DMX 6Fire USB

Hardware and driver installation

English Operation Manual

Version 1.1, status: August 2008

CE Declaration

We:

TerraTec Electronic GmbH, Herrenpfad 38, D-41334 Nettetal, Germany

hereby declare that the product:

DMX 6Fire USB,

to which this declaration refers, is in compliance with the following standards or standardising documents:

- EN 55022: 1998+Corrigendum July 2003+A1:2000+ Corrigendum April 2003+A2:2003
- EN 55024: 1998+A1:2001+A2:2003

The following are the stipulated operating and environmental conditions for said compliance:

residential, business and commercial environments and small-company environments.

This declaration is based on:

Test report(s) of the EMC testing laboratory

Content:

Safety information

Please ensure that analogue audio devices are turned off before plugging them in. This will protect you from any possible—albeit weak—electrical shocks, as well as protect your speakers and your hearing from sudden peaks.

For digital devices, be sure to at least lower the volume on your playback equipment.

Connecting the device to the USB port of your computer may also cause a noise—please turn down the volume of your playback system accordingly.

Welcome!

We're pleased that you have chosen an audio interface from TerraTec for your musical activities and would like to congratulate you on this decision. With the DMX 6Fire USB, you have acquired a piece of advanced studio technology. We're convinced that in the years to come, the product we have developed will prove extremely useful to you—both in the home studio and as a high-end audio system for gamers—and provide you with a great deal of entertainment.

We hope that this manual is helpful to you while using the product. It is designed to illustrate technical relationships. This manual is not only designed to help beginners with this complicated subject—advanced professionals will also find the occasional bit of useful information.

We hope you find this manual both informative and entertaining to read, and hope you find lots of pleasure in the DMX 6Fire USB.

...your TerraTec Team!

Your new audio interface: DMX 6Fire USB.

Technology that will thrill you. DMX 6Fire USB—the perfect audio system from TerraTec for hi-fi fans, gamers and hobby musicians. The fantastic internal specifications include 24-bit/192 kHz, and the variety of connections feature four analogue inputs and outputs, gain-controlled connections for microphone (XLR, 1.4"/6.3 mm combo jack) and headphone, digital I/O (coaxial and optical), monitor level control, USB 2.0 connection and a MIDI I/O. All of this makes the DMX 6Fire USB the perfect sound delivery system for advanced gamers who want surround sound, as well as a valuable and versatile helper in the home studio.

► For everything you need to know about connections, see ➲ page 22.

Nerve centre—the software. So that you can explore the variety of technical possibilities without any difficulty, we have equipped the DMX 6Fire USB with an intuitive software mixer in which streamlined function, not graphical gimmicks, predominates. This keeps the Control Panel of the 6Fire clear and easy to understand at all times, making operation simple even for those with no previous knowledge. And, should something ever be unclear, this manual is guaranteed to answer any questions you may have.

► For everything you need to know about the DMX 6Fire USB Control Panel, see ➲ page 32.

The drivers provided for the DMX 6Fire USB, too, leave nothing to be desired. Our sophisticated software architecture guarantees trouble-free deployment in Windows XP (Service Pack 2) or Windows Vista.

The ASIO drivers—thoroughly proven throughout years of studio application—allow the lowest possible latency between the software-based sound generation and audio output.

► For the details on driver use, please turn to ➲ page 27.

From opening the package to installation

Before connecting the DMX 6Fire USB with your computer, please note the details of your computer's configuration. Also refer to the manual of your computer and other studio peripherals for their settings.

The installation should run without any problems, especially in recent systems. If you are experiencing difficulties all the same, please review carefully the relevant chapter in this manual. If you are still having problems, please call our service hotline.

Scope of delivery

Start by making sure that the contents of the package are complete.

The DMX 6Fire USB package should contain the following items:

- 1 DMX 6Fire USB (the hardware)
- 1 network adapter
- 1 adapter (6.3 mm -> 3.5 mm, stereo)
- 1 adapter (6.3 mm -> 3.5 mm, mono)
- 1 USB cable (1.8 m)
- 1 installation CD (with detailed manual)
- 1 Quick Start Guide
- 1 customer service card
- 1 registration card with the serial number

Please fill out and return the enclosed registration card to us at your earliest convenience or register online at **http://www.terratec.net/register.htm**. This is important for support and hotline services.

Driver and Control Panel installation—step by step

Please follow the steps in the same exact order they appear here. Do not connect the DMX 6Fire USB to the computer until the point specified in the installation.

Which operating system?

- **Windows**
    - The DMX 6Fire USB can be used with Windows XP (Service Pack 2) and Windows Vista only. Older Windows versions are not supported. Please ensure that you have applied the current service packs and updates to your Windows installation.
- **Apple**
    - MAC OS 10.4 and higher versions are supported.

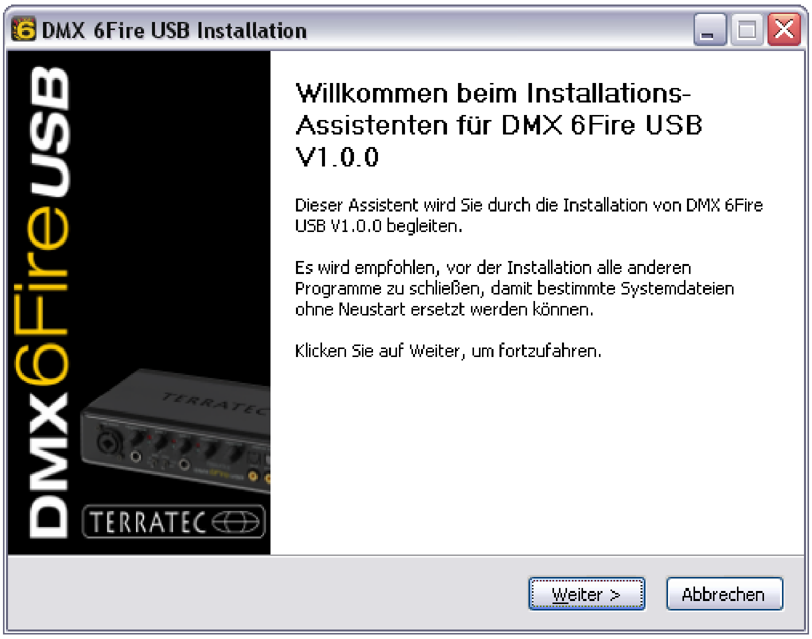
Power supply

The DMX 6Fire USB is not bus-powered and thus cannot be used without a power adapter. Power supply via USB cable is feasible only for smaller USB devices; more complex systems like the DMX 6Fire USB require a separate power connection. Moreover, a power adapter provides much "cleaner" power than a USB port, which has a noticeable effect on sound quality. Therefore, connect the 6Fire to the power adapter provided.

Installing the DMX 6Fire USB driver in Windows XP

1. Before you start, ensure that your Windows XP version is up to date. Right-click the "My Computer" icon and choose "Properties" from the context menu. If you still have the default "Teletubbyland" desktop background image for XP, the following path will take you to the information you need: Start -> Settings -> Control Panel -> System. It is important for Windows XP Service Pack 2 (SP2 for short) or Windows Vista to be installed on your computer. If this is not the case, please contact Microsoft (**www.microsoft.com**) to update your system. For Windows, this is generally free of charge.
2. After you insert the installation CD provided, the AutoStart program starts automatically. If AutoStart does not open, start it manually by double-clicking "**`Autorun.exe`**" in the CD's root directory. The "Installation" button in AutoStart installs the DMX 6Fire USB driver and the Control Panel in your operating system.

The installation wizard will now display its welcome message.



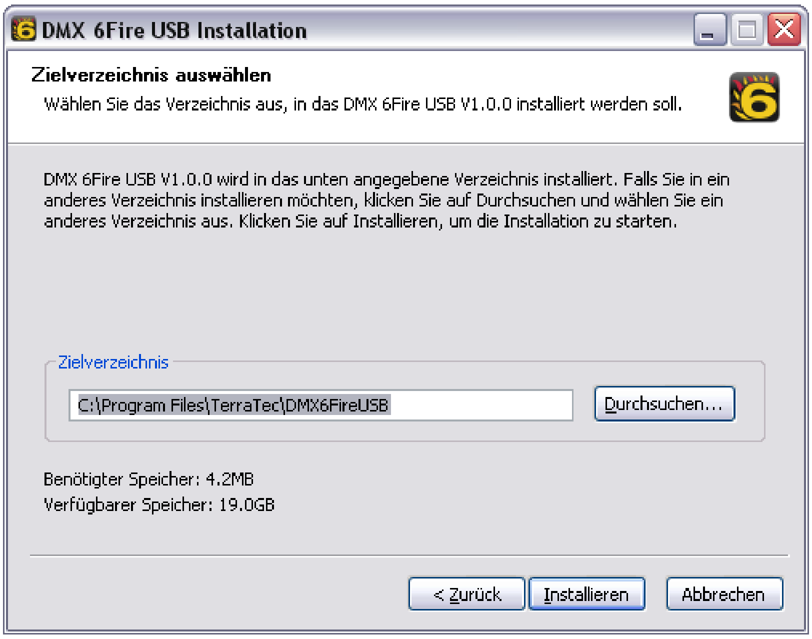
Willkommen beim Installations-Assistenten für DMX 6Fire USB V1.0.0

Dieser Assistent wird Sie durch die Installation von DMX 6Fire USB V1.0.0 begleiten.

Es wird empfohlen, vor der Installation alle anderen Programme zu schließen, damit bestimmte Systemdateien ohne Neustart ersetzt werden können.

Klicken Sie auf Weiter, um fortzufahren.

3. The default destination for the installation is specified in the following window. If you prefer another folder, select "Browse..." and choose the corresponding directory. Then, click "Install".



Zielverzeichnis auswählen

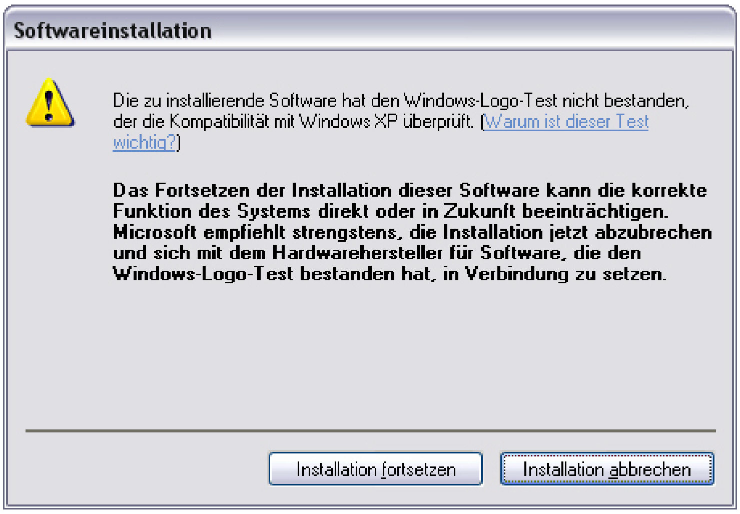
Wählen Sie das Verzeichnis aus, in das DMX 6Fire USB V1.0.0 installiert werden soll.

DMX 6Fire USB V1.0.0 wird in das unten angegebene Verzeichnis installiert. Falls Sie in ein anderes Verzeichnis installieren möchten, klicken Sie auf Durchsuchen und wählen Sie ein anderes Verzeichnis aus. Klicken Sie auf Installieren, um die Installation zu starten.

Zielverzeichnis: C:\Program Files\TerraTec\DMX6FireUSB

Benötigter Speicher: 4.2MB
Verfügbarer Speicher: 19.0GB

4. You can disregard the following safety warning without concern. Click "Continue Anyway" to continue.

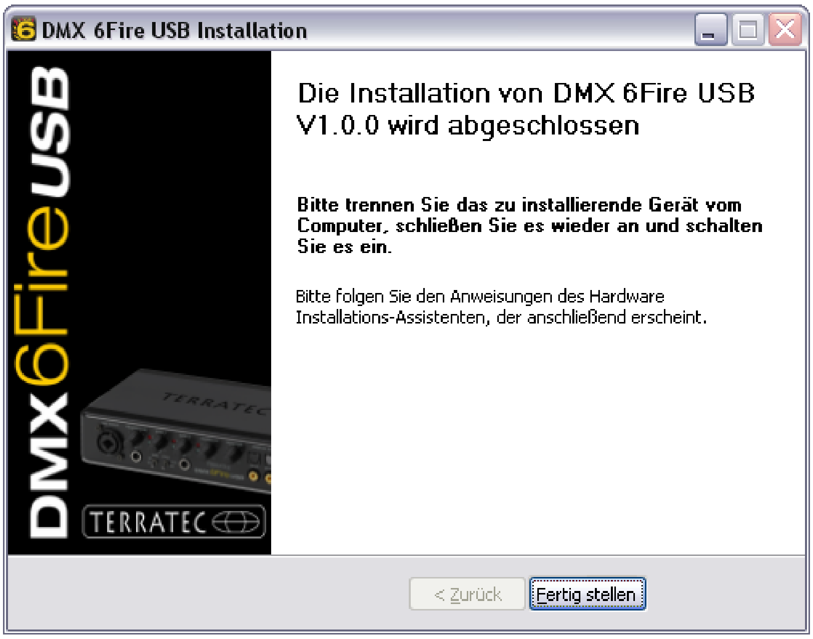


Softwareinstallation

Die zu installierende Software hat den Windows-Logo-Test nicht bestanden, der die Kompatibilität mit Windows XP überprüft. (Warum ist dieser Test wichtig?)

