

owner's manual



Link.FireWire

COMPUTER AUDIO INTERFACE

TAPCO[®]

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Only use attachments/accessories specified by the manufacturer.
10. Unplug this apparatus during lightning storms or when unused for long periods of time.
11. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

FCC Information

NOTE: *This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

Product Serial #:

Purchased at:

Date of purchase:

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**Don't forget to visit our website at www.tapcogear.com
for more information about this and other TAPCO products.**

INTRODUCTION

Thank you for purchasing the TAPCO Link.FireWire Audio Interface for digital recording systems. This is a complete, compact solution for computer-based music production on either a Macintosh or a PC.

The Link.FireWire is a 4x6 audio interface that is powered directly off the FireWire connection (or by the included external power supply), and also includes Tracttion 2.1, our powerful audio and MIDI sequencing software for digital recording. This hardware and software combination provides all you need to record and create wonderful music using your laptop or desktop computer.

The Link.FireWire Interface

The Link.FireWire interface provides either two analog audio inputs that can accept microphone level, line level, or direct instrument input signals, or a stereo S/PDIF digital input. The analog audio signals are routed to high-quality ADCs (Analog-to-Digital Converters) operating at 44.1, 48, 88.2, or 96 kHz with 24-bits. The digital signals are then routed to the FireWire port for connection to your computer.

The analog inputs are “combo” jacks that accept either a mic-level balanced XLR connector or a line-level (or instrument-level if the INSTR button is pushed in) balanced or unbalanced 1/4" TRS or TS connector.

Stereo master mixes can also be transferred from your host computer back to the Link.FireWire for monitoring during tracking or overdubbing. Monitoring is provided by the headphone jack on the front and by balanced outputs on the back, which can be connected to your studio monitors. The Monitor outputs and Phones output each have their own level controls. The master mix also appears on the S/PDIF stereo output.

Note: The Link.FireWire provides two output streams from the DAW that is mirrored on the Phones, Monitor, and S/PDIF outputs. Alternate firmware is available on our website to configure the Link.FireWire so that it provides six discrete output streams from the DAW. See “Two Modes of Operation” on page 7 for more information.

Bundled Software

The Link.FireWire comes with some powerful software to get you started with your own desktop multitrack audio recording music production studio.

Tracttion is an easy-to-use multitrack audio recording and MIDI sequencing software application, capable of unlimited track count, VST support, automation, and much more. It comes with a variety of EQ, compressor, and effects plug-in processors for creating exactly the sound you want.

GETTING STARTED

Use this section to get your Link.FireWire set up quickly. Also refer to the Link.FireWire Quick-Start Guide included with your Link.FireWire audio interface, which includes a tutorial on how to make a recording using the Link.FireWire and Tracktion.

Installing the Software

- The Link.FireWire CD contains an installer that will install the drivers on your PC. If you are using a Macintosh (running OS X version 10.3.9 or later), you don't need to install drivers because the FireWire drivers are included in OS X.

Note: If you are using OS X 10.3, be sure to update to the latest released version, 10.3.9.

- Your Link.FireWire CD also contains Tracktion 2.1. Double-click the file "TracktionSetup.exe" and follow the instructions to install Tracktion on your PC. For the Macintosh, double-click the file "TracktionSetup.dmg" and drag the Tracktion icon into your Applications folder.
- Visit <http://my.tapcogear.com> to register your Link.FireWire. If you haven't already done so, set up an account by entering your email address and clicking, "No, I want to create an account." Then click "Continue."
Enter the information to set up your profile. Then click "Create My Account."
Then proceed to register your Link.FireWire by clicking "TAPCO Product Registration."
- Your computer **must** meet the following minimum system requirements:

PC Requirements

- Windows XP (SP2)
- Pentium III or better processor
- 256 MB RAM (512 MB recommended)
- 30 MB hard disk space

Macintosh Requirements

- OS X (10.3.9 or later)
- Power Mac G3 (600 MHz or faster), G4, or G5 processor
- 256 MB RAM (512 MB recommended)
- 35 MB hard disk space

The Link.FireWire Quick-Start Guide has detailed instructions on installing the software on a PC running Windows XP (SP2) and a Macintosh running OS X (version 10.3.9 or later).

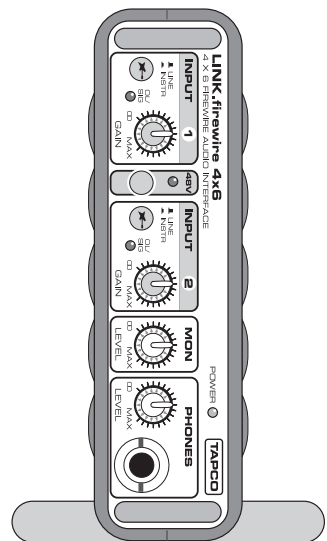
Connecting the Link.FireWire

- To stand the Link.FireWire upright, pull the stabilizer bar downward and twist it out 90° from the body, as shown below.
- Turn down all the Link.FireWire knobs to prevent any loud surprises.
- Connect microphones using the XLR/TRS combo input connectors on the back of the Link.FireWire. Press the 48V button if your microphone needs phantom power (mostly used for condenser mics).

