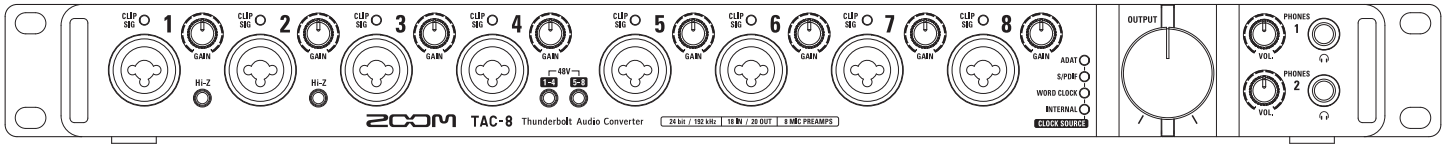
Thunderbolt™ Audio Converter TAC-8

Operation Manual



Contents

Introduction

Thank you very much for purchasing a ZOOM **TAC-8** Thunderbolt™ Audio Converter.
The **TAC-8** has the following features.

18-in/20-out Thunderbolt™ audio converter

The **TAC-8** audio converter uses Thunderbolt™, the latest generation of high-speed interface technology. With this, we have realized a system with low latency that was not possible using USB 2.0. Since it supports recording and playback at up to 24-bit/192kHz, it can also be used to play back high-resolution sound sources and deliver them with superior audio quality over the Internet.

Attention to audio performance

An asynchronous transfer system that is not impacted by computer jitter is used. The latest AD/DA converter, which supports 192 kHz, is used. So, the entire system reproduces the original audio faithfully.

Built-in high-performance mic preamps

The high-performance mic preamps are based on those developed for our H Series. Hi-Z input is supported. The gain can be raised by up to 60 dB, and +48V phantom power can be supplied.

Flexible built-in mixer and dedicated TAC-8 MixEfx mixer application

The **TAC-8** has a built-in mixer that allows you to freely route up to 20 output channels from among the 18 input channels and 20 computer playback channels. By using the **TAC-8 MixEfx** application designed for this interface, you can make settings for the built-in mixer and monitoring effects from a computer.
For details about **TAC-8 MixEfx**, see the ZOOM website (http://www.zoom.co.jp/downloads/).

Please read this manual carefully to fully understand the functions of the **TAC-8** so that you can make the most of it for many years.
After reading this manual, please keep it with the warranty in a safe place.

Usage and Safety Precautions

Safety Precautions

In this operation manual, symbols are used to highlight warnings and cautions that you must read to prevent accidents. The meanings of these symbols are as follows.

⚠ Warning	Something that could cause serious injury or death
⚠ Caution	Something that could cause injury or damage to the equipment

Other symbols used

❗	An action that is mandatory
⃠	An action that is prohibited

⚠Warning

Alterations

⃠ Do not open the case or modify the product.

Operation using an AC adapter

❗ Never use any AC adapter other than a ZOOM AD-19.

❗ Always hold the AC adapter itself when disconnecting it from an outlet.

⃠ Do not do anything that could exceed the ratings of outlets and other electrical wiring equipment or supply power other than AC100V.

Before using the equipment in a foreign country or other region where the electrical voltage differs from AC100V, always consult with a shop that carries ZOOM products and use the appropriate AC adapter.

⚠Caution

Product handling

⃠ Do not drop, bump or apply excessive force to the unit.

❗ Be careful not to allow foreign objects or liquids to enter the unit.

Operating environment

⃠ Do not use in extremely high or low temperatures.

⃠ Do not use near heaters, stoves and other heat sources.

⃠ Do not use in very high humidity or where it could be splashed by water.

⃠ Do not use in places with frequent vibrations.

⃠ Do not use in places with much dust or sand.

Connection cables and input/output jacks

❗ Always turn the power OFF for all equipment before connecting any cables.

❗ Always disconnect all connection cables and the AC adapter before moving the unit.

Volume

⃠ Do not use at a loud volume for a long time.

Usage Precautions

Interference with other electrical equipment

In consideration of safety, the **TAC-8** has been designed to minimize its emission of electromagnetic waves and to suppress interference from external electromagnetic waves. However, equipment that is very susceptible to interference or that emits powerful electromagnetic waves could result in interference if placed nearby. If this occurs, place the **TAC-8** and the other device farther apart.

With any type of electronic device that uses digital control, including the **TAC-8**, electromagnetic interference could cause malfunction, corrupt or destroy data and result in other unexpected trouble. Always use caution.

Rack mounting

If you are unable to mount the **TAC-8** in the rack you are using, remove the rubber feet from its bottom panel.

Cleaning

Use a soft cloth to clean the exterior of the unit if it becomes dirty. If necessary, use a damp cloth that has been wrung out well to wipe it.

Never use abrasive cleansers, wax or solvents such as alcohol, benzene or paint thinner.

Temperature considerations

Continuous use of this interface for long periods of time, for example, might cause it to become warm. This is normal as long as it does not become too hot to touch.

Breakdown and malfunction

If the **TAC-8** should malfunction or operate abnormally, disconnect it immediately. Contact the store where you bought the unit or ZOOM service with the following information: product model, serial number and specific symptoms of breakdown or malfunction, along with your name, address and telephone number.

