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FRONTIER

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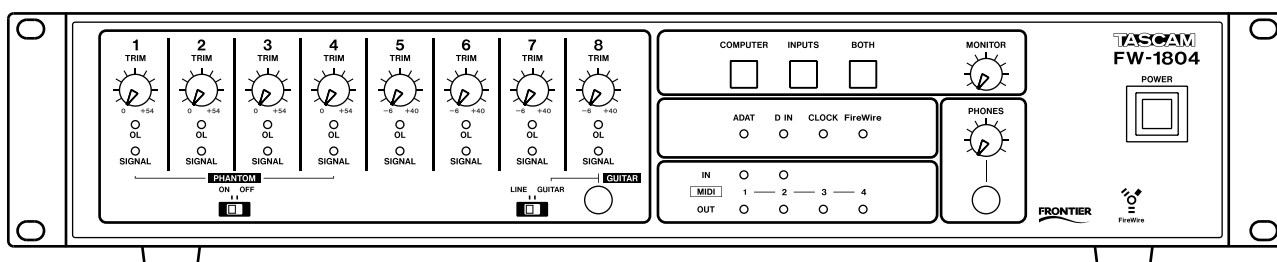
FW-1804

FireWire Audio-MIDI Interface

SETUP GUIDE

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Introduction

About the FW-1804

The FW-1804 provides your computer with high-quality audio facilities: eight channels of analog input and two of output, with two channels of digital audio I/O through coaxial connections and eight channels of digital I/O through optical connections—at up to 96 kHz 24-bit. There are also two physical MIDI input and four physical output ports.

It is connected to the host computer using a single 6-pin to 6-pin IEEE 1394 cable (supplied) that carries audio and MIDI information back and forth between the FW-1804 and the computer. See "The IEEE 1394 Standard" on this page for details.

NOTE

- Before using the FW-1804 with a computer, you must install the necessary drivers and utility software on your computer. See "Installation (Windows 2000 and Windows XP)" on page 4, and "Installation (Mac OS X 10.2.8 and above)" on page 6, and "Installation (Mac OS 9.2)" on page 7 for details of how to do this.

Monitor Mixing

The FW-1804 includes a mixer controlled via a software UI accessible from the computer control panel, mixing up to eight analog signals together with the 10 digital signals received at the coaxial and optical digital inputs.

The FW-1804 provides level, pan, mute and solo capabilities for these input channels, mixing them into two outputs **STEREO OUT L** and **R**.

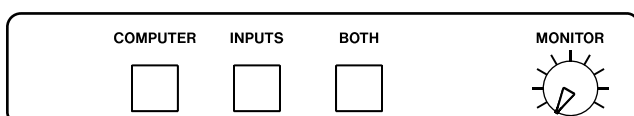
It is also possible to monitor the signals output from the computer DAW software, either independently, or together with, the input signals.

When mixing analog signals, the **TRIM** controls can be used to adjust the signal input levels, which can be monitored with the overload (**OL**) and signal detection (**SIGNAL**) indicators on each module.

NOTE

- When mixing digital audio, there should be one and only clock source in the system. Follow the instructions in "Clock Source Setting" on page 9 to set the clock source for the system.

The three keys shown below are used for selecting the signals to be monitored:



- **COMPUTER** selects the signals from the DAW passed through the FireWire connection. The level of the signals from the computer is set using the master output control of the DAW software and the two analog outputs may be selected (using the software Control Panel) for output of these signals.
- **INPUTS** selects the stereo mix of the analog, optical and coaxial signals for monitoring.
- **BOTH** allows the computer signals to be monitored mixed with the input signals.

Individual channels can be set to unity gain by pressing and holding the computer's [**Shift**] key while clicking on the control in the software mixer interface.

The headphone level (**PHONES** jack on front panel) is adjusted with the **PHONES** control and the monitoring level through the monitoring outputs is set using the **MONITOR** control.

