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About the FW-1082

The FW-1082 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—all at up to 96kHz 24-bit, two physical MIDI input and two physical output ports, together with virtual control MIDI I/O and two virtual OUTs, and a control surface with motorized touch-sensitive faders, rotary encoders, transport keys and dedicated digital audio workstation function control keys.

It is connected to the host computer using a single 6-pin to 6-pin IEEE 1394 cable (supplied) that carries audio, MIDI and control information back and forth between the FW-1082 and the computer. See “The IEEE 1394 standard and the FW-1082” on page 6 for details.

The control surface can pass information to the host DAW application through the IEEE 1394 interface, using MIDI protocol.

NOTE

Before using the FW-1082 with a computer, you must install the necessary drivers and utility software on your computer. See “Installation (Windows 2000 and Windows XP)” on page 8, and “Installation (Mac OS X 10.2.8 and above)” on page 11 for details of how to do this.

The FW-1082 can also act as a standalone dedicated 10–2 monitor mixer in one of its main modes (see “MON MIX (monitor mix) surface mode” on page 5 for full details).

There are three main surface modes; accessed through the mode keys as shown here (COMPUTER, MIDI CTRL and MON MIX).

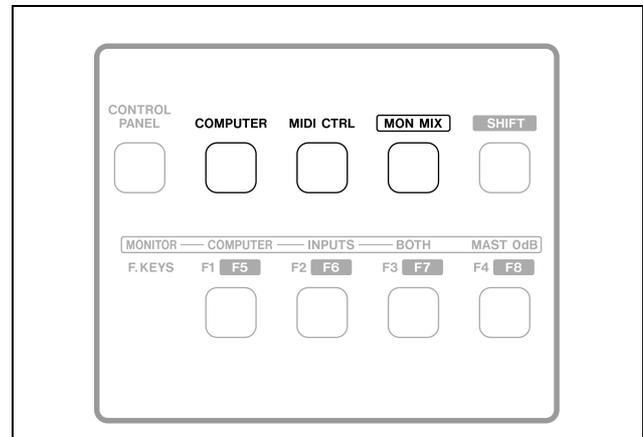


Figure 1.1: Mode selection keys

Pressing one of these keys will light it, and put the FW-1082 into the appropriate mode.

Although there are only eight physical channel modules fitted to the FW-1082, the **BANK** keys can be used to access different fader and module banks.

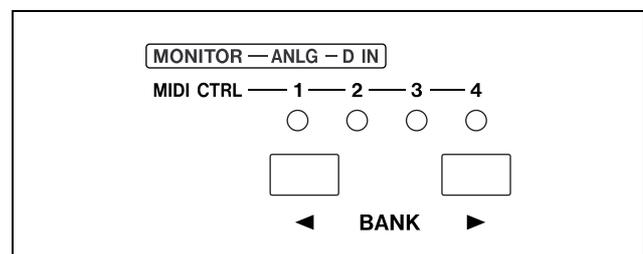


Figure 1.2: Bank selection keys

Note that the banks accessed by the **BANK** keys have different meanings depending on the surface mode selected (MON MIX mode, or MIDI CTRL mode, or COMPUTER mode); see the sections on these modes for details.

COMPUTER surface mode

In this surface mode, operating the surface controls sends messages to the DAW software on the host computer through the control MIDI port using the IEEE 1394 connection.

For operations carried out in this mode to have any effect, the FW-1082 should be connected to a host computer with the DAW software running, and configured to accept messages from the FW-1082 control MIDI port.

The FW-1082 operates by default in its Native Mode, typically used with dedicated control surface plug-ins. For those applications that do not have such a plug-in, it can emulate the Mackie Control or HUI protocols. The operating mode is selectable through the software Control Panel.

See the *Application Guide* for full details of how to operate the FW-1082 with your DAW software.

Two analog and/or two S/PDIF outputs are available for output, depending on the DAW software configuration.

MIDI CTRL (control) surface mode

In the MIDI control surface mode (MIDI CTRL), the surface controls are mapped to MIDI control messages. The **BANK** keys and indicators are used to select up to four banks (that is, 32 modules), and the controls can be set to transmit a different MIDI message in each bank.