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- Macintosh® and Mac OS® are trademarks or registered trademarks of Apple Inc.
- Thunderbolt™ and the Thunderbolt™ logo are trademarks of Intel Corporation in the US and other countries.
- ADAT and ADAT Optical are trademarks of inMusic Brands Inc. in the US and other countries.
- MIDI is a registered trademark of the Association of Musical Electronics Industry (AMEI).
- Other product names, registered trademarks and company names in this document are the property of their respective companies.

Names of Parts

■ Front Panel

Level indicators
The LED lights red when the signal clips.

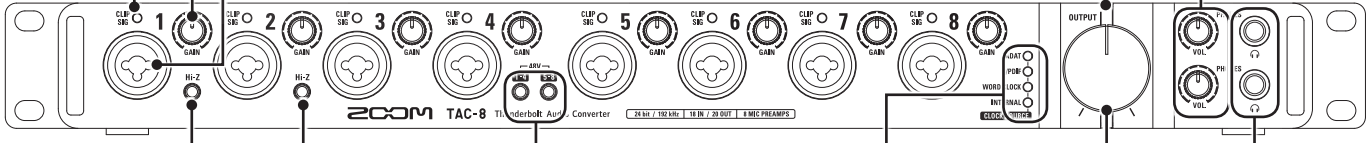
Input gain knobs
Use to adjust the input gain of the mic preamp.

INPUT jacks
These analog signal input jacks have mic preamps. You can connect mics, keyboards and guitars to them. These can be used with both XLR and 1/4-inch (balanced or unbalanced) phone plugs.

Inputs 1 to 8

Power indicator
This lights when the **TAC-8** is turned on.

PHONES 1 and 2 volume knobs
Use these to adjust the headphone volumes of the PHONES 1 and 2 jacks.



Hi-Z switches
Use to switch the input impedances of inputs 1 and 2. Turn them on when connecting a guitar or bass guitar.

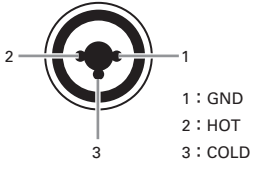
PHANTOM switches
Set these to on to supply phantom power to inputs 1–4 and 5–8.

CLOCK SOURCE indicators
These show the clock source that is being used: ADAT, S/PDIF, WORD CLOCK or INTERNAL.

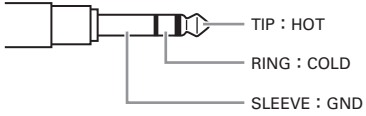
MAIN OUTPUT level knob
Use to adjust the volume of the audio signal output from the MAIN OUTPUT jacks.

PHONES 1 and 2 jacks
Connect headphones to these.

XLR



TRS



Standalone mode

In standalone mode, the **TAC-8** can be used as an eight-channel mic preamp and digital input/output device without being connected to a computer. When used in standalone mode, operation is set in advance using the **TAC-8 MixEfx** mixer application.

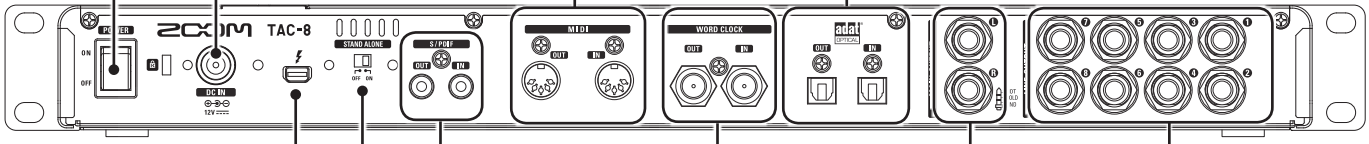
■ Rear Panel

POWER switch
Turns the **TAC-8** ON/OFF.

DC 12V AC adapter connector
Connect the included AC adapter here.

MIDI IN/OUT jacks
Connect a MIDI keyboard or MIDI controller to the MIDI IN jack.
Connected MIDI sound module or other device to the MIDI OUT jack.

ADAT OPTICAL IN/OUT jacks
Connect optical cables that comply with the ADAT Optical standard.
These can send and receive digital audio signals in ADAT, SMUX and SMUX4 formats.



Thunderbolt port
Connect this to a computer.

STAND ALONE switch
Use to turn standalone mode on/off. (→P.4)

S/PDIF IN/OUT jacks
Connect coaxial cables that comply with the S/PDIF standard.
Two channels of digital audio signals in S/PDIF format can be sent and received at resolutions up to 24-bit/192kHz .

WORD CLOCK IN/OUT connectors
Use these to send and receive word clock signals between the [TAC-8] and other devices.

MAIN OUTPUT jacks
Connect speakers with built-in amplifiers or an amplifier and speaker system.
These support balanced output with 1/4-inch phone plugs.

LINE OUTPUT jacks
Connect monitors for multichannel monitoring or external effects.
These support balanced output with 1/4-inch phone plugs.

NOTE

When shipped new from the factory, the AD/DA converter upsampling function is enabled. This will cause operation with a 4x sampling rate when the sampling rate is 44.1/48 kHz. See the **TAC-8 MixEfx** Reference Guide to disable it.