The IEEE 1394 Standard

The IEEE 1394 standard allows high-speed communication between devices. Because of the high band-width (up to 400 Mbps), it is suitable for applications such as multi-channel audio, as in the case of the FW-1804.

NOTE

- The FW-1804 is supplied with a 2m (6-foot) cable. If you wish to use a longer cable, the length should not be more than 4 m (13 feet) and the cable should be the best possible quality available to avoid data loss, which results in audio dropouts.

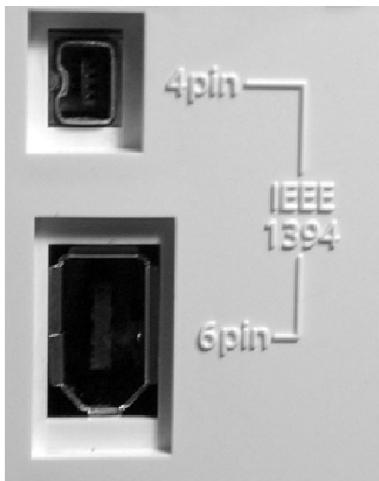
Many devices can be connected on a IEEE 1394 network. No termination is necessary on any device, and devices identify themselves uniquely on the system, so no ID switches, etc. need to be set.

Please note that while it is possible to "daisy-chain" IEEE 1394 devices, the FW-1804 is a high-bandwidth device and chaining other devices with it will very likely degrade its performance or the performance of the other devices. It is therefore strongly recommended that the FW-1804 is connected by itself on a bus. More than one 1394 connector on a computer does not mean each connector has its own bus. More often, all connectors go to the same bus on the computer. If you require additional IEEE 1394 devices, it is strongly recommended that you add a IEEE 1394 card, thus adding a separate bus, for those devices.

CAUTION

- Always perform all FireWire connections and disconnections with the power to both the FW-1804 and the computer turned off. If connections are made or broken with power to the FW-1804 or computer turned on, this may result in your computer crashing, or "freezing" and possible loss of data.

There are two types of connector that may be used with IEEE 1394 devices. One is a 6-pin connector, and the other is a 4-pin connector (the difference between them is that the 6-pin connector carries power which can power external devices).



The cable supplied with the FW-1804 is 6-pin to 6-pin—some computers are only fitted with a 4-pin IEEE 1394 connector, and we recommend that you use a computer with a 6-pin IEEE 1394 connector.

NOTE

- Although an IEEE 1394 connection can supply power to some types of device, it is not possible to use such a connection to power the FW-1804.
- Ensure that the cable is plugged in right side up by sight, not just by feel. Forcing the cable in upside down will damage the FW-1804.

Before Installing the Software

The normal precautions apply when setting up the FW-1804:

- Make all (computer, audio and MIDI) connections to the FW-1804 with the power turned off. See "Connections" on page 8 for details of how to make connections.
- Do not connect the FW-1804 to the computer until you have installed the software.
- Handle the enclosed CD-ROM with care. If it becomes dirty or scratched, it will be impossible for a computer to read it, and the software cannot be installed. If the disc becomes unreadable, a charge will be made for its replacement, but software and documentation can be downloaded from the TASCAM Web site.
- Do not attempt to play the enclosed CD-ROM using an audio CD player, as this may cause damage to hearing, as well as to speakers, etc.

Installation (Windows 2000 and Windows XP)

When the FW-1804 is installed on a Windows system as described here, it provides audio ASIO 2.0, WDM (MME) and GSIF2, including kernel level MIDI.

System Requirements

Your computer should meet the specifications listed below:

Minimum requirements: Computer running Windows 2000 or Windows XP and fitted with a 6-pin IEEE 1394 (FireWire) port.

