40 CFM (CFM stands for cubic feet of air displaced per minute and is a measurement standard for fans). An example of a fan that meets this requirement well is the Sunon model KD1208PTB1, which is a 12 VDC fan with a rating of 42.5 CFM.
- Make sure to mount the fan as close to the card as possible. In most systems, you should be able to place the fan directly behind the card guide slots.
- Make sure to close your computer's cover once you've finished installing your hardware. This ensures that the airflow generated by the fan is directed over the card and does not escape through the top of your system.



Caution Fan installation should be done by a qualified technician. Improper installation procedures can result in damage to your RT.X2 components and/or your computer system. Matrox Electronic Systems Ltd. is not responsible for any damage caused by faulty installation.

Format your A/V drives using NTFS

Your A/V drives **must** be formatted using NTFS for use with Matrox RT.X2 because NTFS overcomes FAT32 file size limitations. When a hard drive is formatted using FAT32, files saved to this drive cannot exceed 4 gigabytes in size. This translates to approximately 20 minutes of DV/DVCAM video, which poses a serious limitation to a nonlinear editing platform like your Matrox RT.X2 system.

With NTFS, you also have the option of creating a striped volume, which consists of multiple hard drives formatted as a single partition. This allows you to work with multiple drives as a single large drive, which offers more disk space and enhances hard drive performance. NTFS also provides better audio and video synchronization than FAT32 when you play back your clips.

If you already have Windows installed on your computer, you can check the format of your drives. In Windows Explorer, right-click the drive letter (such as D:), then choose **Properties**. Under **General**, check the format of your drive next to **File system**.

If you need to format a drive using NTFS, right-click **My Computer**, then choose **Manage**. Under **Computer Management > Storage**, select **Disk Management**. In the **Disk Management** utility, right-click the appropriate drive and choose **Format**. In the provided dialog box, specify a volume label for the partition you are creating. From the **File System** list, select **NTFS**. Leave the **Allocation unit size** at **Default**. Do not select the **Enable file and folder compression** option. If you are formatting the drive for the first time, do not select the **Perform a quick format** option either.



Important All information on the designated drive will be lost.

For more information on how to format your storage devices using NTFS, see your Windows documentation.

Disk defragmentation

It's important to make sure that your storage does not become too fragmented. Overly fragmented drives will lead to a major reduction in your system's performance, which will in turn seriously reduce Matrox RT.X2's ability to work properly.

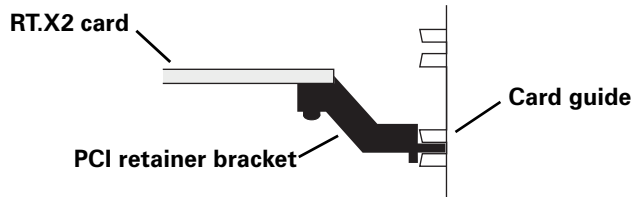


Important To ensure that your storage is operating at optimal levels, defragment your hard drives regularly (daily or several times a week).

For information on how to defragment your storage devices, see your Windows documentation.

About the PCI retainer bracket

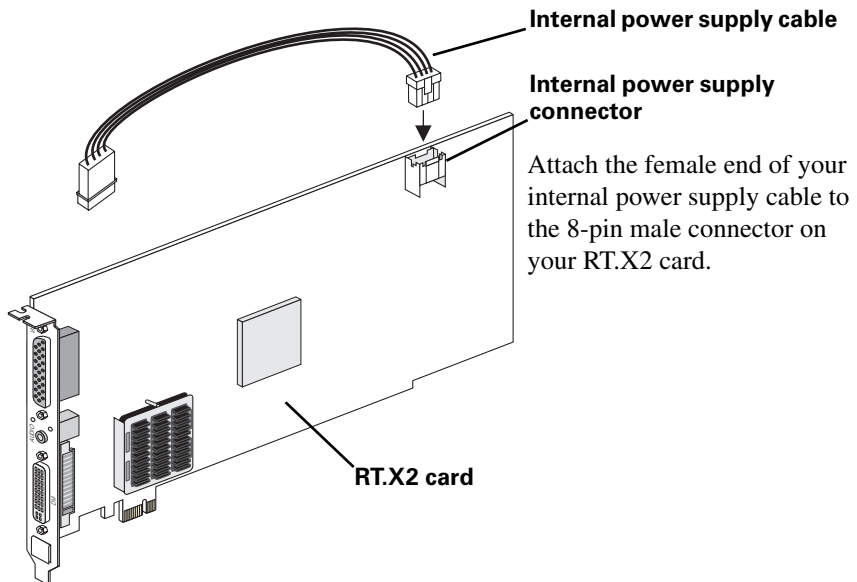
Many computers contain card guides at the front end of the computer chassis. These help to stabilize cards. If your RT.X2 card is equipped with a PCI retainer bracket, the following diagram depicts the retainer bracket's use:



With some computer models, you may have to remove the PCI retainer bracket. In such a case, once you've drained static electricity from your body and removed the RT.X2 card from its antistatic bag (see [“Before you install your Matrox RT.X2 card”](#) on page 6), simply remove the screws holding the bracket in place and then carefully remove the bracket.

Preparing the internal power supply cable on your RT.X2 card

Your RT.X2 card must be powered by your computer's internal power supply by way of the internal power supply cable. The female end of the internal power supply cable is connected to the internal power supply connector on the RT.X2 card at the factory. If for any reason the internal power supply cable is not connected to the RT.X2 card, connect it as follows:



Before you install your Matrox RT.X2 card

Installing your Matrox RT.X2 card

Your Matrox RT.X2 card is designed to operate in a PCI Express slot in your computer. If the slot in which you'll be installing your RT.X2 card already contains another card, either move it to an unused slot or remove it completely.