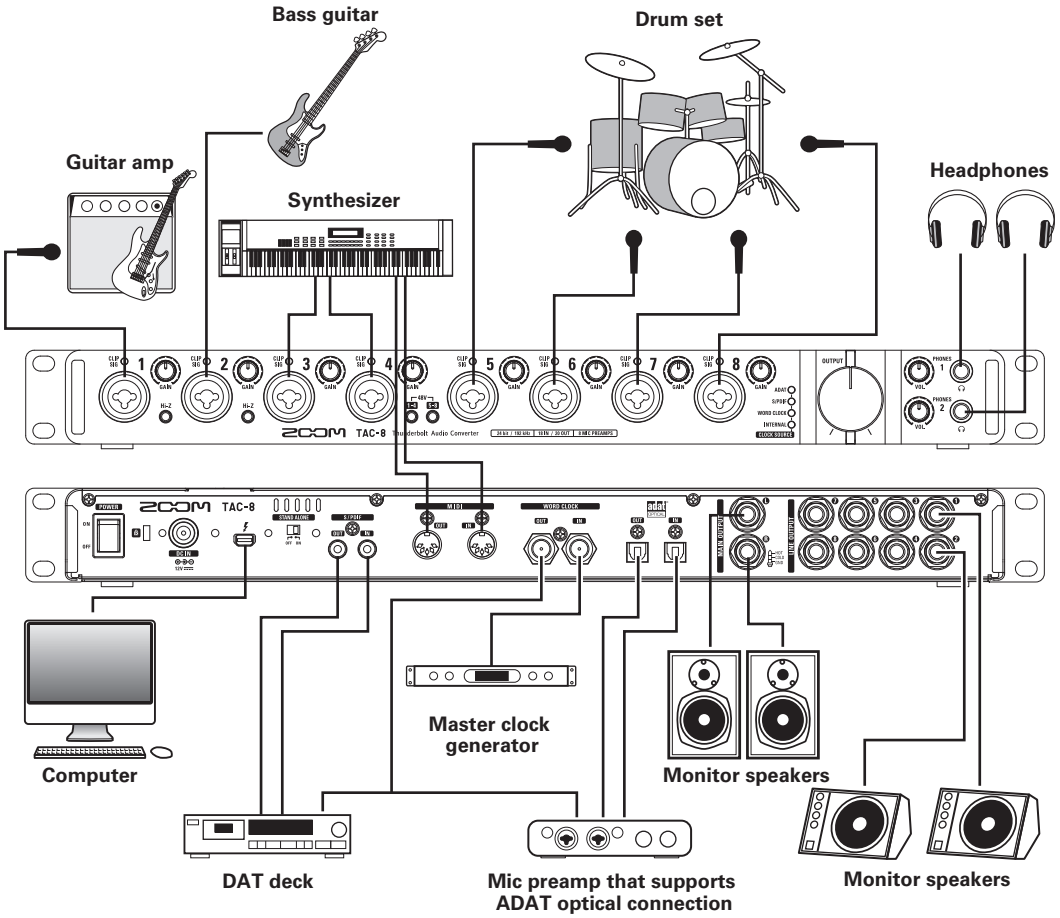
Sampling rates and inputs/outputs

Sampling rate	Analog inputs/ outputs	S/PDIF inputs/ outputs	ADAT inputs/ outputs	Total inputs/ outputs
44.1 or 48kHz	8/10	2/2	8/8	18/20
88,2 or 96kHz	8/10	2/2	4/4	14/16
176.4 or 192kHz	8/10	2/2	2/2	12/14

Upsampling

When the original sampling rate is 44.1 kHz or 48 kHz, internal processing can allow operation at 176.4 kHz or 192 kHz (enabled when shipped new from the factory). This eliminates aliasing noise from the sound during A/D conversion and makes the sound with D/A conversion even clearer than before.

Basic Connections



Installing the Driver

NOTE

Do not connect the **TAC-8** until installation completes.

1. Download the "ZOOM TAC-8 Driver" from http://www.zoom.co.jp/downloads/ to the computer.

NOTE

- You can download the latest "ZOOM TAC-8 Driver" from the above website.
- The supported operating systems are as follows.
  Mac OS X 10.9.5 or later

2. Click the "ZOOM TAC-8 Driver.pkg" icon to launch the installer.

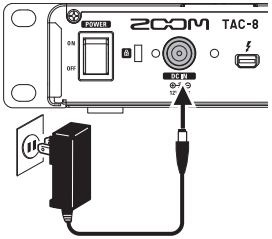
Follow the instructions that appear on screen to install the ZOOM TAC-8 Driver.

Turning the Power On and Off

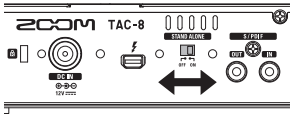
■Turning the Power On

1. Minimize the volume of output devices connected to the **TAC-8**.

2. Connect the AD-19 adapter.



3. Use STAND ALONE (OFF ON) to select the mode.



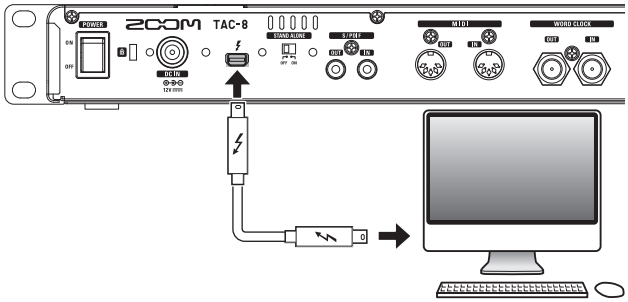
OFF: Use as an audio interface connected to a computer. → Continue with step **4**.

