



UF400e

FIREWIRE AUDIO EXPANSION BOARD

USER'S MANUAL



CME UF400e

English Manual

Version 1.0, last revised: July 2005

***Thank you for choosing CME UF400e — Firewire Audio Expansion Board
Please keep all the important information here***

Attach your invoice or receipt here

for reference

Purchase date	Serial
Dealer's name and addr.	
Dealer's tel.	

Warning:

- Improper connection may cause damage to the device.

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CE Declaration

We:

CME (Brand under Central Music Co.)

hereby declare that the product:

UF400e

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

EN 55022, EN 55024

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

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CONTENTS

<i>From opening the package to installation.....</i>	<i>6</i>
Scope of delivery.....	6
<i>Hardware installation.....</i>	<i>7</i>
<i>Windows installation—step by step.....</i>	<i>8</i>
Which operating system?.....	8
Installing the UF400e drivers in Windows XP.....	8
The UF400e as a system audio device (Windows).....	11
Which operating system?.....	11
Installing the UF400e driver in OS X.....	12
The UF400e as a system audio device (Mac OS X).....	12
<i>The FireWire™ port.....</i>	<i>13</i>
<i>The connections of the UF400e Firewire Audio Expansion Board.....</i>	<i>14</i>
MIDI IN S.W.....	14
Analog outputs.....	14
Analog inputs.....	15
Digital interface (S/PDIF).....	16
MIDI interface.....	16
<i>Drivers.....</i>	<i>17</i>
The Windows drivers.....	17
The MME wave driver.....	17
The ASIO driver and the ASIO Control Panel.....	17
The GSIF driver.....	18
The MIDI driver.....	18
In detail—special properties of the drivers.....	18
DirectSound & WDM.....	19
WDM sample rate (SR) interpolation.....	19
WDM kernel streaming.....	19
The Mac OS X drivers.....	19
<i>The UF400e Control Panel.....</i>	<i>21</i>
Inputs (Analog In, Digital In).....	21
Outputs (Wave Play 1/2, 3/4, Digital Play).....	22
Master.....	22
Master Clock.....	22
Routing.....	23
Analog Out 3/4 (Line / Headphone).....	23
The ASIO panel.....	23
Colors.....	24
Scenes.....	24

About.....	25
<i>Appendix A—Technical Data.....</i>	26
Technical data.....	26
Software.....	26
System requirements / recommendations.....	26

Safety information

Please ensure that UF400e Firewire Audio Expansion Board 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 FireWire™ 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've chosen the UF400e Firewire Audio Expansion Board by CME for your musical endeavors and would like to congratulate you on your decision. With the UF400e Firewire Audio Expansion Board, you've purchased a sophisticated product representing the state of the art of studio technology—and we're convinced this innovative development will prove extremely useful to you in the coming years and, above all, provide you with a great deal of entertainment.

We hope that this brochure is helpful to you while using the product. It is designed to illustrate technical relationships based on practical examples from the studio environment. This brochure is not only designed to help beginners with this complicated subject—advanced musicians 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 UF400e.

Sincerely,
Your CME Team

Technology and design. *UF400e*—the perfect internal Firewire Audio Expansion Board by CME. Fantastic specs like 24-bit/192 kHz, FireWire™ port, MIDI IN/OUT/THRU, a MIC or Instrument IN (high-quality and DI, with an adjustable level), S/PDIF digital I/O, two Headphone OUT (with an adjustable level), analog 2 IN and 2 OUT (TRS) make the UF an ideal tool for musicians.

The drivers provided for the *UF400e* audio expansion Board, too, leave nothing to be desired. Our sophisticated software architecture guarantees trouble-free deployment in Windows XP (Service Pack 1 or higher) and MAC OS X Panther 10.3.4 (or higher). The ASIO drivers—thoroughly proven throughout years of studio application—allow the lowest possible latency between the software-based sound generation and audio output.

FROM OPENING THE PACKAGE TO INSTALLATION

Before connecting the *UF400e* into *UFX*, take note of any special points pertaining to the configuration of your computer. Also refer to the manual of your computer and *UF* devices 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, or seek help from our web: www.cme-pro.com.