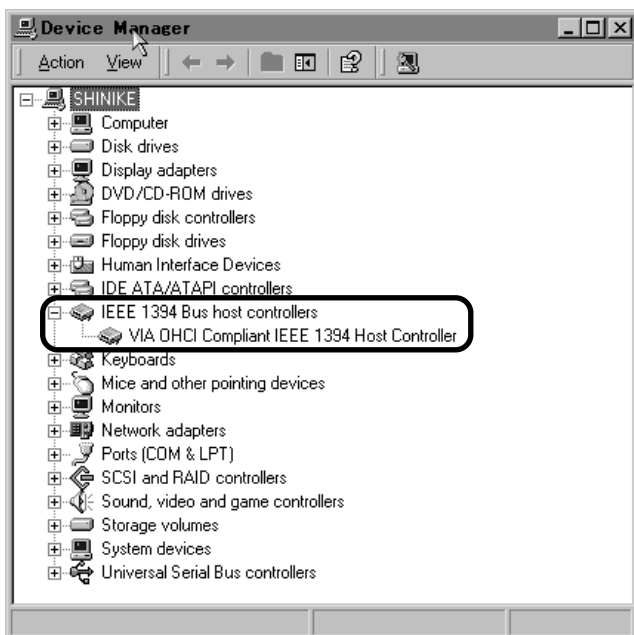
Recommended: Follow your DAW software requirements for processor speed, memory requirements, etc.

NOTE

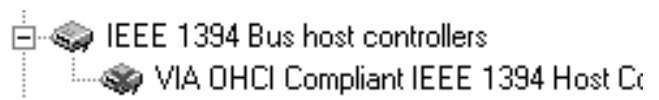
- The FW-1804 software cannot be used with Windows 95, Windows 98 or Windows Me due to lack of full support for IEEE 1394 in these operating systems.
- We strongly recommend that before the installation, you ensure that the latest patches, service packs, etc. are downloaded and installed, using the **Windows Update** feature.

In addition, you should also note that your computer must be fitted with an IEEE 1394 interface, which is enabled. This interface should be OHCI compliant. To check this, right-click on **My Computer** on the desktop and select **Properties**. From there, select the **Device Manager** on the **Hardware** tab.

You should see an item labeled **IEEE 1394 Bus host controllers**. Click the plus sign (+) next to it to expand it.

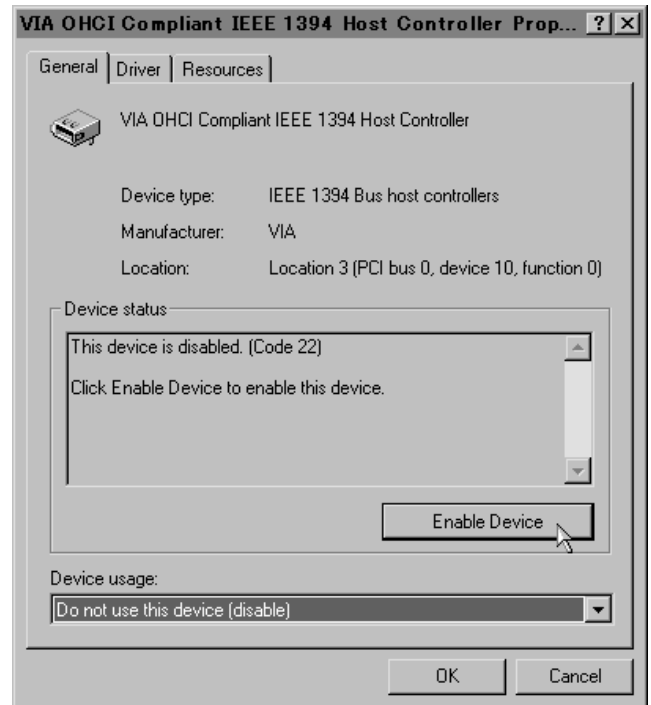


The controller fitted in your system should appear as shown above, with no question marks or crosses beside or over the icon.



The example above shows a disabled controller (with a cross over it). To enable it, double-click the controller icon, and from the **Properties** panel that appears, click the **Enable Device** button on the **General** tab.