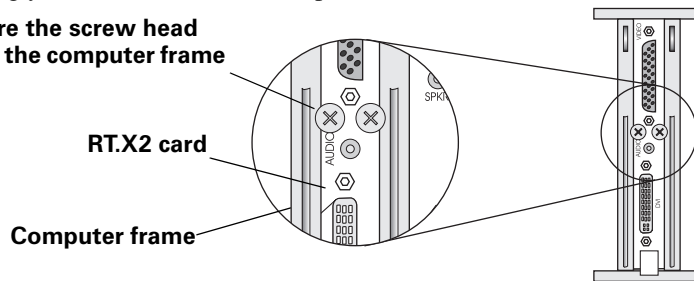
To determine the particular slot in which you should install your RT.X2 card for recommended systems and motherboards, see the Matrox Video Support site at www.matrox.com/video/support.

⇒ To install your RT.X2 card:

- 1 Turn off your computer, unplug it, and then remove its cover.
- 2 Make sure the internal power supply cable is connected to your RT.X2 card as explained in “[Preparing the internal power supply cable on your RT.X2 card](#)” on page 9.
- 3 Remove the metal plate located at the back of the PCI Express slot you'll be using for your RT.X2 card. Save the screws for the mounting bracket.
- 4 Position your RT.X2 card over the chosen slot and push the card in firmly and evenly until it is fully seated in the slot.
- 5 Using the fasten screws you removed in step 3, secure your RT.X2 card to the computer frame.
- 6 Connect the male end of the internal power supply cable on your RT.X2 card to a free power outlet of your computer's internal power supply.

- i** **Important** Make sure that no other devices are sharing this power outlet.
- 7 Replace your computer's cover.
 - 8 Using the two small screws provided with your RT.X2 card, secure the RT.X2 bracket to the computer frame as shown below. This step is crucial in making your RT.X2 card FCC compliant.

Make sure the screw head overlaps the computer frame



Before restarting your computer

You must connect your external devices such as the RT.X2 breakout box, DVI monitor, VTRs, DV camcorder, etc., before attempting to restart your computer. For details about these tasks, see [Chapter 3, “Connecting External Devices to Matrox RT.X2.”](#)

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Connecting External Devices to Matrox RT.X2

This chapter shows you how to connect external devices to Matrox RT.X2.

RT.X2 breakout box connections

The RT.X2 breakout box provides you with the maximum flexibility possible for connecting external devices to your Matrox RT.X2 system.

Available RT.X2 connections

- One analog component input, or one S-Video input, or one composite input.
- One analog component output, or one S-Video output and one composite output.
- IEEE-1394 interface.
- DVI video output.
- One analog RCA stereo input and output.

Connecting your RT.X2 breakout box to your computer

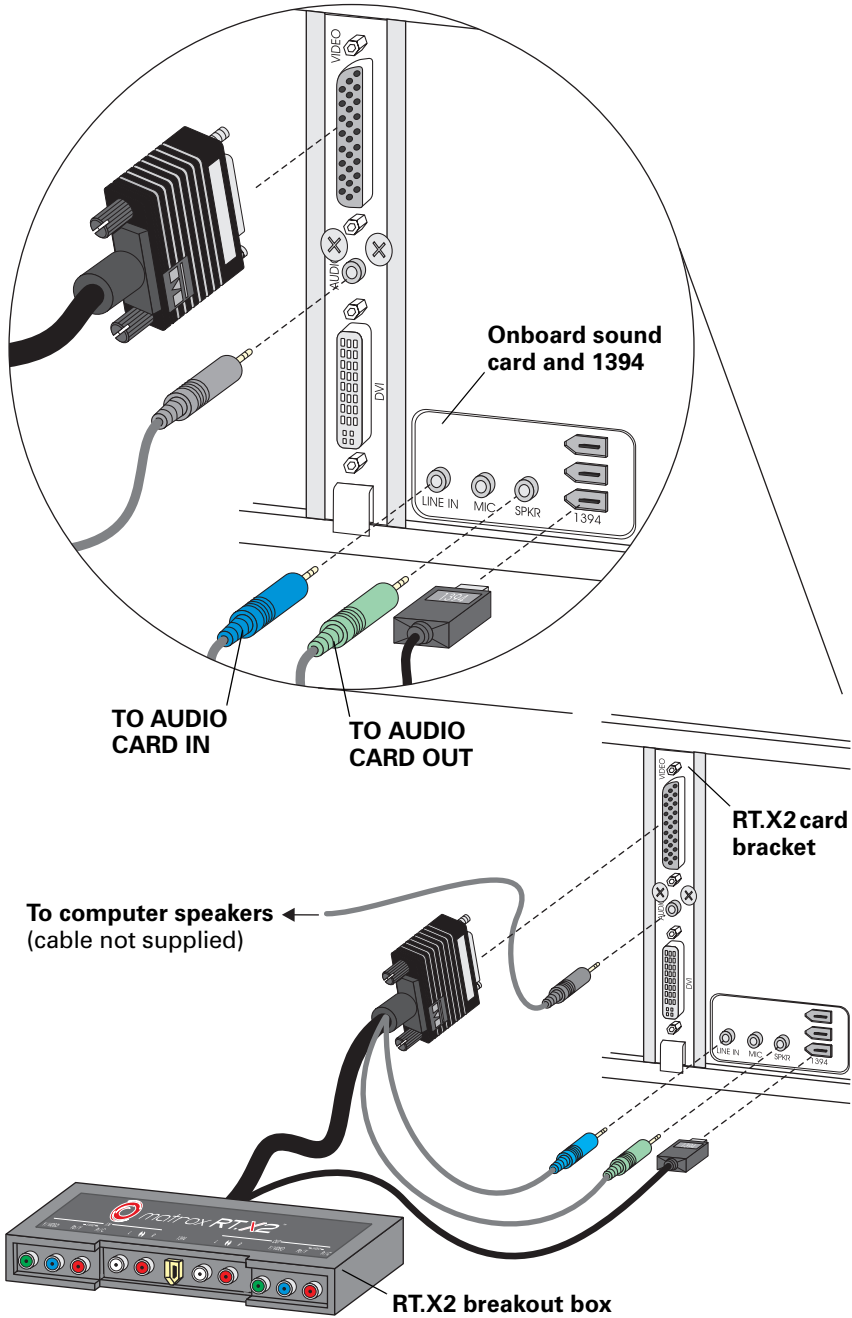
- 1 Connect the RT.X2 video cable from the back of the RT.X2 breakout box to the VIDEO connector on your installed RT.X2 card. Tighten the thumb screws until snug to ensure a stable connection.



