

digital audio

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GAMBIT

AFI1

OPERATING MANUAL



Software Version: 1.0

Release Date: May, 2008

📄 Weiss Engineering Ltd., Florastr. 42, CH-8610 Uster Page 1

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Congratulations on purchasing the Weiss AFI1 Firewire Interface !

0 Introduction

The AFI1 is a 24 channel Firewire Interface with 8 channels of bidirectional AES/EBU interfaces and 16 channels of bidirectional ADAT Interfaces.

The AFI 1 simultaneously supports the following conversions:

- Firewire to AES/EBU (8 channels)
- AES/EBU to Firewire (8 channels)
- Firewire to ADAT (16 channels max.)
- ADAT to Firewire (16 channels max.)

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1 Features

Inputs:

Digital Audio inputs on

- Firewire (2 connectors),
- XLR (AES/EBU, 4 connectors),
- Toslink (ADAT, 2 connectors).

Outputs:

Digital Audio outputs on

- Firewire (2 connectors),
- XLR (AES/EBU, 4 connectors),
- Toslink (ADAT, 2 connectors).

Sampling Rates:

44.1, 48, 88.2, 96, 176.4, 192 kHz.

Number of ADAT channels:

- at 44.1/48: 16,
- at 88.2/96: 8,
- at 176.4/196: 4.

Software:

Drivers for Windows and OS X operating systems.

Power Supply:

Supply range: 100 . . . 240 V.
Power consumption 10 VA max.

Chainability:

2 Firewire connectors allow device chaining

2 Installation

Please perform the following installation procedure before plugging the device.

2.1 Windows

1. Run the installer "WeissFirewireInstaller.exe" which is supplied with the device.
2. Plug the device and power it up. This should automatically invoke the Windows driver installation procedure.
3. If Windows asks you for searching a driver update, reject it.
4. Select "automatic installation" and continue to install the driver.
5. If Windows complains about failed "Logo Test" or similar ignore it and continue the installation.

Now the device should be ready to use. If selected the installer creates shortcuts to the Control Panel in the start menu and on the desktop.

2.2 Mac OS X

1. Open the disk image.
2. Run the package installer WeissFirewire.dmg" and follow the instructions.
3. Restart the computer.

The Weiss Firewire I/O control panel can be found in the System Preferences in the "Other" category.

3 Settings

All connected AFI 1 devices can be controlled through the Weiss Firewire I/O control panel. The control panel is divided into three sections

Device Setting: Settings of a certain device (selectable from the "Available Devices" drop-down list.

Master Device Setting: Settings of the master (clock master) device.

Global Settings: Global workstation and device settings.

3.1 Device Settings

You can disable a certain device here and/or change its nickname (under which the device is presented to you in the control panel). Changing the device nickname becomes relevant when several devices are connected to one Firewire chain.

3.2 Master Device Settings

This selects the master device, its clock source and sample rate. All other devices on the Firewire chain (see 4.2) will sync to the master's clock. To change the master sample rate first select the new rate in the control panel, then change the sample rate at the device itself. It may be necessary to switch to a different rate first (at the control panel and device). Set the sample rate appropriately, even if the clock source is external. Observe the "Status" in the "Device Setting" and the "sync" LED on the device's frontpanel(s) to verify sync.

3.3 Global Settings

Windows: The main selection in this section is the I/O configuration ("Set In/Out Speaker Configuration") and the assignment of speaker I/O's to the AFI1's I/O channels ("Set In/Out Channels" ! "Set Speaker Mapping"! "Set" for each selected channel).

OSX: I/O channel assignments are handled by the applications, rather than by the OS. When applications access the AFI 1 interface (mostly referred to as Weiss Firewire I/O), notice that channels 1 . . . 8 are assigned to the AES/EBU channels by default, the remaining channels (sample rate dependent range) are assigned to the ADAT channels. When several AFI1's are connected (e.g. through Firewire chain), the I/O channels of each successive device are represented with the according offset (i.e. 2nd device: channels 17...32, given a master sample rate of 96 kHz).