Scope of delivery

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

The *UF400e* package should contain the following items:

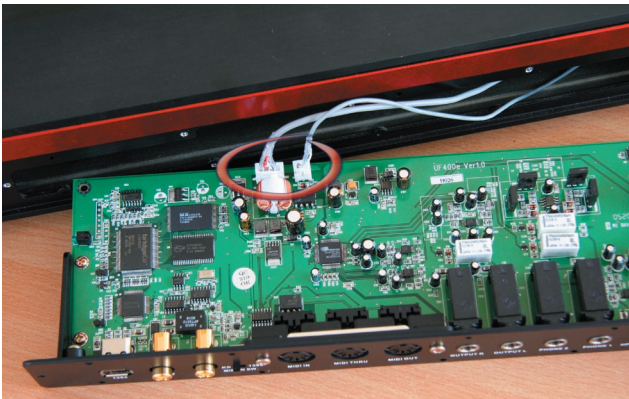
- 1 *UF400e* expansion Board (the *UF400e* hardware)
- 1 IEEE 1394 FireWire™ cable 6-pin/6-pin
- 1 *UF400e* CD
- 1 manual (Here you are reading it)

HARDWARE INSTALLATION

Connect the UF keyboard with UF400e



First, remove the backboard from the back of UF



Connect pre-reserved connectors to UF400e Board



Put the Board into the groove of UF



Tighten the screws

WINDOWS INSTALLATION — STEP BY STEP

Please perform the following steps in the stated order. Do not connect the UF400e Firewire Audio Expansion Board to the computer until instructed to do so.

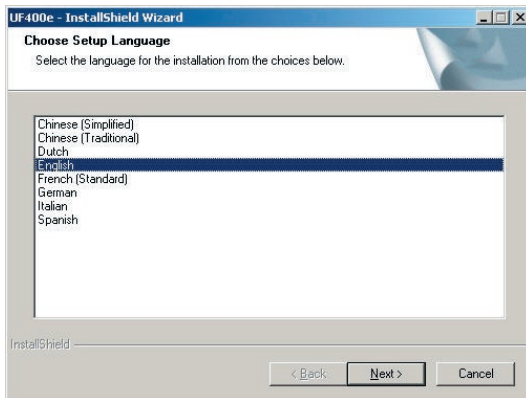


Which operating system?

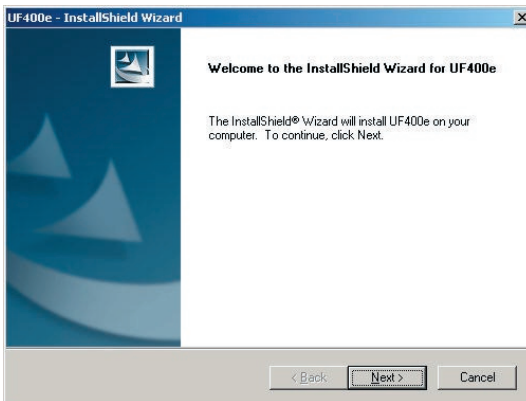
The UF400e can be used only under Windows XP (Home and Professional editions). Older Windows versions are not supported. Please ensure that you have applied the current service packs and updates to your Windows installation (Service Pack 1 or higher).

Installing the UF400e drivers in Windows XP

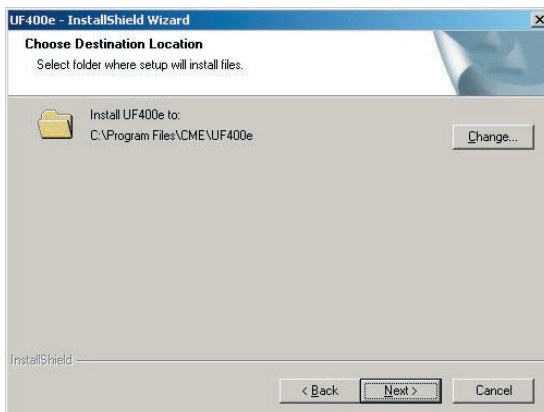
1. Before you start, ensure that your Windows XP version is up to date. Right-click the “My Computer” icon and choose “Properties” from the context menu. If you’re still using the default Teletubbyland XP wallpaper, you can access these menu item by clicking : Start -> Settings -> Control Panel -> System. Service Pack 1— or SP1 for short—must be installed on your computer. If it is not, please contact Microsoft (www.microsoft.com) to obtain an update for your system. The service pack is generally free of charge.
2. Insert the included UF400e CD and wait for the autorun application to launch. If the autorun application on the CD does not launch automatically, start the application manually by double-clicking “Autorun.exe” in the root folder of the CD. Click the “Installation” button in the autorun application to install the UF400e driver and Control Panel in your operating system.
3. Choose a language for the setup wizard and click “Next” to continue with the installation.