Follow the instructions that appear on screen to re-enable the device.



Device conflicts, etc. as shown by question marks in the **Device Manager**, are out of the scope of this guide, and should be dealt with by reference to the manufacturer's documentation. In these cases, it may be necessary to re-install drivers, etc. before the IEEE 1394 functionality can be properly enabled.

Although this product has been checked for use with normally configured computers which meet the specifications above, we cannot guarantee the operation of the product, even with computers meeting the specifications, due to differences in architecture and implementation between computers.

Installing the Software

The software installation procedure is essentially the same for both Windows 2000 and Windows XP.

The installer program is identical for both operating systems, and is called **FW1804_WIN_x_yy.EXE** (x and yy represent major and minor revision numbers of the software).

NOTE

- You should visit the TASCAM Web site and check to see that you have the latest version of the software for the FW-1804. Download the latest version if necessary and proceed with the installation.

- 1 Make sure the FW-1804 is NOT connected to the computer. Connect the FW-1804 to the AC power, but do not turn it on yet.
- 2 Stop all other programs on your computer, including virus protection software.
- 3 Double-click on the installer program to run it.
- 4 Click the **Next** button. The **Welcome** dialog box appears.
- 5 Click the **Next** button. The driver files are installed on your hard drive.

NOTE: You may be prompted by a message informing you that the software you are about to install does not have a digital certificate. Simply click **Continue the installation anyway** and proceed.

- 6 If you are prompted to restart your computer, do so.
- 7 You can now connect the FW-1804 to the computer and turn it on. The Windows Plug and Play system detects the FW-1804 and starts the **Add New Hardware** wizard, which then discovers the needed files on its own.
- 8 When prompted, select the **Install the software automatically** option.

NOTE: You may be prompted again by a message informing you that the software you are about to install does not have a digital certificate. Simply click **Continue the installation anyway** and proceed.

This Plug and Play process takes around one minute to complete.

The drivers are now installed and the FW-1804 is ready to operate.

Installation (Mac OS X 10.2.8 and above)

System Requirements

A G3 or G4 Macintosh (including iMac, eMac, iBook, etc.) with a FireWire port, running Mac OS X 10.2.8 or above. Consult your DAW software requirements for RAM, processor speed, etc.

Perform the installation with the FW-1804 disconnected from the computer and turned off.

NOTE

- The FW-1804 will NOT operate with any version of Mac OS X prior to 10.2.8.
- You should visit the TASCAM Web site and check to see that you have the latest version of the software for the FW-1804. Download the latest version if necessary and proceed with the installation.

Installing the Software

- 1 The OS X image file may be mounted directly from the CD. If the TASCAM Web site has a later version, download that. Within the image file, there are two installer packages; one to install, and one to uninstall the FW-1804 software.
- 2 Double-click the **Installer** package.
- 3 Enter an Administrator name and password if prompted.
- 4 Follow the instructions on screen to install the software.
- 5 Restart the computer if necessary.
- 6 When you plug in the FW-1804 after rebooting the computer, the FW-1804 is recognized by the system.
- 7 The Control Panel operations are described in the *Owner's Manual*, which allow you to set up the Core Audio inputs and outputs for use in DAW applications, etc.
- 8 Use the **Sound System Preferences** pane to set the default inputs and outputs for the computer system.
- 9 You may also want to use the Apple **Audio and MIDI Setup** application to define some of the internal gain levels, etc. as well as defining the MIDI setups.

NOTE

- OMS and Free MIDI, etc. are not needed under OS X, as the FW-1804 uses the Core MIDI features of OS X to provide the MIDI facilities of the FW-1804 system-wide.

Installation (Mac OS 9.2)

System Requirements

A G3 or G4 Macintosh (including iMac, eMac, iBook, etc.) with a FireWire port, running Mac OS 9.2 or above. Consult your DAW software requirements for RAM, processor speed, etc.