Caution Use extra care when attaching the video cable as bent pins can cause your Matrox RT.X2 system to not perform properly. Also, do not bend the cable too sharply. Excessive bending or flexing can damage internal, shielded wires.

- 2 Plug the blue and green audio connectors (labeled TO AUDIO CARD IN and TO AUDIO CARD OUT) into the corresponding colored jacks on your sound card. If your computer speakers are connected to your sound card, unplug them from your sound card, then proceed to the next step.
- 3 To connect your computer speakers, simply plug the connector into the RT.X socket labeled AUDIO.
- 4 Connect the 1394 cable from the back of the RT.X2 breakout box to the 1394 port on your computer.

The following illustration shows the TO AUDIO CARD IN cable connected to the LINE IN of the sound card. However, you can also connect the cable to another input of your sound card, for example, AUX IN. Regardless of the input to which you've connected the TO AUDIO CARD IN cable, you must specify your analog audio input when defining your capture settings in order to capture analog audio. For information on defining your capture settings, see your *Matrox RT.X2 User Guide*.



Connecting your RT.X2 breakout box to your computer

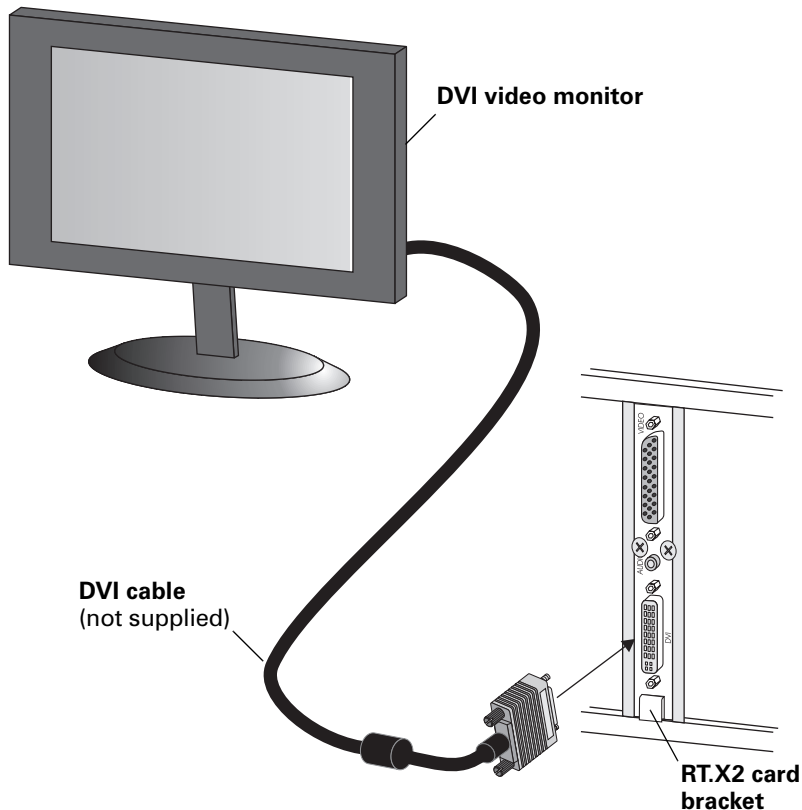
Connecting a DVI video monitor

In order to preview the video output from your Matrox RT.X2 system, the Matrox RT.X2 card has a DVI connector that's used to connect a DVI monitor that accepts digital input, such as a digital flat-panel LCD monitor.

i Important Only DVI monitors that accept digital input are supported. In order to preview full-resolution HDV video, your DVI monitor must support a display resolution of at least 1920×1200.

➔ **To connect a DVI video monitor:**

- 1 Connect the DVI cable to your monitor following the manufacturer's instructions for your monitor. Some monitors may have the DVI cable permanently attached to the back of the monitor.
- 2 Connect the other end of the DVI cable to the DVI connector on your installed RT.X2 card.



Using the RT.X2 S-Video adapter cables

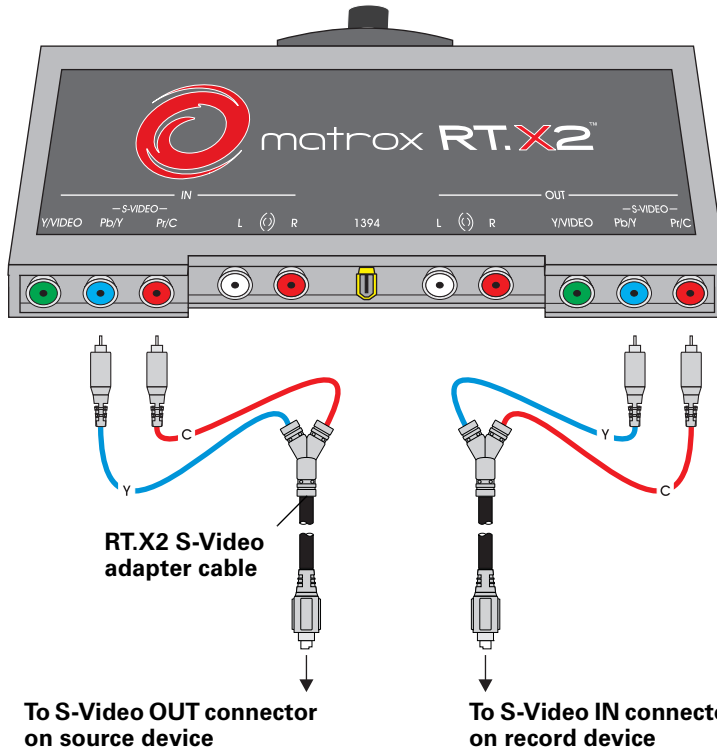
To support S-Video (Y/C) connections to your RT.X2 breakout box, your RT.X2 kit includes two S-Video adapter cables (one for S-Video input and one for S-Video output).



Note When you connect an S-Video device to the RT.X2 breakout box, you won't be able to connect an analog component device at the same time.

