MIDEX-3

MIDI Interface

Operation Manual

Declaration of Conformity

We, Steinberg Media Technologies AG
Neuer Hoeltigbaum 22 - 32,
D-22143 Hamburg

herewith confirm that the product:

Type: USB/MIDI interface

Model: MIDEX-3

meets the requirements of the council of the European communities as specified by the following norms (or normative documents)

CENLEC EN 55 024
CENLEC EN 55 022
DIN EN 60 950

relating to electromagnetic compatibility (Council Directives 73/23/EEC and 89/336/EEC)

The CE symbol is awarded to high-quality appliances which comply with the European Directive 89/336/EEC or the EMVG (law relating to electromagnetic compatibility of appliances) and which offer the following significant benefits:

- Simultaneous and interference-free operation of adjoining appliances
- No unpermitted interference signals
- High resistance to electro-smog

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Introduction

Congratulations on your purchase of MIDEX-3!

MIDEX-3 is a multi port MIDI interface. It can be used to transfer MIDI data between your computer and external MIDI equipment. Each MIDEX-3 has one MIDI input and three independent MIDI outputs (MIDI ports).

Each of the three MIDI outputs lets you use 16 MIDI channels. Therefore, one MIDEX-3 interface can simultaneously receive MIDI data on 16 separate MIDI channels and send MIDI data on up to 48 independent MIDI channels.

To connect your computer and the MIDEX-3, you must use the USB ports on both devices. USB is a powerful technology, that simultaneously lets you connect up to 127 peripheral devices to your computer, if it is USB-compatible. With USB, there is no need to configurate jumpers, i/o addresses, DMA channels etc.

Two important factors make sure that MIDEX-3 offers an extremely reliable and accurately timed MIDI data transfer:

- The communication takes place via the Universal Serial Bus (USB).
- The MIDEX-3 uses Steinberg´s LTB- technology. LTB is the abbreviation for Linear Time Base, a MIDI Time Stamping method, which transfers MIDI data to your sound modules with utmost timing accuracy.

MIDEX-3 and LTB have been developed in close co-operation with Access Music, the company that has acquired an excellent name with its Virus synthesizer products.

This operation manual contains important information on how to install and use the MIDEX-3. Please read it so that you can quickly and successfully use your new interface.

Have fun using the MIDEX-3!
The Steinberg Team

Contents of the Package

The MIDEX-3 package should contain these items:

- MIDEX-3 interface.
- This operation manual.
- A Registration card. Please take the time to fill it in and send it back to us.
- A USB A/B standard cable for connection to a Macintosh or PC.
- CD-ROM with driver software for all supported computer operating systems. As newer driver software might be available when you read this, we recommend that you visit the Steinberg web site (http://www.steinberg.net) and download the latest versions.

➢ **Please take the time to read any ReadMe files that you might get with this product or when downloading driver software! These files contain important late-breaking information.**

System Requirements – PC

To be able to use MIDEX-3, you need:

- A PC with a main board (motherboard) that is equipped with USB connectors or a PC that is equipped with a PCI USB host adapter.

➢ **Some older main boards support USB, but don't offer the physical USB ports on the rear of the computer. You can easily change this by buying a port extension and installing it in your PC. Please find all corresponding information in the manual of your computer. If necessary, consult an experienced technician.**

- To use MIDEX-3 in connection with a PC, please make sure that your computer runs a Windows 98SE, Windows Me, Windows 2000 or Windows XP operating system.

➢ **Windows 98 Gold or earlier Windows versions are not supported.**

System Requirements – Apple Computer

To be able to use MIDEX-3, you need:

- An Apple Computer that is equipped with USB connectors, e.g. the iMacs, G3/G4 Power Books or G3/G4 desktop computers. Furthermore you need Mac OS 8.6 (or higher).
- When this was written, Mac OS X compatible drivers were not yet available. If you use Mac OS X, please check out www.steinberg.net, from where you can download the driver software as soon as it becomes available.
- OMS version 2.3.8 or a newer version.
- If you use a PCI card that provides the USB ports, you will also need a Mac OS, that supports your USB PCI card.

➢ **Not all USB cards available for retrofitting do function well in all Macintosh computers. We have experienced no problems with cards manufactured by Sonnet.**

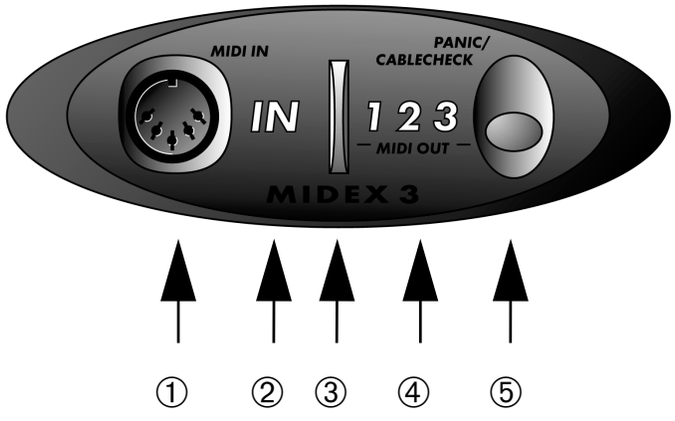
The MIDEX-3 Features

The MIDEX-3 USB MIDI interface has the following features:

- Full speed connector for USB-compatible PCs or Apple Computers. (12Mbit/sec)
- MIDI interface with one input and three separate outputs (each connected MIDEX-3 interface can address up to 48 MIDI output channels).
- MIDI activity indicators for the input and the outputs.
- The MIDEX-3 doesn't need any external power supply. As an external device, it is connected to the USB bus of your computer and therefore receives the necessary power from here. Opening the computer is not necessary.
- MIDEX-3 provides an automatic "MIDI Thru" function for MIDI In/Out 1. This is automatically enabled, when no application (like e.g. your sequencer) accesses the MIDEX-3 or when USB is disconnected. You can then directly address the instrument connected to output 1 from an instrument connected to the MIDEX-3 input, without the need to change the MIDI cable connection.
- Compatible with Mac OS 8.6 (or higher) (OMS 2.3.8 or higher required) and all known software products for Macintosh that support OMS.
- Compatible with Windows 98 SE (Second Edition), Windows Me (Millenium Edition), Windows 2000 and Windows XP and MME compatible software. Plug & Play installation without the need to set IRQs, I/O addresses or DMA Channels.