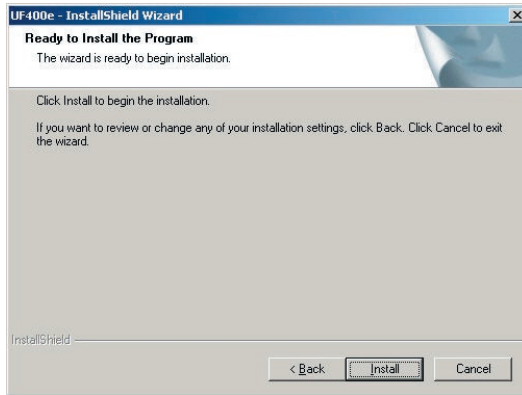
The InstallShield Wizard will now display its welcome message.



4. The default destination for the installation is specified in the following window. If you prefer a different location, please click “Change...”.



5. Now you are ready for the installation. Click “Install” to continue.



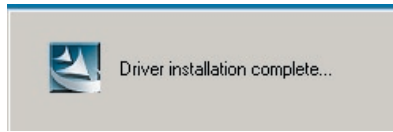
6. The driver is now installed in your system. As soon as the message shown below appears, connect the UF400e to your computer’s FireWire™ port using the included cable. Windows XP will automatically recognize the device as new hardware and will open the driver installation dialog.



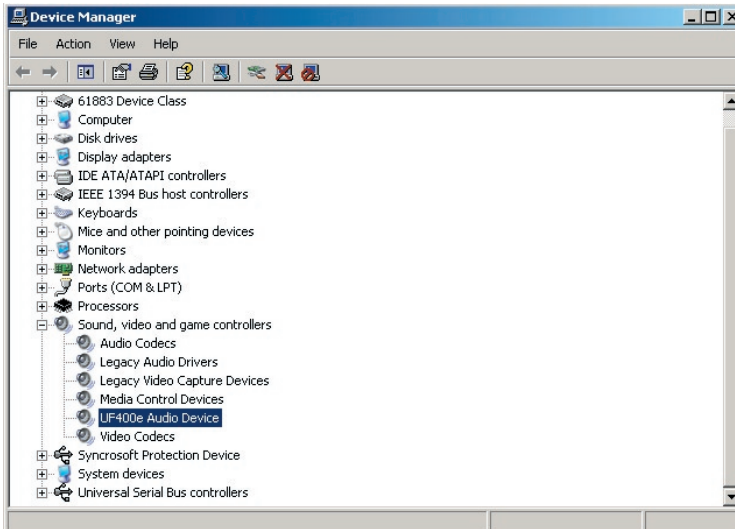
7. You may ignore the dialog box that will appear to inform you that the software that you are installing has not passed the Windows logo test.



- Click “Finish” to complete the driver installation.



- Once the driver installation is complete, the UF400e should appear as the following entry in the Device Manager. The Device Manager can be found on the Control Panel under “System” > “Hardware”. Then click the “Device Manager” button.



The UF400e as a system audio device (Windows)

If you would like to use the UF400e not only for specific audio applications, but as your default Windows audio device, select the UF400e audio driver in the Control Panel under “Sounds and Audio Devices” > “Audio” as the default device for the desired functions.

As the UF400e is a professional audio interface, its levels can only be adjusted using its included Control Panel. The Windows mixer is disabled to prevent it from adversely affecting the signal quality.

Which operating system?

The UF400e can only be used under Mac OS 10.3.4 (OS X) or higher. It can be integrated easily using OS X CoreAudio and CoreMIDI.

Installing the UF400e driver in OS X

As mentioned above, the UF400e uses the operating system's CoreAudio and CoreMIDI drivers. It's therefore not necessary to install a device-specific driver. Simply plug the device into your FireWire™ port and it's available immediately. However, to take full advantage of advanced routing, samplerate switching and other features, please install the included Control Panel. Simply run the installer in the Driver & Control Panel\MAC folder.

The UF400e as a system audio device (Mac OS X)

If you would like to use the UF400e not only for specific audio applications, but as your default Mac OS X audio device, select the UF400e audio driver in the "Sound" control panel as the default device for audio output.

THE FIREWIRE™ PORT

FireWire™ is a serial PC interface similar to USB that was developed by Apple in 1995, and which was originally intended for digital video data and for external mass storage and audio devices. It has since been given many names that all refer to the same port: for example, Sony calls FireWire™ “i.LINK?”, Texas Instruments refers to it as “Lynx?”, and one also frequently sees the mysterious abbreviation “1394”. The latter designation actually refers to the common IEEE 1394 standard, which is notable for its high data rates (IEEE 1394a = 400 Mbps and IEEE 1394b = 800, 1600 and 3200 Mbps). (For those of you who are sticklers for detail, IEEE stands for the US “Institute of Electrical and Electronic Engineers”.)