ON: Use as a standalone mic preamp not connected to a computer (standalone mode). → Continue with step **5**.

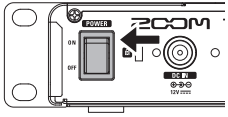
NOTE

Connection to a computer is not possible when the STAND ALONE switch is set to ON.

4. If OFF was selected in step 3, connect the **TAC-8** to the computer using a Thunderbolt™ cable.



5. Set POWER (ON OFF) to ON.

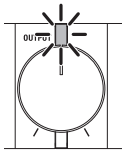


In standalone mode, the unit operates by itself according to the settings made in **TAC-8 MixEfx**.

NOTE

If the driver is not installed on the connected computer, the **TAC-8** will not be recognized. (→P.7)

6. Confirm that the power indicator is lit.



NOTE

TAC-8 startup and connecting with the computer could take some time and the power indicator might blink. Wait until the indicator stops blinking and stays lit.
If it continues to blink even after waiting some time, try turning the power off and on again.

HINT

In standalone mode, the **TAC-8** will automatically turn off after 10 hours. If you want it to stay ON all the time, see the **TAC-8 MixEfx** Reference Guide and set the power management function to OFF.

■Turning the Power Off

1. Minimize the volume of devices connected to the **TAC-8**.

2. Turn off connected amps and monitor speakers, for example.

3. Set 

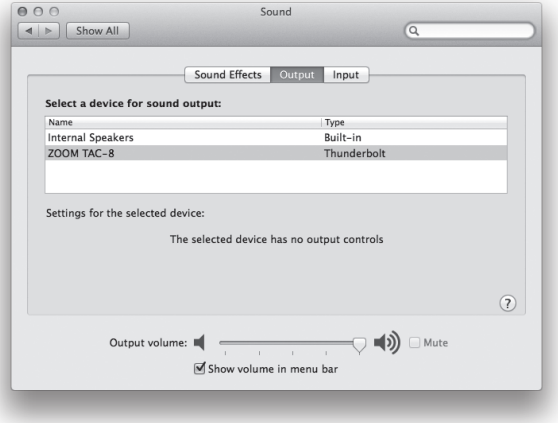
to OFF.

Setting Input and Output Devices

NOTE

Settings must be made in DAW software to use the **TAC-8** with it for recording and playback.

1. Open the Sound pane of the System Preferences and set both the Input and Output to "ZOOM TAC-8".



2. Select the **TAC-8** as the audio input and output device in the DAW software.

The **TAC-8** inputs correspond to the ports as follows.

Input device

Device name	Port name	Corresponding input
ZOOM TAC-8	1	INPUT1
	2	INPUT2
	3	INPUT3
	4	INPUT4
	5	INPUT5
	6	INPUT6
	7	INPUT7
	8	INPUT8
	9	S/PDIF L
	10	S/PDIF R
	11	ADAT1
	12	ADAT2
	13	ADAT3
	14	ADAT4
	15	ADAT5
	16	ADAT6
	17	ADAT7
	18	ADAT8

NOTE

You can use **TAC-8 MixEfx** to route output signals to output jacks freely.

For details, see the **TAC-8 MixEfx** Reference Guide.

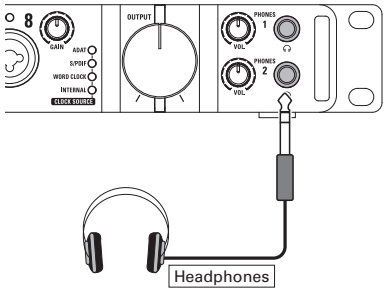
HINT

See the owner's manual for the DAW software that you are using for instructions about how to set the input and output devices.

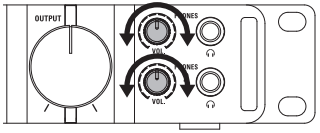
Adjusting Headphone and Speaker Volume

■ Adjusting Headphone Volume

1. Connect headphones to PHONES 1 or PHONES 2.



2. Turn the VOL. for PHONES 1 or PHONES 2 to adjust the headphone volume.

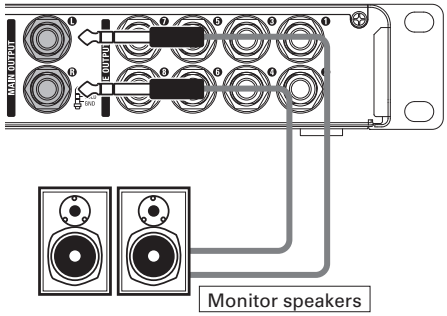


NOTE

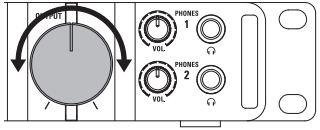
- The same signals are output from PHONES 1 as the MAIN OUTPUT jacks.
- For PHONES 2, you can use **TAC-8 MixEfx** to set the output signal to MAIN OUTPUT or LINE OUTPUT 1/2, 3/4, 5/6 or 7/8. By default, the same signals are output as the MAIN OUTPUT jacks. For details, see the **TAC-8 MixEfx** Reference Guide.