MIDEX-3 – Controls and Sockets

Front



① MIDI In socket – Using a MIDI cable, connect this e.g. to your MIDI Master keyboard.

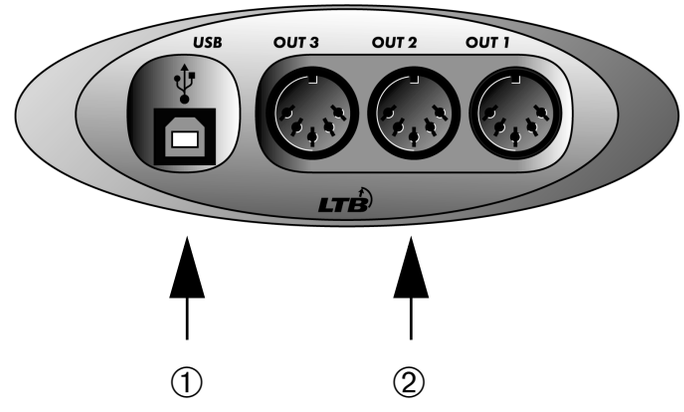
② MIDI In Activity LED – This LED indicates MIDI activity on the MIDI input.

③ Power LED – This LED indicates that the MIDEX-3 is ready for use. It lights up shortly after the MIDEX-3 has been connected to the USB bus of your computer.

④ MIDI Out Activity LEDs – These LEDs indicate MIDI activity on the MIDI outputs.

⑤ Panic/Cablecheck button – pressing this button briefly starts a MIDI cable check, pressing it longer (for ca. 3 seconds) sends a MIDI Reset (All Notes Off and Controller Reset on all channels) and thus removes “hanging notes”.

Rear



① USB socket – This MIDEX-3 socket and the host computer’s USB port must be connected to each other using a USB cable.

② MIDI Out sockets 1 to 3 – Using MIDI cables, you can e.g. connect these three independent outputs to different sound modules, samplers, drum machines etc.

Connecting and Setting Up

➢ **Please install all necessary drivers and other software, *before* you connect the MIDEX-3 to your computer! Especially if you install it on a Macintosh computer, it is important to maintain a certain installation order to prevent installation errors. Please do carefully read the corresponding sections in this manual.**

Positioning the MIDEX-3

- **Position the MIDEX-3 interface in a convenient spot near your computer.**

  If the distance between the MIDEX-3 and the computer is too big, you might need to buy a USB extension cable. This is available in computer shops. The cable should support the "USB Full Speed Mode".

Connecting MIDEX-3 and Computer

When you have installed all necessary software, proceed as follows to connect the MIDEX-3 to the computer:

1. **Switch off the computer.**
2. **Use the USB standard cable that came with your MIDEX-3 to connect the USB port on the rear of your computer to MIDEX-3's USB.**
   Your computer's USB port is a small (1/8 inch x 3/8 inch) rectangular socket. Desktop computers often have two, Laptop computers mostly have one such socket. The USB socket on your MIDEX-3 can easily be identified by its lable.
3. **If you are sure that all necessary software has been installed, you can now switch on your computer.**

➢ **We assume that you have properly connected the MIDEX-3 to your computer's USB bus, so that it gets the necessary power, and that the computer is switched On.**

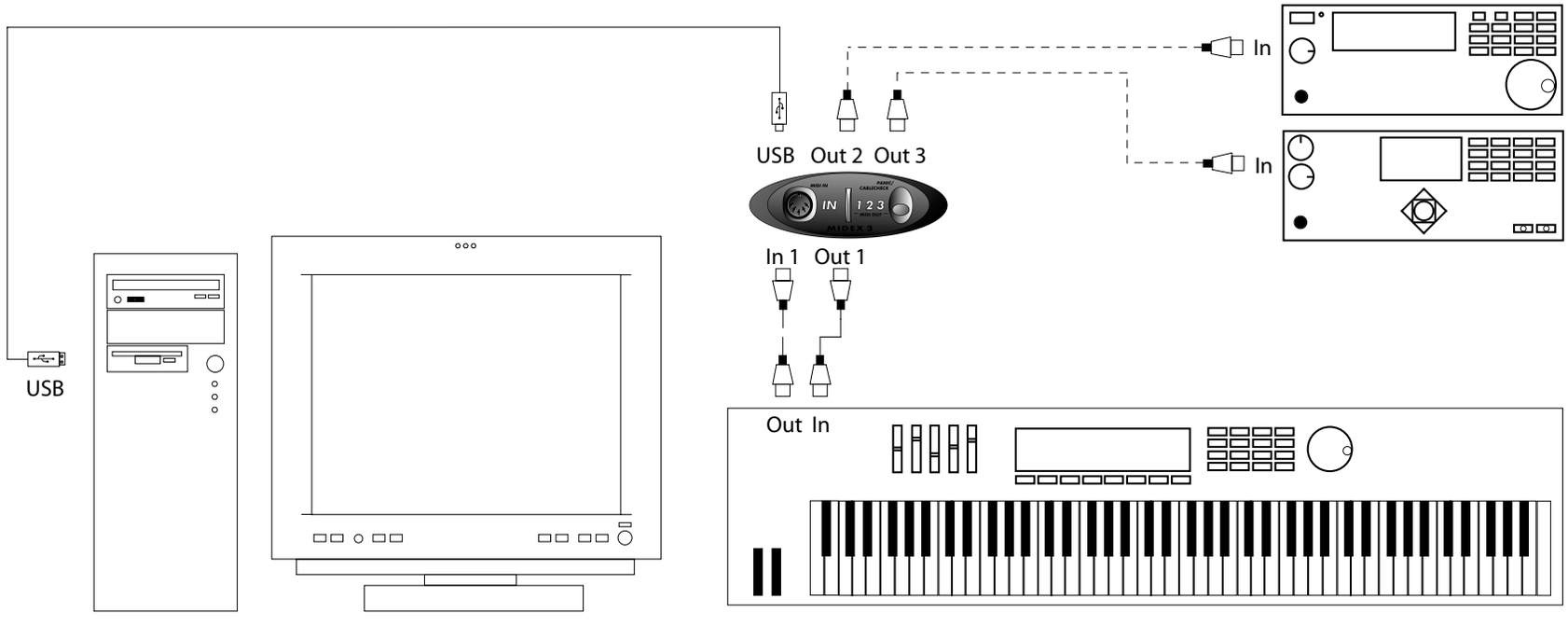
Making the MIDI Connections

Use standard MIDI cables to connect the MIDEX-3 to other external devices instruments and sound modules.