Caution: DO NOT use phantom power on ribbon microphones. It can damage the delicate ribbon element in the microphone. Refer to your microphone's owner's manual to find out if it requires phantom power to operate.

- Connect guitars or other instruments using the XLR/TRS connectors on the back of the Link.FireWire. Press the front panel LINE/INSTR button (guitar icon) if you are connecting your guitar or instrument directly to the Link.FireWire without using a preamplifier or direct box.
- Connect a pair of powered monitor speakers, or an amplifier connected to speakers, to the Link.FireWire MONITOR jacks on the rear panel. You can also plug in headphones to the front panel PHONES jack.
- Connect the FireWire connector to a FireWire port on your computer with the FireWire cable provided.
- Launch Tracktion or the DAW software application of your choice and select Link.FireWire as the audio device for the audio inputs and outputs.

Note: The Link.FireWire is equipped with a 6-pin FireWire connector and comes with a 6-pin to 6-pin FireWire cable. The 6-pin FireWire connector provides power for the Link.FireWire and works with Macintosh laptops and desktops, and most PC desktops with a built-in FireWire connector or with a PCI or PCMCIA FireWire card added. Many laptop PCs have a 4-pin FireWire connector. If this is the case, you will need to purchase a 6-pin to 4-pin FireWire adapter because the 4-pin connection does not provide any power. In this case, you must also use the external power supply (included) to power the Link.FireWire.



Two Modes of Operation

The Link.FireWire has two modes of operation, Mirror Mode and True 6-Output Mode.

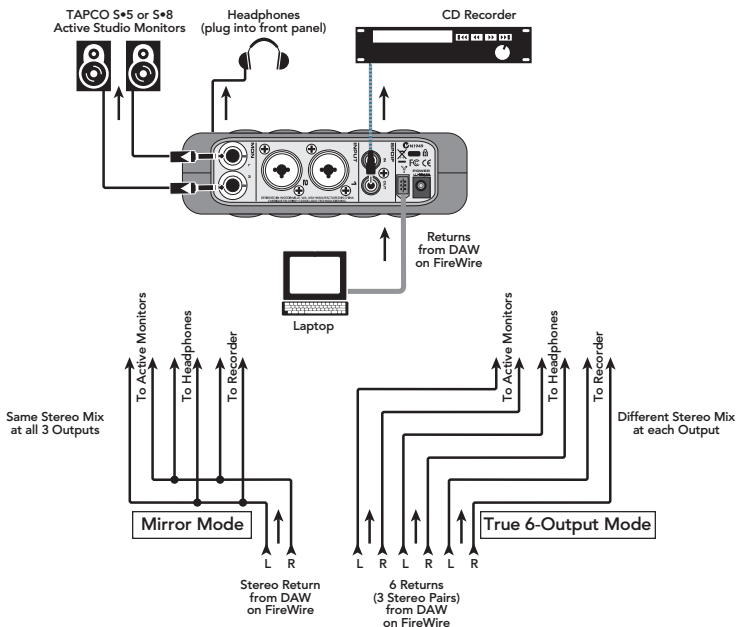
Mirror Mode: This is the default mode of operation in which two audio streams are returned to the Link.FireWire from the DAW software application and are mirrored on the Phones out, Monitor out, and S/PDIF out. This is the most common application, where you can monitor the master stereo mix from the DAW in the headphones and studio monitors, and have the mix going to a recorder connected to the S/PDIF output.

True 6-Output Mode: In this mode of operation, six discrete audio streams are returned to the Link.FireWire from the DAW and are routed to the L/R Phones out, L/R Monitor outputs, and the stereo S/PDIF output. This is useful if you want to have a different mix going to the headphones for the talent than you have in the studio monitors, while reserving the S/PDIF output for the final mix.

Note: In order to change your Link.FireWire to True 6-Output Mode, you must download new firmware from our website and install it in the Link.FireWire. Go to the product page for the Link.FireWire on our website at www.tapcogear.com to obtain the firmware and instructions on how to install it.



WARNING: Once you change to True 6-Output Mode, you cannot change back to Mirror Mode. THIS IS A ONE-TIME CHANGE!



LINK.FIREWIRE FEATURES

Front Panel

1. INPUT GAIN Control

These knobs adjust the gain of the analog input signal (before the A/D converters). They adjust the signal for both the mic and line inputs. Turn the knob fully counter-clockwise to turn the signal down, and fully clockwise to get the maximum gain.