Das Fortsetzen der Installation dieser Software kann die korrekte Funktion des Systems direkt oder in Zukunft beeinträchtigen. Microsoft empfiehlt strengstens, die Installation jetzt abzubrechen und sich mit dem Hardwarehersteller für Software, die den Windows-Logo-Test bestanden hat, in Verbindung zu setzen.

5. The driver is now installed in the system, and as soon as the message below appears, you can connect the DMX 6Fire USB to your computer's USB 2.0 port using the cable provided. Windows XP will automatically recognise the device as new hardware and open the driver installation dialogue.



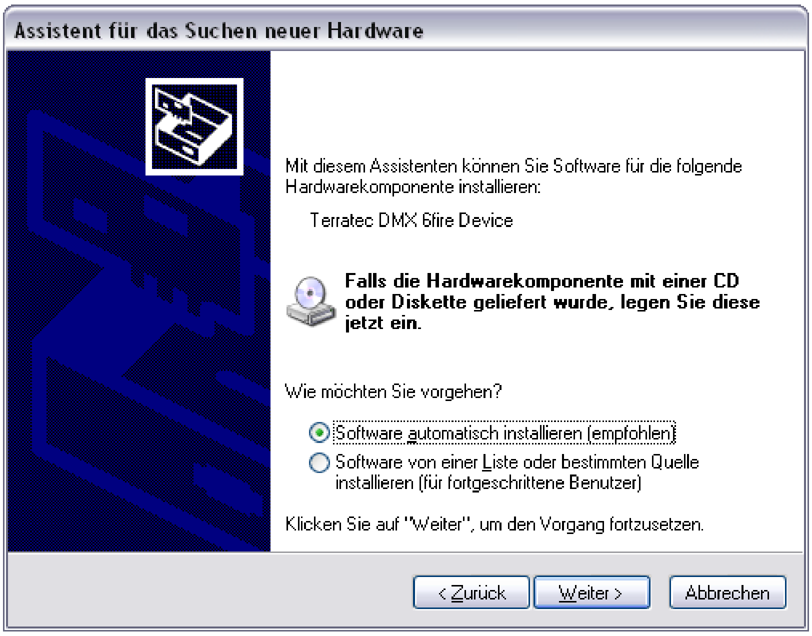
DMX 6Fire USB Installation

Die Installation von DMX 6Fire USB V1.0.0 wird abgeschlossen

Bitte trennen Sie das zu installierende Gerät vom Computer, schließen Sie es wieder an und schalten Sie es ein.

Bitte folgen Sie den Anweisungen des Hardware Installations-Assistenten, der anschließend erscheint.

6. The Windows "Found New Hardware Wizard" asks what driver to use for the new hardware component. You do not have to search for the driver online. The next window asks about the driver for the DMX 6Fire USB hardware. Next, select "Install the software automatically [Recommended]" and confirm with "Next".



Assistent für das Suchen neuer Hardware

Mit diesem Assistenten können Sie Software für die folgende Hardwarekomponente installieren:

Terratec DMX 6fire Device

Falls die Hardwarekomponente mit einer CD oder Diskette geliefert wurde, legen Sie diese jetzt ein.

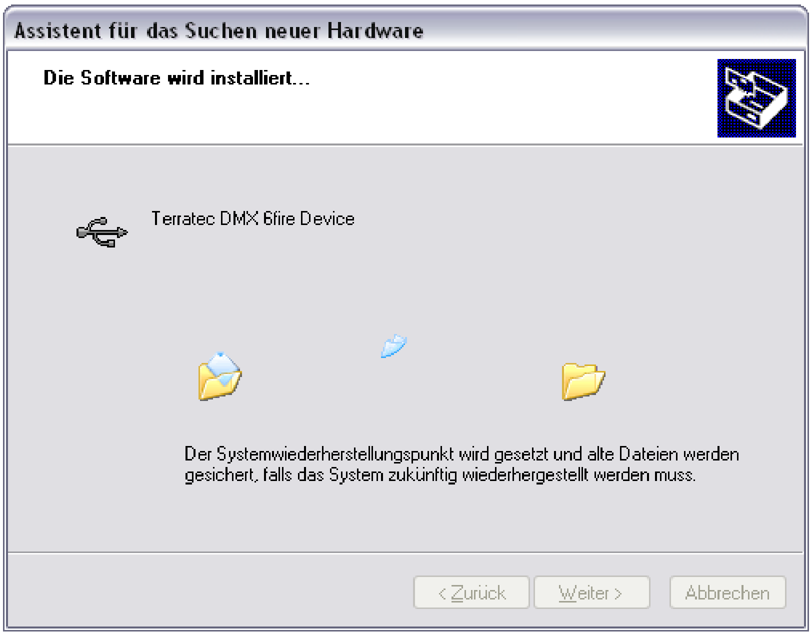
Wie möchten Sie vorgehen?

● Software automatisch installieren (empfohlen)

○ Software von einer Liste oder bestimmten Quelle installieren (für fortgeschrittene Benutzer)

Klicken Sie auf "Weiter", um den Vorgang fortzusetzen.

7. Then, just to be safe, a new system restore point is set. Nothing to be concerned about—this is a standard precaution.



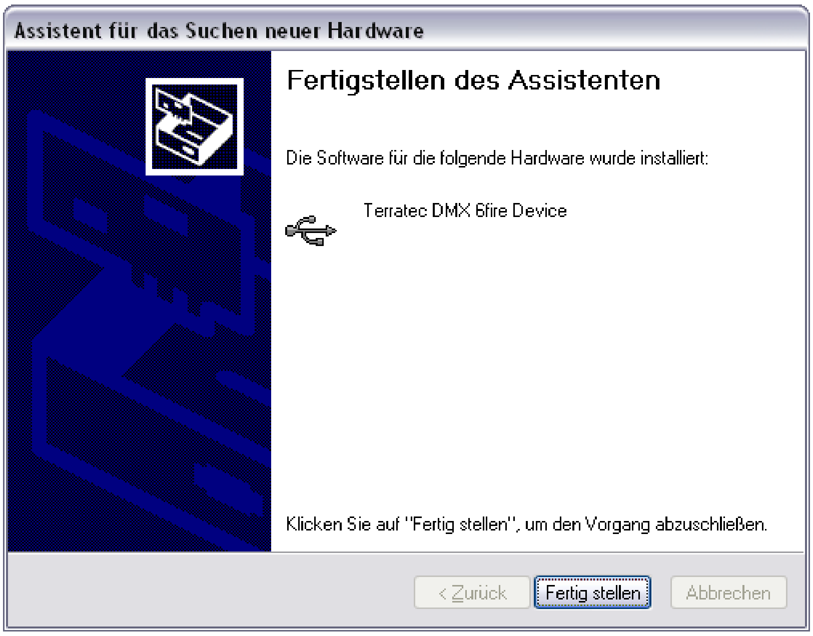
Assistent für das Suchen neuer Hardware

Die Software wird installiert...

Terratec DMX 6fire Device

Der Systemwiederherstellungspunkt wird gesetzt und alte Dateien werden gesichert, falls das System zukünftig wiederhergestellt werden muss.

8. This concludes part 1 of the installation, so click "Finish".



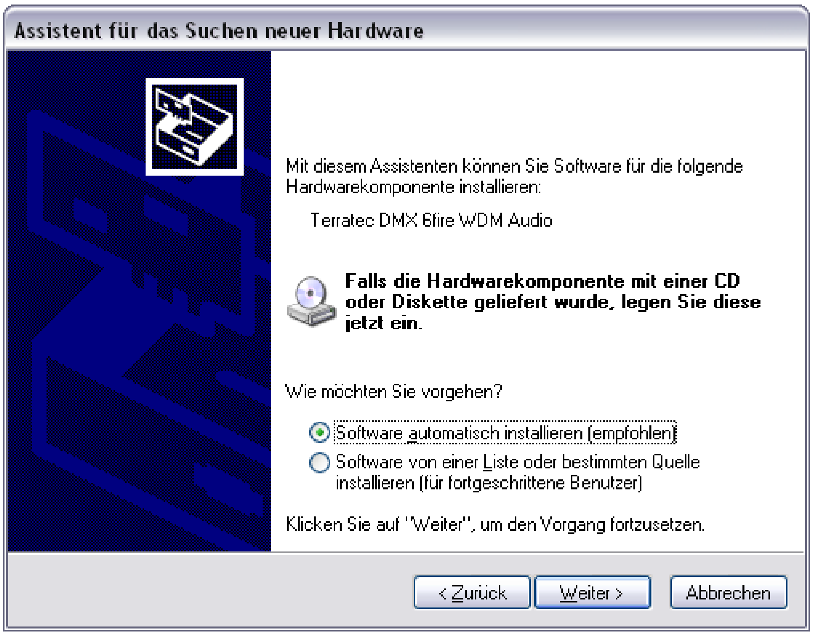
Fertigstellen des Assistenten

Die Software für die folgende Hardware wurde installiert:

Terratec DMX 6fire Device

Klicken Sie auf "Fertig stellen", um den Vorgang abzuschließen.

9. This returns you to the installation wizard, as only the drivers for the USB controller have been installed; now, the drivers that make the controller a USB audio device are installed. Here, too, select "Install the software automatically" to install the second batch of drivers.



Mit diesem Assistenten können Sie Software für die folgende Hardwarekomponente installieren:

Terratec DMX 6fire WDM Audio

Falls die Hardwarekomponente mit einer CD oder Diskette geliefert wurde, legen Sie diese jetzt ein.

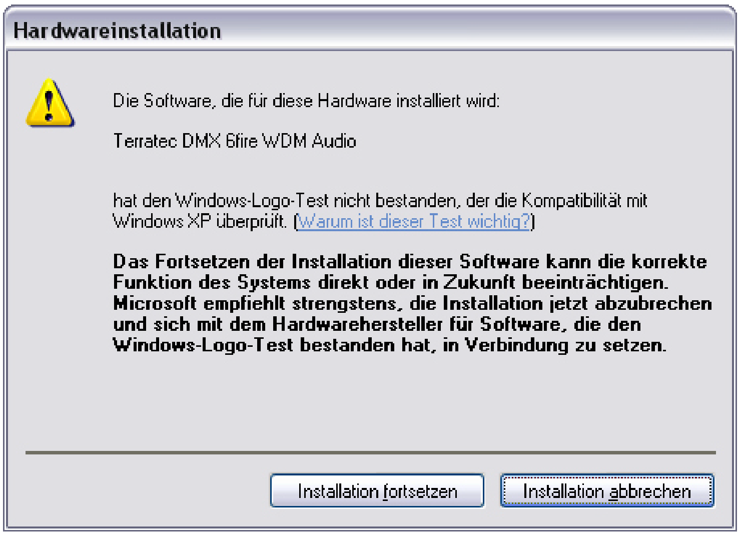
Wie möchten Sie vorgehen?

● Software automatisch installieren (empfohlen)

○ Software von einer Liste oder bestimmten Quelle installieren (für fortgeschrittene Benutzer)

Klicken Sie auf "Weiter", um den Vorgang fortzusetzen.

10. Again, you can safely ignore the message that the software did not pass the "Windows Logo test".



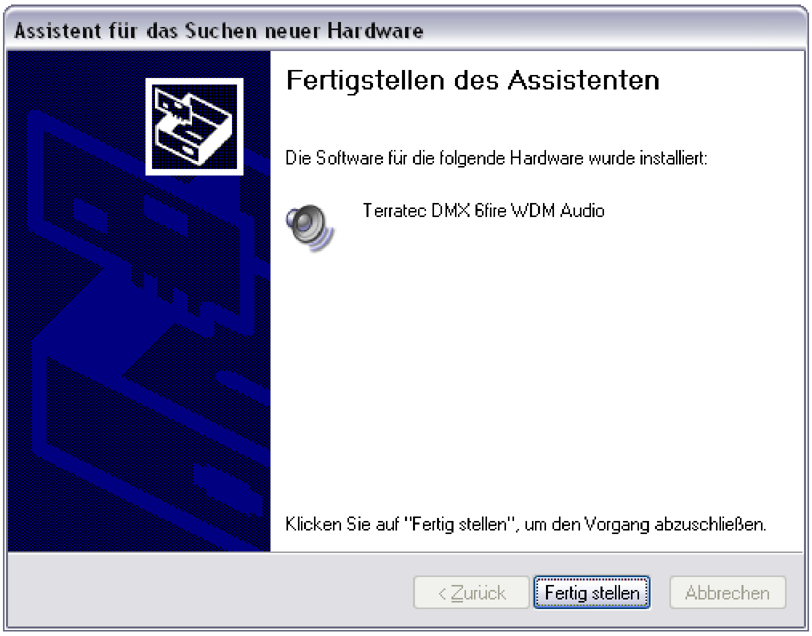
Die Software, die für diese Hardware installiert wird:

Terratec DMX 6fire WDM Audio

hat den Windows-Logo-Test nicht bestanden, der die Kompatibilität mit Windows XP überprüft. (Warum ist dieser Test wichtig?)