A typical MIDI system would e.g. include your MIDEX-3 interface, a computer, MIDI Sequencer software, a MIDI Master keyboard and a few MIDI compatible sound modules. Such a system could be connected as follows:

- MIDEX-3 interface and computer are connected using the USB standard cable that came with the MIDEX-3.
- The MIDI output on your Master keyboard is connected to the MIDI input on the MIDEX-3.
- The first MIDI output (Out 1) on your MIDEX-3 interface is connected to the MIDI input of a sound module (this can also be your Master keyboard, if it can generate sound).
- The second MIDI output (Out-2) on the MIDEX-3 is connected to another sound module.
- You can connect an additional sound module/ MIDI instrument to the remaining MIDI output.

In the MIDI system setup illustration shown below, the MIDEX-3 interface is used to transfer MIDI data between Master keyboard, computer with application software and sound modules.



Software Installation – PC

When you have connected the MIDEX-3 to your computer, Windows recognizes, that a new USB device has been connected and automatically starts the “Add New Hardware Wizard”.

1. **Click on the “Next” button.**
   You can now determine the method that the Wizard should use to find the drivers.

2. **Activate “Find the best driver for the device” and click on the “Next” button**
   You can now determine, where the Wizard should search for the drivers.

3. **Click on “CD-ROM drive” so that it is ticked. If your computer has more than one CD-ROM drive, please specify the path of the drive that you use. Now insert the MIDEX-3 CD-ROM into the corresponding drive and click the “Next” button.**
   Windows indicates when it has found the drivers.

4. **Click the “Next” button to install the drivers. When that has successfully happened, Windows displays a corresponding message.**
   The firmware driver is now automatically transferred into the MIDEX-3 and Windows might ask you to insert the Windows CD, if it needs any additional Windows drivers, that were previously not installed.

5. **If necessary, insert the Windows CD and click “Browse”.**
   Windows will then find and install the needed drivers.

6. **Restart your computer when the installation has successfully been completed.**

➢ **Under certain conditions, several versions of the Windows operating system do not properly recognize USB devices. You should therefore avoid to plug in your MIDEX-3 or remove it during operation. Please find more information about this issue in the section “Windows Problems with the USB Reset” on page 24.**

Software Installation – Macintosh

Installing on the Mac – Important Information

Please definitely do read the following information *before* you start to install the MIDEX-3 drvers on your Macintosh:

- **Your Macintosh computer must be equipped with the necessary USB port(s). It must run Mac OS version 8.6 or higher and provide sufficient empty space on its hard disk (min.10 MegaBytes).**
- **Your Cubase or Nuendo version must be compatible with the LTB technology. When this was written, this was true for the Cubase VST Mac version 5.0.2. and Nuendo Mac version 1.5.2. If necessary, please turn to the support department of the Steinberg distribution in your country.**
- **Do *not* connect the MIDEX-3 itself before OMS and the MIDEX-3 drivers have completely been installed! The system would otherwise not recognize it correctly.**
- **OMS 2.3.8 or a newer version must correctly be installed on your computer, *before* you activate the MIDEX-3 Installer program, otherwise certain drivers will not automatically be copied to the correct destinations in the System or OMS folders. An OMS Installation programcan be found on the MIDEX-3 Driver CD.**
- **If you are not familiar with OMS, please do definitely read the following sections.**
- **If OMS 2.3.8 or higher is installed on your computer and if you are familiar with OMS, then you can immediately start to install the MIDEX-3 drivers, as described in the section "Installing the MIDEX-3 Driver Software" on page 14.**

What is OMS ?

The Open MIDI System (OMS) has been co-developed by Opcode Systems Inc. and Steinberg. This System Extension closes the gap between MIDI applications and MIDI hardware on the Mac. In addition, OMS lets several MIDI applications communicate with each other and share resources (like Patch names and Timing information).

OMS Version

➢ **To be able to use MIDEX-3, you must have installed and activated OMS version 2.3.8 or higher on your computer. Older OMS versions do not sufficiently support USB interfaces.**

Please proceed as follows to find out whether OMS has been installed on your computer:

1. **Open the System Extensions folder in your System folder. If OMS has been installed on your computer, then the »OMS« System Extension must be present in this folder.**

The OMS System Extension icon

2. **To find out which version it is, click once on the »OMS« System Extension so that the icon is inverted. Then select »Information« on the Apple Desktop File menu. A dialog appears. It contains the desired information.**

➢ **If the current OMS version *is* installed on your computer, then you can skip the section »Installing or Updating OMS« and proceed with installing the driver software as described in the section »Installing the MIDEX-3 drivers«.**

Installing or Updating OMS

1. **Open the folder "OMS 2.3.8" on the MIDEX-3 CD-ROM and start the program "Install OMS 2.3.8".**
   This loads the OMS Installer program. In the first dialog that appears, click "Continue". This will open the Installer dialog.
2. **Use the »Install Location« pop-up menu to define where on your hard disk the Installer should install the "Opcode" folder.**
   Among other things, this will later contain the OMS Setup program.
3. **Click on the "Install" switch.**
   OMS 2.3.8 will now be installed on your computer.

➢ **If an older OMS version was installed on your computer, it will automatically be updated.**

4. **Please do now restart your computer!**
Same as all other System Extensions, OMS will only be started upon system start, i.e. when you restart your computer. If you do not restart, OMS will not be available and therefore errors might occur during driver installation.

- The OMS Installer program has created an "Opcode" folder on your hard disk. This contains the "OMS Setup" program, that you can later use to make the necessary settings.
- The OMS Installer program has also created an "OMS Folder" folder in your System folder. Please do not move or delete this folder.