2. LINE/INSTR Switch

If you are using a microphone or line-level input, leave this switch out. If you are connecting an instrument like a guitar directly to the Link.FireWire, push this switch in. It adjusts the input impedance of the 1/4" input to match the high-output impedance of a guitar pickup.

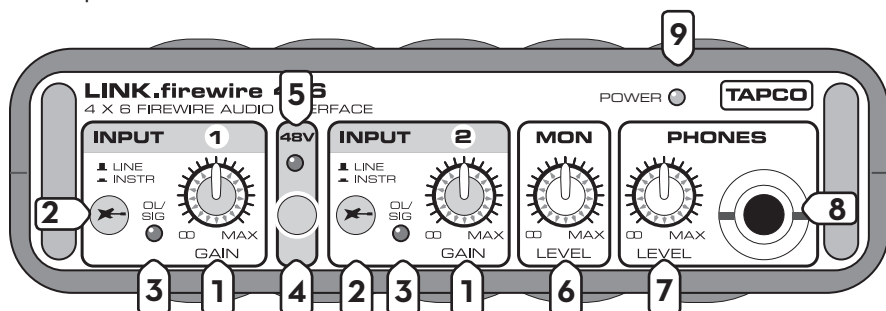
3. OL/SIG Indicator

This LED illuminates green when there is a signal present (after the GAIN control). If the signal gets too loud and is in danger of distorting (clipping), the LED flashes red. If you see the OL/SIG LED flashing red, turn down the signal either at its source or by using the INPUT GAIN [1] control on the Link.FireWire.

4. 48V Switch

Push this button in if you are using a microphone that requires 48 VDC phantom power. This applies phantom power to pins 2 and 3 of both XLR inputs. It has no effect on the 1/4" inputs.

Note: There are just a few microphones (mostly ribbon mics) that can be damaged by phantom power. Consult your microphone's owner's manual to see if it needs phantom power or not. If it does, always turn off the phantom power switch before connecting or disconnecting your microphone.



5. 48V Indicator

This red LED lights up when the 48V phantom power switch [4] is engaged.

6. MON LEVEL Control

This adjusts the level of the rear panel MONITOR [11] analog outputs. It does not affect the headphone output.



Note: Leave this knob turned down each time you turn on your system, and then increase it to a safe listening volume.

7. PHONES LEVEL Control

This adjusts the level of the PHONES [8] analog output on the front panel. It does not affect the MONITOR output.



Note: Make sure the PHONES LEVEL control is turned all the way down before plugging in your headphones. This will protect your hearing and prevent any loud surprises.

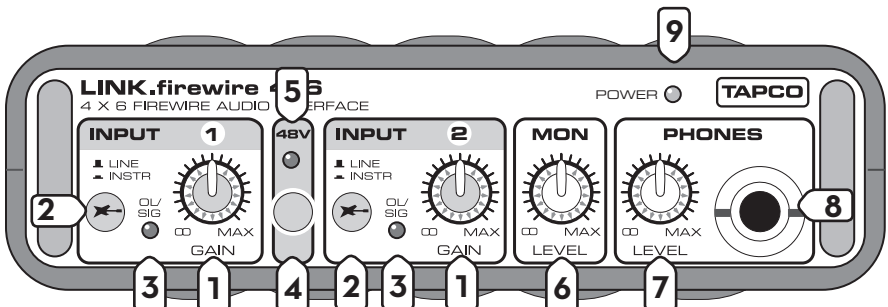
8. PHONES Jack

The PHONES jack accepts a 1/4" TRS stereo plug normally used on headphones. If your headphones have a 1/8" mini-plug, you will need a 1/8" to 1/4" stereo adapter, commonly sold in electronics and audio stores.

The headphone signals are the same as the Monitor Output signals (unless you have converted to True 6-Output Mode), except the level is controlled by the PHONES LEVEL control instead of the MON LEVEL control.

9. POWER Indicator

The Link.FireWire is powered from the FireWire port or the external AC-to-DC power supply. There is no power switch, so this LED lights up whenever the Link.FireWire has power.



Rear Panel

10. INPUT

These are Neutrik combo connectors, which accept balanced microphone inputs from an XLR connector, or balanced or unbalanced line-level or instrument-level inputs from a 1/4" TRS connector.

Refer to “Appendix B: Connections” on page 14 for wiring information.

11. LEFT/RIGHT MONITOR Out

These 1/4" TRS connectors provide a balanced stereo line-level output of the monitor mix. Connect these outputs to a pair of active monitor speakers, or to an amplifier connected to passive speakers. The signal level is controlled by the MONITOR LEVEL control [6] on the front panel.