Like USB, FireWire™ also supports hot plugging—in other words, you do not need to shut down your computer to add or remove devices. However, you should take care not to interrupt any applications that may be accessing the UF400e to prevent possible data losses or blue screens. Also please note that it may take the operating system a while to process the new situation—after all, machines are only human :-)

One standard—two sockets

The socket on your PC can have two different forms, with either 4 or 6 conductors. According to the standard, in the 6-pin version the two extra pins are used to supply 7.5 – 30V / 1.5A per port. Unfortunately, this is often not the case due to the poor quality of some controllers that are unable to provide a constant operating voltage—despite the requirements of the specification. So if you’d like to avoid any unexpected failures of the UF400e, please use the D.C. or USB port on UF keyboard to supply power—better safe than sorry. If your computer “only” has a 4-pin port, you must use the D.C. or USB port. To connect the UF400e to your PC in this case, please use the adapter (6-pin to 4-pin).

THE CONNECTIONS OF THE UF400E FIREWIRE AUDIO EXPANSION BOARD

The UF400e offers you numerous connections for connecting professional studio peripherals and HiFi devices. Following is a detailed overview of its technical and electrical characteristics:



UF400e panel

MIDI IN S.W.

MIDI IN S.W. is a key to switch the original MIDI signal. The signal comes from UF keyboard when the key locates on KB. The signal comes from UF400e when the key locates on 1394.

Analog outputs

The analog outputs operate with music-compatible levels of 2.0 Vrms. Here, you can connect a mixing Board, active speakers, or amplifiers.



Panel (Out L/R)

The UF400e features two high-quality analog mono outputs on its panel. The connections have been realized as balanced 1/4" jacks. Unbalanced cables can also be plugged into the outputs, of course.

Panel (Out Phone 1/2)

Two further analog output (stereo) is available on the panel that can be used either at Line level (2.0 Vrms) or as a hardware-controlled headphone output (with an adjustable level). The mode for this output can be selected in the Control Panel.

CAUTION! As the UF400e can deliver an output of up to 2.0 Vrms in Line mode and even more in headphone mode, a very high (loud) level will be available depending on the impedance of your headphones. Take care of your ears, you only have one pair!



On the driver side

all of the outputs are grouped in a multi-channel device. The relevant driver is

called “UF400e(0) MC Out”. The channels can be addressed individually using common audio applications.

Practical tip: Make full use of the 24-bit support of up-to-date software applications and connected digital peripherals—even if you are planning to “just” release your production on CD. The admittedly subtle increase in audio quality pays off noticeably in the total signal and especially in digital editing.



Analog inputs

In L/R

The UF400e System features two high-quality analog stereo inputs on its panel, which are named “LINE IN L/R” and “MIC/GT IN”. The connections have been realized as unbalanced stereo 1/4” jacks. Unbalanced mono sources can also be plugged into the outputs, of course.

There is only one connection can be used at same time. The “LINE IN L/R” will be disabled as long as guitar or microphone hooks up “MIC/GT IN”. In the mean time UF400e receives the signal comes from “MIC/GT IN” only. It has to keep “MIC/GT IN” un-plugged if you want to record signal from “LINE IN L/R”. The “LINE IN L/R” can only recognize line level signal.

It can be chosen between MIC and Guitar by the control panel of Analog In.



Three different gain levels can be set in the Control Panel via high-quality relays:

Guitar: maximum level at 0.5 Vrms input level

Mic: maximum level at 1.3 Vrms input level

On the driver side

The inputs are viewed as a stereo pair (1+2). The driver is called “UF400e(0) In 1” . Both channels can be used in mono mode in most audio editors.

Practical tip: While recording, try to achieve as high a recording level as possible to get the greatest benefit from the wide dynamic range of the 24-bit converter. Always remember that a clean take is far more valuable than the best corrective plugin.



Digital interface (S/PDIF)

Devices that can process the S/PDIF protocol can be connected to the coaxial digital interface (RCA sockets on the panel). These include DAT recorders and a wide range of HiFi components, as well as other computers.



Use the digital interface of your UF400e Board to transfer music digitally from your computer to other devices, or to record audio data with your computer. There are two separate coaxial jacks (cinch) for recording and playback. The interface can send and receive sample rates of up to 24-bit / 96 kHz. The recording driver is called “UF400e (0) SPDIF In”, and the routing must be set to the digital output in the Control Panel for playback.

Synchronization. When recording from a digital source, make sure that the sampling rates of both devices (e.g. DAT recorder and laptop) are synchronized. The S/PDIF protocol contains a signal for this purpose. If such a signal is applied to the digital input and the Master Clock switch is set to “External”, the UF400e will automatically synchronize to it and the “Digital In” channel will be available in the mixer.