Das Fortsetzen der Installation dieser Software kann die korrekte Funktion des Systems direkt oder in Zukunft beeinträchtigen. Microsoft empfiehlt strengstens, die Installation jetzt abzubrechen und sich mit dem Hardwarehersteller für Software, die den Windows-Logo-Test bestanden hat, in Verbindung zu setzen.

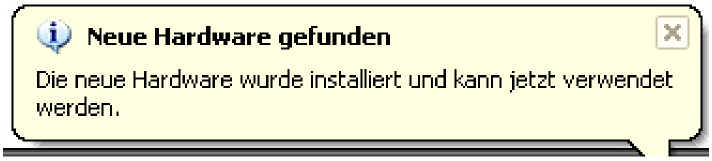
11. Click "Finish" to complete the installation of the drivers.


Assistent für das Suchen neuer Hardware
Fertigstellen des Assistenten
< Zurück
Fertig stellen
Abbrechen

Die Software für die folgende Hardware wurde installiert:

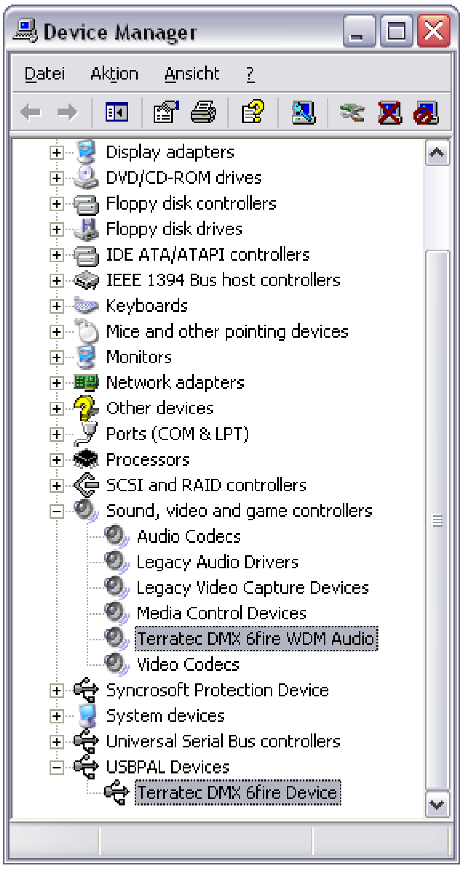
Terratec DMX 6fire WDM Audio

Klicken Sie auf "Fertig stellen", um den Vorgang abzuschließen.



Die neue Hardware wurde installiert und kann jetzt verwendet werden.

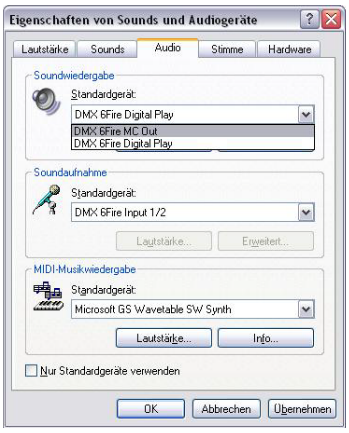
12. Once the drivers have been installed, the DMX 6Fire USB should appear in the device manager with the following entries. You can find the "Device Manager" in the Control Panel under "System" > "Hardware". Click the "Device Manager" button.



- Display adapters
- DVD/CD-ROM drives
- Floppy disk controllers
- Floppy disk drives
- IDE ATA/ATAPI controllers
- IEEE 1394 Bus host controllers
- Keyboards
- Mice and other pointing devices
- Monitors
- Network adapters
- Other devices
- Ports (COM & LPT)
- Processors
- SCSI and RAID controllers
- Sound, video and game controllers
  - Audio Codecs
  - Legacy Audio Drivers
  - Legacy Video Capture Devices
  - Media Control Devices
  - Terratec DMX 6fire WDM Audio
  - Video Codecs
- Syncrosoft Protection Device
- System devices
- Universal Serial Bus controllers
- USBPAL Devices
  - Terratec DMX 6fire Device

The DMX 6Fire USB as a system audio device (Windows XP)

If you would like to use the DMX 6Fire USB not only for specific audio applications, but as your default Windows audio device, select the DMX 6Fire USB audio driver in the Control Panel under "Sounds and Audio Devices" > "Audio" as the default device for the desired functions.



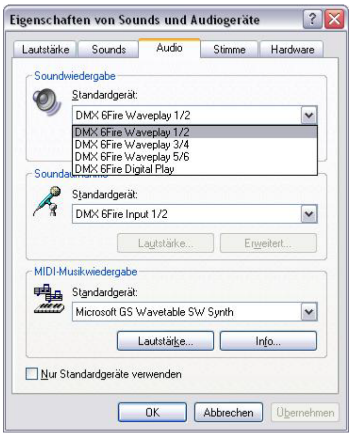
Soundwiedergabe
Standardgerät: DMX 6Fire Digital Play
DMX 6Fire MC Out
DMX 6Fire Digital Play

Soundaufnahme
Standardgerät: DMX 6Fire Input 1/2

MIDI-Musikwiedergabe
Standardgerät: Microsoft GS Wavetable SW Synth

☐ Nur Standardgeräte verwenden

Multi-channel



Soundwiedergabe
Standardgerät: DMX 6Fire Waveplay 1/2
DMX 6Fire Waveplay 1/2
DMX 6Fire Waveplay 3/4
DMX 6Fire Waveplay 5/6
DMX 6Fire Digital Play

Soundaufnahme
Standardgerät: DMX 6Fire Input 1/2

MIDI-Musikwiedergabe
Standardgerät: Microsoft GS Wavetable SW Synth

☐ Nur Standardgeräte verwenden

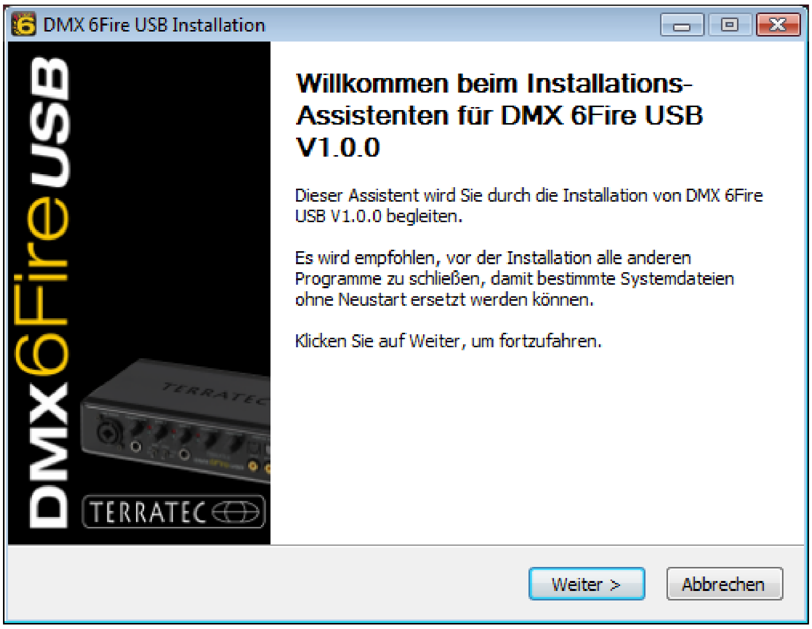
Multi-device

However, because the DMX 6Fire USB is a professional audio interface, only the overall volume control and that of inputs 1/2 take place using the Windows mixer. This actually is important only for Voice-over-IP or Internet telephony applications; otherwise, you should not use the Windows mixer to control those inputs, as otherwise the signal will be degraded due to digital attenuation. The volume control in the mixer of the DMX 6Fire USB affects the software monitoring path only; the signal to be recorded is passed to the recording software with no impairment. Please configure all other settings in the DMX software's Control Panel.

Installing the DMX 6Fire USB driver in Windows Vista

1. After you insert the installation CD provided, the AutoStart program starts automatically. If AutoStart does not open, start it manually by double-clicking "`Autorun.exe`" in the CD's root directory. The "Software Installation" button in AutoStart installs the DMX 6Fire USB driver and the Control Panel in your operating system.

2. The installation wizard will now display its welcome message.



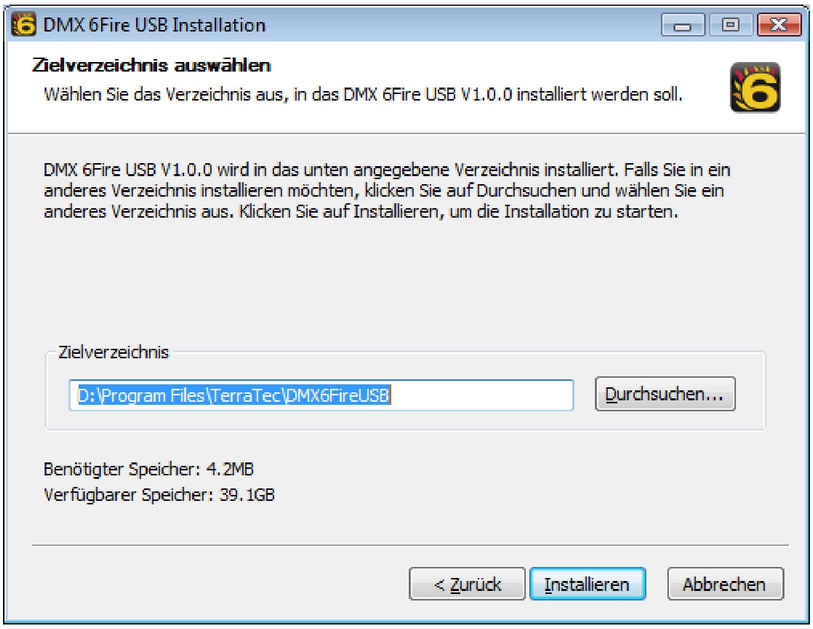
Willkommen beim Installations-Assistenten für DMX 6Fire USB V1.0.0

Dieser Assistent wird Sie durch die Installation von DMX 6Fire USB V1.0.0 begleiten.

Es wird empfohlen, vor der Installation alle anderen Programme zu schließen, damit bestimmte Systemdateien ohne Neustart ersetzt werden können.

Klicken Sie auf Weiter, um fortzufahren.

3. The default destination for the installation is specified in the following window. If you prefer another folder, select "Browse..." and choose the corresponding directory. Then, click "Install".



DMX 6Fire USB Installation

Zielverzeichnis auswählen

Wählen Sie das Verzeichnis aus, in das DMX 6Fire USB V1.0.0 installiert werden soll.

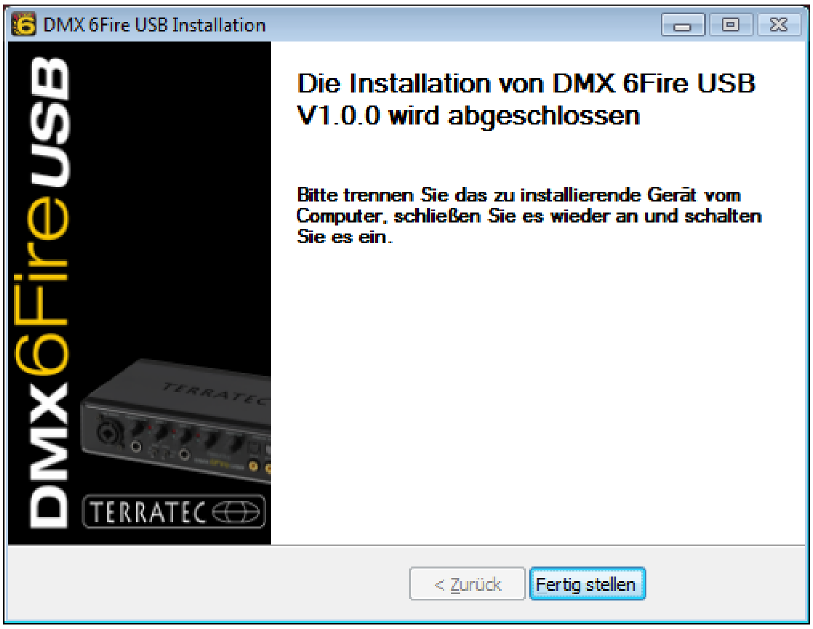
DMX 6Fire USB V1.0.0 wird in das unten angegebene Verzeichnis installiert. Falls Sie in ein anderes Verzeichnis installieren möchten, klicken Sie auf Durchsuchen und wählen Sie ein anderes Verzeichnis aus. Klicken Sie auf Installieren, um die Installation zu starten.