This mapping of controls to messages is set up in the FW-1082 Control Panel of the host computer, and the process is fully described in the *User's Guide*.

MIDI messages may be transmitted from the physical MIDI OUT ports, or from the virtual MIDI OUT

The physical MIDI ports are usable by the DAW application for transmitting and receiving MIDI data to and from external MIDI equipment.

ports to the host computer (through the FireWire cable).

When a control is mapped to a physical MIDI output port in this mode, when the control is operated, the appropriate **OUT** indicator lights as the MIDI data is transmitted from the FW-1082.

Note that you do not need to connect the FW-1082 to a host computer to operate the unit in this mode with the physical terminals—you only need to connect a computer when you set up and map the MIDI messages.

MON MIX (monitor mix) surface mode

In this surface mode, the FW-1082 acts as a stand-alone mixer, mixing up to eight analog signals together with the two digital signals received at the coaxial digital input.

The FW-1082 provides level, pan, mute and solo capabilities for these input channels, mixing them into two outputs **MONITOR (BAL) 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.

Two banks are available using the **BANK** keys: the analog (**ANLG**), and the stereo digital input (**D IN**) banks. In the second of these, only the first two modules are active, corresponding to the stereo S/PDIF input channels.

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 one word clock in the system. Follow the instructions in "Clock source setting" on page 14 to set the word clock for the system.

Use the master fader to control the master stereo level, and the **MONITOR** control to adjust the level of the signal sent to the control room monitoring system (**MONITOR L** and **R**).

When the FW-1082 is in this mode, the three keys shown in Figure 1.3 are used for selecting the signals to be monitored:

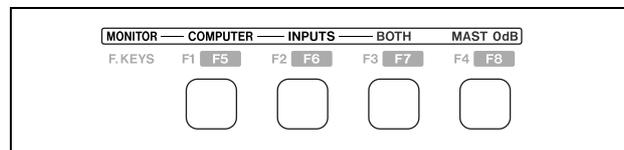


Figure 1.3: Monitor selection keys

- **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 analog and coaxial signals for monitoring.
- **BOTH** allows the computer signals to be monitored alongside the input signals

1 – Introduction

In the MON MIX mode, the fourth monitor selection key is used for a special function. When this key (marked as **MAST 0dB** in the **MONITOR** row of labels) is pressed, the master fader is moved to the unity gain (0dB) position.

Individual channels can be set to unity gain by pressing and holding the **SHIFT** key together with the channel's **SEL** key.

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

The **SOLO** and **MUTE** channel keys in MON MIX mode work to solo and mute the input signals associated with the channels.

The IEEE 1394 standard and the FW-1082

The IEEE 1394 standard allows high-speed communication between devices. Because of the high bandwidth (up to 400Mbps), it is suitable for applications such as multi-channel audio, as in the case of the FW-1082.

NOTE

The FW-1082 is supplied with a 2m (6-foot) cable. If you wish to use a longer cable, the length should not be more than 4.5m (15 feet) and the cable should be the best possible quality available to avoid data loss, which results in audio dropouts.

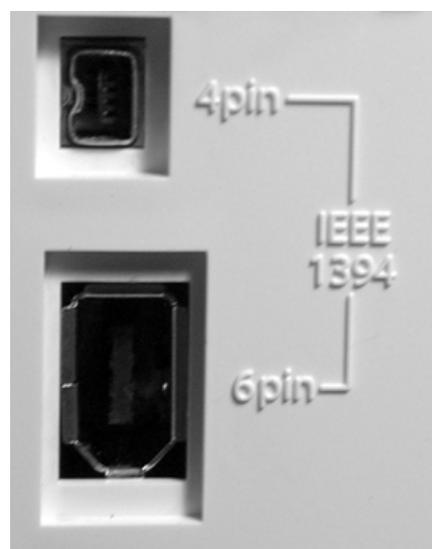
Many devices can be connected on a IEEE 1394 network. No termination is necessary on any device, and devices identify themselves uniquely on the system, so no ID switches, etc. need to be set.

