

digital audio

weiss engineering ltd.

Florastrasse 42, 8610 Uster, Switzerland

☎ +41 44 940 20 06 ☎ +41 44 940 22 14

🌐 <http://www.weiss.ch> / <http://www.weiss-highend.com>

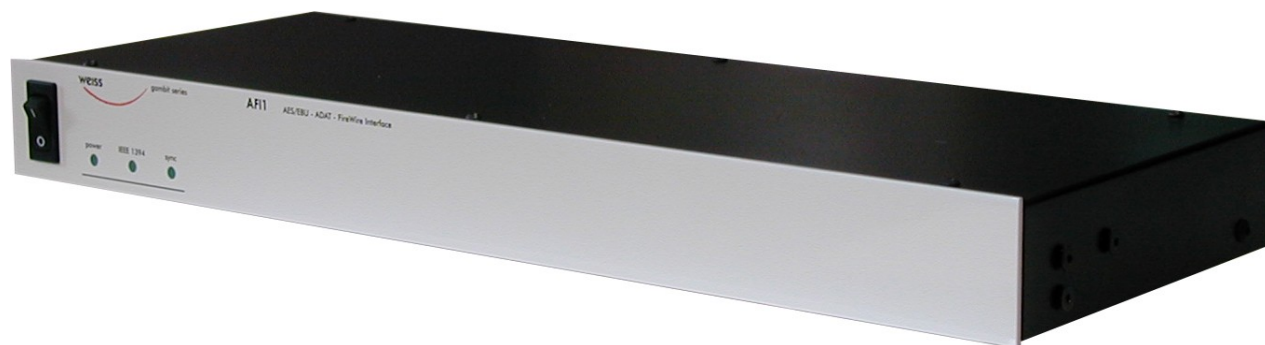
WEISS



GAMBIT

AFI1

OPERATING MANUAL



Software Version: 1.0

Release Date: December, 2008

🌐 Weiss Engineering Ltd., Florastr. 42, CH-8610 Uster Page 7

+41 44 940 20 06 ☎ +41 44 940 22 14 🌐 <http://www.weiss.ch> ✉ weiss@weiss.ch

digital audio

weiss engineering ltd.

Florastrasse 42, 8610 Uster, Switzerland

☎ +41 44 940 20 06 ☎ +41 44 940 22 14

🌐 <http://www.weiss.ch> / <http://www.weiss-highend.com>

WEISS



Authors: Uli Fanke, Rolf Anderegg, Weiss Engineering LTD.

Weiss Engineering LTD. reserves the right to make changes to product specification or documentation without prior notice. Updated manuals and datasheets are available at our website for downloading. Weiss Engineering LTD. makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does part of this manual, and specifically disclaims any and all liability, including without limitation consequential or incidental damages.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopying, scanning or any information storage or retrieval system without the express prior written consent of the publisher.

© Copyright Weiss Engineering LTD., 2008.

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.)

Contents:

| | |
|----------------------------|---|
| 1 Features | 3 |
| 2 Installation | 4 |
| 2.1 Windows | 4 |
| 2.2 Mac OS X | 4 |
| 3 Settings | 4 |
| 3.1 Device Settings | 4 |
| 3.2 Master Device Settings | 4 |
| 3.3 Global Settings | 4 |
| 4 Device Connectors | 5 |
| 4.1 Audio I/O | 5 |
| 4.2 Firewire | 5 |
| 4.2.1 Hot-Plugging Notice | 5 |
| 4.3 Wordsync input/output | 5 |
| 4.4 Frontpanel LEDs | 5 |
| Photos, screenshots | 6 |
| Contact | 9 |

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 Control Panel* can be found in the *Applications* folder. Certain settings are also available under the *Audio MIDI Setup (Applications → Utilities)*.

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 Settings: Settings and info of a certain device (selectable from the *Devices* list).

Global Settings: Global workstation and device settings.

3.1 Device Settings

General: Display a certain device's settings and status 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.

Firmware Loader: Display the device's current Firmware information. In case of a Firmware update you may browse to a newly released Firmware binary and upload it to your device. Please follow our respective release notes and consider that you may have to update your drivers as well.