4 Device Connectors

4.1 Audio I/O

The AES/EBU and ADAT I/O connectors represent the physical audio interface which is routed to/from the Firewire connection.

The AES/EBU channels may be used without limitation. Depending on the sample rate setting, 16 (44.1/48kHz), 8 (88.2/96 kHz) or 4 (176.4/192 kHz) ADAT channels are available.

Notice the following allocation of ADAT I/O channels depending on the sample rate:

| D I/O | 44.1/48 | 88.2/96 | 176.4/192 |
|-------|---------|---------|-----------|
| 9 | 9 | 9 | 9 |
| 10 | 10 | | |
| 11 | 11 | 10 | |
| 12 | 12 | | |
| 13 | 13 | 11 | 10 |
| 14 | 14 | | |
| 15 | 15 | 12 | |
| 16 | 16 | | |
| 17 | 17 | 13 | 11 |
| 18 | 18 | | |
| 19 | 19 | 14 | |
| 20 | 20 | | |
| 21 | 21 | 15 | 12 |
| 22 | 22 | | |
| 23 | 23 | 16 | |
| 24 | 24 | | |

Table 1: Assignment of ADAT channels at different sampling rates

As table 1 suggests, given a sample rate of e.g. 176.4 kHz, the 3rd ADAT-channel (referred to as channel 11) is to be found on the secondary ADAT Toslink-connector which is labeled as "DI 17-24" (resp. "DO 17-24"). The ADAT connection uses the SMUX format to work at higher sampling rates.

In case a device is set as master with external clock source, the appropriate audio input should be connected to a valid external source and the sampling rate configured correctly (see 3.2).

4.2 Firewire

The two Firewire connectors ("IEEE 1394") allow chaining several Firewire devices, such that only one Firewire port is occupied on the host computer.

To install such a Firewire chain, connect an AFI1 (or alike) to the host computer (using either "IEEE1394" connector A or B), then connect a

second device to the other "IEEE 1394" connector, and so on. Keep in mind that too much traffic on one Firewire bus may affect the device's data quality performance and result in dropouts.

4.2.1 Hot-Plugging Notice

Firewire devices can generally be plugged in and out at any time (Hot-Plugging). From the outset, this "feature" of Firewire has caused the death of numerous devices and bugged many users. A research on the internet shows countless cases of hard drives and computers that fail in the moment of plugging in the cable. The main problem is the power supply feature included in the Firewire cable (omitted on 4-pin connectors). During plugging and unplugging voltage spikes can occur which crosstalk to the data lines and destroy their sensitive electronics. While this problem can be minimized by specific measures (protection diodes at the data pins, soft-start power supplies etc.), it cannot be removed completely. There is always a remaining risk when plugging and unplugging a Firewire device, in case the Firewire connection also provides power for the attached device (Bus Power).

Therefore we strongly discourage Firewire users from Hot-Plugging.

Connect the Weiss Firewire unit to Firewire only when the computer and the Weiss unit are switched off so that the Firewire connection is without power.

4.3 Wordsync input / output on BNC connectors

The wordsync input accepts a TTL level wordsync signal for synchronizing the AFI1 to an external clock.

The wordsync output supplies a TTL level wordsync signal to external devices.