ASIO applications such as Cubase SX often have an option to switch the hardware from an internal to an external (sometimes also called S/PDIF) clock source. This changeover currently has no effect on the UF400e. The switch to an external clock is not to be confused with external synchronization to MIDI devices, video equipment or tape decks and therefore cannot be found in the Sync, MIDI Clock, MTC or SMPTE settings of the applications.

AC3 and ***DTS*** can also be played back via the digital output. Select “NonAudio” for the digital output in the Control Panel under “Routing”. This setting mutes the Digital Play path in the digital mixer so that the non-audio signals are not also sent to the analog outputs.

Practical tip: For an absolutely clean and jitter-free signal path (when mastering, for example), use special shielded RCA cables to transfer digital data.



MIDI interface

MIDI IN/OUT/THRU is available for suitably-equipped peripherals such as MIDI keyboards, DAW controllers and other devices. The cables for MIDI connections are

always connected “crosswise”, meaning OUT to IN and vice-versa. MIDI sequencer software usually offers you to loop MIDI data through, using the Through function.

DRIVERS

The Windows drivers

The UF400e 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)

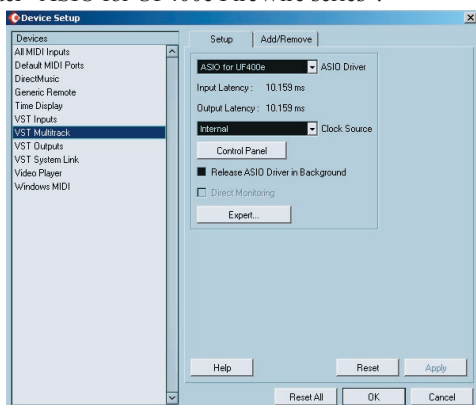
The MME wave driver.

In most Windows programs, you will encounter drivers with the designation “UF400e (0) MC Out” for recording and playback. These are multichannel drivers that support all six outputs (4 analog and 2 digital). The specific routing options for these drivers can be found in the UF400e Control Panel.

The ASIO driver and the ASIO Control Panel

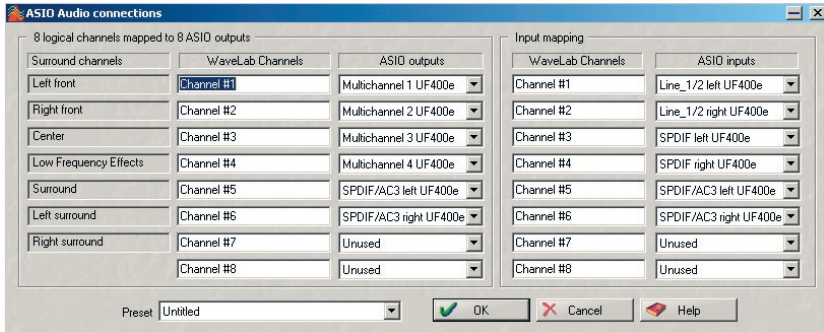
The abbreviation ASIO stands for “Audio Streaming Input Output” and refers to a 32-bit driver model developed by Steinberg. The advantage of the ASIO driver is the extremely low audio recording and playback delay times, also known as latency. Values significantly under 10 ms—and less than 4 ms on fast, cleanly-configured systems—at sample rates exceeding 96 kHz are quite realistic. The format also supports sound Boards with multiple inputs and outputs—so-called multi-I/O Boards—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 dialogs the ASIO drivers of the UF400e. The ASIO driver is listed in compatible programs under “ASIO for UF400e FireWire series”.



Device configuration in Cubase SX 2

The inputs and outputs (generally called “busses” or “channels”) available in the individual programs are generally called “Out 1 UF400e”, “Out 2 UF400e”, etc.



ASIO audio connections in WaveLab 5

The GSIF driver

The GSIF driver of the audio interfaces is also visible only in certain programs. The GigaStudio sampler application and other Tascam / Nemesys products can also access the hardware in a very fast and direct manner. The outputs available in each program are called here “UF400e (0)” and lead directly to the outputs of the UF400e audio system.

The MIDI driver

For the recording and playback of MIDI data via the MIDI IN and OUT jacks, a separate driver is available. The driver designated as “UF400e(0) Midi In 1 or Out 1” in this system, and it can be selected in any situation in which its use would be appropriate.

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” dialog 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 UF400e 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).

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 sample 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 Boards, the UF400e system cannot automatically synchronize the required sample rate. Select the sample rate manually using the dropdown menu in the Control Panel to avoid a SRC. The sample rate set in the control panel will always be applied.