➔ To use the RT.X2 S-Video cables:

- 1 For S-Video input, connect the S-Video adapter cable labeled Y to the Pb/Y IN connector, and connect the S-Video adapter cable labeled C to the Pr/C IN connector, at the front of the RT.X2 breakout box.
- 2 Connect the other end of the cable to the S-Video OUT connector on your source device.
- 3 For S-Video output, connect the S-Video adapter cable labeled Y to the Pb/Y OUT connector, and connect the S-Video adapter cable labeled C to the Pr/C OUT connector, at the front of the RT.X2 breakout box.
- 4 Connect the other end of the cable to the S-Video IN connector on your record device.

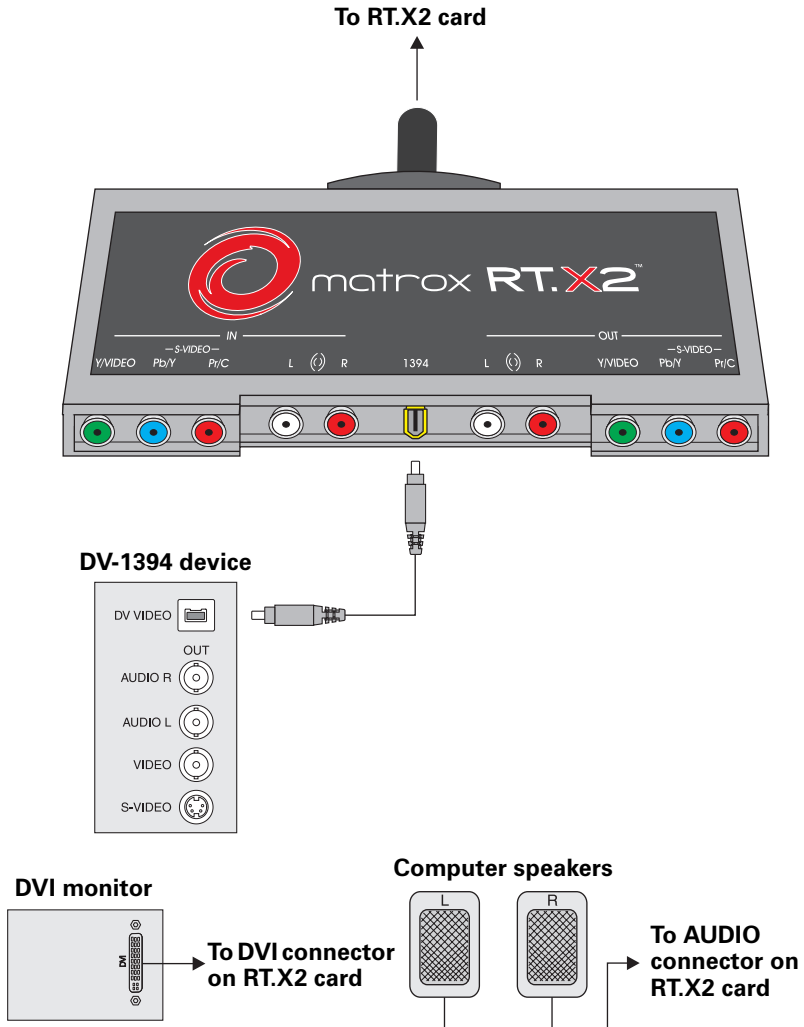


Using the RT.X2 S-Video adapter cables

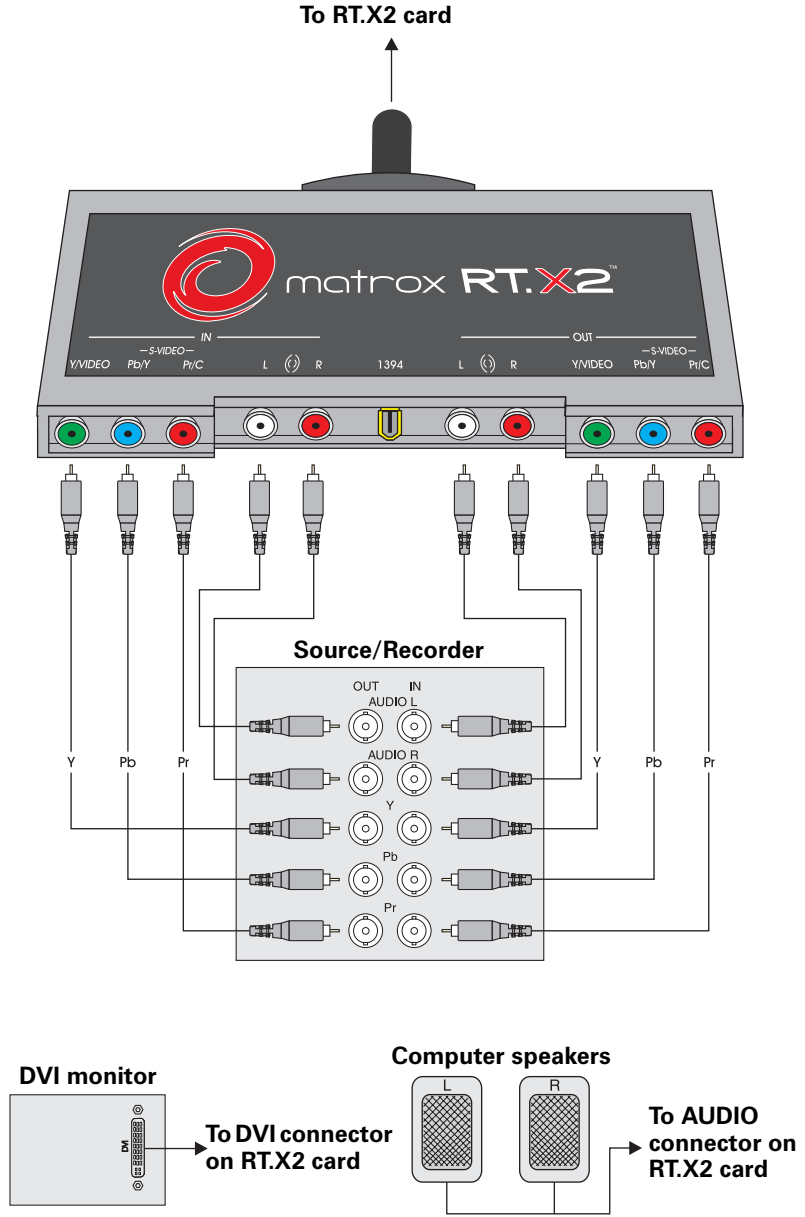
Typical Matrox RT.X2 connections

Illustrations in the following sections show some typical audio and video connections for capturing and exporting to tape. In these illustrations, we've connected a DVI monitor to view the signal that is being captured or recorded, and we're monitoring audio from the sound card to the computer speakers (requires you to connect the small connectors to the corresponding jacks of your computer's sound card, and your computer speakers to the AUDIO jack of the RT.X2 card as explained on page 12).