Zielverzeichnis: D:\Program Files\TerraTec\DMX6FireUSB

Benötigter Speicher: 4.2MB

Verfügbarer Speicher: 39.1GB

4. The driver is now installed in the system, and as soon as the message below appears, you can connect the DMX 6Fire USB to your computer's USB 2.0 port using the cable provided. Windows Vista will automatically recognise the device as new hardware.



DMX 6Fire USB Installation

Die Installation von DMX 6Fire USB V1.0.0 wird abgeschlossen

Bitte trennen Sie das zu installierende Gerät vom Computer, schließen Sie es wieder an und schalten Sie es ein.

The DMX 6Fire USB as a system audio device (Windows Vista)

To get started with the 6Fire, you have to select it as the default device in your operating system. Because in Windows Vista, a sound card consists only of inputs and outputs, you have to select the output to be used before playing back a file.

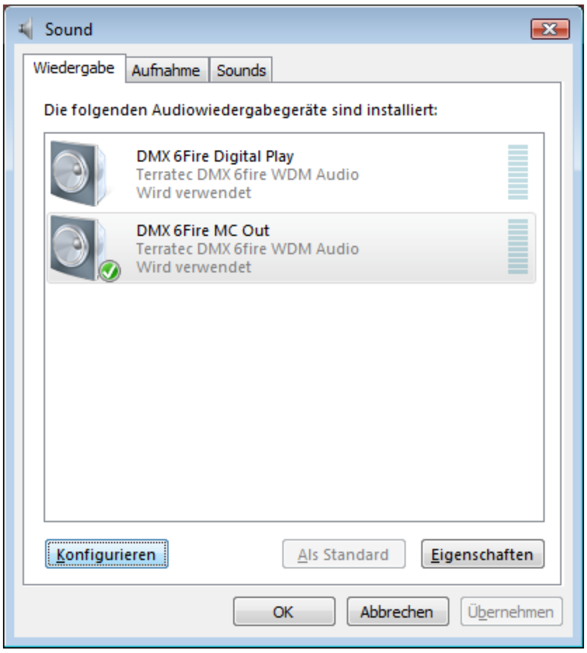
The DMX 6Fire USB can log on to the system in either of two different ways. For more information, read the description of "Device Settings" on ➲ Page 35

Multi Channel:

Open Start -> Control Panel -> Sound

1. Define "DMX 6Fire MC Out" as the default device by selecting the device and confirming with "Set default". Then, click "Configure" and follow *point 2.*

Note: The green tick mark shows the selected output.



Sound

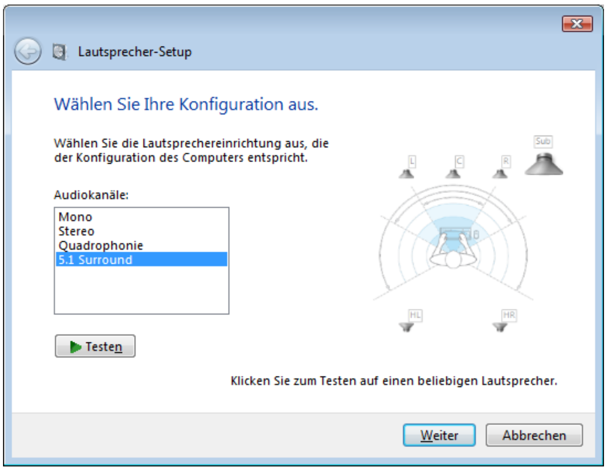
Die folgenden Audiowiedergabegeräte sind installiert:

DMX 6Fire Digital Play
Terratec DMX 6fire WDM Audio
Wird verwendet

DMX 6Fire MC Out
Terratec DMX 6fire WDM Audio
Wird verwendet

2. To test all 6 speakers, click the "Test" button. Then, you should hear a test signal from all connected speakers, one after the other. When you have connected all speakers, confirm with "Next".

Note: You can also test the individual speakers. To do so, simply click the corresponding icon.



Lautsprecher-Setup

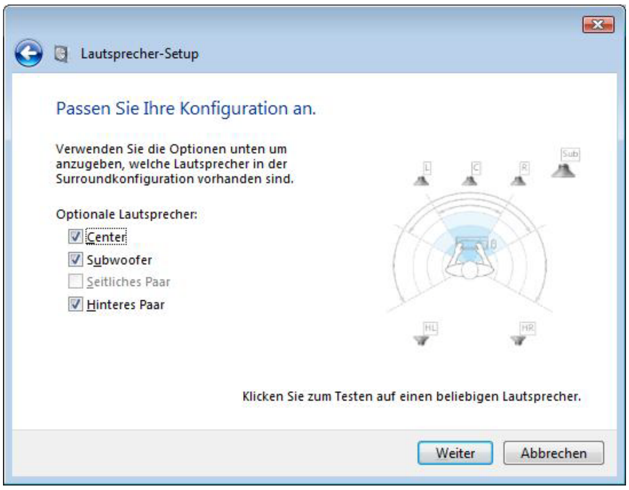
Wählen Sie Ihre Konfiguration aus.

Wählen Sie die Lautsprechereinrichtung aus, die der Konfiguration des Computers entspricht.

Audiokanäle:
Mono
Stereo
Quadrophonie
5.1 Surround

Klicken Sie zum Testen auf einen beliebigen Lautsprecher.

3. In the next menu item, you can select which speakers you want to use. Then, select the corresponding outputs by placing a tick mark. To continue, click "Next".



Passen Sie Ihre Konfiguration an.

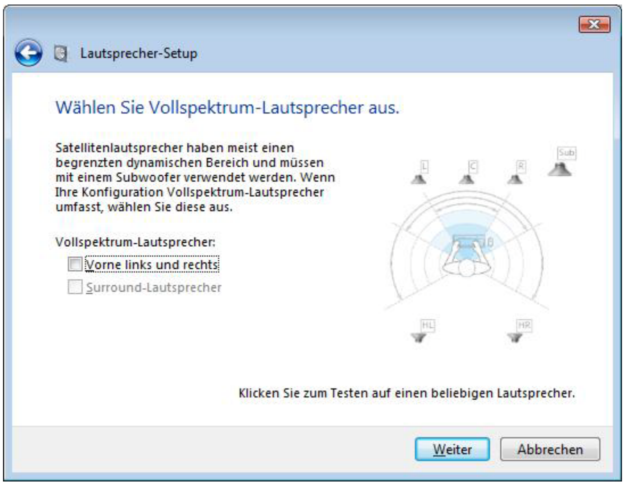
Verwenden Sie die Optionen unten um anzugeben, welche Lautsprecher in der Surroundkonfiguration vorhanden sind.

Optionale Lautsprecher:

☑ Center
☑ Subwoofer
☐ Seitliches Paar
☑ Hinteres Paar

Klicken Sie zum Testen auf einen beliebigen Lautsprecher.

4. Now, select whether your speakers are full-spectrum speakers (usually 2 or 3-way speakers) or satellite speakers (treble and midrange) connected to a subwoofer. Then, continue with "Next".



Wählen Sie Vollspektrum-Lautsprecher aus.

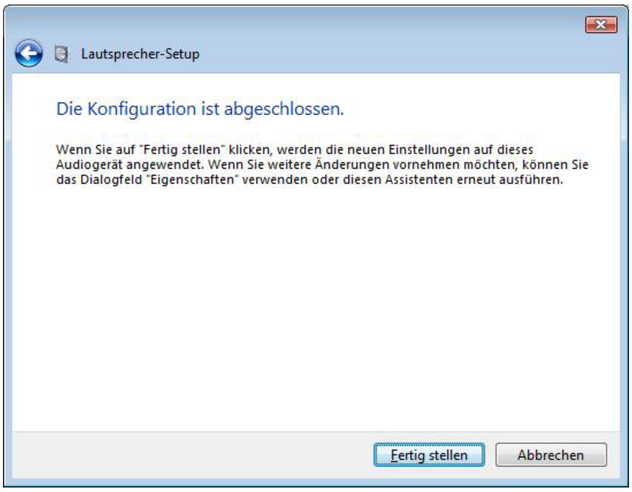
Satellitenlautsprecher haben meist einen begrenzten dynamischen Bereich und müssen mit einem Subwoofer verwendet werden. Wenn Ihre Konfiguration Vollspektrum-Lautsprecher umfasst, wählen Sie diese aus.

Vollspektrum-Lautsprecher:

☐ Vorne links und rechts
☐ Surround-Lautsprecher

Klicken Sie zum Testen auf einen beliebigen Lautsprecher.

Conclude the configuration by clicking "Finish".



Die Konfiguration ist abgeschlossen.

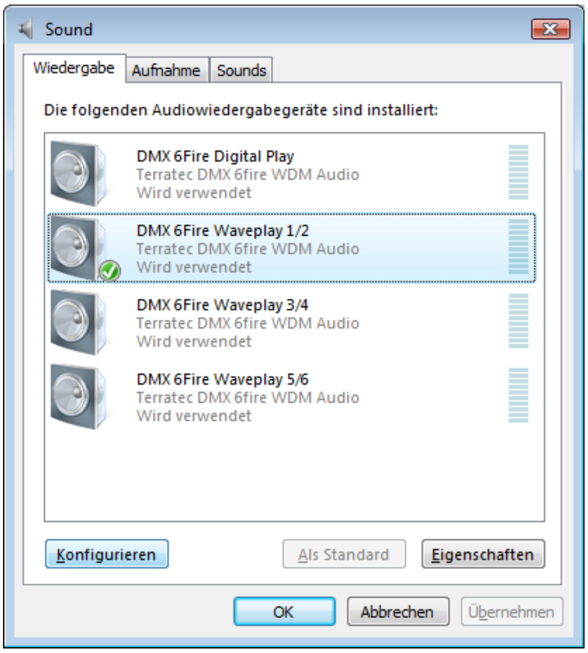
Wenn Sie auf "Fertig stellen" klicken, werden die neuen Einstellungen auf dieses Audiogerät angewendet. Wenn Sie weitere Änderungen vornehmen möchten, können Sie das Dialogfeld "Eigenschaften" verwenden oder diesen Assistenten erneut ausführen.

Multi Device:

Open Start -> Control Panel -> Sound

1. Define "DMX 6Fire Waveplay 1/2" as the default device by selecting the device and confirming with "Set default". Then, click "Configure" and follow *point 2.*

Note: The green tick mark shows the selected output. Optionally, however, you can also use other devices (e.g. DMX 6Fire Waveplay 5/6).



Die folgenden Audiowiedergabegeräte sind installiert:

DMX 6Fire Digital Play
Terratec DMX 6fire WDM Audio
Wird verwendet

DMX 6Fire Waveplay 1/2
Terratec DMX 6fire WDM Audio
Wird verwendet

DMX 6Fire Waveplay 3/4
Terratec DMX 6fire WDM Audio
Wird verwendet

DMX 6Fire Waveplay 5/6
Terratec DMX 6fire WDM Audio
Wird verwendet

2. To test all speakers, click the "Test" button. Then, you should hear a test signal from all connected speakers, one after the other. When you have connected all speakers, confirm with "Next".

Note: You can also test the individual speakers yourself. To do so, simply click the corresponding icon.

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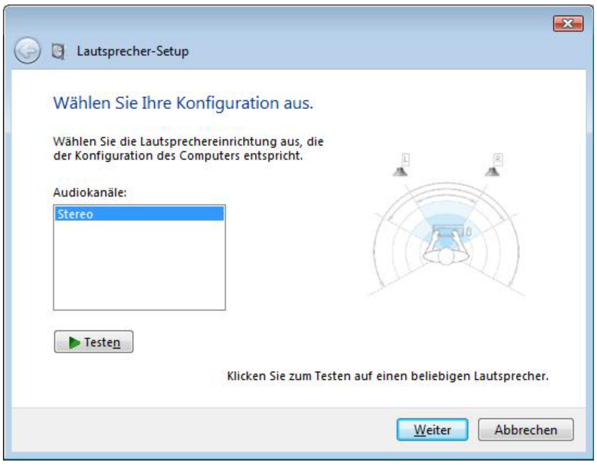


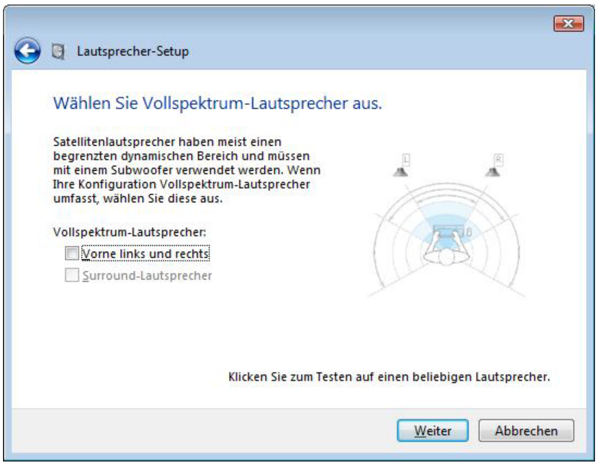
Wählen Sie Ihre Konfiguration aus.

Wählen Sie die Lautsprechereinrichtung aus, die der Konfiguration des Computers entspricht.

Audiokanäle:
Stereo

Klicken Sie zum Testen auf einen beliebigen Lautsprecher.

