TASCAM
TEAC PROFESSIONAL

US-122L
USB Audio/MIDI Interface

OWNER'S MANUAL

IMPORTANT SAFETY PRECAUTIONS

IMPORTANT SAFETY PRECAUTIONS

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 Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

• Do not expose this apparatus to drips or splashes.

• Do not place any objects filled with liquids, such as vases, on the apparatus.

• Do not install this apparatus in a confined space such as a book case or similar unit.

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Contents

Please read this owner's manual carefully before you begin using the US-122L, and use the product correctly as directed in order to ensure long and trouble-free enjoyment of all its functionality.

After you have read this manual, keep it nearby for reference when required.

We can accept no responsibility for any loss of the data you record using this product onto other MIDI equipment in your system or onto storage devices such as hard disk.

Overview

The US-122L is a USB-based audio interface designed for use with Digital Audio Workstation (DAW) software. It provides a two-input, two-output 24-bit 96 kHz audio interface and a 16-channel MIDI interface.

Because the US-122L is USB-based, it is the ideal companion to any desktop or laptop-based digital recording setup. And since the US-122L operates using only USB power, you can use it with a laptop computer to create a very compact and portable digital audio workstation system.

The US-122L is also an ideal way to capture analog sources such as records or cassette tapes into your computer and preserve them as audio CDs.

Features

- 24-bit / 96 kHz audio interface.
- Analog input signals (L, R) can be input at the same time and recorded simultaneously into your computer via USB.
- Two XLR mic/line inputs (balanced) and two 1/4" phone mic/line inputs (balanced/unbalanced) are provided. One of the 1/4" phone inputs can be switched to allow direct input of an electric guitar or electric bass (R channel only).
- Unbalanced stereo line output (RCA connector) and headphone output.
- MIDI IN/OUT.
- Direct Monitor function allows zero-latency monitoring of the input.
- Power is supplied by the USB connector.

A note about computer operation

If you are unsure about how to perform basic computer operations appearing in this manual, please refer to the owner's manual that came with your computer.

What is in the package

The US-122L package contains the following items.

- US-122L main unit
- USB cable
- Owner's manual (this document)
- CD-ROM (containing drivers and manuals)
- DVD-ROM (Cubase LE4)
- Cubase LE4 Quick Start Guide

1 – Introduction

Conventions used in this manual

The following conventions are used in this manual:

Front panel keys, knobs, and indicators, and rear panel connectors are designated in all-capital letters.
Example: **LINE IN** jacks

This typeface is used to designate messages displayed by the software.
Example: Control Surface Protocol

This typeface is used to designate software menu functions and on-screen controllers.
Example: *ASIO Device*

Top panel
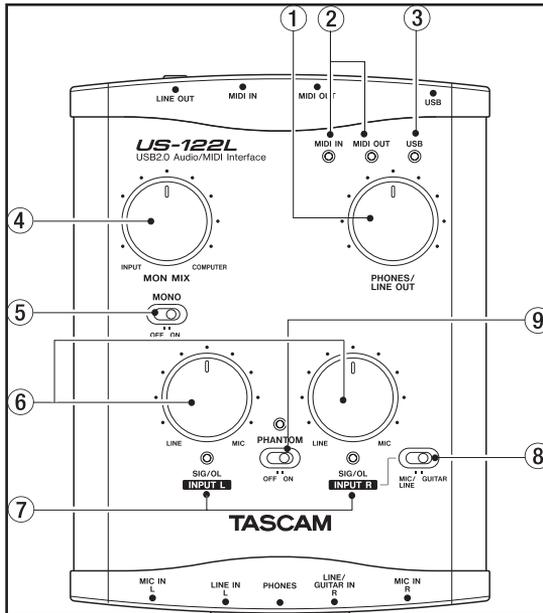
① **PHONES/LINE OUT level knob**
Controls the output level of the **LINE OUT**
jacks and the **PHONES** jack.