DV-1394 connections



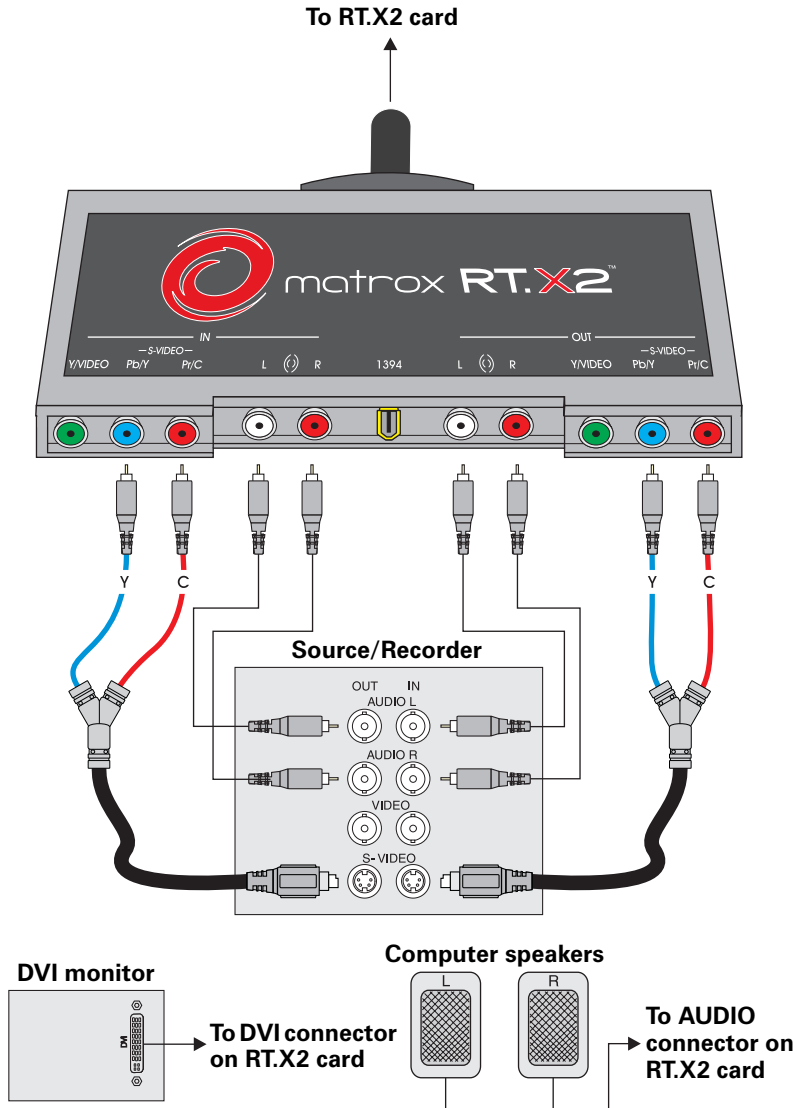
Analog component connections using same device for capture and export to tape