■ Adjusting Speaker Volume

1. Connect monitor speakers to the MAIN OUTPUT jacks.



2. Turn the OUTPUT to adjust the speaker volume.



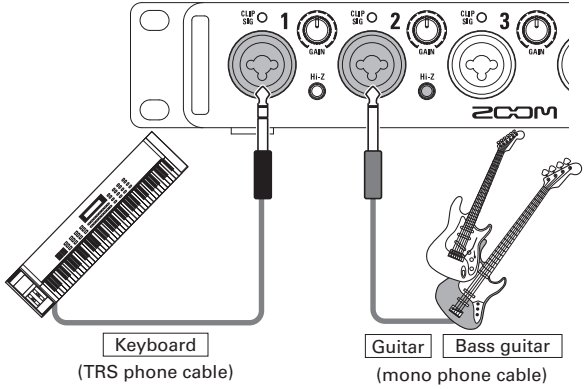
NOTE

The OUTPUT volume only affects the MAIN OUTPUT. Use **TAC-8 MixEfx** to adjust other output volumes.
For details, see the **TAC-8 MixEfx** Reference Guide.

Using Instruments and Mics

■ Connecting Instruments

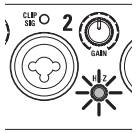
Connect instruments to INPUTS 1 to 8 using TRS/mono phone cables.



NOTE

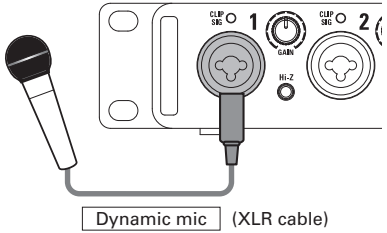
Using the Hi-Z function

- When using a passive guitar or bass guitar, connect it to INPUT 1 or 2, and push that input's Hi-Z button so that it lights.
- When connecting a keyboard or other instrument to INPUT 1 or 2, press its Hi-Z so that it becomes unlit.



■ Connecting Mics

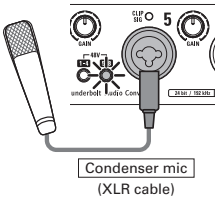
Using XLR cables, connect mics to INPUTS 1 to 8.

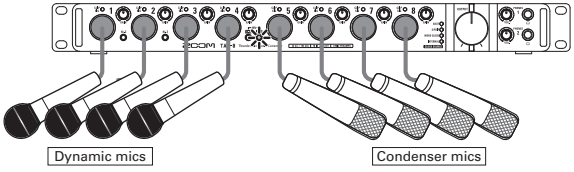


NOTE

Using Phantom Power

- To use a condenser mic, press 48V for the connected INPUT so that it lights. Phantom power is supplied when this switch is lit.
- When the corresponding switch is lit, phantom power is supplied to INPUTS 1–4 or INPUTS 5–8 at the same time.
- To use dynamic mics and condenser mics at the same time, consider the use of phantom power when connecting them to the inputs.



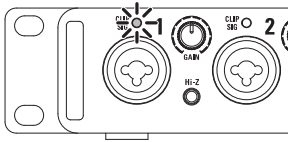


■ Adjusting the Input Gain

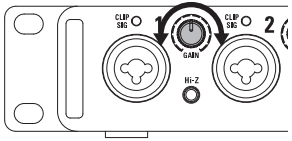
You can adjust the gain of each INPUT.

1. Check CLIP SIG ○ to see the status of an input signal.

Lit green: Input signal present.
Lit red: Input signal is clipping.



2. Turn GAIN to adjust the input gain.



HINT

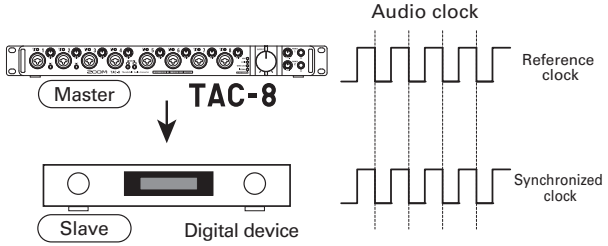
Set it so that the level indicator does not light red.

Using Digital Audio Equipment

■ About Digital Audio Clock

When the **TAC-8** is connected to other digital audio equipment, audio clock must be synchronized in order to transfer audio data between them. If they are not synchronized, noise and various other problems will occur.

To synchronize audio clock, one device must operate as the master, which sets the reference clock, and the other must operate as a slave.



The **TAC-8** is operating as the master, and the audio clock of the **TAC-8** and the other digital device are synchronized.

■ Connecting S/PDIF Devices

1. Minimize the volume of output devices connected to the **TAC-8**.

HINT

When connected, noise might occur until clock synchronizes.