② **MIDI IN indicator** Lights when MIDI
data is being received at the **MIDI IN** con-
nector.

> **NOTE**
>
> *A device that transmits the MIDI Active
> Sense message will cause this indicator
> to blink constantly. To stop the blinking,
> disable the use of MIDI Active Sense on
> the sending device, if possible.*

MIDI OUT indicator Lights when MIDI
data is being transmitted from the **MIDI
OUT** connector.

③ **USB indicator** Lights to indicate a
valid USB connection to the host computer.

④ **MON MIX balance knob** Controls
the balance of the signal sources being out-
put from the **LINE OUT** jacks and the
PHONES jack. When this knob is turned to
the far left, the signal being input to the
US-122L (from the XLR jacks, or 1/4"
phone jacks) will be output. When this
knob is turned to the far right, the output
signal received from the computer via USB
will be output.

⑤ **MONO switch** Turn this switch **ON**
if you want to monitor in monaural. This
switch affects only the analog input signal.

⑥ **INPUT knobs (L, R)** Adjust the level of the audio signal being input to the **MIC IN** jacks and **LINE IN** jacks.

⑦ **SIG/OL indicators** Light when signals are being input to the input channels (**L, R**). They will light green to indicate a signal is present, and will light red immediately before distortion occurs. These indicators apply only to the analog inputs.

  NOTE

These indicators will light green when the input signal level is in the range of -30 dBFS to -2 dBFS. The indicators will light red when the input signal level exceeds -2 dBFS.

⑧ **MIC/LINE-GUITAR select switch** Set this switch as appropriate for the input source you have connected to the **LINE/ GUITAR IN R** jack. Use the **GUITAR** position if you have directly connected an electric guitar or electric bass. Use the **MIC/**

LINE position if you have connected an electronic musical instrument, audio device, or mic.

⑨ **PHANTOM switch** Turns on the +48V phantom power supplied to the **MIC IN** jacks.

  WARNING

Microphones should not be connected to or disconnected from the US-122L with phantom power switched on. Unbalanced dynamic microphones should never be connected to phantom-powered connectors.

  NOTE

Turn this switch on only if you are using condenser microphones that require phantom power.

Please note that if you are operating the unit with a battery-powered laptop computer, the battery life of the computer will be reduced if the PHANTOM switch is on.

Rear panel
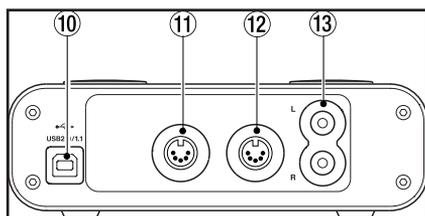
⑩ **USB connector** Use a USB cable to connect this to the host computer's USB 2.0 port. The US-122L obtains power from the host computer via the USB cable. In rare cases, a computer's USB port may not be able to supply enough power to operate the US-122L. If this occurs, consider purchasing a USB 2.0 hub that comes with its own external power supply.

  NOTE

If the US-122L is operating with a USB 1.1 (Full Speed) connection, the sample rate choices will be limited to 44.1 kHz and 48 kHz.

⑪ **MIDI OUT connector** Transmits MIDI messages.

⑫ **MIDI IN connector** Receives MIDI messages.

⑬ **LINE OUT L/R jacks** (RCA connector, unbalanced) These are analog stereo output jacks.

| NOTE |

If you connect headphones to the PHONES jack, no signal will be output from the LINE OUT jacks.

Front panel
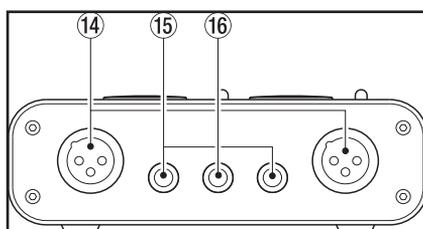
⑭ **MIC IN (L, R) jacks** (XLR balanced) These are analog mic input jacks. The wiring is as follows: pin 1 = ground, pin 2 = hot, pin 3 = cold.