3. Now, select whether your speakers are full-spectrum speakers (usually 2 or 3-way speakers) or satellite speakers (treble and midrange) connected to a subwoofer. Then, continue with "Next".



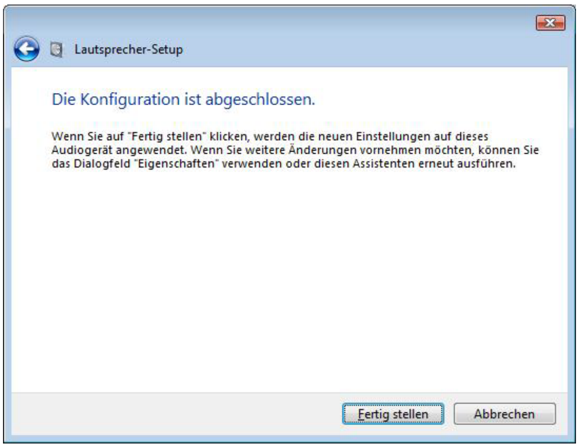
Wählen Sie Vollspektrum-Lautsprecher aus.

Satellitenlautsprecher haben meist einen begrenzten dynamischen Bereich und müssen mit einem Subwoofer verwendet werden. Wenn Ihre Konfiguration Vollspektrum-Lautsprecher umfasst, wählen Sie diese aus.

Vollspektrum-Lautsprecher:
☐ Vorne links und rechts
☐ Surround-Lautsprecher

Klicken Sie zum Testen auf einen beliebigen Lautsprecher.

4. Conclude the configuration by clicking "Finish".



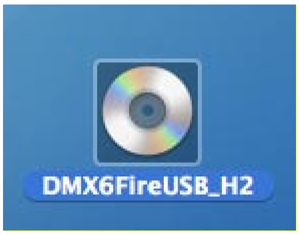
Die Konfiguration ist abgeschlossen.

Wenn Sie auf "Fertig stellen" klicken, werden die neuen Einstellungen auf dieses Audiogerät angewendet. Wenn Sie weitere Änderungen vornehmen möchten, können Sie das Dialogfeld "Eigenschaften" verwenden oder diesen Assistenten erneut ausführen.

Installing the DMX 6Fire USB driver in MAC OS 10.4 or higher

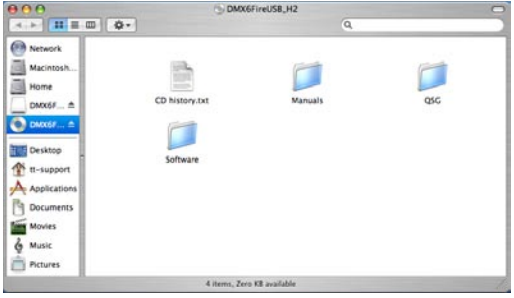
Only Intel-based Apple computers are supported.

1. Insert the CD provided and open it using the CD / DVD symbol on your desktop.

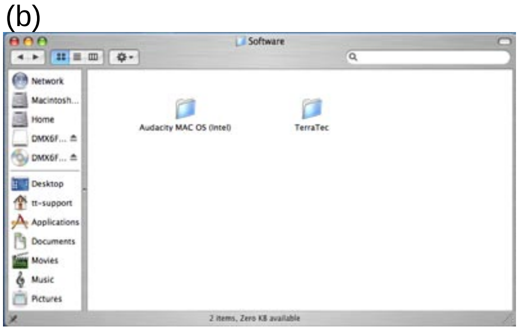


2. A window with 3 folders opens. Please open the Software (a) folder and the Terratec (b) folder, each with a double click.

(a)

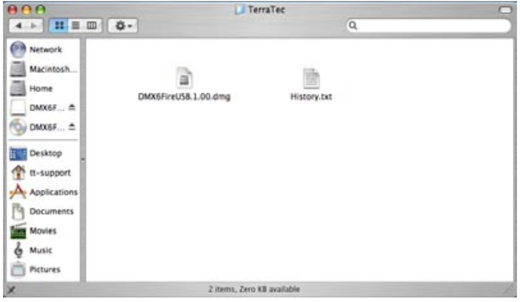


(b)

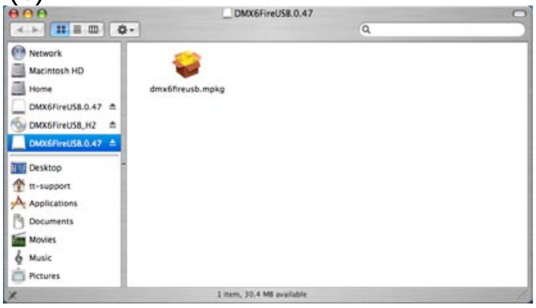


3. This contains the installation file *.dmg (a). Open the file and double-click on the *.mpgk (b) file to start the installation. Please follow the instructions given by the installation wizard to complete the driver and software installation.

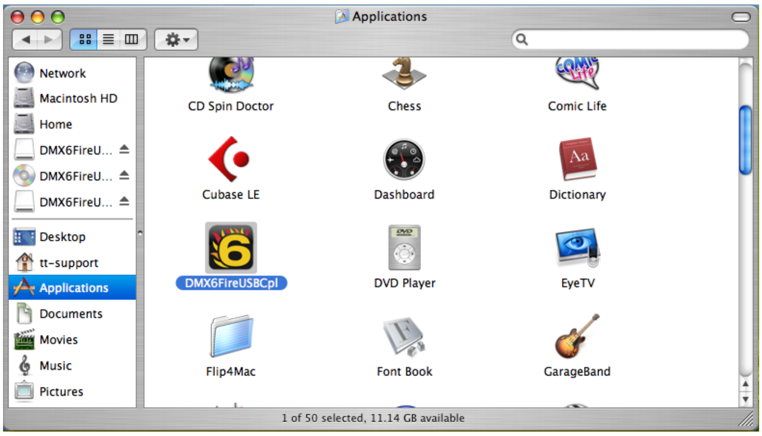
(a)



(b)



4. After the installation, the DMX 6Fire USB Control Panel is located in your applications folder.



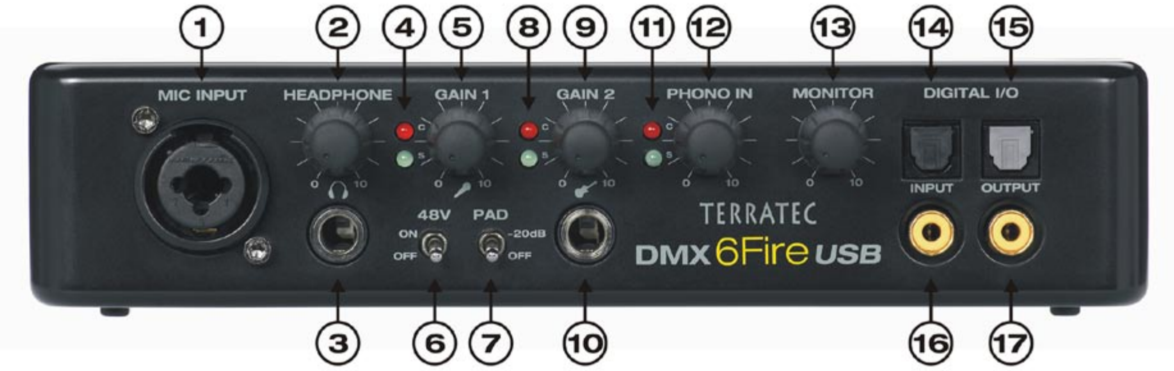
Updating the firmware

Thanks to software technology, updates to existing standards and new functions can be added to the DMX 6Fire USB without changes to the hardware by updating its so-called "firmware". Unlike DVD burners or other peripheral devices, you do not need to worry about installing the firmware. When a driver update is available, the firmware (where applicable) is included and installed together with the update.

The connections of the DMX 6Fire USB System

The DMX 6Fire USB audio interface offers you numerous connections for connecting professional studio peripherals and hi-fi devices. Following is a detailed overview of its technical and electrical characteristics: If you have any difficulties understanding the various connections, refer to our short cable tutorial in Appendix A, ➲ page 38

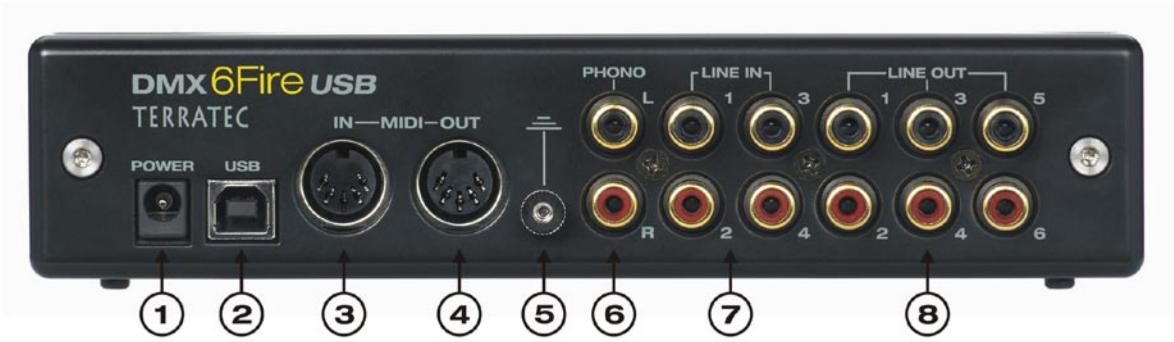
Front



1. Microphone jack (XLR-1/4" or 6.3 mm combo jack). This jack accepts both professional microphones equipped with an XLR connector and need phantom power (usually condenser microphones) and "normal" headphones, such as those on a headset. This jack is operated as an alternative to Line In 1 on the back and automatically reroutes the signal (auto priority) if an XLR or 1/4" (6.3 mm) plug is plugged into it. Line In 1 and 2 on the back are then switched off automatically.
2. Volume controller for the headphones. This should always be set to nil–all the way to the left—when you put on the headphones, as otherwise it could get quite loud. You can always turn it up later.
3. Headphones connection. As stated above: turn the control all the way down before plugging in. The signal from Line Out 1/2 is always present at this jack. For more information, see the Software chapter.
4. Indicator LEDs for the microphone control. These LEDs are for visually monitoring the recording made with a microphone. Blue means "signal is present". If you see red, don't just sit there—turn down the gain control! Red means that the signal is clipping, causing distortion in the recording.
5. Gain controller for the microphone connector. Controls the preamplification of the signal present at the microphone input. The same rule applies here: control all the way down before plugging in the mic.
6. 48V phantom power. It is turned "on" when you connect a condenser microphone.

7. -20 dB pad switch. If the recording of the microphone is much too loud, set this switch to "on"—the signal is then trimmed by 20 dB.
8. Indicator LEDs for gain control 2 (instrument input). Here, too, blue means "signal is present" and red "signal is clipping".
9. Gain controller for the instrument input. When a signal is present, turn it down until you no longer see the red LED.
10. Connector for guitar or bass. It can accept all high-impedance instruments without a detour through a preamp. This jack is operated as an alternative to Line In 2 on the back and automatically reroutes the signal (auto priority) if a 1/4" (6.3 mm) plug is plugged into it. Line In 1 and 2 on the back are then switched off automatically.
11. Indicator LEDs for the phono control. These indicate the signal from the record player you have connected to the PHONO IN jacks on the back of the 6FIRE.
12. Gain control for PHONO IN. Controls the gain of the input signal present at the PHONO IN jack on the back.
13. Control for the monitor signal. The DMX 6Fire USB has a "real" hardware monitor path, i.e. the input signals of inputs 1/2 (microphone / instrument or Line In 1/2) are tapped before the digital conversion and sent directly to the analogue output 1/2. There, they can be mixed into the output signal for these outputs (e.g. playback from the computer) without latency.
14. Optical digital In For connecting a digital source such as a CD player, DAT recorder or another PC via fibre-optic cable.
15. Optical digital Out Select this output to send digital data from your PC to another digital device via fibre-optic cable.
16. Coaxial digital In For connecting a digital source such as a CD player, DAT recorder or another PC via cinch (RCA) plug.
17. Coaxial digital Out Select this output to send digital data from your PC to another digital device via a cable with cinch (RCA) plugs.

Back



1. Connector for the external power adapter
2. USB 2.0. Connect this port to your computer's USB 2.0 jack.
3. MIDI IN. You can connect equipment such as a controller keyboard or digital piano to this jack. Use a 5-pin DIN cable to your keyboard's MIDI OUT.
4. MIDI OUT. This is connected to the MIDI IN of your expander, synthesiser or other MIDI device.
5. Earth. Connect your turntable's earth cable here to prevent "hum".
6. PHONO IN. For directly connecting a turntable.
7. LINE IN 1/2, 3/4. Two analogue cinch (RCA) connector pairs for line level sources such as tape decks, tuners or synthesisers.
8. LINE OUT 1/2, 3/4, 5/6. Three analogue output pairs for active speakers/amplifiers or a mixer. The analogue outputs operate with music-compatible levels of 2.5 V_{rms}. Thanks to Microsoft, the analogue output pairs are arranged as follows:
    - Line Out 1/2: Front Left / Front Right
    - Line Out 3/4: Centre / Subwoofer
    - Line Out 5/6: Rear Left / Rear Right

Analogue outputs

LINE OUT 1/2, 3/4, 5/6 (Back)

The back of the DMX 6Fire USB has six high-quality analogue mono outputs (or three stereo pairs) configured as cinch jacks—just like the ones on your turntable, TV or hi-fi system. The individual connectors or connector pairs are controlled using the 6Fire's Control Panel; only the overall level, that of the "Main Out", can also be controlled using the old Windows mixer. You can connect your active speakers, your 5.1 system's speakers or your mixer to these ports. At full output, 2.5 $V_{\mathbf{rms}}$ are present here.