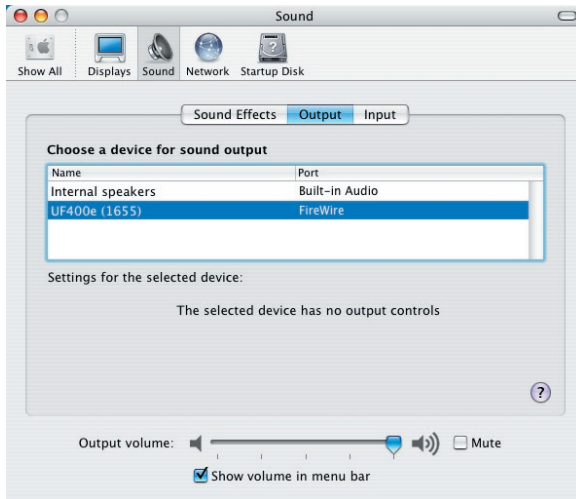
An SR conversion/interpolation does always result in a certain loss of quality, however. You should therefore ensure that you do not use several programs simultaneously with differing sample rates for applications in which the highest possible audio quality is vital. For example, it’s best to only have 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 recognized by Microsoft. The deployed software (such as audio/MIDI sequencers or software synthesizers) must support the WDM function directly, however. One of these programs, for example, is the “Sonar” recording software produced by the Cakewalk company.

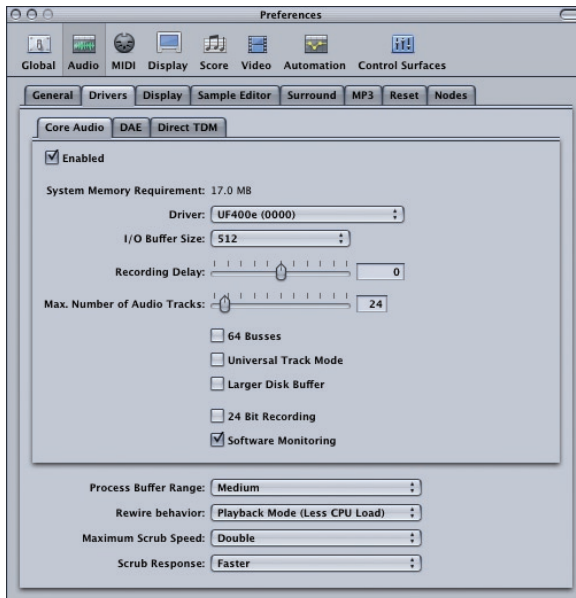
The Mac OS X drivers

In OS X (currently OS 10.3.4), the UF400e system is supported completely by Apple CoreAudio and CoreMIDI. Device-specific drivers are not required. The UF400e can be selected as the default recording and playback device in “Control Panel ->Sound”



The UF400e as the default device in OS X

The CoreAudio/MIDI driver can also be selected in audio applications such as Cubase SX or Emagic Logic. Buffer sizes generally can also be configured there to accelerate access to the audio system. The latency under CoreAudio is comparable to the latency typical for Windows or OS9.



The UF400e in Emagic Logic

THE UF400E CONTROL PANEL

The UF400e 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 (take this literally!), route inputs to any output, set the Master Clock values or toggle the analog output on the front panel between headphone and line levels.

Note: the functions and the position of the control elements are as identical as possible under Windows and MAC OS. The following illustrations correspond to the Windows version of the Control Panel.



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.



Overview of the UF400e Control Panel.

Inputs (Analog In, Digital In)

Here you can control the levels of the individual input channels of the UF400e in the Digital Mixer. The individual sliders can be adjusted directly on the hardware mixer. A separate fader is available for each mono channel. The individual channels can be joined using the switchable stereo link function. The “Mute” buttons can be used to mute the individual channels. Use the “Analog In” button to select the levels “Guitar” and “Mic” for the input channels. The exact values for these levels are:

-
- **Guitar:** maximum level at 0.5 Vrms input level
 - **Mic:** maximum level at 1.3 Vrms input level

If the input signal distorts, select a different level.

“Digital In” is grayed out until a signal is applied to the digital input and the Master Clock is set to “External”.

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.).



Outputs (Wave Play 1/2, 3/4, Digital Play)

Here you can adjust the volume of the output signals, provided you have selected “Digital Mixer” as the input signal in your routing. All other signals are sent straight to the output, bypassing the faders. As with the input, a separate fader is available for each mono channel. The individual channels can be joined using the switchable stereo link function. A “Mute” button can be used to mute the playback. If two mono channels are linked, clicking the mute button for the stereo pair is sufficient.