⑮ **LINE IN L and LINE/GUITAR IN R jacks** (TRS 1/4" phone jacks) These are balanced line input jacks. The **R** channel also accommodates guitar input. If the top panel **MIC/LINE-GUITAR** select switch is in the **GUITAR** position, the **R** jack operates as an unbalanced input jack for guitar.

If the **MIC/LINE-GUITAR** select switch is in the **MIC/LINE** position, the **R** jack operates as a balanced input jack. (Sleeve = ground, tip = hot, ring = cold)

⑯ **PHONES jack** (stereo 1/4" phone) This is a headphone output jack.

| NOTE |

If you connect headphones to this jack, no signal will be output from the LINE OUT jacks.

3 – Installation

System requirements

Windows

Supported operating system: 32-bit Windows XP SP2 or 32-bit Windows Vista

Recommended system: Pentium or AMD Athlon 1 GHz or faster (or equivalent processor), 512 MB or more memory, USB 2.0 port

These requirements are for when using Cubase LE4. If you are using other application software, you will need to consult the operating requirements for the software you are using.

NOTE
The number of usable audio tracks will depend on the speed of your hard disk.

The faster your hard disk, the better your results will be.

We recommend that you have at least 512 MB of memory, but when using digital audio application software, the more memory you have the happier you will be.

Although this product has been checked for use with typical computers that meet the above operating requirements, we cannot guarantee that it will operate with all computers that meet these requirements. Please be aware that even under the same conditions, processing capability may vary depending on differences of the design and system.

Mac OS X

• Macintosh computer with a USB 2.0 connector
• Mac OS X 10.3.9 & higher on PowerPC Mac systems

For Macintosh as well, the more memory you have and the faster your hard disk, the happier you will be when using digital audio application software

Installing the drivers

In order to use the US-122L, you must install the appropriate drivers into your computer. As described below, this is an easy process using the CD-ROM included with the US-122L.

Drivers are updated from time to time. You can download the most recent version of the drivers from the TASCAM website <http://www.tascam.com/>.

Do not connect the US-122L to your computer before you have installed the drivers.

CAUTION
Handle the enclosed CD-ROM with care. If the disc becomes scratched or dirty, your computer may be unable to read it and the software cannot be installed. If the disc becomes unreadable, a fee will be charged for its replacement.

WARNING
Never attempt to play the enclosed CD-ROM in a conventional audio CD player, as the resulting noise may damage your speakers or your hearing.

Installing the drivers for Windows

The US-122L's drivers are provided on the CD-ROM as an executable installer entitled US-122L & US-144 driver x_yy.exe (x_yy is the version number.) Installation of the drivers requires that you run this installer before plugging in your US-122L for the first time. If you do happen to plug in your US-122L before running the installer, the Add New Hardware wizard will appear. In this case, simply unplug the US-122L, cancel all the Add New Hardware wizard windows, and run TASCAM's driver installer.

Installation procedure

1 **Make sure that the US-122L is not connected to your computer.**

2 **Double-click the executable installation file** US-122L & US-144 driver x_yy.exe**. The installer will start up.**

3 **Select the desired language from the menu and click the** *OK* **button. A dialog box will appear.**

4 **Click the** *Install the Driver* **button and follow the instructions on the screen. The drivers will be installed.**

NOTE
*During driver installation, a warning that "*this software ... has not passed Windows Logo testing*" will appear. If this message appears, click Continue to proceed with the installation.*

3 – Installation

Installing the drivers for Mac OS X

The US-122L's drivers are provided on the CD-ROM as a package file entitled US-122L & US-144 driver x_yy.mpkg. (x_yy is the version number.) Simply double-click on this package file's icon to launch it and follow the directions that appear on your screen.

Settings on your computer

Here are a few basic points to help you set up your computer for best performance with audio applications.