Headphone output (front)

The front of the unit features the headphone output (1/4" or 6.3 mm phone jack), above which is a gain control that you can use to control the volume. This output always has the same signal as output 1/2, which can be set to any signal.

Do yourself, and your hearing, a favour—before switching on the unit, check the position of the gain control or turn it all the way down at first. Your ears will thank you! By the way, it's no coincidence that we've put the headphone output right next to the microphone input—this allows you to conveniently plug in your headset.

Drivers

The DMX 6Fire USB can log on to the system in either of two different ways. For more information, read the description of "Device Settings" on ➲ Page 35

Multi-channel: here, all of the outputs are grouped in a multi-channel device. The relevant driver is called *"DMX 6Fire MC Out"*. The channels can be addressed individually using common audio applications.

Multi-device: here, the outputs are registered on the system as separate devices, and the drivers are then called *"DMX 6Fire Waveplay 1/2, DMX 6Fire Waveplay 3/4, DMX 6Fire Waveplay 5/6 and DMX 6Fire Digital Play".*

For more information on drivers, turn to ➲ page 27.

Analogue inputs

MIC INPUT (Front)

The front of the DMX 6Fire USB has a combo jack that can accept both phone plugs (1.4"/6.3 mm) and the XLR plugs commonly used for microphones. However, note that this input is intended solely for connecting a microphone, not for line-level signals.

Condenser microphones usually require an additional 48 volts of phantom power for operation. To provide it, set the left switch under the "GAIN 1" control—labelled "48V"—to ON. If you are not sure whether your microphone needs this additional power supply, please refer to the corresponding manual. Though an accidental switch-on usually does no harm, it is best to avoid it if possible.

The input sensitivity is controlled using the "GAIN 1" knob. The blue LED indicates when a signal is present, and the red LED illuminates if the signal is clipping. If this happens, turn the knob down a little. If your microphone is so sensitive that you have to turn the gain control very far down, you can also lower the signal by 20 dB using the "PAD" switch. It is located below the "GAIN 1" control on the front of the 6Fire's housing.

If you have connected a microphone, the "LINE IN 1+2" input pair is disabled. In this case, you can use either the "MIC IN" and/or "INSTRUMENT IN" on the front or "LINE IN 1+2" on the back. Despite this, you never have to go without an analogue input: "LINE IN 3+4" is available at all times.

Instrument input (front)

This input, a 1/4" (6.3 mm) stereo jack, is marked with a guitar symbol. As the symbol indicates, this jack is for connecting high-impedance instruments such as an electric guitar or bass. There are active basses that have a battery and thus do not need a "Hi-Z" input, as this connector is sometimes called.

LINE IN 1/2, 3/4 (back)

The back of the DMX 6Fire USB system is equipped with four high-quality analogue cinch (RCA) mono inputs. You can connect line-level devices here. These include, for example, outputs from tape decks, synthesisers or the AUX or tape send of a mixer. IN 3/4 is operated as an alternative to the PHONO IN; you can toggle between them in the Control Panel. Simultaneous operation is not possible.

PHONO (Back)

This input has a special phono preamp with software-supported RIAA equalisation for turntables. The equalisation compensates for the undesirable effects (such as increased treble and weak bass) of the needle's limited deflection of the needle, as otherwise the sound would be distorted. This is also why a turntable needs a special input—if connected to the "normal" inputs, it would be too quiet and have an unnatural sound.

PHONO is operated as an alternative to the analogue input "LINE IN 3/4"; you can toggle between them in the Control Panel. Simultaneous operation is not possible.

Drivers

The inputs are viewed as stereo pairs (1/2, 3/4). There, the drivers are called "*DMX 6Fire Input 1/2" or "DMX 6Fire Input 3/4".* Normally, you can also use both channels in mono in common audio editors. For more information on drivers, turn to ➲ page 27.

Digital interface (S/PDIF)

At the coaxial and optical digital interface (cinch/RCA jacks and fibre-optic cables), you can connect devices that work with the S/PDIF protocol. These include DAT recorders and a wide range of HiFi components, as well as other computers. There are two separate coaxial (cinch) and optical jacks (TOS link) for recording and playback. However, both formats cannot be occupied simultaneously; you have to select the input format you want to use in the Control Panel. On the output side, the same signal is present at both jacks.

The interface can send and receive sample rates of up to 24-bit / 96 kHz. The corresponding driver for recording is called "*DMX 6Fire Digital In"*, and the one for playback is called *"DMX 6Fire Digital Play".*

Synchronisation. When recording from a digital source, make sure that the sampling rates of both devices (e.g. DAT recorder and DMX 6Fire USB) are synchronised. The S/PDIF protocol contains a signal for this purpose. If another digital signal is present than the one configured in the "Clock Settings," a sample rate conversion takes place in which the external signal is adapted to the internal clock.

MIDI Interface

A MIDI I/O is located on the back of the device, and is used for connecting correspondingly equipped peripherals such as MIDI keyboards, DAW controllers and many other devices. The cables for MIDI connections are always connected "crosswise," meaning OUT to IN and vice-versa.

Drivers

The Windows drivers

The DMX 6Fire USB audio interface features a range of drivers for a variety of applications. The audio drivers support all bit rates between 8 and 32 bits with all common sample rates between 32 and 192 kHz. (Digital I/O up to 96 kHz)

The MME wave driver.

Multi-channel mode

In most Windows programs, you will encounter drivers with the designation *"DMX 6Fire MC Out"* for recording and playback. This is a multi-channel driver that signals all six analogue output drivers to the operating system as one multi-channel driver. This is the standard operating mode for WDM drivers, and is routed back to the physical outputs by corresponding software.

The digital driver is available separately, with the designation *"DMX 6Fire Digital Out"*.

Multi-device mode

In this operating mode, all output pairs are registered on the system as separate drivers. They are found under the names *"DMX 6Fire Waveplay 1/2, DMX 6Fire Waveplay 3/4, DMX 6Fire Waveplay 5/6, DMX 6Fire Digital Play"*. This allows you to, for example, access the same hardware with multiple programs at once via different drivers. You can listen to music from Winamp via output 1/2 and send music from Media Player to another room via output 3/4.

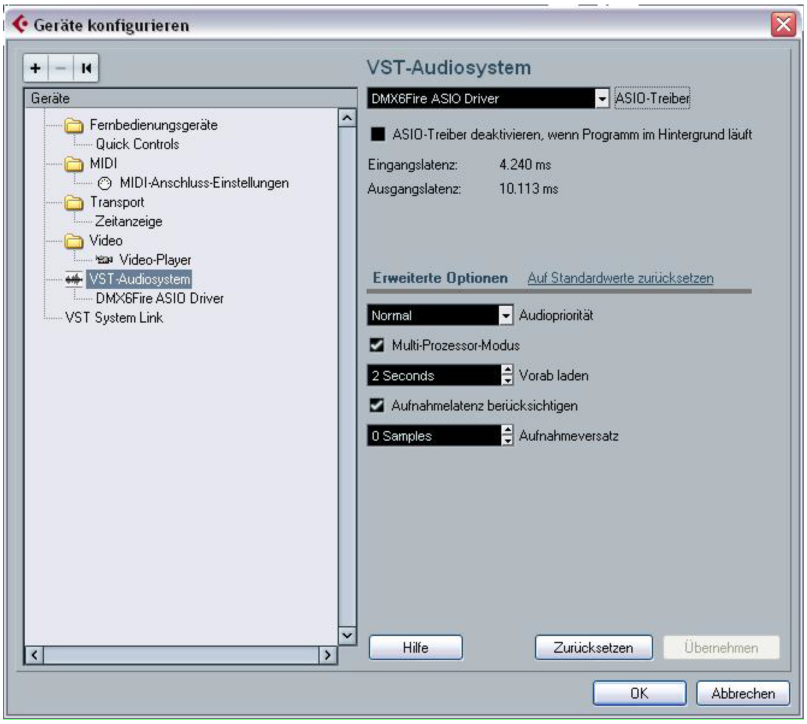
Loopback

The DMX 6Fire USB offers an additional, special recording driver that allows you to simultaneously record every signal that is played back through the device. This driver is called "DMX 6Fire Loopback". You can use it to record signals such as streaming Internet audio or podcasts.

The ASIO driver and the ASIO Control Panel

The abbreviation ASIO stands for "Audio Streaming Input Output" and refers to a 32-bit driver model developed by Steinberg. The advantage of the ASIO driver is the extremely low audio recording and playback delay times, also known as latency. Values significantly under 10ms—and less than 4 ms on fast, cleanly-configured systems—at sample rates exceeding 96kHz are quite realistic. The format also supports sound cards with multiple inputs and outputs—so-called multi-I/O cards—as well as direct monitoring and multi-client mode (ASIO 2.0 or later).

Programs that make use of Steinberg's ASIO interface indicate in the corresponding dialogues the ASIO drivers under *"DMX 6Fire USB ASIO"*.



VST-Audiosystem

DMX6Fire ASIO Driver ASIO-Treiber

■ ASIO-Treiber deaktivieren, wenn Programm im Hintergrund läuft

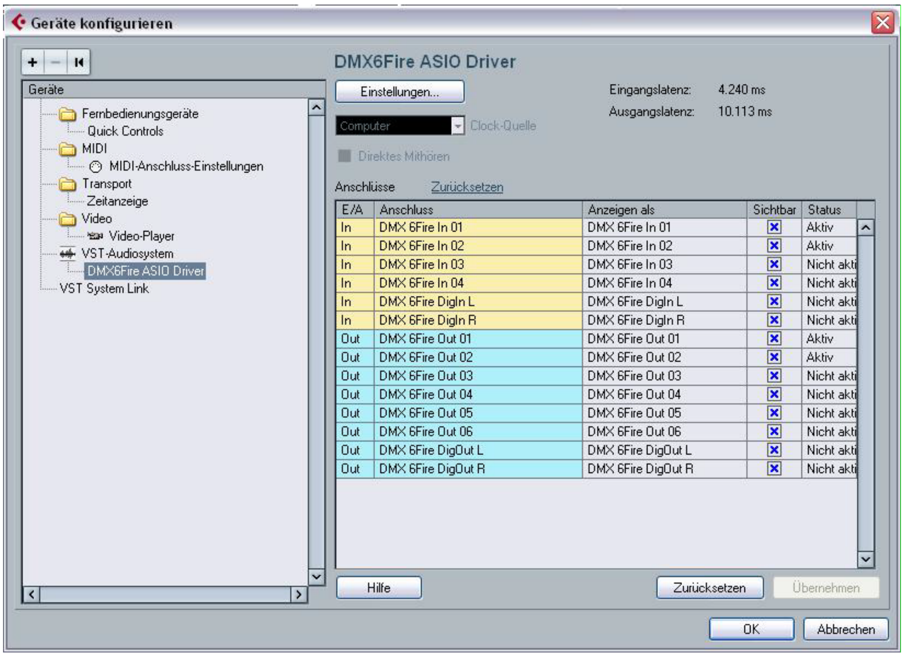
Eingangslatenz: 4.240 ms
Ausgangslatenz: 10.113 ms

Erweiterte Optionen Auf Standardwerte zurücksetzen

Normal Audiopriorität
☑ Multi-Prozessor-Modus
2 Seconds Vorab laden
☑ Aufnahmelatenz berücksichtigen
0 Samples Aufnahmeversatz

Device configuration in Cubase 4

The inputs and outputs (generally called "buses" or "channels") available in the individual programs are called *"DMX 6Fire In 1, DMX 6Fire In 2*, etc. and *DMX 6Fire Out 1, DMX 6Fire Out 2" etc.*



DMX6Fire ASIO Driver

Eingangslatenz: 4.240 ms
Ausgangslatenz: 10.113 ms

Computer Clock-Quelle

■ Direktes Mithören

Anschlüsse Zurücksetzen

E/A	Anschluss	Anzeigen als	Sichtbar	Status
In	DMX 6Fire In 01	DMX 6Fire In 01	☒	Aktiv
In	DMX 6Fire In 02	DMX 6Fire In 02	☒	Aktiv
In	DMX 6Fire In 03	DMX 6Fire In 03	☒	Nicht akti
In	DMX 6Fire In 04	DMX 6Fire In 04	☒	Nicht akti
In	DMX 6Fire DigIn L	DMX 6Fire DigIn L	☒	Nicht akti
In	DMX 6Fire DigIn R	DMX 6Fire DigIn R	☒	Nicht akti
Out	DMX 6Fire Out 01	DMX 6Fire Out 01	☒	Aktiv
Out	DMX 6Fire Out 02	DMX 6Fire Out 02	☒	Aktiv
Out	DMX 6Fire Out 03	DMX 6Fire Out 03	☒	Nicht akti
Out	DMX 6Fire Out 04	DMX 6Fire Out 04	☒	Nicht akti
Out	DMX 6Fire Out 05	DMX 6Fire Out 05	☒	Nicht akti
Out	DMX 6Fire Out 06	DMX 6Fire Out 06	☒	Nicht akti
Out	DMX 6Fire DigOut L	DMX 6Fire DigOut L	☒	Nicht akti
Out	DMX 6Fire DigOut R	DMX 6Fire DigOut R	☒	Nicht akti

ASIO audio connections in Cubase 4

The MIDI driver

For the recording and playback of MIDI data via the MIDI IN and OUT jacks, a separate driver is available. You can select these drivers, called *"DMX 6Fire MIDI In"* and *"DMX 6Fire MIDI Out"* in the system, wherever it makes sense to use them, such as in sequencer software or MIDI players.