Perform the installation with the FW-1804 disconnected from the computer and turned off.

NOTE

- The FW-1804 will NOT operate with any version of Mac OS prior to 9.2.
- You should visit the TASCAM Web site and check to see that you have the latest version of the software for the FW-1804. Download the latest version if necessary and proceed with the installation.

Installing the Software

On the CD-ROM (or the downloaded disk image), there are two packages, one for OS X and one for OS 9.2.

- 1 Insert the CD-ROM into the computer, and you may then drag the OS 9 installer package to your hard disk (or if the TASCAM Web site has a later version, download that version).
- 2 Double-click the installer file, and follow its instructions.
- 3 Connect the FW-1804 to the computer. When the FW-1804 is connected, the system will find the drivers which have just been installed by itself.

Setting Up OMS (Mac OS pre-X only)

Many applications rely on OMS for MIDI implementation. OMS (Open Music System) is a standard for MIDI management on the Macintosh. Since the FW-1804 can send and receive MIDI, you will need to install OMS in order to use the FW-1804. The exception is Digital Performer, which utilizes Free MIDI. The drivers support OMS and Free MIDI independently.

To set up OMS with the FW-1804:

- 1 First, run the OMS installer. If you do not have the current version of OMS, it may be freely downloaded at www.opcode.com.
- 2 Locate the **FW-1804 Drivers** folder, which was placed on your desktop when you ran the FW-1804 installer. In this folder, locate the **FW-1804 OMS driver**. Drag the **FW-1804 OMS driver** into the **OMS** folder inside your **System** folder. Do not drag this file into the **Opcode** folder on your hard drive—it will not work correctly.

- 3 Restart your computer. Then connect the FW-1804 and turn it on, and start the **OMS Setup** application (located in the **Opcode** folder on your hard drive).

- 4 Select **New Studio Setup** from the **File** menu.

When prompted to select a serial (modem or printer) port, leave both selections unchecked. Click **Yes** and continue. OMS will assess all the MIDI ports attached to your computer and build OMS instruments for the ones it recognizes.

- 5 When the setup is complete you should see a list of all your connected MIDI ports. At the least you should see icons pertaining to the FW-1804 specifically: the FW-1804 icon, and the MIDI ports of the FW-1804 (including the control MIDI port passed through the IEEE 1394 interface).

Once OMS setup is successfully completed, you can proceed with setting up the FW-1804 with your chosen application. Please refer to the specific documentation for your application and the main FW-1804 manual for more details.

Connections

CAUTION

- When turning on power, move from source to destination (in other words, turn on the monitoring system last). When turning off equipment, turn off the monitoring system first, and then turn off other equipment. This helps to prevent "thumps" that can damage your ears, and your equipment.

MIDI Connections

MIDI instruments, controllers etc. should be connected with their **MIDI OUTs** connected to the **MIDI IN** ports of the FW-1804.

The **MIDI OUT** ports of the FW-1804 should be connected to the **MIDI IN** ports of the external MIDI equipment.

Analog Audio Connections

The **MIC** connectors may be supplied with +48 V phantom power. This is switchable for channels 1 through 4 using the front panel switch.

The **LINE** connector for channel 8 can be switched to match the impedance of an electric guitar or bass.

CAUTION

- Always take care when switching the phantom power to ensure that devices which may be damaged if phantom power is supplied are not connected to XLR connectors where phantom power is supplied.
- Microphones should not be connected to or disconnected from the FW-1804 with phantom power switched on.
- Unbalanced dynamic microphones should never be connected to phantom-powered connectors.

Analog devices such as compressors, etc. may be connected using standard 1/4" TRS connectors with the **INSERT** jacks (channels 1 to 4). Use a special insert "Y" cable for this, with a TRS 1/4" plug at the foot of the Y (tip = send, ring = return), and the two branches fitted with an unbalanced 1/4" plug.