12. S/PDIF IN and OUT Connectors

These are RCA connectors that send and receive two channels of digital audio in the S/PDIF (**S**ony/**P**hilips **D**igital **I**nterface) format.

You select the S/PDIF IN from the Link.FireWire Console (PC only). When S/PDIF is selected, the analog inputs [10] are disabled.

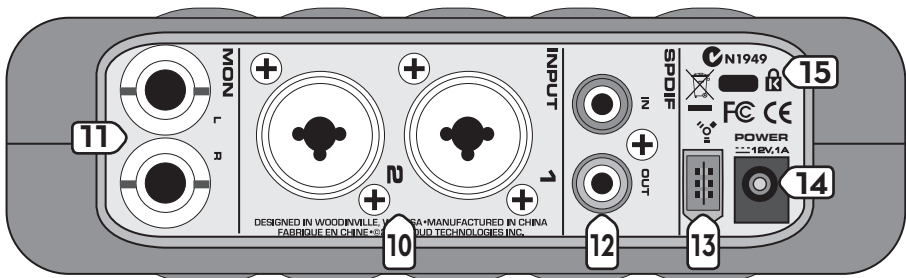
Note: On a Macintosh, the S/PDIF IN is automatically selected and overrides the analog inputs whenever an active device is connected to the S/PDIF IN.

The S/PDIF OUT transmits two-channels of digital audio from the DAW software application. These are the same audio streams that appear at the PHONES [8] out and the MONITOR [11] out.

Note: Transferring digital audio over a cable generates EMI (electromagnetic interference) around the cable. Use high-quality 75-ohm coaxial cable for the S/PDIF connections to minimize the EMI noise radiated around the cable.

Tip: A 75-ohm composite video cable can be used for a S/PDIF connection.

In general, the shorter the cable length, the less effect it has on the quality of the signal. The maximum recommended length for a S/PDIF cable is limited to 10 meters (about 32 feet).



13. FireWire Connector

This is the main connection between the Link.FireWire and the host computer. Use the FireWire cable provided to connect this port to a FireWire port on your computer. The FireWire interface works with both PC and Mac.

FireWire (a.k.a. IEEE 1394) is a high-speed serial I/O interface for connecting digital devices, with more than 30 times the bandwidth of USB 1.1.

Tip: If your laptop or desktop computer does not have a FireWire connection, you can purchase a PCI or PCMCIA FireWire card and install it in your computer easily and inexpensively.

Note: If your computer has a 4-pin FireWire connection, you will need to purchase a 6-pin to 4-pin adapter (available at most computer supply stores), and use the external AC-to-DC power supply (included) since the 4-pin connector does not supply power to the Link.FireWire.

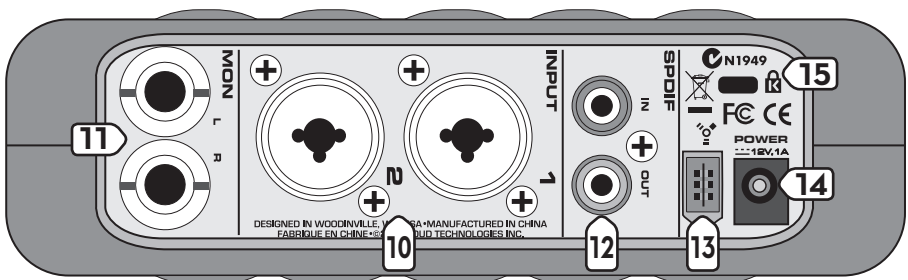
14. POWER IN

This connection is where you connect the external AC-to-DC power supply to provide power to the Link.FireWire. Use the external power supply when using a 6-pin to 4-pin FireWire adapter, or if the FireWire connector on your computer doesn't supply enough power to the Link.FireWire (some PCMCIA cards do not).

WARNING: Make sure you use the correct external power supply capable of providing 12 VDC at 1 amp.

15. Kensington Security Slot

To help prevent theft, the Link.FireWire has a security slot designed to fit the popular Kensington security locks. A variety of models are available from their website at www.kensington.com.



APPENDIX A: SERVICE INFORMATION

Warranty Service

Details concerning Warranty Service are spelled out in the Warranty section on page 22.

If you think your TAPCO Link.FireWire has a problem, please do everything you can to confirm it before calling for service. Doing so might save you from the deprivation of your Link.FireWire and the associated suffering.

These may sound obvious to you, but here are some things you can check. Read on.

Troubleshooting

No Power

- Our favorite question: Is it plugged in? Make sure the FireWire cable is connected between your computer and the Link.FireWire. The computer must be turned on to provide power to the Link.FireWire over the FireWire connection.
- Are you using a laptop with a 4-pin FireWire connector and a 4-pin to 6-pin adapter? The 4-pin connector doesn't provide power, which the Link.FireWire requires in order to operate. See note on page 6.
- Is the orange POWER LED illuminated? If not, try connecting the Link.FireWire to another FireWire port on the computer (if available), or use the external power supply included with your Link.FireWire.