2. Set the same sampling rates for the **TAC-8** and the connected device.

NOTE

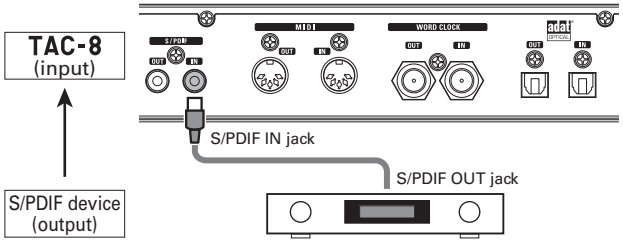
For instructions about how to change the sampling rate of the **TAC-8**, see the **TAC-8 MixEfx** Reference Guide.

►Inputting an S/PDIF signal to the TAC-8

3. Use **TAC-8 MixEfx** to set CLOCK SOURCE to S/PDIF.

The S/PDIF CLOCK SOURCE indicator will blink.

4. Connect the S/PDIF device to the S/PDIF IN.



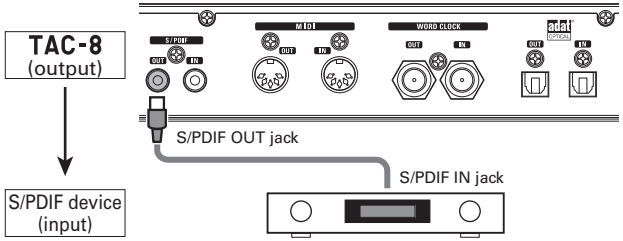
5. The S/PDIF CLOCK SOURCE indicator will light, confirming synchronization.

►Outputting a S/PDIF signal from the TAC-8

3. Use **TAC-8 MixEfx** to set CLOCK SOURCE to INTERNAL.

The INTERNAL CLOCK SOURCE indicator will blink.

4. Connect the S/PDIF device to the S/PDIF OUT.



NOTE

- To synchronize audio clock, the **TAC-8** and the connected device must have the same sampling rate settings.
- When using an S/PDIF device with a word clock function, you can connect the **TAC-8** WORD CLOCK OUT connector to the S/PDIF device word clock input connector and synchronize them. (→P.18)
- If CLOCK SOURCE is set to S/PDIF, but synchronization with an S/PDIF device is not possible, the CLOCK SOURCE indicator will blink. In this case, the **TAC-8** will operate using its internal clock.

Using Digital Audio Equipment (continued)

■ Connecting ADAT Optical Devices

1. Minimize the volume of output devices connected to the **TAC-8**.

HINT
When connected, noise might occur until clock synchronizes.

2. Set the same sampling rates for the **TAC-8** and the connected device.

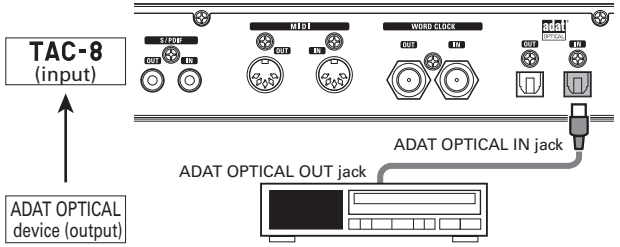
NOTE
For instructions about how to change the sampling rate of the **TAC-8**, see the **TAC-8 MixEfx** Reference Guide.

►Inputting an ADAT optical signal to the TAC-8

3. Use **TAC-8 MixEfx** to set CLOCK SOURCE to ADAT.

The ADAT CLOCK SOURCE indicator will blink.

4. Connect the ADAT optical device to the ADAT OPTICAL IN.



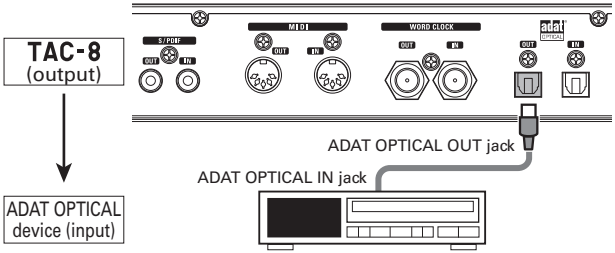
5. The ADAT CLOCK SOURCE indicator will light, confirming synchronization.

►**Outputting an ADAT Optical signal from the TAC-8**

3. Use **TAC-8 MixEfx** to set CLOCK SOURCE to INTERNAL.

The INTERNAL CLOCK SOURCE indicator will blink.

4. Connect the ADAT Optical device to the ADAT OPTICAL OUT.



NOTE

- To synchronize audio clock, the **TAC-8** and the connected device must have the same sampling rate settings.
- When using an ADAT Optical device with a word clock function, you can connect the **TAC-8** WORD CLOCK OUT connector to the ADAT Optical device word clock input connector and synchronize them. (→P.18)
- If CLOCK SOURCE is set to ADAT, but synchronization with an ADAT Optical device is not possible, the CLOCK SOURCE indicator will blink. In this case, the **TAC-8** will operate using its internal clock.

Using Digital Audio Equipment (continued)

■ Connecting the WORD CLOCK Connectors

Use the WORD CLOCK connectors when you want to synchronize with a master clock generator, for example.

1. Minimize the volume of output devices connected to the **TAC-8**.

HINT
When connected, noise might occur until clock synchronizes.