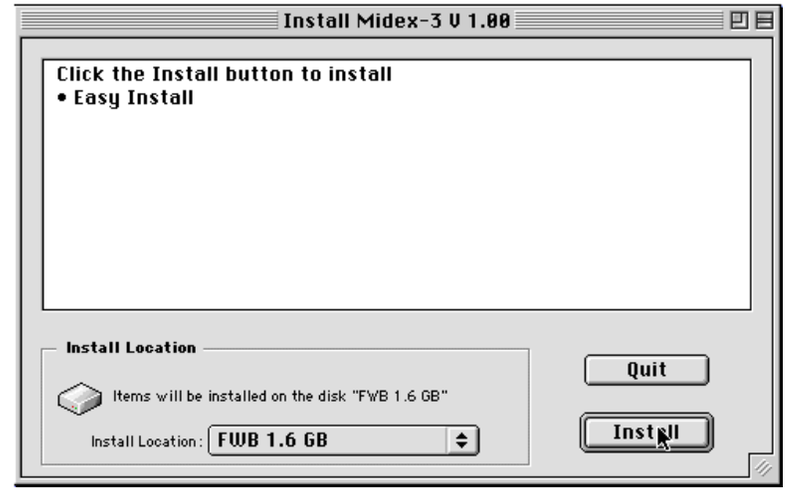
Installing the MIDEX-3 Driver Software

1. **Insert the MIDEX-3 Driver CD into the corresponding drive on your computer.**
If you have access to the Internet, then you can find out prior to installation whether a newer version of the driver software is available. To do this, proceed as described in the section "Downloading a new driver" below.

2. **Start the driver software installation by double clicking the Installer icon "MIDEX-3 Install V 1.xx".**

If you double click this icon…

…this dialog will appear:



3. **Use the "Install Location" pop-up menu to tell the Installer on which hard disk your System folder resides. The click the "Install" switch to start the installation process.**
   The Installer program will now install a number of files in your System folder and in the "OMS Folder".

4. **When the installation has been completed, close the dialog by clicking "Quit".**
   You do not have to restart the computer at this point.

5. **You can now finally connect your MIDEX-3 to the USB socket on your computer, as described on page 9 and using the USB cable that came with the unit.**

6. **If your MIDEX-3 has already been connected, then momentarily remove the USB cable and connect it again to force a device reset.**
   The MIDEX-3 should now automatically be recognized and receive its drivers in the background. The blue operation LED should now light up.

Downloading a new MIDEX-3 Driver from the Internet

If you have access to the Internet, you can surf to the Steinberg web site to find out whether a newer version of the MIDEX-3 driver software is available. This must have a higher version number than the driver on the MIDEX-3 CD-ROM. If a newer driver software is available, then you should download it and install it as described above.
Please point your Internet Browser to:

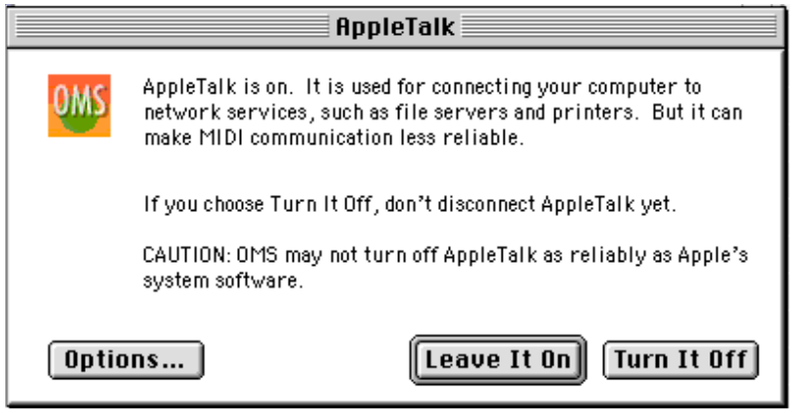
- **http://www.steinberg.net/support/hardwaredriver**

Setting up OMS

You must now make the necessary settings in the "OMS Setup" program to make sure that OMS properly recognizes MIDEX-3 and that its MIDI ports can be made available to the system.

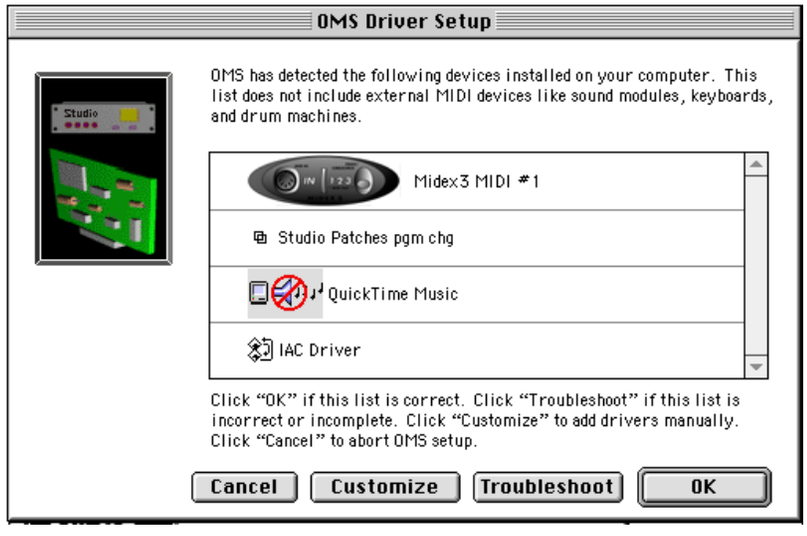
The "OMS Setup" program is located in the "OMS Applications" folder which can be found in the "Opcode" folder on your hard disk.

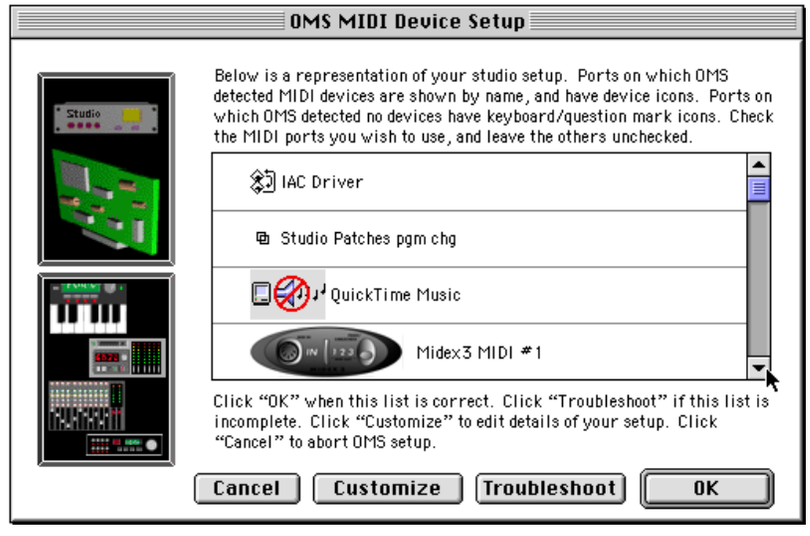
1. **Start the "OMS Setup" program by double clicking its icon.**
   If AppleTalk is active, you will now be asked whether you wish to turn it off. If your computer is not connected to a local area network anyway, then you should definitely click the »Turn it off« switch. But even if you are connected to a network, you should still disconnect it, as a running network connection will always consume computer power which you could better use for your sequencer, especially if you work with many audio tracks.