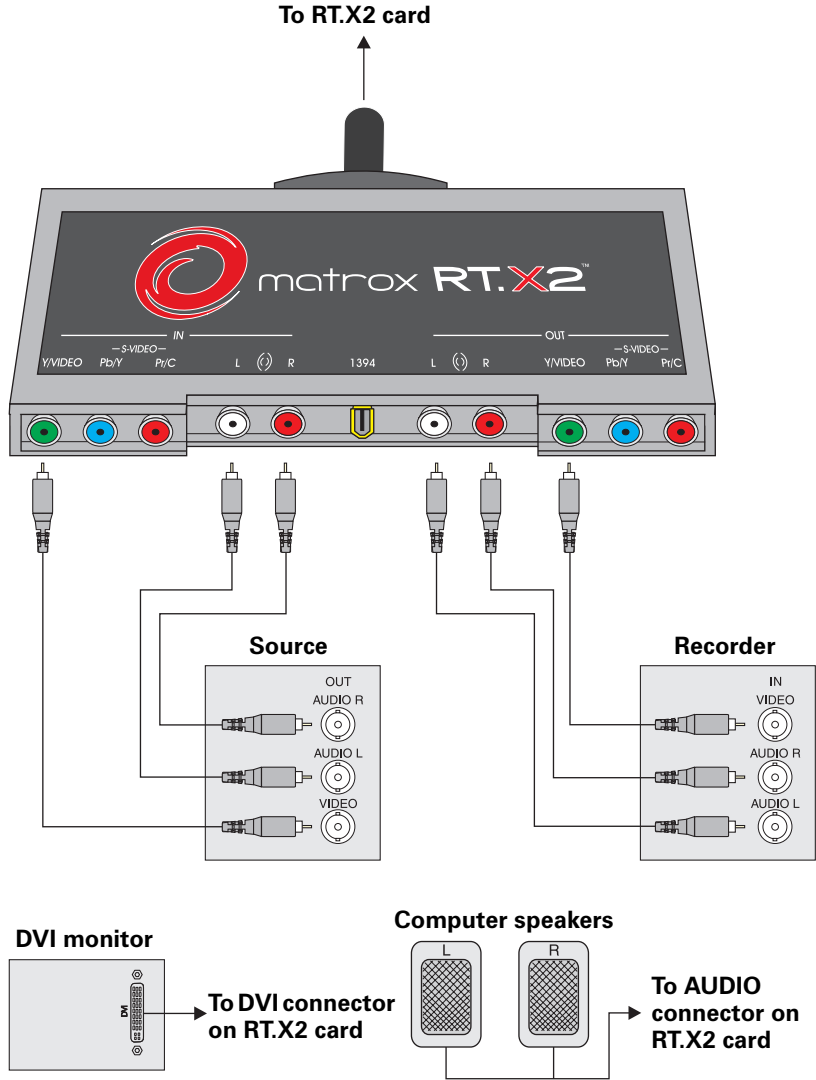
Typical Matrox RT.X2 connections

S-Video connections using same device for capture and export to tape

The RT.X2 breakout box does not have standard S-Video connectors, however, you can still connect S-Video devices to your RT.X2 breakout box by using the two supplied RT.X2 S-Video adapter cables (see [“Using the RT.X2 S-Video adapter cables”](#) on page 15 for more information).



Composite connections using separate source and record devices



Typical Matrox RT.X2 connections

Your notes

4

Installing Your Matrox RT.X2 Software


This chapter explains how to install the software required to use your Matrox RT.X2 system.

Overview of the software installation

Once you've installed your Matrox RT.X2 hardware and properly connected your devices, you can proceed with the software installation. This includes installing Adobe Premiere Pro and Matrox Mx.tools. Matrox Mx.tools installs the drivers for your Matrox RT.X2 hardware and the Matrox realtime plug-in for Adobe Premiere Pro.

Hardware detection


Turn on your computer. Once Windows restarts, the "Found New Hardware Wizard" detects your Matrox RT.X2 hardware. Because the Matrox Mx.tools Setup program will automatically detect your devices and install the appropriate drivers, simply press **ESC** or click **Cancel** to close the "Found New Hardware Wizard."

 **Important** The "Found New Hardware Wizard" will appear for each of your RT.X2 hardware components. Make sure that you close the "Found New Hardware Wizard" each time it appears. To ensure a smooth Matrox RT.X2 software installation, it is essential that you do not let the "Found New Hardware Wizard" try to install any drivers.

The "Found New Hardware Wizard" will only appear the first time you start your computer after installing your RT.X2 hardware.

Installing Adobe Premiere Pro

You must install Adobe Premiere Pro before installing Matrox Mx.tools.

 **Important** You must install Adobe Premiere Pro and Matrox Mx.tools on an NTFS-formatted drive (usually your system drive).

 **To install Adobe Premiere Pro:**

- 1 Close all Windows programs.
- 2 Insert the Adobe Premiere Pro installation DVD in your DVD-ROM drive.
- 3 From the displayed menu, choose to install Adobe Premiere Pro. When the setup program starts, follow the onscreen instructions.



Note When you install Matrox Mx.tools, Matrox plug-in files will be added to your Adobe Premiere Pro's Plug-ins folder on your hard drive. Therefore, if you later re-install Adobe Premiere Pro to a different directory, you'll need to uninstall and re-install Matrox Mx.tools.

Installing other third-party programs

There are a number of programs for which you can choose to install a Matrox WYSIWYG (What You See Is What You Get) plug-in that lets you see your work directly on your video monitor. For example, the Matrox WYSIWYG plug-in for Adobe After Effects lets you display the contents of your composition on your video monitor to see the exact color temperature, safe-title area, and any interlaced artifacts as you work. The following programs are supported:

- Adobe After Effects (version 5.0 or later).
- Adobe Photoshop (version 7.0 or later).
- Autodesk 3ds Max (version 7.0 or later).
- Autodesk Combustion (version 4 or later).
- eyeon Fusion (version 4 or later).
- NewTek LightWave 3D (version 7.5 or later).

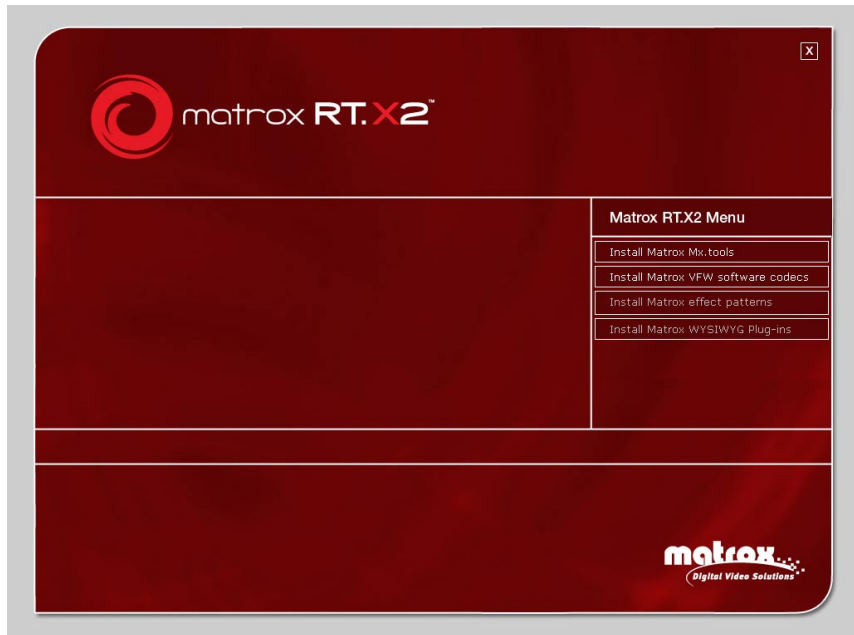
If you have any of these programs, you should install them now so that you'll be able to install the Matrox WYSIWYG plug-in for them when you install Matrox Mx.tools. You can, however, install the Matrox WYSIWYG plug-in for a program at any time after installing Mx.tools as explained in the section [“Installing additional Matrox WYSIWYG plug-ins or removing unneeded plug-ins”](#) on page 25.



Note When you install the Matrox WYSIWYG plug-in for a program, Matrox plug-in files will be added to a folder for that program on your hard drive. Therefore, if you later re-install the program to a different folder, you'll need to also re-install the Matrox WYSIWYG plug-in.