Please note that while it is possible to “daisy-chain” IEEE.1394 devices, the FW-1082 is a high-bandwidth device and chaining other devices with it will very likely degrade its performance. It is therefore strongly recommended that the FW-1082 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

Despite the fact that you can connect and disconnect the FW-1082 to and from the computer with power turned on, we strongly recommend that all connections and disconnections are made with power to both the FW-1082 and the computer turned off. If the DAW software is running when connections are made or broken, it 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-1082 is 6-pin to 6-pin—some computers are only fitted with a 4-pin IEEE 1394 connector, and we recommend that for full bandwidth, 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-1082.

Before installing the software

The normal precautions apply when setting up the FW-1082:

- Make all (computer, audio and MIDI) connections to the FW-1082 with the power turned off. See “Connections” on page 12 for details of how to make connections.
- Do not connect the FW-1082 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.

2 – Installation (Windows 2000 and Windows XP)

When the FW-1082 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-1082 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 (see Figure 2.1).

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

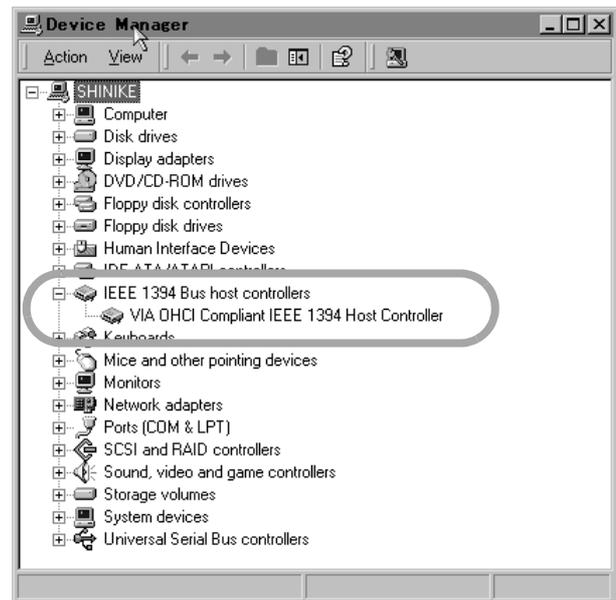


Figure 2.1: Windows Device Manager showing IEEE.1394 controller

The controller fitted in your system should appear as shown in Figure 2.1, with no question marks or crosses beside or over the icon.

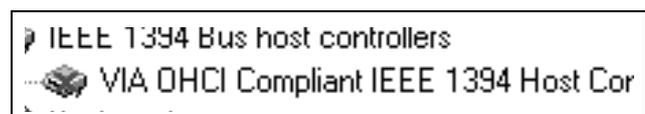


Figure 2.2: Disabled IEEE.1394 controller icon

2 – Installation (Windows 2000 and Windows XP)

The example in Figure 2.2 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 (Figure 2.3).

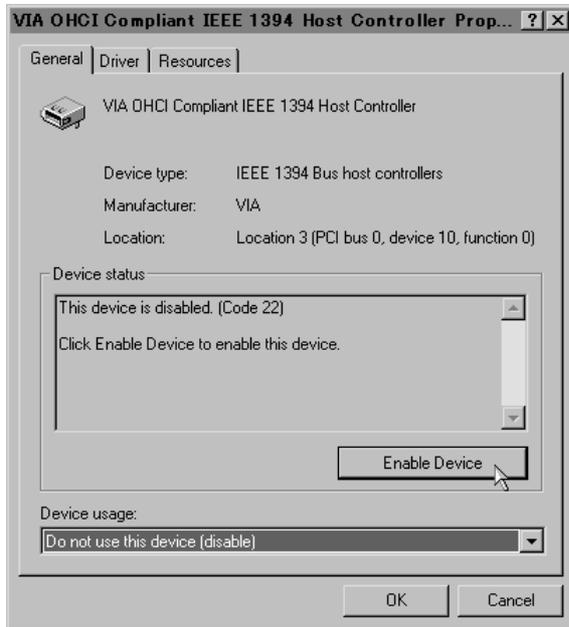


Figure 2.3: Enabling an IEEE.1394 device in Windows

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 `FW1082_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-1082. Download the latest version if necessary and proceed with the installation.