2. **In the File menu, select "New Studio Setup" to let OMS search for all connected MIDI interfaces.**
   This dialog appears.

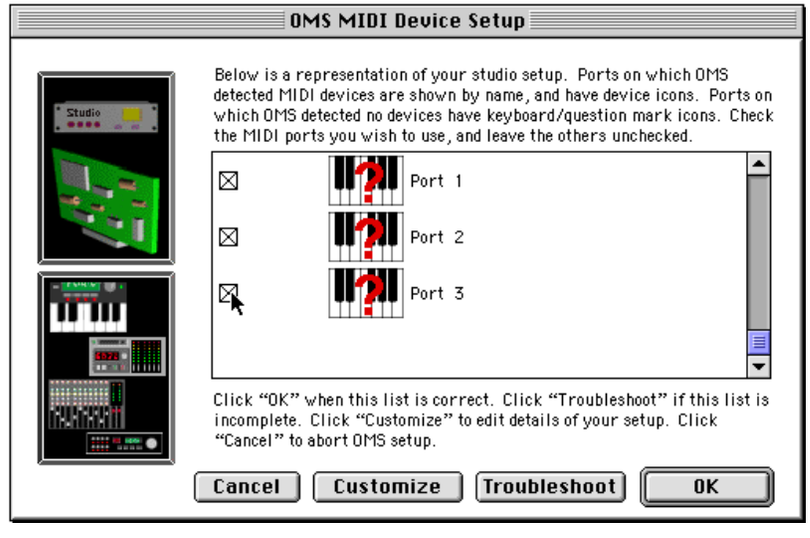
3. **Confirm by clicking "OK" in this and "Search" in the following dialog.**
   The program will now automatically search for usable MIDI drivers and the corresponding devices that are connected to your computer. One of these – maybe the only one currently – is the MIDEX-3 interface. If the search result resembles the one depicted below and if the MIDEX-3 has been recognized, then you can confirm the successful search by clicking "OK".





4. **If your MIDEX-3 has not been recognized, do again check whether the MIDEX-3 has really been properly connected to the computer and that it is operational.**

- **When you click "OK", OMS will initialize all available inputs and outputs of your MIDEX-3. The corresponding MIDEX-3 output ports should now light up in succession and OMS should now display a message that resembles the one displayed below.** The installed MIDEX-3 ports are listed below the MIDEX-3 symbol and therefore possibly not immediately visible. Use the scrollbar to see the hidden part of the dialog.



5. **Now you can activate the individual MIDI ports.**
There is a check box to the left of each listed port. If you click on it, a cross will appear in it to indicate that the corresponding MIDEX-3 port is activated.

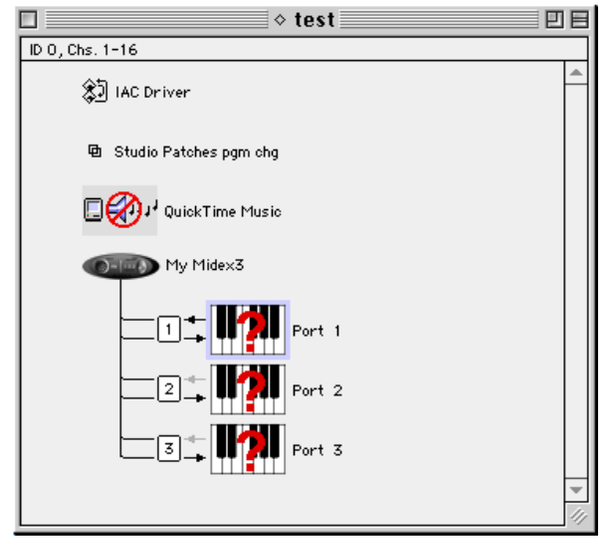
We recommend that you you activate all MIDEX-3 ports, even if you do not wish to use all at first.

6. **Confirm your settings by clicking “OK”.** OMS will now ask you to save the results of your search as well as your settings as a file named “My Studio Setup”. You can of course also use another name.

   If you intend to work with different settings, then you should of course save the different setups under different names.

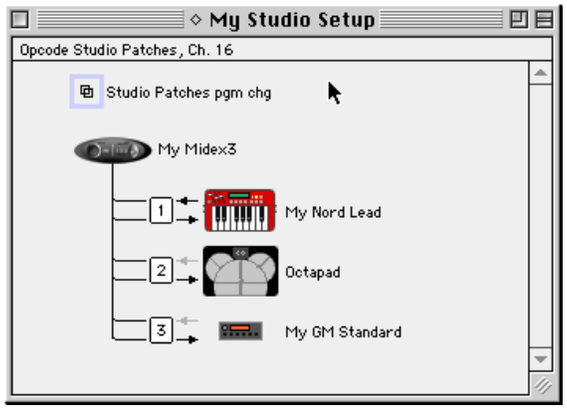
Hints on using OMS

If you´re not yet familiar with OMS, we recommend that you read its manuals. These can be found in the “OMS Tech Pubs” folder. This is located in the “OMS Applications” folder on your hard disk. The manuals are available in Adobe Acrobat format and can be read and printed out by using the Adobe Acrobat Reader utility. You can download the Adobe Acrobat Reader free of charge from the Adobe web site (http://www.adobe.com).



- Upon each (new) selection of “New Studio Setup” in the OMS File menu, OMS creates internal MIDI ports for the IAC bus as well as for the Quicktime Musical instruments. If you do not intend to use these, then you should delete them from your OMS_setup. They would otherwise unnecessarily consume processor power.

- OMS also offers possibilities to exactly define your MIDI instruments or other MIDi devices and include them into the OMS setup. Using Cubase or Nuendo becomes especially comfortable this way.