Master

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

Master Clock

Here we’re dealing with the sample rate used by the UF400e. This is a very important point, as the Board can be clocked by an external signal (External, e.g. from a DAT recorder) or it can set a sample rate itself and provide this signal to other devices.

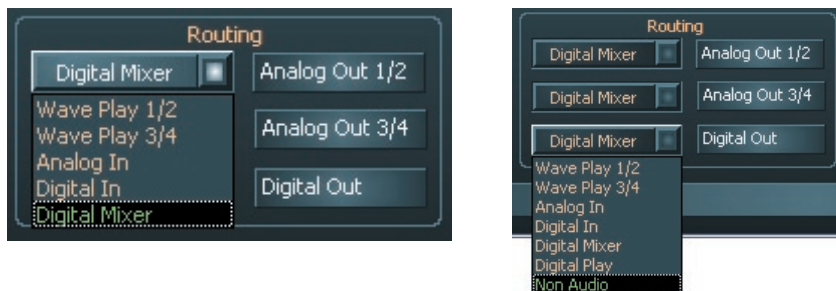
When choosing “Internal”, you can choose from all commonly used sample rates from 32 to 192 kHz—the actual bit rate is not important at this point. The external sample rate, when applicable, is displayed in the box next to “External”. If no signal is available or the connection has been interrupted, the message “-----” will be returned.

Note: Unlike PCI Boards, the UF400e cannot automatically synchronize the required sample rate. Select the sample rate manually using the dropdown menu in the Control Panel to avoid a sample rate conversion and attendant loss of quality.



Routing

In the routing section, all input signals (Wave Play 1/2, Wave Play 3/4, Analog In, Digital In, Digital Mixer and Digital Play) can be routed to the three output pairs (Analog Out 1/2, Analog Out 3/4, Digital Out). Almost any combination is possible. Click the three buttons on the left-hand side to open a window in which you can select the desired pair. Needless to say, if you intend to use the digital mixer, “Digital Mixer” must also be selected on the input side, otherwise the signal will be sent straight to the output, bypassing the faders.

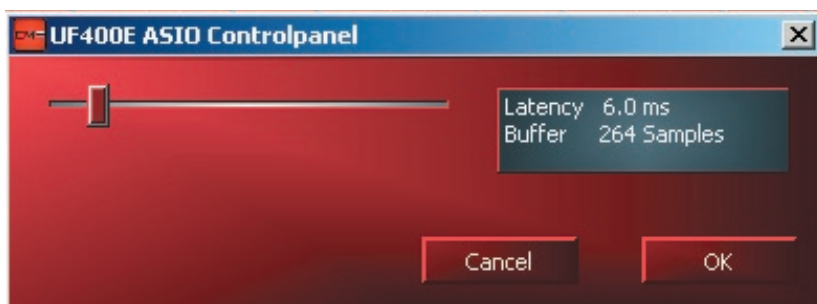


The routing options of the UF400e

Analog Out 3/4 (Line / Headphone)

Use the two buttons at the lower right-hand side of the Control Panel to toggle the analog output on the front panel between “Line” and “Headphone” levels. Set to headphone level, the volume can be adjusted not only in the Control Panel, but also—much more conveniently—with the knob on the front panel of the housing. An LED on the front panel indicates that the headphone level is activated.

The ASIO panel



To open the ASIO panel, click the “ASIO” button (on the right-hand side of the UF400e Control Panel). Use the slider 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 5 ms at 96 kHz 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.

Colors



When it comes to the design of the UF400e Control Panel, we like things to be clean and functional. We don’t want to force anything onto you, however—feel free to brighten your screen with the Color Panel. This section contains a number of truly useful settings that not only beautify your UF400e Control Panel, but which improve the overview of its display:

A click on the Background, Text, Static Controls and Peakmeter buttons opens the Windows dialog to change the colors.

The “Reflections off” option disables the attractive reflections of the elements. This can be helpful for slower systems.

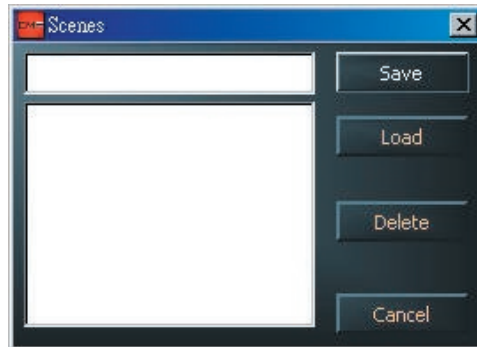
Test the settings made above in the right-hand part of the window and save them when you’re satisfied.