4.4 Frontpanel LEDs

power: indicates device is powered

IEEE 1394: indicates a Firewire connection to the host computer is established

sync: indicates device's synchronization lock to a valid clock source

OPERATING INSTRUCTIONS FOR GAMBIT FIREWIRE INTERFACE AFI1

Backpanel from left to right:



Entire backpanel:



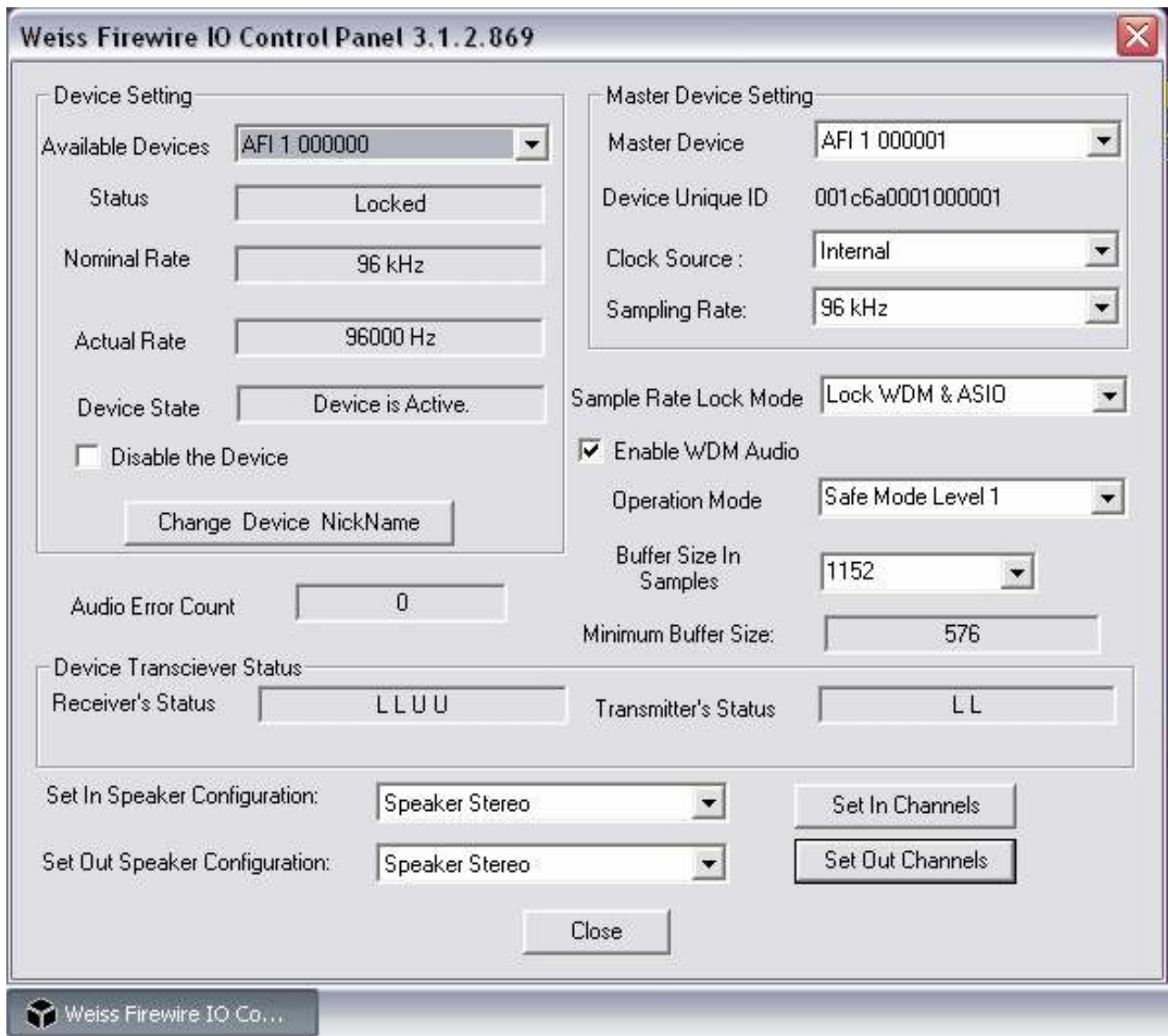
Frontpanel, left:



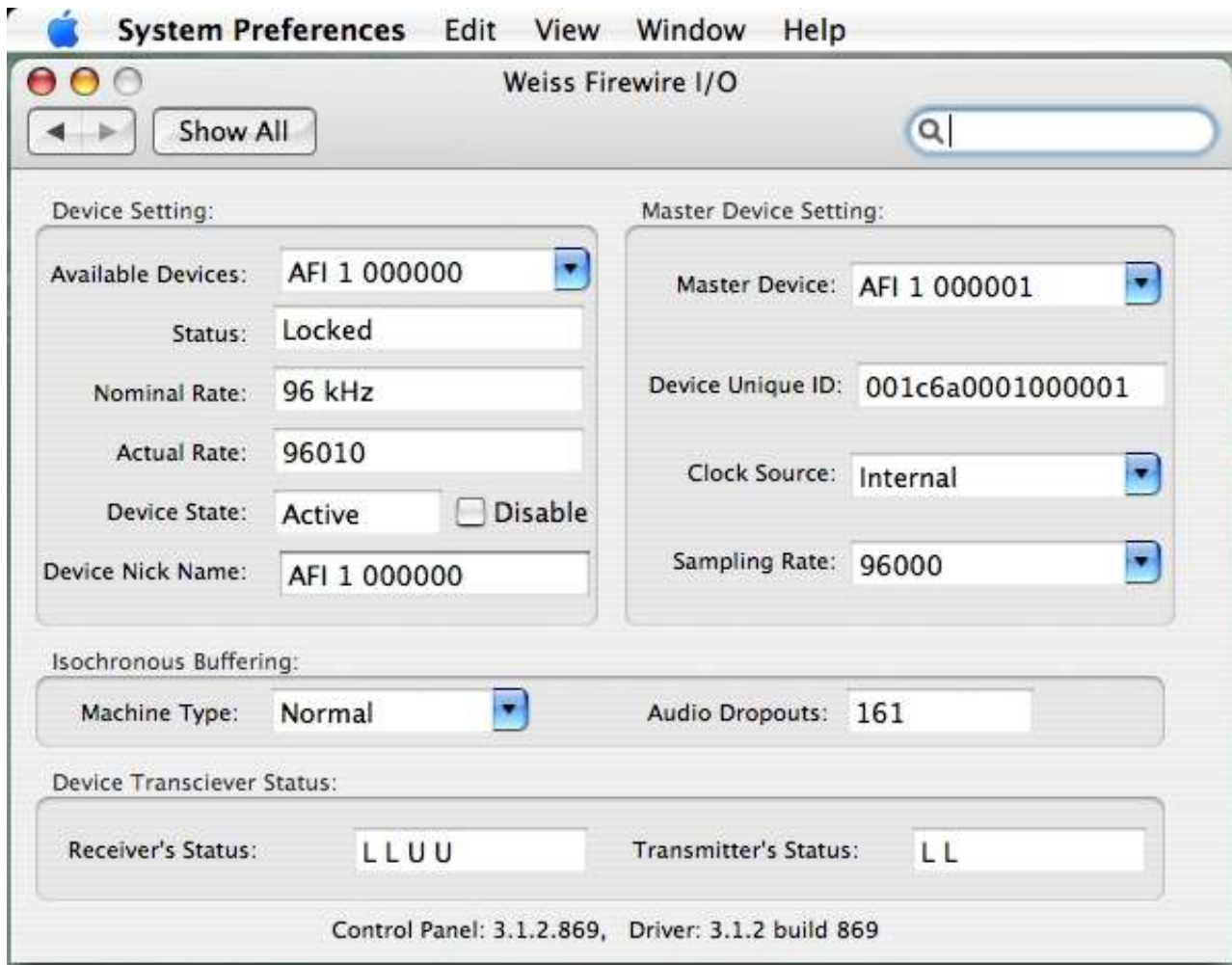
Entire frontpanel:



Screenshot Windows:



Screenshot Mac OSX:



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