3.2 Global Settings

Bus: select the *Master* device from the drop-down list, as well as its *Sample Rate* and *Sync Source*. All other devices on the Firewire chain (see 4.2) will sync to the master's clock. Set the sample rate appropriately, even if the clock source is external. Observe the *Measured Sampling Rate* and *Status* in the *Device Settings* and the *sync* LED on the device's frontpanel(s) to verify sync.

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

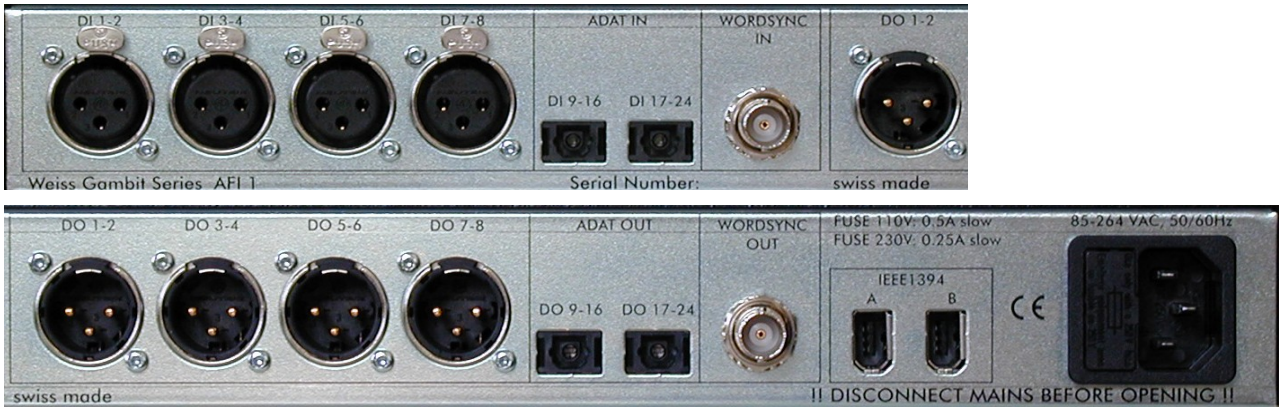
power: indicates device is powered

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

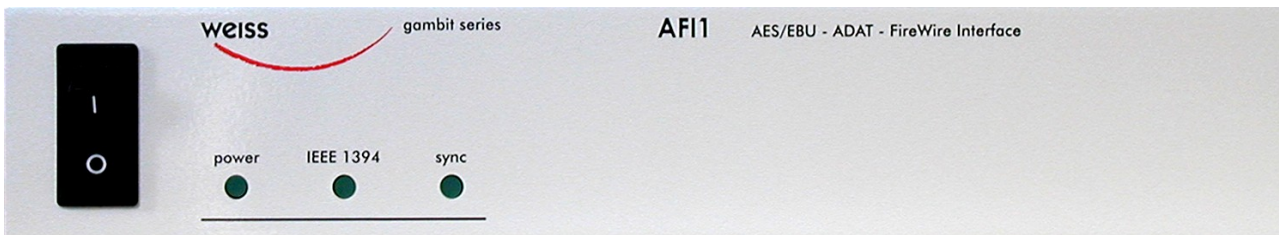
Backpanel from left to right:



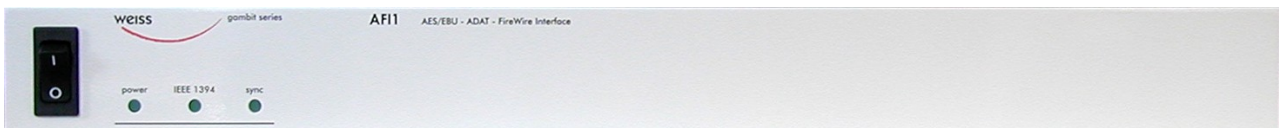
Entire backpanel:



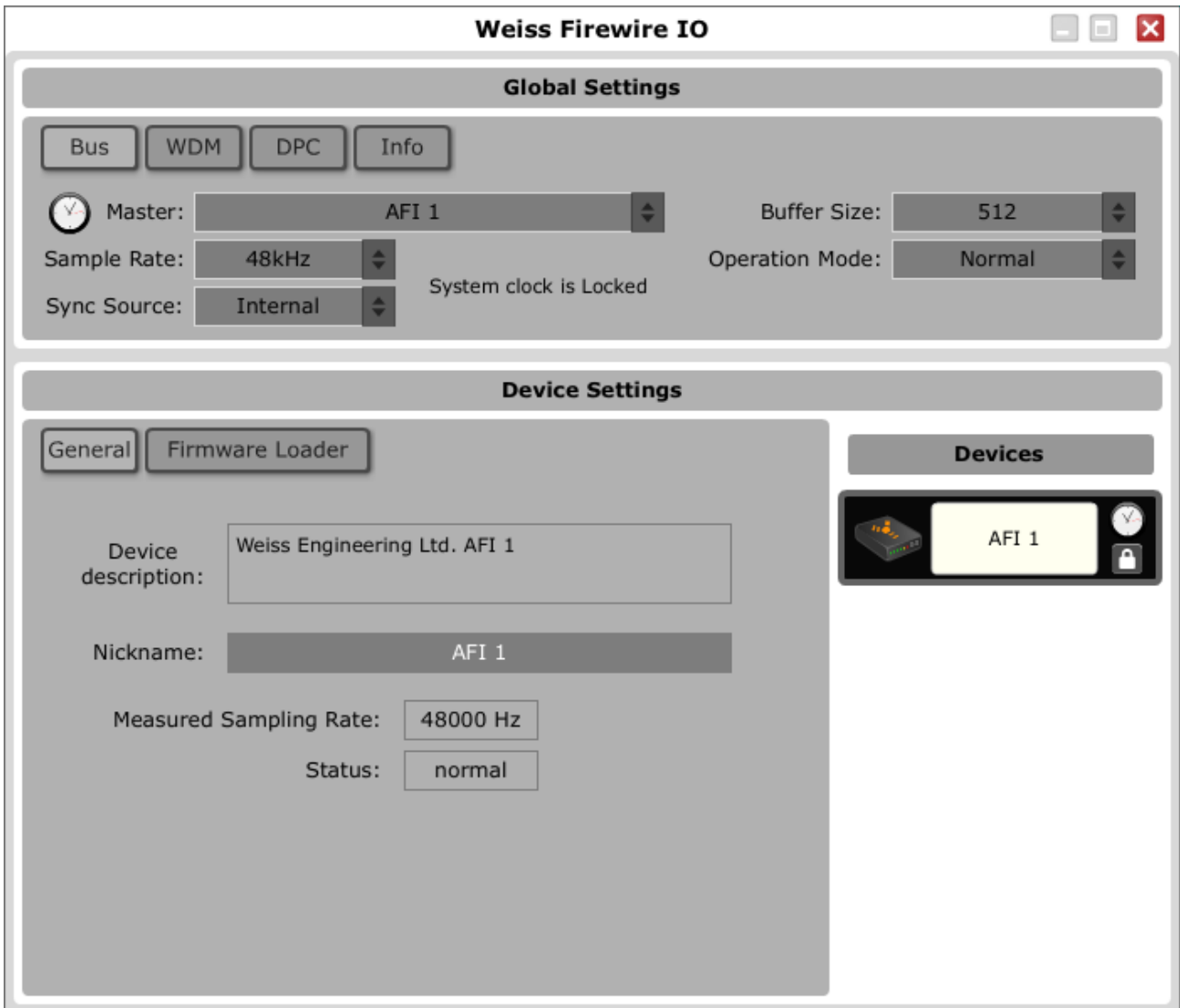
Frontpanel, left:



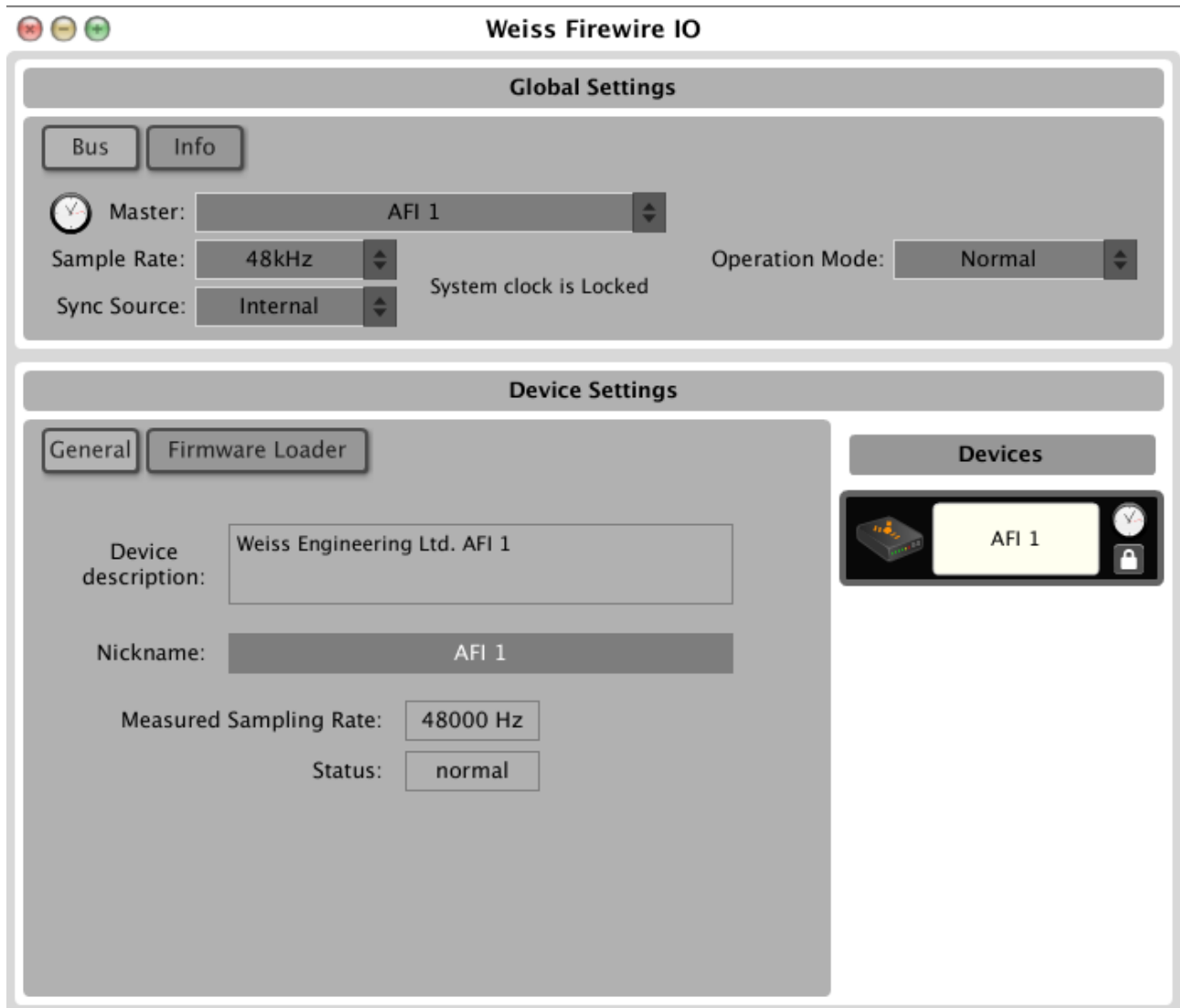
Entire frontpanel:



Screenshot Windows:



Screenshot Mac OSX:



Contact

Weiss Engineering LTD.
Florastrasse 42
CH - 8610 Uster
Switzerland
Phone: +41 44 940 20 06
Fax: +41 44 940 22 14
Web: <http://www.weiss.ch>
Email: weiss@weiss.ch

Copyright and Liability

Information supplied by this paper may be partly intellectual property of Weiss Engineering Ltd. and may be copyrighted. Weiss Engineering Ltd. supplies this information for demonstrational /educational purposes only. Any commercial application is prohibited. Information in this document is provided solely to inform the reader about theoretical aspects of audio-, digital- and analog signal processing. There are no express or implied copyright licenses granted hereunder to design or program any hard- or software based on the information in this document. Weiss Engineering Ltd. does not convey any license under its patent rights nor the rights of others. Weiss Engineering Ltd. reserves the right to make changes without further notice to anything herein. Weiss Engineering Ltd. makes no warranty, representation or guarantee regarding the suitability of its algorithms for any particular purpose, nor does Weiss Engineering Ltd. assume any liability arising out of the application or use of any part of this paper, and specifically disclaims any and all liability, including without limitation consequential or incidental damages.