2. Set the same sampling rates for the **TAC-8** and the connected device.

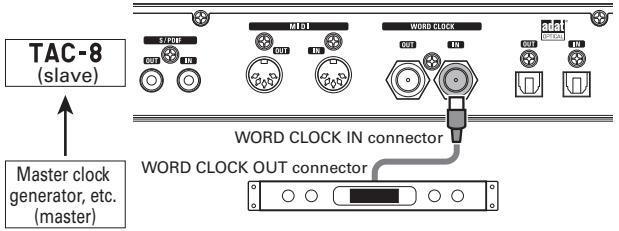
NOTE
For instructions about how to change the sampling rate of the **TAC-8**, see the **TAC-8 MixEfx** Reference Guide.

►Using the connected device as the master clock

3. Use **TAC-8 MixEfx** to set CLOCK SOURCE to WORD CLOCK.

The WORD CLOCK CLOCK SOURCE indicator will blink.

4. Connect the other device to the WORD CLOCK IN.



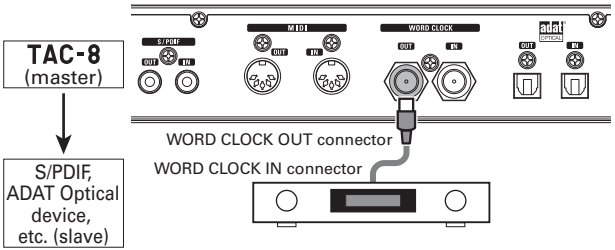
5. The WORD CLOCK CLOCK SOURCE indicator will light, confirming synchronization.

►**Using the TAC-8 as the master clock**

3. Use **TAC-8 MixEfx** to set CLOCK SOURCE to INTERNAL.

The INTERNAL CLOCK SOURCE indicator will blink.

4. Connect the other device to the WORD CLOCK OUT.



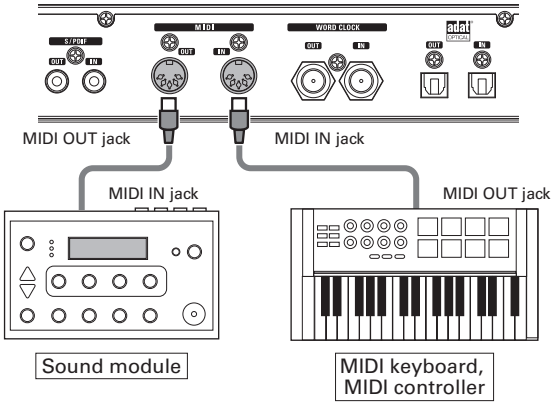
NOTE

- To synchronize audio clock, the **TAC-8** and the connected device must have the same sampling rate settings.
- If CLOCK SOURCE is set to WORD CLOCK, but synchronization with the connected device is not possible, the CLOCK SOURCE indicator will blink. In this case, the **TAC-8** will operate using its internal clock.

Using Digital Audio Equipment (continued)

■ Connecting MIDI Devices

1. Use MIDI cables to connect MIDI devices to the MIDI IN and OUT jacks.



2. Select "ZOOM TAC-8 MIDI I/O Port" in the settings of the DAW, for example.

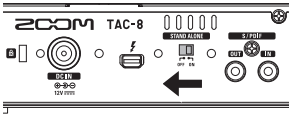
NOTE

"ZOOM TAC-8 Reserved Port" is reserved for use by **TAC-8 MixEfx**. Using it might cause **TAC-8** and **TAC-8 MixEfx** to not function properly.

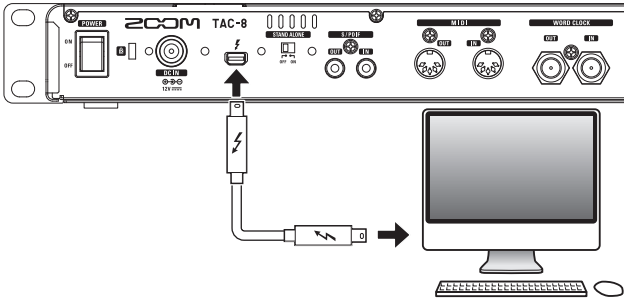
Restoring Factory Default Settings

Follow these instructions to initialize settings, restoring them to the factory defaults.

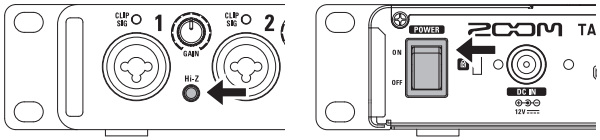
1. Set STAND ALONE switch (OFF ON) to OFF.



2. Connect **TAC-8** and the computer.



3. While pressing INPUT 1 Hi-Z, turn POWER ON.

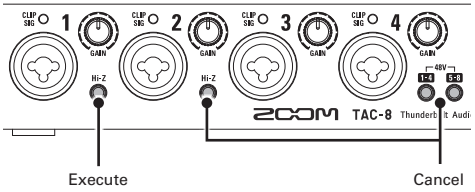


The INPUT 1 Hi-Z and power indicators will blink.

4. Initialize the settings.

Execute: Press INPUT 1 Hi-Z.

Cancel: Press INPUT 2 Hi-Z or 48V 1-4 5-8.



Troubleshooting

If you think that the TAC-8 is operating strangely, check the following items first.

Cannot select or use the TAC-8 device

- Confirm that the TAC-8 is connected to the computer correctly.
- Confirm that the TAC-8 STAND ALONE switch is set to OFF.
- Quit all the software that is using the TAC-8, and use the POWER switch to turn the TAC-8 off and on again.
- Reinstall the driver.