Practical tip: If MIDI files, which can be played back using Windows' media players, are also to be transferred to externally connected devices, open the "Sounds and Multimedia Properties" dialogue window from the Windows Control Panel and set the "MIDI Music Playback" device to the driver mentioned above.

In detail—special properties of the drivers.

DirectSound & WDM

It goes without saying that the drivers of the DMX 6Fire USB also support Microsoft's DirectSound or DirectSound 3D interface. What's more, the software complies strictly with Microsoft's WDM specification. For example, the drivers are able to play back audio data streams from multiple applications in parallel (multi-client, a "luxury" that faithful TerraTec customers have enjoyed since 1997). You can also run WDM and ASIO drivers in parallel.

Unlike MME drivers, WDM (Windows Driver Model) drivers are based on 32-bit architecture. It is also the basis for advanced interfaces such as "ASIO" or "Direct-X".

WDM sample rate (SR) interpolation

The multi-client capability of the WDM architecture also permits the simultaneous playback of multiple audio data streams with differing sample rates. The sampler frequency used for all streams is based on the file called up first. All further data streams—those called up during the run time of the first file—are interpolated as required and their pitch is not affected.

Note: Unlike PCI cards, the DMX 6Fire USB cannot automatically synchronise the required sample rate. Select the sample rate manually using the drop-down menu in the Control Panel to avoid a sample rate conversion. The sample rate set in the control panel will always be applied.

A sample rate conversion/interpolation does always result in a certain loss of quality, however. You should therefore ensure that you do not use several programs simultaneously with differing sample rates for applications in which the highest possible audio quality is vital. For example, it's best to only have the playback software running when transferring a piece of music at 44.1 kHz to a DAT recorder.

WDM kernel streaming

WDM kernel streaming also represents a new technology for Microsoft. Like established models such as Steinberg's ASIO interface, kernel streaming is designed to provide extremely fast access to audio hardware, bypassing the mixer for direct hardware access. Thus the name "kernel streaming"—the kernel of the Microsoft Windows operating system permits the audio data to stream directly through. This extension of the WDM format was designed after a proposal by Cakewalk and is now officially recognised by Microsoft. The deployed software (such as audio/MIDI sequencers or software synthesisers) must support the WDM function directly, however. One of these programs, for example, is the "Sonar" recording software produced by the Cakewalk company.

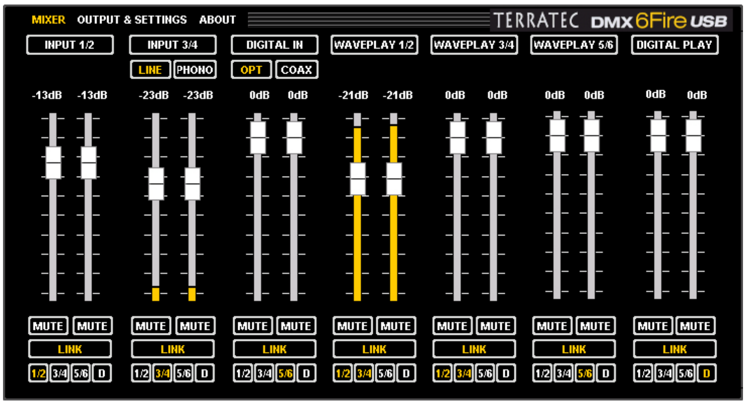
The Control Panel

The Control Panel is—beside the drivers—by far the most important piece of software in the package. Here, depending on the requirements of each situation, you can have total control of the audio interface, reduce volumes, route inputs to any output, set the Master Clock values or toggle the analogue inputs 3/4 between PHONO and LINE.

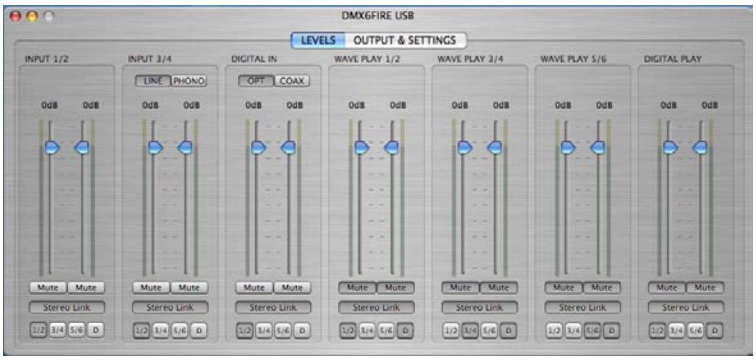
The Control Panel is quite intuitive and should not present beginners with major problems. Nevertheless, the following section contains a number of explanations of the individual function blocks.

Mixer

The control panel for Windows XP and Windows Vista.



The control panel for MAC OS 10.4 or higher.



Volumes

The digital mixer works like any other mixer, i.e. you can adjust the volume of each signal present relative to the others. To do so, "grab" the fader using the mouse and slide it up or down. A separate fader is available for each mono channel. The individual channels can be joined using the switchable stereo link function. If this is switched on, you can move both faders simultaneously using the mouse. This does not affect the actual level control of the signals when recording; this is done using the GAIN controls (MIC/INST/PHONO) or the level control of the signals present (LINE IN).

Each channel has a Mute button; if the channels are linked, you only have to click on one of the Mute buttons to mute both channels.

Note: If you are working with common audio/MIDI sequencers, you should also use this software for volume control. The advantage: the settings are usually saved together with your project (song, arrangement etc.).

Signals

INPUT 1/2 – The controls for the analogue input pair 1/2 (MIC/INST IN on the front or LINE IN 1/2 on the back) of the DMX 6Fire USB.

INPUT 3/4 – The controls for the analogue input pair 3/4 (LINE IN 3/4 or PHONO) of the DMX 6Fire USB. You can use the two buttons to select the desired input.

DIGITAL IN – The controls for the digital input on the front of the DMX 6Fire USB. Here, select whether you want to use the optical or coaxial output.

WAVEPLAY 1/2, 3/4, 5/6 – Here, control the volume of the signals output from the computer via the drivers.

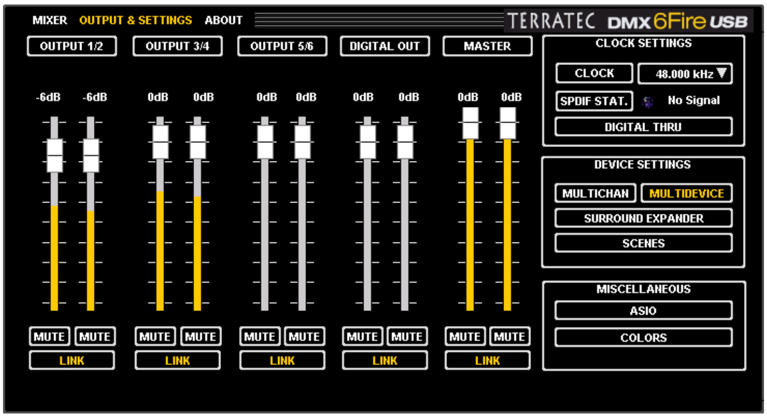
DIGITAL PLAY — Here, control the volume of the digital signals output from the computer via the drivers.

Routing

Using the small buttons "1/2, 3/4, 5/6, D" under the LINK button, you can route the signals present to any analogue input pair you want, as well as to the digital output pair. You can also place multiple signals to one and the same output or route one signal to multiple outputs. Go ahead and experiment a little—however, this makes sense only if the relevant outputs have speakers.

Outputs & Settings

The control panel for Windows XP and Windows Vista.



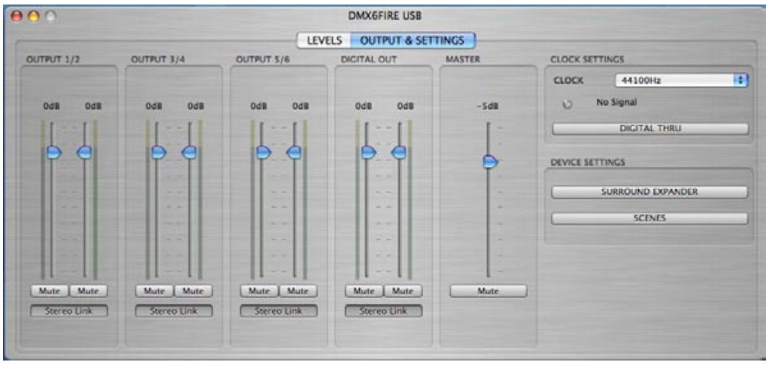
CLOCK 48.000 kHz

SPDIF STAT. No Signal

The control panel for MAC OS 10.4 or higher.

The following do not apply to MAC systems:

- Multichannel / Multidevice
- ASIO
- Colours



CLOCK 44100Hz

No Signal

Volumes

Here, you can control the volume of the analogue and digital outputs. As for the mixer, a separate fader is available for each mono channel. A "Mute" button can be used to mute the playback. If two mono channels are linked, the settings of one fader and one mute button affect both channels.

OUTPUT 1/2, 3/4, 5/6 – Here, you can control the volume of the three analogue output pairs on the back of the DMX 6Fire USB, regardless of which signal is present there.

DIGITAL OUT – Here, you can control the volume of the digital output, both the optical and coaxial. You do not need to toggle between them.

MASTER – The overall playback level can be set with the Master control of the digital mixer.

Clock Settings

Clock

Here we're dealing with the sample rate used by the DMX 6Fire USB. This is a very important point, as unlike PCI cards, the DMX 6Fire USB system cannot automatically synchronise to the required sample rate. Be sure to select the sample rate manually using the drop-down menu in the Control Panel to avoid a sample rate conversion and the associated loss of quality.

SPDIF status

This displays the current status at the digital input:

NO SIGNAL – No digital signal is present.

SYNCHRONISING – A digital signal is present.

LOCKED <Sample rate> – The signal is synchronised by the internal conversion.

Digital Thru

If this button is enabled, the digital input is routed directly to the output, allowing the formats to be converted from coaxial to optical or vice versa.

Device settings

Multi-channel

In multi-channel mode, all outputs are registered on the system with only one driver. Thus the outputs can be addressed individually only if this is supported by the respective software. Don't worry—all "major" programs, such as Cubase, Wavelab, Sonar etc., support this feature.

Multi-device

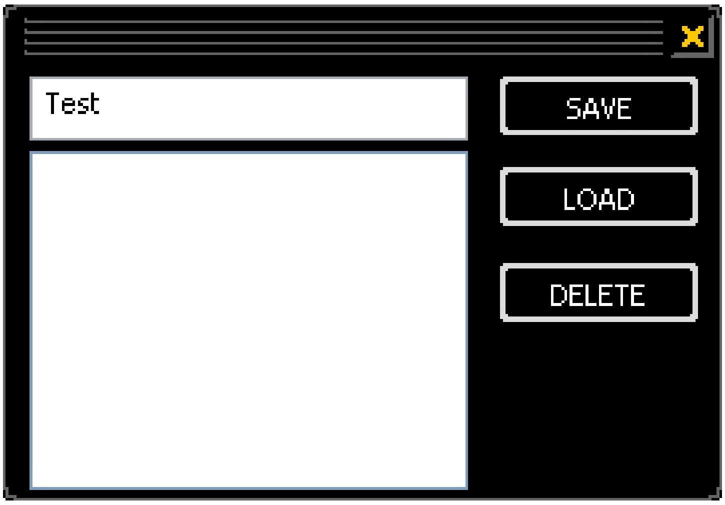
In multi-device mode, each output pair is assigned its own driver; these then appear as stand-alone devices in Windows. You can then use these, for example, if you are working with different programs and want to route their signals to different outputs. You can send music from Winamp to the living room and simultaneously from Windows Media Player to the kitchen (through another output). In multi-channel mode, Windows would prevent the same hardware from being used by two programs.