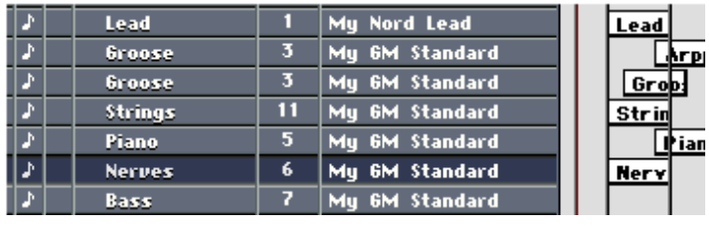
- You can name all MIDI devices that you assign like this or – if available – select them from a library. This will later facilitate your work as you can stop memorizing the MIDI port or even channel numbers of the devices that are connected. Instead, you can select the devices by name (e.g. "JV 1080-3").
- Please note the small arrows that are visible in the OMS setup next to the listed ports. These indicate the available transfer directions for MIDI data to and from the MIDEX-3. By simply clicking on an arrow, you can activate or deactivate the corresponding MIDI transfer direction, if that is available on the interface.
- If you intend to use the physical Thru function on some devices to connect several devices to the same MIDEX-3 MIDI port, then the corresponding MIDI channels must be assigned to each device in the "MIDI Device Info" dialog's "Receive Channels" section. This is done by clicking on the corresponding channel. The "MIDI Device Info" dialog can be opened by double clicking the keyboard symbol with the question mark in the OMS Setup window.
- By cleverly limiting the MIDI input channels of your MIDI instruments, you can connect many more than just 3 sound devices to the MIDEX-3.
- it would e.g. be possible to connect an old DX7 exclusively to – say – MIDI channel 9 while the MIDI channels 1 to 8 of the same MIDi output port are used for a multi-timbral instrument like the ROLAND JV2080. To do this, you would have to deactivate the option "Is multitimbral" in the "MIDI Device Info" dialog and select the corresponding channels (do not forget to activate the receiving channel in each synthesizer!).
- You can improve the graphics and transparency by double clicking the Keyboard icon next to the corresponding entry in the "OMS Setup" window and by clicking the same symbol once in the "MIDI Device Info" dialog that appears. A dialog opens where you can select an icon which represents the actually connected device. Your Studio Setup will become very clear this way.
- You can also directly change your Studio setup from Cubase VST. Open the Studio setup window by selecting Option->MIDI Setup->OMS->OMS Studio Setup and make the necessary changes. You can immediately activate the changes by selecting "Save and make current".

Using OMS and Cubase VST or Nuendo

➢ **If you have previously used OMS and Cubase or if you already are Nuendo user, then you can skip this section.**

1. **If OMS was not installed before, start Cubase VST and set "OMS compatibility" in Cubase VST's "MIDI Setup/System" dialog from "No OMS" to "IN & OUT". Wait until the program has finished loading and quit it when you have changed the setting, as the MIDEX-3 can only recognize the change when you start the program next time.** This is not necessarry if you work with Nuendo, as here OMS is always active if it has been installed.

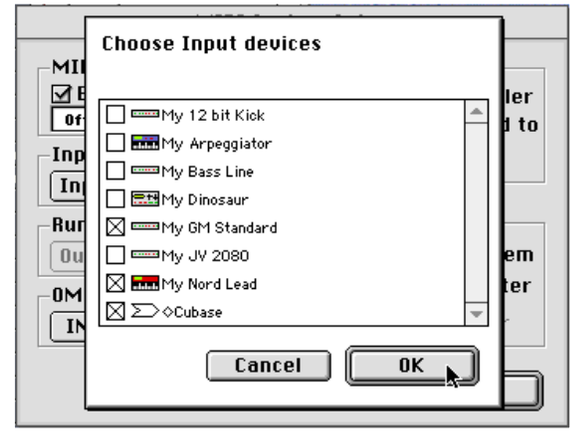
2. **If you then (re)start Cubase VST or Nuendo, the MIDEX-3 interface is available as a MIDI input and output device. From now on, you can select your MIDEX-3 outputs directly in the output column of your program.**



➢ **If you use another sequencer program, you will probably have to configurate its OMS support. Please read the documentation provided by its manufacturer.**

3. **You should now check whether the program receives MIDI data from the connected Recording Keyboard or MIDI Controller. To do this, simply press a few keys on the MIDI keyboard or move a few controls. While you do this, the corresponding Input LED on your MIDEX-3 should light up. The same goes for the MIDI Input indicator in your program on the screen.**

- **If it doesn't, please re-check all MIDI cable connections. Furthermore, look up the "MIDI System Setup" dialog) in Cubase VST or the "Device Setup" dialog in Nuendo to make sure, that the corresponding devices are selected and activated for the MIDI inputs of your system.**



More information about setting up the MIDI inputs and outputs of your program can be found in the corresponding sections of its documentation.

Setting up your MIDI Program

When you have installed the MIDEX-3 interface driver, you must configurate your MIDI application program, so that it actually uses the MIDEX-3 interface.

What you actually must do to select the MIDEX-3 within the program, depends on the program you use. We will therefore only describe the basics here. Please find more details in the manual of your MIDI application program.

- Most MIDI application programs on the PC and on the Macintosh offer possibilities to set up the MIDI ports, often via a dialog called "MIDI Devices" or "MIDI Setup".
- This where you select your MIDI input and output devices or activate them.
- The output port that you select for a MIDI track in your sequencer, sends the MIDI data to the keyboard or sound module that is connected to this port.

If the MIDEX-3 interface driver has correctly been installed, then you can e.g. select the MIDEX-3 input in the Cubase "Inputs" column and select the outputs Out 1 to 3 in the "Outputs" column.

In Nuendo's Track List, you can select the input in the "Input" pop-up and an output in the pop-up above it.

- The input and the outputs correspond to the physical input and outputs 1 to 3 of the MIDEX-3 interface.
- **Make sure, that these items are actually activated (ticked or highlighted) in the corresponding dialog of your MIDI application program. Some programs do limit the number of simultaneously usable input and output ports.**

The Linear Time Base Method

To achieve the best possible Timing, the MIDEX-3 uses the Linear Time Base method. This new approach to optimize time-critical MIDI data transfer is the result of a close co-operation between Steinberg and Access Music.