Playback sound cannot be heard or is quiet

- Check the speaker connections and volume settings on the speakers.
- Adjust the TAC-8 MAIN OUTPUT and/or PHONES 1/2 volume.
- Use TAC-8 MixEfx to check the built-in mixer settings.
- Confirm that the Output of the Sound pane of the System Preferences is set to "ZOOM TAC-8".

Recorded audio is too loud, too quiet or silent

- Adjust the TAC-8 input gain levels
- When using a condenser mic, turn phantom power on.
- Confirm that the Input of the Sound pane of the System Preferences is set to "ZOOM TAC-8".

The sound of the device connected to the input jack is distorted

- Confirm that the level indicators are not lighting red. If they are lighting red, lower the input levels.

Sound skips during playback or recording

- If you can adjust the audio buffer size of the software that you are using, increase the buffer size.

Cannot play or record

- Confirm that the Sound pane of the System Preferences is set to "ZOOM TAC-8".
- Confirm that TAC-8 is set for input and output in the software that you are using.
- Confirm that the TAC-8 is connected to the computer correctly.
- Quit all the software that is using the TAC-8, and disconnect and reconnect the Thunderbolt cable connected to the TAC-8.

Sound skips during digital input or output

- Confirm that the device used for audio clock synchronization is connected correctly.
- If the TAC-8 is the master, confirm that audio clock is synchronized on the connected device.
- If the TAC-8 is the slave, use TAC-8 MixEfx to confirm that the CLOCK SOURCE is set to the connection used for audio clock synchronization.
- If the TAC-8 is the slave, confirm that the CLOCK SOURCE indicator is not blinking.

Specifications

ANALOG INPUT	INPUT 1–8	Connectors	XLR/TRS combo jacks (XLR: 2 hot, TRS: TIP hot)
		Input gain	0–60 dB (1 dB steps)
		Input impedance	5 kΩ 1 MΩ (When IN1/IN2 Hi-Z on)
		Maximum input level	+13 dBu (XLR at 0 dBFS) +21 dBu (TRS at 0 dBFS)
		Phantom power	+48 V
ANALOG OUTPUT	MASTER OUTPUT L/R LINE OUTPUT1-8	Connectors	TRS jacks (balanced)
		Maximum output level	+14 dBu (at 0 dBFS)
		Output impedance	150 Ω
	PHONES 1/2	Connectors	Standard stereo phone jacks 20 mW × 2 (into 32 Ω load)
		Maximum output level	+10 dBu
		Output impedance	33 Ω
DIGITAL IN/OUT	ADAT OPTICAL	Connectors	ADAT lightpipe 8 IN/OUT: 44.1 kHz/48 kHz 4 IN/OUT: 88.2kHz/96kHz S/MUX compatible 2 IN/OUT: 176.4kHz/192kHz S/MUX4 compatible
	S/PDIF	Connectors	RCA (coaxial)
		Supported sampling frequencies	44.1/48/88.2/96/176.4/192 kHz
	WORD CLOCK	Connectors	BNC
		Supported sampling frequencies	44.1/48/88.2/96/176.4/192 kHz
		Output impedance	75 Ω
Frequency characteristics			44.1 kHz: –1.0 dB, 20 Hz–20 kHz 96 kHz: –1.0 dB, 20 Hz–40 kHz 192 kHz: –1.0 dB, 20 Hz–60 kHz
Input conversion noise			Measured EIN: 125 dB (IHF-A) at 60dB, 150Ω input
Dynamic range			AD: 120 dB typical (IHF-A) DA: 120 dB typical (IHF-A)
Number of recording and playback channels			Recording: 18 channels (ANALOG: 8, S/PDIF: 2, ADAT Optical: 8) Playback: 20 channels (ANALOG: 10, S/PDIF: 2, ADAT OPTICAL: 8) at 44.1 kHz and 48 kHz
			Recording: 14 channels (ANALOG: 8, S/PDIF: 2, ADAT Optical: 4) Playback: 16 channels (ANALOG: 10, S/PDIF: 2, ADAT OPTICAL: 4) at 88.2 kHz and 96 kHz
			Recording: 12 channels (ANALOG: 8, S/PDIF: 2, ADAT Optical: 2) Playback: 14 channels (ANALOG: 10, S/PDIF: 2, ADAT OPTICAL: 2) at 176.4 kHz and 192 kHz
Sampling frequencies			192 kHz, 176.4 kHz, 96 kHz, 88.2 kHz, 48 kHz, 44.1 kHz
Bit depth			24-bit
Interface			Thunderbolt™
MIDI IN/OUT			5-pin DIN jacks
Power supply			AD-19 DC12V 2A AC adapter
External dimensions			157.65 mm (D) × 482.6 mm (W) × 46.03 mm (H)
Weight (main unit only)			2.01 kg

Note: 0 dBu = 0.775 Vrms

FCC regulation warning (for U.S.A.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

For EU Countries

CE Declaration of Conformity

ZOOM CORPORATION

4-4-3 Kanda-Surugadai, Chiyoda-ku, Tokyo 101-0062 Japan

http://www.zoom.co.jp

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