Once saved, you can find your personal color settings in the dropdown menu, which already contains a number of examples. The “Windows System” color set uses only colors that display correctly at an 8-bit color depth.

Scenes

Faced with such a wealth of settings, it would be pretty tedious to have to set things up by hand every time. Needless to say, you can count on us to make your life easier with our extremely practical “Scenes” menu item. Simply save all of your control

and fader settings at the click of a button and reload them whenever you need them.

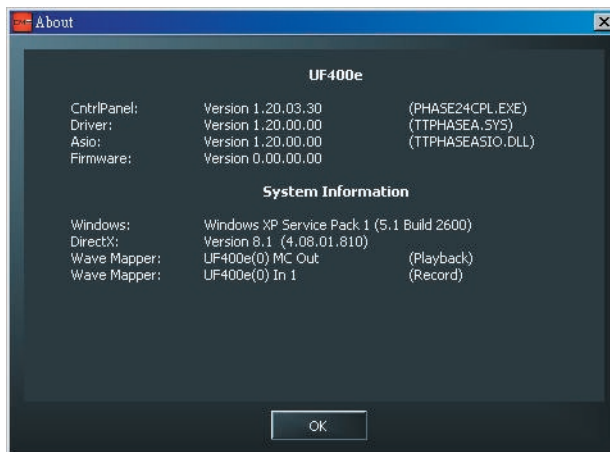


And in case you ever don't have a computer at hand ;-), you can also use the UF400e in stand-alone mode as a high-quality A/D or D/A converter.

The UF400e stores the last settings used in the Control Panel and can apply them when it has power, even without being connected to a computer.

About

The About page of the UF400e 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—a convenient feature for a quick description of your system for support requests.



APPENDIX A—TECHNICAL DATA

Technical data

- external FireWire™ audio interface
 - 2 analog input channels, 1/4" jack, un-balanced
 - 2 analog output channels, 1/4" jack, balanced
 - 2 analog stereo output, 1/4" jack, usable with Line Out or adjustable headphone output.
 - coaxial digital input, cinch
 - coaxial digital output, cinch
 - MIDI interface with 5 pin DIN connections (IN/OUT/THRU)
 - analog playback with up to 24 bit/192 kHz resolution
 - analog recording with up to 24 bit/192 kHz resolution
 - digital playback with up to 24 bit/96 kHz resolution
 - digital recording 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 110 dB (A) SNR*, 109 dB(A) SNR typical
 - 24-bit/192 kHz D/A converter with 114 dB (A) SNR*, 111 dB(A) SNR typical
 - 2.0 Vrms output level
- *)This information depends on the technical data of the converter used

Software

- WDM driver for Windows XP SP 1
- Core Audio and Core MIDI support for Mac OS X 10.3.4
- ASIO 2.0 support - Windows only
- GSIF 2 support - Windows only
- WDM Kernel Streaming support - Windows only
- ASIO, GSIF, WDM Multiclient support - Windows only
- MME and DirectSound support - Windows only
- Control Panel for Windows XP SP1 and Mac OS X 10.3.4

System requirements / recommendations

System requirements – PC

- Pentium III 800
- 256 MB RAM
- FireWire™ port
- Windows XP with Service Pack 1 (SP1) or higher

System requirements – MAC

- G4 800 MHz

-
- 256 MB RAM
 - FireWire™ port
 - MAC OS X Panther 10.3.4 or higher

System recommendations – PC

- Intel Pentium 4 2 GHz or AMD Athlon XP 2000+
- 512 MB RAM
- FireWire™ port
- Windows XP with Service Pack 1 (SP1) or higher

System recommendations – MAC

- G5 1.8 GHz
- 512 MB RAM
- FireWire™ port
- MAC OS X Panther 10.3.4 or higher

Trade marks:

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Limited warranty:

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For the products with defect found, the user should send the product back to Central Music Co within the warranty period with shipment cost paid; Central Music Co will repair or replace the defective products for free. When sending the products, the user must use the package box supplied or confirmed by Central Music Co, otherwise the warranty will be invalid. For the shipment cost, the user covers the shipment cost from its place to Central Music Co, and Central Music Co covers the shipment cost from Central Music Co back to the user. Please contact Central Music Co (Tel: 8610-8580 1115) in case you need warranty service, and you need to provide with product serial number and your purchase warrant (invoice or receipt). Any modification or appendix to the warranty must be confirmed by Central Music Co or its dealer or agent before it becomes valid.

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- Regular wear and tear or consumption
- Abuse or improper use and damage caused by that
- Any damage caused by other device or system
- Any damage caused by modification or repair not confirmed by Central Music Co
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- Any damage caused by improper packaging

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Product website:

www.cme-pro.com

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