Installing Matrox Mx.tools

- 1 Insert your Matrox Mx.tools installation DVD in your DVD-ROM drive. Windows automatically starts the Matrox RT.X2 menu.



- 2 From the Matrox RT.X2 menu, choose **Install Matrox Mx.tools**.
- 3 If your Matrox RT.X2 card needs a firmware update, the updater will be launched automatically at this point. Once completed, the Mx.tools installation will continue.
- 4 Follow the onscreen instructions to install Matrox Mx.tools on your computer. You'll be prompted to install the Matrox effect patterns (GFX files) for selected video formats. For example, you can choose to install the SD NTSC and HDV 1080 patterns only. You'll also be prompted to install the Matrox WYSIWYG plug-ins for any supported programs that are currently installed on your system.



Note Some versions of LightWave 3D may not be automatically detected by the Setup program. If this happens, click **Browse** to select the folder where you installed LightWave 3D.

- 5 If required, the Setup program will restart your computer when you click **OK**.

Adding the Matrox WYSIWYG plug-in to NewTek LightWave 3D

When you install the Matrox WYSIWYG plug-in for NewTek LightWave 3D, the plug-in is copied to your hard drive. You must then add the plug-in to NewTek LightWave 3D as follows:

- 1 Start NewTek LightWave 3D.
- 2 Choose **Layout > Plug-ins > Add Plug-ins**.
- 3 Open the **Input-Output** folder or the folder where you chose to install the Matrox WYSIWYG plug-in, and double-click the *mvelwpreview.p* file.
- 4 Click the **OK** button in the **Add Plug-ins** dialog box.

Installing additional Matrox effect patterns or removing unneeded patterns

When you install Matrox Mx.tools, you are asked to select the video formats for which you want to install the Matrox effect patterns (GFX files). If after you've installed Matrox Mx.tools you find that you need to install patterns for additional video formats or remove patterns for formats that you no longer use, you can run the Matrox Effect Patterns Setup program by choosing **Install Matrox effect patterns** from the Matrox RT.X2 menu. You'll be prompted to select the video formats for which you want to install the Matrox effect patterns, and clear the selections for currently installed patterns that you want to be removed.

Installing additional Matrox WYSIWYG plug-ins or removing unneeded plug-ins

When you install Matrox Mx.tools, you are prompted to install the Matrox WYSIWYG plug-ins for any supported programs that are currently installed on your system. If after you've installed Matrox Mx.tools you want to install additional Matrox WYSIWYG plug-ins, or re-install or remove a currently installed plug-in, you can run the Matrox WYSIWYG Plug-ins Setup program by choosing **Install Matrox WYSIWYG Plug-ins** from the Matrox RT.X2 menu. You'll be prompted to specify which plug-ins you want to install, re-install, or remove. For information about using these plug-ins, see the chapter "Using the Matrox WYSIWYG Plug-ins" in your *Matrox RT.X2 User Guide*.



Note To install the Matrox WYSIWYG plug-in for a program, you must first install that program.

Installing the Matrox VFW software codecs on a system without the RT.X2 hardware

The Matrox VFW software codecs let you render (compile) and play back RT.X2-compatible *.avi* files in your Video for Windows programs without having the Matrox RT.X2 hardware installed in your computer.

Remarks

- If you have the Matrox RT.X2 hardware, you do not need to install the VFW software codecs because Matrox Mx.tools installs all the required Matrox codecs on your system.
- If you have a previous version of the Matrox VFW software codecs that was provided with another Matrox product (such as Matrox DigiSuite or Matrox RT.X100), you must remove those codecs from your computer using **Add or Remove Programs** in Windows Control Panel before installing the VFW software codecs provided with Matrox RT.X2.

⇒ **To install the Matrox VFW software codecs:**

- 1 From the Matrox RT.X2 menu, choose **Install Matrox VFW software codecs**.
- 2 Follow the onscreen instructions. An information box indicates when the installation is complete.

Removing your Matrox RT.X2 software

You can remove the various Matrox RT.X2 software components as follows:

- To remove Matrox Mx.tools from your computer, choose **Start > All Programs > Matrox Mx.tools > Uninstall Matrox Mx.tools**. You can also choose **Uninstall Matrox Mx.tools** from the Matrox RT.X2 menu.
- To remove only the Matrox effect patterns from your computer, choose **Start > All Programs > Matrox Mx.tools > Uninstall Matrox Effect Patterns**. You should not remove only the Matrox effect patterns unless you'll be re-installing Matrox Mx.tools.
- To remove only the Matrox WYSIWYG plug-ins from your computer, choose **Start > All Programs > Matrox Mx.tools > Uninstall Matrox WYSIWYG Plug-ins**.
- To remove the Matrox VFW software codecs from a computer without the Matrox RT.X2 hardware, use **Add or Remove Programs** in Windows Control Panel.

A

Matrox RT.X2 Specifications

This appendix provides specifications for the Matrox RT.X2 card.

RT.X2 card

General

PCI interface	Full-size PCI Express card
Regulatory compliance	FCC Class B, CE Mark Class B, ACMA Class B, VCCI Class B, RoHS Directive 2002/95/EC
Video standards	NTSC, PAL, NTSC-EIAJ, 1080i
Nominal card dimensions	Card 12.2" × 4.2" Card including bracket 13.875" × 4.9" Overall thickness including components 0.75"

Typical operating voltages and current consumption

Voltage	+3.3 V	+5 V	+12 V	-12 V
Current	2.0 A	0.5 A	0.5 A	0.15 A

Total power consumption: 18.0 watts

Video input signals

Signal Type	Qty	Voltage	Impedance
Composite Video	1	1.0 V _{p-p}	75 Ω
OR			
Y/C Video	1		
Luminance signal (Y)		1.0 V _{p-p}	75 Ω
Chrominance signal (C)		PAL: 0.300 V _{p-p} burst	75 Ω
		NTSC: 0.286 V _{p-p} burst	75 Ω
		NTSC-EIAJ: 0.286 V _{p-p} burst	75 Ω
OR			
Component Video	1		
Luminance signal (Y)		1.0 V _{p-p}	75 Ω
Chrominance signal (B-Y, R-Y)		PAL: 0.700 V _{p-p} at 100% color bar	75 Ω
		NTSC: 0.700 V _{p-p} at 75% color bar	75 Ω
		NTSC-EIAJ: 0.757 V _{p-p} at 75% color bar	75 Ω
		HD: 0.700 V _{p-p} at 100% color bar	75 Ω