No Signal

- Is the Input GAIN turned up?
- Are the PHONES Level control and the MONITOR Level control turned up?
- Is the Link.FireWire selected as the audio input/output device in your DAW application? In Tracktion, this is selected in the Settings tab under Audio.
- Be sure the correct inputs are selected in the DAW and the tracks are armed.

My guitar (or other instrument) doesn't sound as good as I expect

- If your guitar is connected directly to the Link.FireWire (i.e., without a direct box or preamp), be sure the LINE/INSTR button on the front panel is pushed in.

- Make sure the Input GAIN control is set correctly and not causing distortion.
- Perhaps private lessons are in order.

Glitchy/Distorted Audio into your Computer

- Is the OL indicator blinking red on the Link.FireWire? If so, try turning down the input signal at its source or the Input GAIN control on the Link.FireWire.
- Is the overload indicator lighting in the DAW application? If so, try turning down the Input GAIN control on the Link.FireWire or the input level control in the DAW.
- Increase the latency. In Tracktion, this is done in the Settings tab under Audio.
- In other applications, find the control panel to increase the ASIO (PC) or Core Audio (Mac) buffer size or latency.

Repair

Service for TAPCO products is available at a factory-authorized service center. Service for TAPCO products living outside the United States can be obtained through local dealers or distributors.

If your Link.FireWire needs service, follow these instructions:

1. Review the preceding troubleshooting suggestions. Please.
2. Call Tech Support at 1-877-827-2669, 7 am to 5 pm PST, to explain the problem and obtain a Service Request Number. Have your Link.FireWire's serial number ready.

You must have a Service Request Number before you can obtain factory-authorized service.

3. Pack the Link.FireWire in its original package, including endcaps and box. This is **VERY IMPORTANT**. When you call for the Service Request Number, please let Tech Support know if you need new packaging. You can order new packaging through our parts department. *TAPCO is not responsible for any damage that occurs due to non-factory packaging.*
4. Include a legible note stating your name, shipping address (no P.O. boxes), daytime phone number, Service Request Number, and a detailed description of the problem, including how we can duplicate it.
5. Write the Service Request Number in **BIG PRINT** on top of the box. Units sent to us without the Service Request Number will be refused.
6. Tech Support will tell you where to ship the unit for repair. We suggest insurance for all forms of cartage.

- You will need to contact the authorized service center for their latest turn-around times. The Link.FireWire must be packaged in its original packing box, and must have the Service Request Number on the box. Once it's repaired, the authorized service center will ship it back by ground shipping, pre-paid (if it was a warranty repair).

Note: Under the terms of the warranty, you must ship or drop-off the unit to an authorized service center. The return ground shipment is covered for those units deemed by us to be under warranty.

Note: You must have a sales receipt from an Authorized TAPCO Dealer to qualify for a warranty repair.

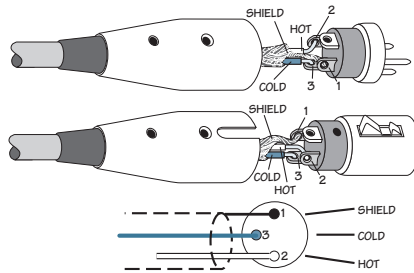
APPENDIX B: CONNECTIONS

XLR Connectors

The “combo” inputs on the Link.FireWire accept 3-pin male XLR connectors. They are wired as follows, according to standards specified by the AES (Audio Engineering Society).

XLR Balanced Wiring:

- Pin 1 = Shield
- Pin 2 = Hot (+)
- Pin 3 = Cold (-)



Balanced XLR Connector

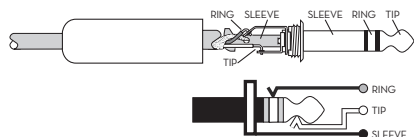
1/4" TRS Phone Plugs and Jacks

The “combo” inputs on the Link.FireWire also accept balanced or unbalanced 1/4" TRS or TS connectors. “TRS” stands for Tip-Ring-Sleeve, the three connections available on a stereo 1/4" or balanced phone jack or plug. TRS jacks and plugs are used for balanced signals and stereo headphones. They use three-conductor shielded cable and are wired as follows:

Balanced Mono

1/4" TRS Balanced Mono wiring:

- Sleeve = Shield
- Tip = Hot (+)
- Ring = Cold (-)



Balanced 1/4" TRS Connector

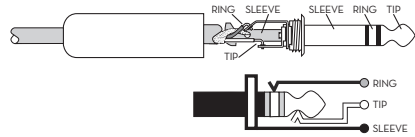
Stereo Headphones

1/4" TRS Stereo Unbalanced Wiring:

Sleeve = Shield

Tip = Left

Ring = Right



Stereo Headphones 1/4" TRS Connector

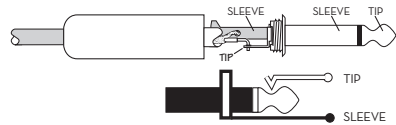
1/4" TS Phone Plugs and Jacks

“TS” stands for Tip-Sleeve, the two connections available on a mono 1/4" phone jack or plug. They are used for unbalanced signals.