- 1 Make sure the FW-1082 is NOT connected to the computer. Connect the FW-1082 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-1082 to the computer and turn it on. The Windows Plug and Play system detects the FW-1082 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, and if any warnings appear regarding digital certificates, etc., ignore them and select `Continue` anyway.**
- This Plug and Play process takes around one minute to complete.**

2 – Installation (Windows 2000 and Windows XP)

The drivers are now installed and the FW-1082 is ready to operate.

SoftLCD

In addition to the Control Panel, the installation process also installs an application called SoftLCD and places a shortcut to it on the Desktop. This application displays the DAW messages that would be sent to the “scribble strip”, present on some control surfaces.

Consult the *Application Notes* to confirm that this software can be used with your DAW software in the emulation mode you choose (see the *User’s Guide* for details of selecting emulation modes).

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-1082 disconnected from the computer and turned off.

NOTE

The FW-1082 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-1082. 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-1082 software.
- 2** Double-click the `Installer` package.
- 3** Enter an Administrator name and password when prompted.
- 4** Follow the instructions on screen to install the software.
- 5** Restart the computer if necessary.
- 6** When you plug in the FW-1082 after rebooting the computer, the FW-1082 is recognized by the system.
- 7** The Control Panel operations are described in the *User's Guide*, 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 FreeMIDI, etc. are not needed under OS X, as the FW-1082 uses the CoreMIDI features of OS X to provide the MIDI facilities of the FW-1082 system-wide.

SoftLCD

In addition to the Control Panel, the installation process also installs an application called SoftLCD in the `/Applications` directory. This application displays the DAW messages that would be sent to a "scribble strip", present on some control surfaces.

Consult the *Application Notes* to confirm that this software can be used with your DAW software in the emulation mode you choose (see the *User's Guide* for details of selecting emulation modes).

4 – Connections

Always connect and disconnect equipment to and from the FW-1082 with the power to all units turned off.

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-1082.

The **MIDI OUT** ports of the FW-1082 should be connected to the **MIDI IN** ports of the external MIDI equipment.

NOTE

Because the IEEE 1394 cable carries all MIDI information between the FW-1082 and the host computer, including messages generated by the control surface and sent to it, as well as the two virtual MIDI OUTs to the host computer, there is no need to make any MIDI connection between the computer and the FW-1082.

Analog audio connections

The eight analog input channels have the following facilities:

Audio channel	LINE	MIC w/48V	INSERT
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	No
4	Yes	Yes	No
5	Yes	No	No
6	Yes	No	No
7	Yes	No	No
8	Yes	No	No

Table 4.1: Analog audio facilities

When connecting analog equipment, use only one of the **MIC** or **LINE IN** connectors—do not connect analog equipment to both at the same time.

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

	MIC	LINE IN (BAL)	INSERT
Connector	XLR-3 type: (1=ground, 2=hot, 3=cold)	Balanced 1/4" jack: T=hot, R=cold, S=ground	TRS 1/4" jack: T=send, R=return, S=ground
Input level (LINE and MIC adjustable with TRIM control)	–56 dBu to –2 dBu	–42 dBu to +12 dBu (chs 1–4) –43 dBu to +4 dBu (chs 5–8)	–2 dBu (maximum +14 dBu)

Table 4.2: Specifications of analog audio I/O

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

WARNING

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-1082 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 and 2). 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	LINE IN (BAL)	INSERT
Output level	—	—	-2 dBu (maximum +14 dBu)
Input impedance	2.2 k Ω	10 k Ω ^a	10 k Ω
Output impedance	—	—	100 Ω

Table 4.2: Specifications of analog audio I/O

- a. Channel 8 can be switched to **GUITAR** impedance at 500 k Ω using the **GUITAR | LINE/MIC** switch on the rear panel.

The **MONITOR** outputs are balanced (1/4" jack, wired as for the balanced inputs), and output signals at a nominal +4 dBu, with an impedance of 100 Ω . These should be connected to a monitoring system.

A note on output

In the software Control Panel, there are a number of options that you can set.