Video output signals

Signal Type	Qty	Voltage	Impedance
Composite Video	1	1.0 V _{p-p}	75 Ω
Y/C Video	1		
Luminance signal (Y)		1.0 V _{p-p}	75 Ω
Chrominance signal (C)		PAL: 0.300 V _{p-p} burst	75 Ω
		NTSC: 0.286 V _{p-p} burst	75 Ω
		NTSC-EIAJ: 0.286 V _{p-p} burst	75 Ω
OR			
Component Video	1		
Luminance signal (Y)		1.0 V _{p-p}	75 Ω
Chrominance signal (B-Y, R-Y)		PAL: 0.700 V _{p-p} at 100% color bar	75 Ω
		NTSC: 0.700 V _{p-p} at 75% color bar	75 Ω
		NTSC-EIAJ: 0.757 V _{p-p} at 75% color bar	75 Ω
		HD: 0.700 V _{p-p} at 100% color bar	75 Ω
DVI Video	1	Compliant with DVI specification (single-link)	100 Ω

Audio specifications

Analog audio input/output	Dependent on system's sound card
Sampling method	16-bit, 48 kHz

Environmental specifications

- Minimum/maximum card ambient operating temperatures: 0 to 55° C
- Minimum/maximum storage temperature: -40 to 75° C
- Maximum altitude for operation: 3,000 meters
- Maximum altitude for transport: 12,000 meters
- Operating humidity: 20 to 80% relative humidity (non-condensing)
- Storage humidity: 5 to 95% relative humidity (non-condensing)



Important To avoid damage to your Matrox RT.X2 components and/or computer system, make sure that you don't operate your RT.X2 card at or near the maximum operating temperature for a prolonged period of time.

Your notes

B

Matrox RT.X2 Customer Support

This appendix explains how you can register your Matrox RT.X2 and obtain customer support.

Getting the most support

If you have a problem that you're unable to solve by referring to your Matrox RT.X2 documentation, please contact your Matrox RT.X2 representative. He or she should be able to help you quickly correct any installation or system configuration problem.

If your representative is unable to solve your problem, contact Matrox for further information and assistance.

Registration

You can register your Matrox RT.X2 system in the Matrox RT.X2 Support section of our website at www.matrox.com/video/support. To go directly to the registration page, choose **Start > All Programs > Matrox Mx.tools > Register Your Matrox RT.X Product**.



Important Only registered users are entitled to customer support, software updates, access to our user forums, and special promotional offers.

Keep up to date with our website

In addition to registering your Matrox RT.X2, our website offers you up-to-the-minute information about Matrox products, software updates, and access to our support databases. Be sure to place our site in your favorites or bookmarks: www.matrox.com/video/support.

Contacting us

Matrox is proud to offer worldwide customer support. Please use the Matrox RT.X2 contact information for your area as provided on our website at www.matrox.com/video/support.

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Compliance Statements

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide These devices have been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. 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 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 causes 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 the equipment and 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.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of the monitor to the card is required to meet FCC requirements.

Declaration of conformity of a Class B digital device according to the FCC rules

We, the Responsible Party Matrox, 625 State Route 3, Unit B, Plattsburgh, NY 12901-6530 • Telephone: (514) 822-6000 (ext. 2026) • Attention: Conformity Group

Declaration The Matrox hardware products supported by this guide comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation. Any question regarding this declaration should be forwarded to the above coordinates.

Canada

(English) Industry Canada Compliance Statement

Remark for the Matrox hardware products supported by this guide These digital devices do not exceed the Class B limits for radio noise emission from digital apparatus devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Conformité avec les exigences du ministère de l'Industrie Canada

Remarque sur les produits matériels Matrox couverts par ce guide Ces appareils numériques n'émettent aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Japan

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide These are Class B products based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If these are used near a radio or television receiver in a domestic environment, they may cause radio interference. Install and use the equipment according to instructions in the manual.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Europe

(English) European user's information – Declaration of Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 89/336/EEC for a Class B digital device. They have been tested and found to comply with EN55022/CISPR22 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures. To meet EC requirements, shielded cables must be used to connect the monitor and other peripherals to the card. These products have been tested in a typical class B compliant host system. It is assumed that these products will also achieve compliance in any class B compliant system.

(Français) Informations aux utilisateurs européens – Déclaration de conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 89/336/EEC pour les unités numériques de classe B. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55022/CISPR22 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Pour respecter les impératifs communautaires, les câbles de connexion entre le moniteur ou autres périphériques et la carte doivent être blindés. Ces produits ont été testés dans un système hôte typique compatible classe B. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe B.

(Deutsch) Information für europäische Anwender – Konformitätserklärung

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 89/336/EEC für ein digitales Gerät Klasse B. Sie wurden getestet und entsprechen demnach EN55022/CISPR22 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des Monitors und anderer Peripheriegeräte an die Karte abgeschirmte Kabel verwendet werden. Diese Produkt wurden in einem typischen, der Klasse B entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse B entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Dichiarazione di conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 89/336/EEC relativamente ai dispositivi digitali di Classe B. Sono stati provati e sono risultati conformi alle norme EN55022/CISPR22 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Per soddisfare i requisiti CEE, il monitor e le altre periferiche vanno collegati alla scheda grafica con cavi schermati. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe B. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe B.

(Español) Información para usuarios europeos – Declaración de conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 89/336/EEC para dispositivos digitales de Clase B. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55022/CISPR22 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Para satisfacer las disposiciones de la CE, deberán utilizarse cables apantallados para conectar el monitor y demás periféricos a la tarjeta. Estos productos han sido sometidos a prueba en un típico sistema anfitrión que responde a los requisitos de la clase B. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase B.





www.matrox.com/video