The Problem

The generally used new multitasking operating systems are often not capable to really accurately transfer MIDI data, even on very fast computers. The problem is caused by the sequential method that these systems use to share the system resources between all running applications. The intention of the method is to allow for a virtually simultaneous processing of different tasks. But when time-critical processes are involved, this method often results in slight timing problems. This might not be of great importance for many other applications, but a timing difference of 5 milliseconds during a MIDI data transfer is clearly recognizable.

The Solution

The solution is called LTB – Linear Time Base. This method adds an additional time information to each MIDI Event and sends the event to the MIDEX-3 early.

- For this reason, the MIDEX-3 “knows” very early, which MIDI information/note it should soon output.
- Monitoring the current time position, the MIDEX-3 assigns the individual MIDI Events to the current position of your Song and exactly sends the MIDI Event at the musically correct time.

The Buttons

Cablecheck/Panic

Depending on how long you press this button, you can activate one of the two functions.

If this button is pressed for *less* than ca. 2 to 3 seconds, a MIDI cable test is executed. Please proceed as follows:

1. **Connect the cable to be tested to the MIDI input and any of the MIDI outputs 1 to 3 on your MIDEX-3.**
2. **Press the "Panic/Cablecheck" button for less than ca. 2 seconds.**
3. **If your MIDI cable is okay, the LEDs of the input and output that the cable is connected to will light up for a ca. three seconds. If the cable is defective, the input LED and the blue Power LED will momentarily go out.**

If this button is pressed for *more* than ca. 2 to 3 seconds, all connected MIDI devices are reset. This is e.g. helpful if hanging notes have occurred. Please proceed as follows:

- **Press the "Panic/Cablecheck" button for more than 2 to 3 seconds.**
  The MIDEX-3 now sends out a series of "All Notes Off" and "Controller Reset" messages via all MIDI outputs. This lets the output LEDs flash up momentarily.

➢ **The "Panic" and "Cablecheck" functions are only supported, if the MIDEX-3 is connected to a computer via a USB cable and if the operating system and the drivers have already been booted.**

MIDI Thru Mode

The MIDEX-3 provides a built-in automatic MIDI Thru mode for its Port 1. This lets you play the Master keyboard, even when no software program is active. The MIDEX-3 output ports 2 and 3 are not addressed in this mode.

➢ **This mode can also be used if the MIDEX-3 is not connected to the computer via the USB cable. MIDI Thru is automatically switched off, if an application program starts to use one the MIDI input or any of the outputs.**

Windows Problems with the USB Reset

Contrary to the capabilities originally intended for the USB bus, none of the USB supporting Windows versions, available at the time of release of this manual, tolerates unplugging the USB cable while the application program is still running. In the worst case, the corresponding Windows version simply crashes.

➢ **Until these problems are fixed by a newer operating system version, you should thus definitely avoid to interrupt the USB connection during operation by unplugging the USB cable.**

- **Always first terminate the running application, before you reset the USB bus.**
- **If you use Windows 2000, then you first need to run the "Unplug or Eject Hardware" function on the right side of the Task Bar, *before* you terminate the USB connection.**

Practical Hints

MIDI – Brief Introduction for the Novice

The MIDEX-3 is used to transfer MIDI data.

The term “MIDI” is the abbreviation for “Musical Instrument Digital Interface”. This is a procedure used to exchange data between musical instruments, sound modules and other MIDI compatible devices or programs. All devices must be equipped with a MIDI port.

The data that is transferred does not contain the sounds themselves. Instead, it is a series of different control commands. These do e.g. tell a receiving device to play a certain note, modulate a sound in a certain manner or switch to another sound of its sound library (e.g. from violin to piano). But MIDI can also be used to control other devices, e.g. stage lighting systems, tape recorders, effect devices etc.

Using the MIDEX-3, you can connect your computer – and therefore a sequencer program that runs on it – with external MIDI capable devices.

- Data on up to 16 separate channels can be transferred into one direction via one single MIDI socket.
- For sending, receiving and forwarding MIDI data, separate sockets are available on a MIDi device:
  MIDI data is being received via the MIDI In socket, sent out via the MIDI Out socket and forwarded to another device unchanged via the MIDI Thru socket.
- For a bi-directional connection between any two MIDI devices you thus need two MIDI cables and each device must have one MIDI input and one MIDI output.
- To enable you to address many different devices separately on 16 channels each and to also receive data from a device, the MIDEX-3 provides one MIDI input and three separate MIDI outputs.

More detailed information about MIDI for the novice and the advanced user can e.g. be found on the Steinberg product “MIDI Xplained”, a Multimedia CD-ROM.

What can I do if my Multi Mode Instruments cause Timing Problems?

Many MIDI sound modules – especially Multi Mode instruments (i.e. instruments that simultaneously receive data on up to 16 MIDI channels) do have problems with their processing speed when they receive large amounts of data. As a result, delays occur between the arrival of a MIDI command and its execution, which can cause noticeable timing problems.

In spite of its LTB processing, the MIDEX-3 can of course not compensate for this kind of delay, which is caused by the technical shortcomings of the corresponding sound module.

So, what solutions are available, if you encounter this problem?

- If possible, route MIDI tracks, that should play back simultaneously, onto many different sound modules.
- Create a thinner stream of data. Besides note commands, MIDI data also contains a lot of "continuous" data, which is created and sent by controllers like the modulation wheel, the pitch controller etc. This type of data puts a heavy burden on the receiving device, but much of it can be filtered out without a negative impact on the sound. Cubase does e.g. offer the "Reduce Controller Data" function for this purpose.
- Avoid the transfer of system-exclusive data.
- If you use a sequencer that can also record audio, then you can separately play back individual MIDI Tracks and record each as an audio file.

Using USB Hubs

USB devices sometimes offer facilities to pass on the USB signal. Because of its real time tasks, the MIDEX-3 has been designed as a USB end device. If you wish to simultaneously operate several MIDEX-3 on one USB port, then you do therefore need a USB Hub.

A USB Hub is an additional device, which at least offers one USB input and two USB outputs. A Hub "distributes" the incoming data onto the connected devices.

Two different types of device are available on the market: "Self-powered USB Hubs" (i.e. Hubs with their own power supply) and "Bus-powered USB Hubs" (i.e. Hubs that get their power from the USB Bus of the computer).

➢ **If you wish to connect one or several MIDEX-3 to a Hub, then this must be self-powered.**

Using several MIDEX-3 simultaneously

If the MIDI input and the three MIDI outputs of one MIDEX-3 are not enough, you can combine several MIDEX-3 and thus adapt the number of inputs and outputs to your needs.