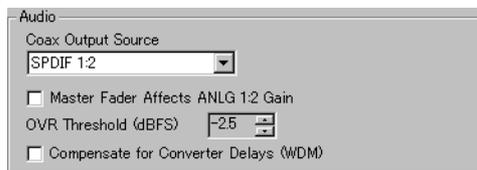


Figure 4.3: Audio output options in the Control Panel

The master fader can be set to control the level of the two analog outputs in monitor mix mode (if this is

turned off (default), the master fader affects the master stereo bus level inside the DAW software, but not the level output from the balanced outputs in monitor mix mode).

The threshold at which the **OL** signal indicators light to show an overload can be set using the control here. It can be varied between 0.0 and -5.0 dBFS, in 0.5 dBFS increments.

Also, the S/PDIF digital outputs can be set to mirror the analog monitor outputs (allowing you to record to a 2-track master recorder while monitoring through the analog outputs) or be independent of them.

Status indicators

The four green status indicators show the current status of:

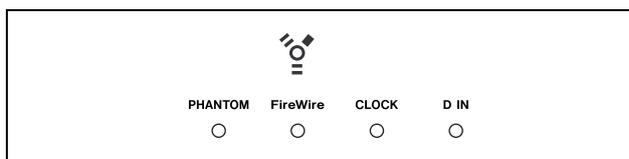


Figure 4.4: Indicators

- **PHANTOM** Whether the phantom +48V power is turned on for **MIC** inputs 1 through 4.
- **FireWire** The IEEE.1394 connection.

- **CLOCK** The system clock.
- **D IN** The stereo digital input from the coaxial input. 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.

4 – Connections

Clock source setting

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

The FW-1082 may act as the clock master for the whole system, or it may act as a slave, taking a clock signal from the **COAXIAL** input.

This is how you select the clock source:

- 1 Put the FW-1082 into MON MIX mode by pressing the **MON MIX** key which then lights.
- 2 Press one of the clock rate keys to select the sampling frequency:
 - 96kHz (EQ HI-AUX 1/5)
 - 88.2kHz (EQ HI MID-AUX 2/6)
 - 48kHz (EQ LO MID-AUX 3/7)
 - 44.1 kHz (EQ LOW MID-AUX 4/8)
- 3 Press either of the clock source keys:
 - **INTERNAL (EQ/PAN)** – Internal Clock
 - **D IN (AUX1-4)** – S/PDIF Input

When the FW-1082 is in MON MIX mode, these rate and source keys and indicators light to display the

current clock settings. Note that these keys have no meaning in MON MIX mode other than clock settings.

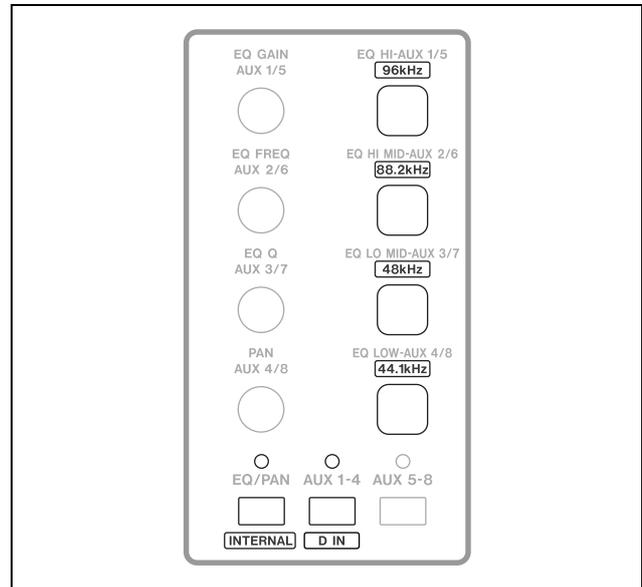


Figure 4.5: Clock keys and indicators

As an alternative, you can use the software control panel to select the clock source and sampling frequency:

Expected Sample Rate If the S/PDIF input is selected as the clock source and it does not have a usable clock signal, the **CLOCK** indicator flashes to indicate a problem, and the unit switches to its own internal clock and waits for a valid clock signal. If the sample rate is off by 3% or more, the FW-1082 switches to the incoming clock, and the nearest sample rate LED blinks slowly.

Other connections

Footswitch Connect an optional footswitch (e.g. the TASCAM RC-30P) to the **FOOT SW** jack).

You can use this footswitch as a punch controller with your DAW software.

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