Surround Expander

Using the Surround Expander, all stereo sources can be split into 5.1 outputs, thus including all signals from WAVE PLAY, ANALOGUE IN and DIGITAL IN. This means that a normal stereo signal, such as an MP3 music file, is distributed to all six speakers of your 5.1 system by the software. Of course, this does not provide a "genuine" 5.1 Surround signal, but all speakers—including the bass speakers—are supplied with the correct signals, resulting in a full, well-rounded soundscape. Output 1/2 is activated exactly as usual, and the signal is also mirrored to output 5/6; output 3 has a combined mono signal for the centre speaker, and a frequency-corrected subwoofer signal is sent to output 4. **Attention:** In surround mode, the settings configured in the mixer are disabled.

Scenes

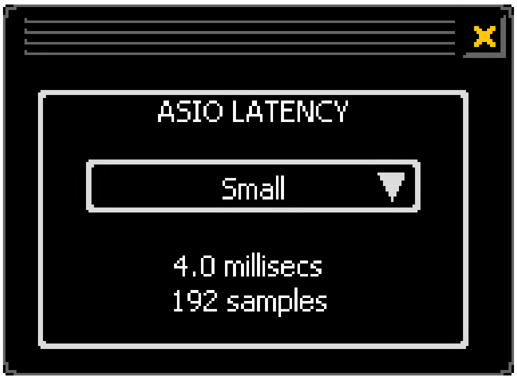
Simply save all of your control and fader settings at the click of a button and reload them whenever you need them.



Scenes

Miscellaneous

ASIO



Small

4.0 millisecs
192 samples

To open the ASIO panel, click the "ASIO" button (on the right-hand side of the Control Panel). Use the check box to adjust the latency (i.e. the delay between striking a key or a MIDI event and the output of the sound). If the value is too low (and the sample rate too high), this will negatively affect the performance of your overall system—a more powerful computer will support a lower latency setting. With a fast system, you should achieve values of less than 5ms at 96kHz without problems. "Without problems" means that you will not detect any dropouts during audio recording or playback. If such dropouts occur, increase the latency. Further options are generally available on the relevant panels of ASIO applications such as Cubase, Wavelab etc.

About

The About page of the DMX 6Fire USB Control Panel gives you all of the relevant facts on your Control Panel, audio drivers, firmware version and operating system.

Note: you can select the contents with your mouse and copy it to the clipboard. This is a convenient feature for a quick description of your system for support requests.

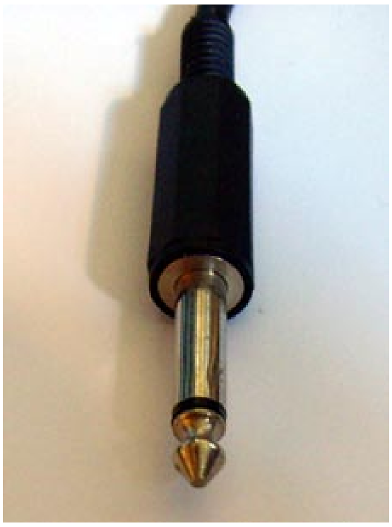
As usual, MAC users will find this information in the top menu bar under DMX 6Fire USB.

Appendix A – Short cable tutorial

XLR, cinch (RCA), stereo plug, miniplug, optical, coaxial—these terms are not immediately understood by everyone, so the following is a short, illustrated cable tutorial. Before we begin, one thing is fundamental—never skimp on your investment in good cables and plugs.

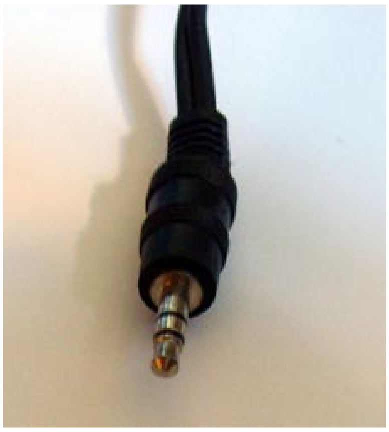
1/4" (6.3 mm) phone plug

This is the standard for guitars, basses, synthesisers, effects units and professional speaker inputs and outputs. The 1/4" or 6.3 mm (6.35 mm, to be exact) refers not to the length of the plug, but to its shaft diameter. It exists in both a mono and a stereo version—the stereo phone plug is identified by its second small separating ring. The mono phone plug transmits asymmetrical signals exclusively.



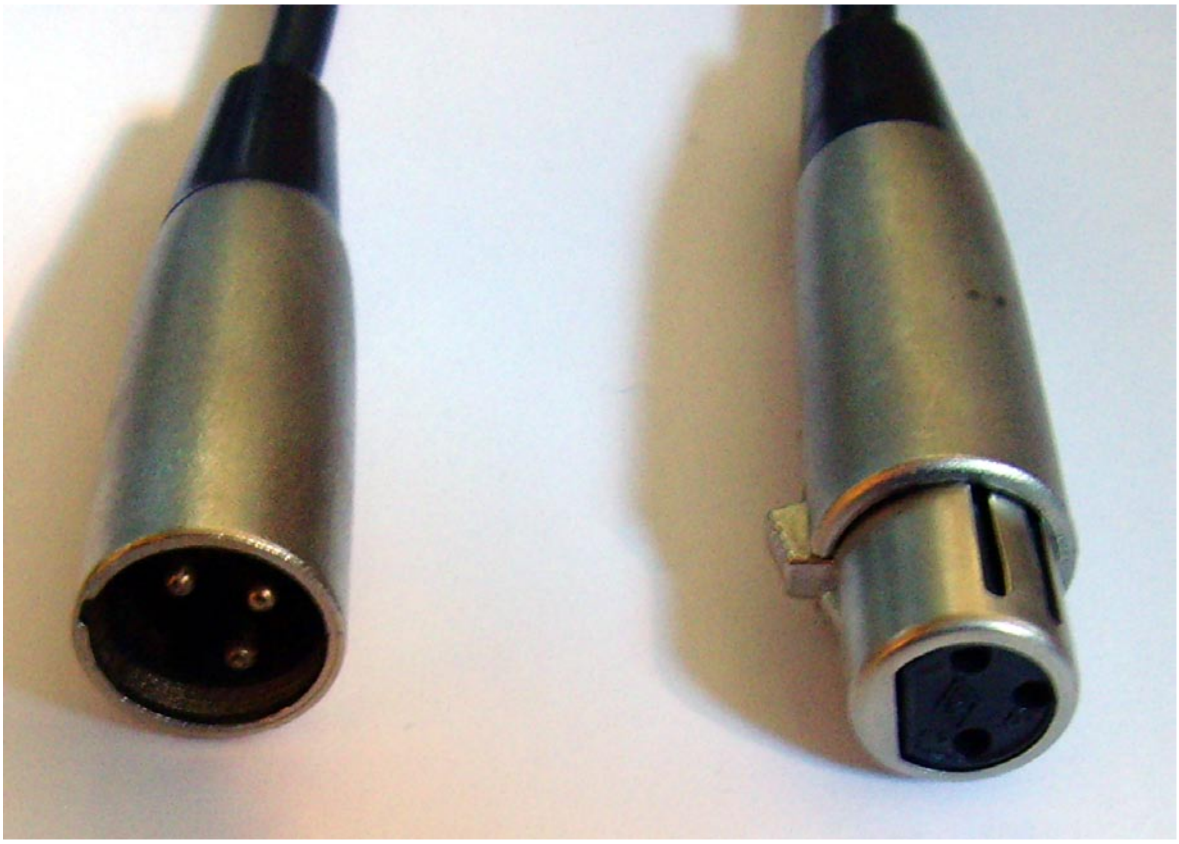
1/8" (3.5 mm) miniplug

The small version of the phone plug is used primarily in computers and sound cards, especially for headphones and microphones.



XLR

XLR stands for "Xternal Live Return". XLR connectors are used for microphones, AES/EBU and speaker cables (in professional applications). The three-pin plugs and jacks are most commonly used, but four-pin and five-pin versions also exist (e.g. for lighting control data or for transmitting timecodes). XLR plugs have many advantages. Most feature a locking mechanism that prevents them from being unplugged accidentally, and eliminates unpleasant pops when plugging them in (because the earth always makes contact first). Finally, unlike phone plugs, they can be used to carry symmetrical signals. To do so, two signal lines with equal, but reversed voltage is used, so that outside interference that consists of homopolar voltages is eliminated. In layman's terms, XLR connectors are less susceptible to interference and thus are primarily used in the professional field.



XLR – left: plug, right: jack

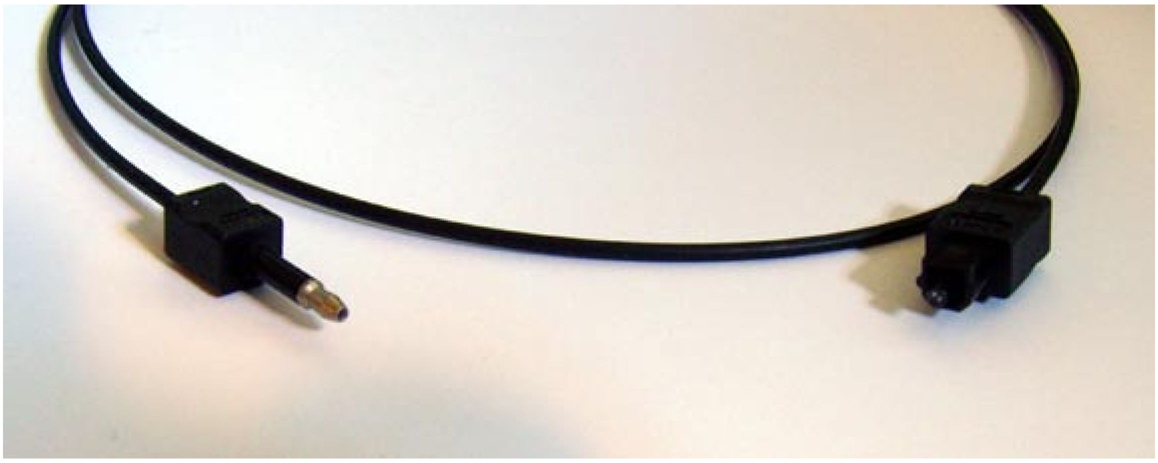
Cinch or RCA

The name probably comes from the US-based company "Cinch Connectors", who initially were the main producers of this type of plug. Another explanation would be the word "cinch" itself, which means "a firm grip". These plugs have been in use in the USA since the 1940s and are usually found on coaxial cables (asymmetrical two-core lines for transmission of high-frequency signals), as commonly used on stereo systems or in video applications. In the computer field, they are primarily used for cabling active speakers and digital devices.

Cinch plug

Optical cables

These cables use light waves to transmit the signal, with the advantage that interference from electromagnetic fields cannot affect the signal quality, and ground loops are prevented. However, only rather short distances of up to 1.5 meters can be covered—longer cables are almost impossible to find on the market. Optical connections are to be preferred to digital coaxial connections.



Optical cable

MIDI cables

Cables with five-pin DIN plugs are used for MIDI connections. Germans of a certain age may remember that these plugs were once used in that country to transmit audio signals (while in the USA, cinch/RCA plugs have long been used for this purpose).

5-pin DIN plug

Appendix B – Technical data

Specifications

- External USB 2.0 audio system
- 1 microphone input with gain control (combo XLR / 6.3 mm jack)
- 48V phantom power
- - 20 dB pad switch
- 1 instrument input with gain control (6.3 mm jack)
- 4 analogue inputs (cinch)
- 1 phono input (RCA cinch) with RIAA equaliser and gain control
- 6 analogue outputs (cinch)
- 1 headphone jack (6.3 mm jack) with separate volume controller
- 1 coaxial digital input (cinch)
- 1 coaxial digital output (cinch)
- 1 optical digital input (TOS Link)
- 1 optical digital output (TOS Link)
- 1 MIDI interface In/Out (5-pin DIN)
- analogue recording and playback with up to 24 bit/192 kHz resolution
- digital recording and playback with up to 24 bit/96 kHz resolution
- digital interface for S/PDIF, AC3 and DTS formats
- 24 bit / 192 kHz A/D converter with 114 dB (A) SNR* (inputs 1/2)
- 24 bit / 192 kHz A/D converter with 105 dB (A) SNR* (inputs 3/4)
- 24 bit / 192 kHz D/A converter with 114 dB (A) SNR* (outputs 1-6)

* specifications of the converter used

Software

- WDM driver for Windows XP SP2, Vista
- ASIO 2.0 support – Windows only
- Multiclient support ASIO and WDM – Windows only
- WDM Kernel Streaming (e.g. Sonar)—Windows only
- MME and DirectSound support – Windows only
- Control panel for Windows XP SP2, Windows Vista and MAC OS 10.4 or higher

System requirements / recommendations

Requirements

- Windows XP SP2, XP X64, Vista or Vista X64
- MAC OS 10.4 or higher
- Intel-based Apple computer
- 256 MB RAM
- 1.4 GHz CPU or higher
- 1 available USB 2.0 interface
- CD/DVD drive (to install drivers/software)

Recommendation

- Windows XP with ServicePack 2
- 512 MB RAM
- 2 GHz CPU