1/4" TS Unbalanced Wiring:

Sleeve = Shield

Tip = Hot (+)



Unbalanced 1/4" TS Connector

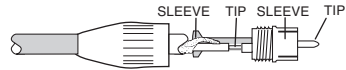
RCA Plugs and Jacks

RCA-type plugs (also known as phono plugs) and jacks are often used in home stereo and video equipment, and to make S/PDIF connections on consumer digital audio devices. They are unbalanced and electrically equivalent to a 1/4" TS phone plug.

RCA Unbalanced Wiring:

Sleeve = Shield

Tip = Hot (+)

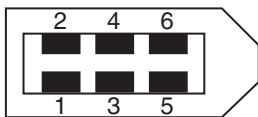


FireWire Connection

The Link.FireWire is equipped with a 6-pin FireWire connector and comes with a 6-pin to 6-pin FireWire cable. Many laptops have a 4-pin FireWire connector. If this is the case, you will need to purchase a 6-pin to 4-pin FireWire adapter and use the external power supply included with your Link.FireWire.

6-pin FireWire Wiring:

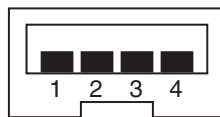
- Pin 1 = Power
- Pin 2 = Ground
- Pin 3 = TPB-
- Pin 4 = TPB+
- Pin 5 = TPA-
- Pin 6 = TPA+



6-pin Male FireWire

4-pin FireWire Wiring:

- Pin 1 = TPB-
- Pin 2 = TPB+
- Pin 3 = TPA-
- Pin 4 = TPA+



4-pin Male FireWire

APPENDIX C: LINK.FIREWIRE SPECIFICATIONS

Analog Specifications

Frequency Response

Any Input to Monitor Output:	± 0.5 dB, 22 Hz to 20 kHz @ 48 kHz SR
Any Input to Phones Output:	± 1.0 dB, 30 Hz to 20 kHz @ 48 kHz SR (600 Ω load)

Distortion

THD + Noise (1 kHz, -1 dBFS @ 48 kHz SR)	
Mic Input to FireWire or S/PDIF Output:	< 0.004%

Noise

Mic Pre Equivalent Input Noise (EIN)	
20 Hz to 20 kHz Bandwidth, 150 Ω source impedance:	> 120 dB typical @ 30 dB gain

Input Gain Control Range

Mic In:	0 dB to +52 dB
Line In/Instr In:	-20 dB to +32 dB

Phantom Power

+44 VDC ($\pm 10\%$)

Input Impedance

Mic Input:	3 k Ω
Line Input:	20 k Ω balanced, 20 k Ω unbalanced
Instr Input:	1 M Ω

Output Impedance

Monitor Output:	200 Ω balanced
Headphone Output:	56 Ω

Crosstalk

Monitor Output (1 kHz, Left to Right)	-93 dB
Headphone Output (1 kHz, Left to Right)	-93 dB

Maximum Input Level

Mic In (XLR):	+1 dBu @ minimum gain (unity gain)
Line In:	+29 dBu @ minimum gain (-20 dB)
Instr In:	+10 dBu @ minimum gain (-20 dB)

Maximum Output Level

Monitor Output:	+9 dBu balanced/unbalanced
Headphone Output:	2 Vrms into 600Ω

Digital Specifications

A/D Conversion

Type:	24 bit, 44.1/48/88.2/96 kHz sample rate
Dynamic Range:	>101.5 dB typical
THD+N:	0.004% typical, -1 dBFS, 1 kHz

D/A Conversion

Type:	24 bit, 44.1/48/88.2/96 kHz sample rate
Dynamic Range:	>105 dB typical
THD+N:	0.002% typical, -1 dBFS, 1 kHz

S/PDIF

Incoming Sample Rate:	32 kHz - 96 kHz sample rate
Bit Depth:	24 bit
Input Impedance:	75Ω internal termination
Output Impedance:	75Ω