Theoretically (i.e. according to the specification) each USB port lets you address up to 127 USB devices. In practise, this can not be reached with devices, that have such a high data output like the MIDEX-3, as the USB bus reaches its limits much earlier.

Generally and with the necessary Hubs, it should be possible to operate up to seven MIDEX-3 devices on one USB controller bus.

The maximum number of simultaneously usable MIDEX-3 can additionally vary depending on the operating system/driver version that is used.

You can obtain information about the latest driver versions in the world wide web under http://www.steinberg.net or from your national Steinberg distributor.

Questions and Answers

This section can be used to find solutions and answers to problems and questions that can originate in the combination of system components that you might use.

Problem/Question	Solution/Answer
Windows 95 and the first Windows 98 version (Windows 98 Gold) do not recognize the MIDEX-3 driver.	Windows versions older than Windows 98 SE can not recognize the driver. To be able to use MIDEX-3, please install Windows 98 SE or a newer system on your computer.
If you disconnect the MIDEX-3 from the USB-bus while Windows 98 SE is active, the error message "The specified MIDI device is already in use. Wait until it is free, and then try again." might appear. It depends on the host application that you use, if this happens or not. If you do e.g. use Cubase VST, the problem occurs in a different form, i.e., the MIDEX-3 MIDI ports can not be selected within Cubase.	This problems originated in a faulty implementation of USB within Windows 98 SE. It can be solved by activating a Windows 98 SE repair program (USB-Fix). The repair program is called 242937usa8.exe. You can find it on the MIDEX-3 driver CD-ROM and you can start and automatically run it, by double clicking on it.
You wish to use more than one MIDEX-3.	The devices must be installed separately and one after another. We recommend, that you restart Windows after each installation.

Note: The MIDEX-3 driver has been developed based upon Microsoft's latest driver model. This has the advantage that the MIDEX-3 driver can both be used under Windows 9x and under Windows 2000. Normally, Windows 98 SE and Windows 2000 do not support more than 10 MIDI ports, which are provided by WDM- drivers (Windows Driver Model). The Steinberg programmers have found ways to prevent these limitations for Cubase VST 5.0 or later and Nuendo. Other applications, however, are limited to the number of MIDI ports supplied by the operating system. In the successor to Win98 SE, called Windows Millennium Edition, Microsoft have solved this problem. A future Service Pack for Windows 2000 might solve the problem on this system. Service-Pack 1 for Windows 2000 from Microsoft though, did not yet contain a solution. Windows XP, the Windows 2000 successor, will provide 32 MIDI ports.

Problem/Question	Solution/Answer
How many MIDEX-3 can be connected to the USB-bus, if the devices receive their power from the USB bus itself (are thus "Bus powered"?	If the devices receive their power only from the USB bus, then you should not connect more than four MIDEX-3. Reason: The MIDEX-3 registers on the bus with a power consumption of 250 mA and the USB-host (i.e., the USB bus of your computer) does not supply more than 1 A.
Resetting the MIDEX-3 software a*nd* hardware.	If you restart Windows, then this only causes a software reset within the MIDEX-3. To reset the hardware, you must disconnect the MIDEX-3 from the USB bus. This is done by disconnecting the USB cable.

Note: The MIDEX-3 should never be separated from the USB bus if you still use it in an application, as this would cause a Windows system crash.

How is MIDEX-3 supported by Cubase VST?	Starting with version 5.0, Cubase VST supports all MIDEX-3 capabilities. Earlier versions use the MIDEX-3 as a »normal« MIDI interface (i.e., they don't use the advantages of the Linear Time Base technology).
You have installed the MIDEX-3 drivers before you installed Cubase VST Version 5, and now the MIDI outputs do not work. Reason: The Cubase VST 5.0 releases 0 and 1 contain several components that are replaced when you install MIDEX-3.	Insert the MIDEX-3 driver CD-ROM into your CD-ROM drive and double click on the program UPDMROS.EXE. Cubase VST versions from 5.0 release 2 as well as the demo version that you can find on the driver CD-ROM do not have this problem anymore.
You have set small audio latency values (smaller than 12 ms) and when you stop the sequencer, drop outs occur.	Open the MIDI Preferences dialog via the Edit menu item "Preferences" and its sub-menu item "MIDI…". Select the "Reset" tab and deactivate the function "Reset on Stop". To do this, please click on the corresponding tick in the status/value- column. If no tick is visible for "Reset on Stop", then this functions has already been deactivated.

Note: To ensure a stable MIDI output even in times of a very high system load (many audio tracks are played back), you should set Cubase VST's "System Preroll" parameter to at least 100 ms. To find this parameter, select "Synchronization" in the Options menu. In the lower right corner of the dialog that opens you can find the "System Preroll" option.

Warranty Terms

Based on the following terms, Steinberg grants a warranty for the technical components used in this device:

1. **The warranty period is a one year, beginning with the date of purchase from an authorized dealer. If local law demands a mandatory warranty period exceeding one year, then this period is valid.**
2. **The warranty includes the removal of defects of production and material as well as the exchange of parts by Steinberg. It does not include damage caused by poor means of transport, external force or damage caused by non-observance of the instructions in the operation manual.**
3. **The warranty includes the removal of discovered production or material defects by repair or exchange of the defective parts. Claims beyond those described here, especially compensation claims, can not be asserted within the framework of this warranty.**
4. **A warranty claim can only be accepted, if the warranty card and a proof for the purchase of the device are in your possession and if the device bears the original model identification plate and the correct serial number.**
5. **The device may only be opened or repaired by an authorized Steinberg representation, otherwise the warranty becomes void.**
6. **This warranty does not restrict your other legal rights.**

Please read this before you send in a device for repair

- Please find the address of the Steinberg distributor responsible for product service on your Product Registration Pass.
- You must obtain an RMA number from the responsible Steinberg distributor prior to sending in a faulty device.
- For logistical reasons, we can not accept devices that you send in without an RMA number. These are returned to you at your expense.
- When sending in a device, please make sure that you also send in its Warranty Card, fully filled in, a description of the malfunction and a copy of the invoice.
- Devices that arrive without a description of the malfunction need more extensive testing. This results in additional costs for which must charge you.
- We are sorry, but if you send in a device for repair and it turns out that it is fault-free, then we do still have to charge you with a service flat rate.