The basic connector specifications are given here for easy reference:

MIC input 1-4 (Balanced)

Connector	XLR 3-31 (combo jack) x 4 (1: GND, 2: Hot, 3: Cold)
Input impedance	2.0 k ohm
Adjustable input range	-57 dBu (TRIM max) to -3 dBu (TRIM min)
Maximum input level	+13 dBu
Phantom power	Switchable +48 V

LINE input 1-4 (Balanced)

Connector	1/4 inch TRS (combo jack) x 4 (T: Hot, R: Cold, S: GND)
Input impedance	10 k ohm
Adjustable input range	-43 dBu (TRIM max) to +11 dBu (TRIM min.)
Maximum input level	+27 dBu

LINE input 5-8 (Balanced)

Connector	1/4 inch TRS jack x 4 (T: Hot, R: Cold, S: GND)
Input impedance	15 k ohm
Adjustable input range	-42 dBu (TRIM max) to +4 dBu (TRIM min.)
Maximum input level	+20 dBu

GUITAR input (Input 8, Unbalanced)

Connector	1/4 inch TS jack (T: Hot, S: GND)
Input impedance	680 k ohm
Adjustable input range	-44 dBu (TRIM max) to +2 dBu (TRIM min.)
Maximum input level	+18 dBu

INSERT 1-4 (Unbalanced)

Connector	1/4 inch TRS jack x 4 (T: Send, R: Return, S: GND)
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Send

Output impedance	100 ohm
Nominal output level	-2 dBu
Maximum output level	+14 dBu

Return

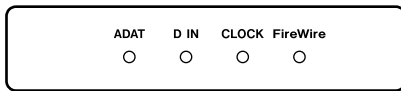
Input impedance	100 k ohm
Nominal input level	-2 dBu
Maximum input level	+14 dBu

STEREO OUT L, R (Balanced analog)

Connector	1/4 inch TRS jack x 2 (T: Hot, R: Cold, S: GND)
Output impedance	100 ohm
Nominal output level	+4 dBu
Maximum output level	+20 dBu

Status Indicators

The four green status indicators show the current status of:



ADAT: The 8-channel optical input

D IN: The stereo digital input (S/PDIF) either from the coaxial input, or from the optical input if this has been selected from the Control Panel as the S/PDIF source.

CLOCK: The system clock

FireWire: The IEEE 1394 connection

When these indicators are lit, it means that the appropriate connection has been made and the signal is being received properly.

A flashing **FireWire** indicator shows that there is an error in the IEEE 1394 connection.

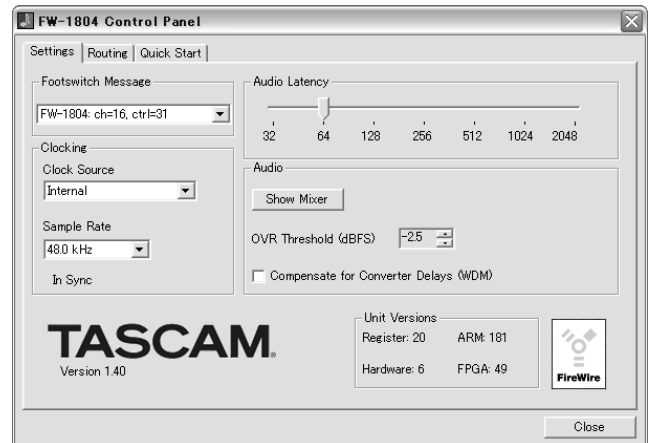
No indicator means "no connection" for all indicators except **CLOCK**. If any of the other three indicators are flashing fast, this shows an input error. A slowly flashing indicator indicates a lock problem.

Clock Source Setting

In a digital audio setup, there should be one and only current clock settings.

The FW-1804 may act as the clock master for the whole system, or it may act as a slave, taking a clock signal from one of the digital inputs or the BNC **WORD IN** connector.

The clock source and rate are set in the computer **Control Panel**:



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