System Requirements

PC:	Windows XP (SP2) Pentium III with 256 MB RAM (512 MB or more is recommended for Tracktion) Super VGA (1024 x 768) or higher resolution video adapter and monitor 30 MB hard disk space CD-ROM or DVD drive FireWire port (IEEE 1394)
Macintosh:	OS X 10.3.9 or higher Power Mac G3 or higher (600 MHz) 256 MB RAM (512 MB or more is recommended for Tracktion) 35 MB hard disk space CD-ROM or DVD drive FireWire port (IEEE 1394)

AC Power Requirements

External Power Supply output:

12 VDC @ 1 A

External Power Supply AC input

U.S. 120 VAC, 60 Hz

Europe 230/240 VAC, 50 Hz

Japan 100 VAC, 50/60 Hz

Korea 220 VAC, 60 Hz

Physical Dimensions and Weight

Height: 1.7 in/43 mm

Width: 6.1 in/155 mm

Depth: 6.8 in/173 mm

7.6 in/193 mm with handles

Weight: 1.4 lb/0.6 kg

Disclaimer

Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at any time without notice.

Lonely? Looking for that special someone?

Do you have a question about your TAPCO Link.FireWire?

Please call our Technical Support chaps at **1-877-827-2669**,

Monday to Friday, from 7 am to 5 pm PST.

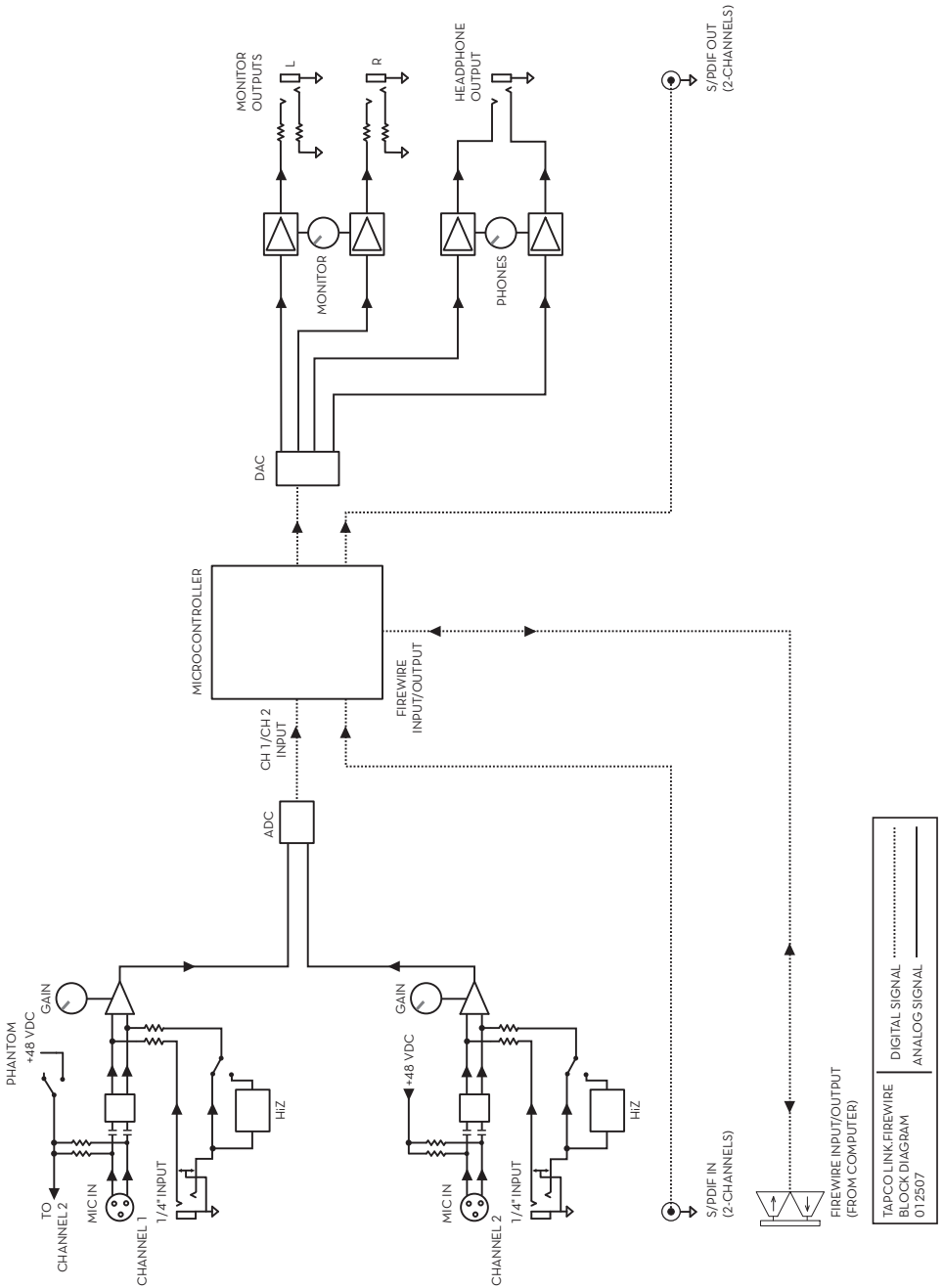
After hours, visit www.tapcogear.com and look under **Contact Us**,

or e-mail us at techmail@tapcogear.com

“TAPCO” is a registered trademark of LOUD Technologies Inc. All other brand names mentioned are trademarks or registered trademarks of their respective holders, and are hereby acknowledged.

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Block Diagram Link.FireWire



.....	DIGITAL SIGNAL
.....	ANALOG SIGNAL
TAPCO LINK FIREWIRE BLOCK DIAGRAM	
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What is Latency?

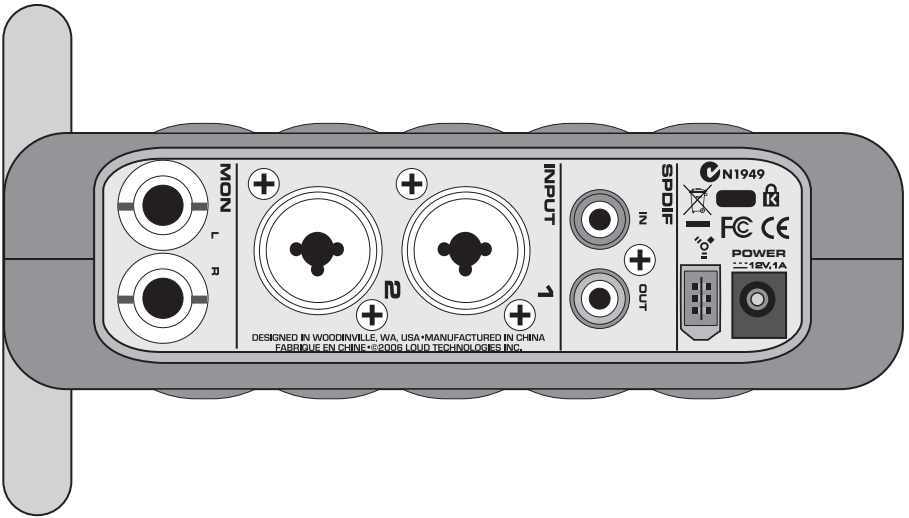
Latency describes the amount of time it takes the input signal to pass through the system, and reach the output. When recording a guitar and monitoring through software, it is the amount of time it takes from the moment you strike your guitar string, to the moment you hear it in your headphones. You are used to this latency being very close to zero; when you play your guitar through a guitar amp, you hear the signal immediately. So when you are recording and monitoring via software, you want this latency (delay time) to be as low as possible.

There are many factors that contribute to latency, and there is one in particular that you can control: the software audio buffer size. The audio buffer (also referred to as ASIO buffer on a PC, or Core Audio buffer on a Mac) is an area in memory that Tracttion uses to hold your audio as it works. The buffer size is measured in samples, and usually ranges from just a few samples to thousands. The smaller the buffer, the faster the audio gets in and out of your computer, and the lower the latency.

We would like to set this buffer as low as possible to achieve the lowest latency, but there is another factor to consider: The smaller the buffer, the harder your computer will have to work. To illustrate this, pretend you are given five minutes to move water from a large bucket to another bucket ten feet away. You must use either a large pint glass or a small whiskey glass to transfer the water. Which would you choose? The pint glass of course. If you choose the whiskey glass, you would quickly grow tired of running back and forth moving the small amount of water. Depending on your fitness and speed, you may not be able to move it all in five minutes. This is similar to how your computer deals with the audio buffer. If you choose too small a buffer, the computer needs to work very hard to quickly transfer the audio in and out of the buffer. It may not even be able to keep up, especially if you have lots of tracks, lots of automation and/or lots of plug-ins in your work. If this happens, your audio may stop or “drop out.” Drop outs at low buffer sizes may also occur if you have a slower computer or not enough memory.

For low latency and good performance from your system, it is best to adjust the buffer size to taste. You often need to use trial and error to find an acceptable buffer size. In Tracttion, this is done by choosing the Settings tab, choosing the Link.FireWire in the Wave Device drop down menu, and adjusting the Latency. Usually, a setting less than 256 samples will yield fine results, while a setting of 128 samples or less will be required for almost inaudible latency.

Note: While you are recording, low latency is often a priority. Mixing existing tracks on the other hand, does not often need such extremely small settings. Many users adjust their buffer setting between the tracking and mixing stage. Increasing the buffer size while mixing may allow you to run a few extra plug-ins; try 1024 or 2048 samples.



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