- Do not run other applications. You will probably use your computer for applications other than audio, but we recommend that you avoid running other applications at the same time you are running audio programs. Processing digital audio places a considerable load on your computer.
  This means that if you are running other applications (especially graphics or Internet tools) at the same time as your audio application, the processing may not happen fast enough.

- Certain devices such as network cards or WinModems can cause conflicts with USB processing. If you experience such a conflict, you can use the *Device Manager* to temporarily disable the offending device.

- If your computer has an IDE hard disk, enabling Direct Memory Addressing (DMA) will improve performance. In Windows XP and Windows Vista, this is enabled by default.

4 – Control panel settings

Overview

The Control Panel lets you make various settings for the US-122L's functionality.

On Windows XP and Windows Vista, the US-122L & US-144 Control Panel shortcut can be found in the Windows Start menu in the Windows control panel and also under All Programs\TASCAM\US-122L & US-144.

On Mac OS X, the US-122L & US-144 Control Panel is located in the Applications folder. Other useful audio and MIDI settings for Mac OS X can be found in Applications/Utilities/Audio MIDI Setup.

The Control Panel is divided into the following two sections.

Status section

This shows the current status of the driver and the connected hardware.

You cannot edit the settings from this section.

Setting section

You can edit the various settings of the driver.

> **NOTE**
>
> *The Mac OS X US-122L control panel has no settings.*

Driver settings

Audio Performance

The US-122L driver temporarily stores input and output audio sample in buffers. The size of these buffers can be adjusted. A smaller buffer size will reduce the delay when monitoring the audio signal, but will require your computer to perform the processing faster. If the processing does not occur in time (e.g., if other system operations are occurring), you may hear clicks, pops, or dropouts in the audio signal. A larger buffer size provides more safety against such problems caused by other system activities, but will produce greater delay when monitoring the audio signal. You should select the buffer size that works best for your system.

On the Windows version of the US-122L Control Panel, the Audio Performance setting permits you adjust the buffer size that will be used by all audio applications. The Lowest Latency setting is the minimum buffer size, and the Highest Latency setting is the maximum buffer size.

On Mac OS X, the buffer size is determined by each audio application. Consequently, there is no Audio Performance setting on the Mac OS X version of the US-122L Control Panel. Some applications select the buffer size automatically while others permit the user to select the buffer size. Please consult your audio application's documentation for details.

5 – Connections

USB connections

Using the included cable, connect the US-122L to your computer as shown in the illustration.
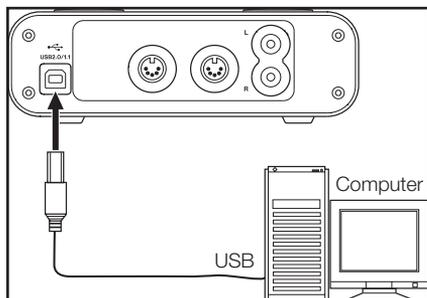
NOTE

Some USB devices access the USB bus frequently. To avoid dropouts and clicks in the audio signal, we strongly recommend that you do not connect other USB devices to the USB bus used by the US-122L. USB keyboards and mice are exceptions to this, and will probably not cause problems.

Audio connections

Connect the output signal of your mic, guitar, keyboard, or other audio device to the US-122L, where it will be converted into digital audio and sent via USB to your computer. Connect the output of the US-122L to your speakers (via an amp) or headphones, so you will be able to monitor the audio signals coming into the US-122L or being produced by your computer.

NOTE

*The US-122L has two input channels (**L, R**), with a **MIC IN** jack (XLR) , **LINE IN** and **LINE/GUITAR IN** jack (1/4" phone jack) provided for each channel. Do not connect signals to both of these analog input jacks at the same time. If both are connected, the signal will not be correctly input to the US-122L.*

Mic

Connect your mics to the **MIC IN** (**L**, **R**) jacks (XLR). If you are using a condenser mic that requires phantom power, turn on the phantom power.
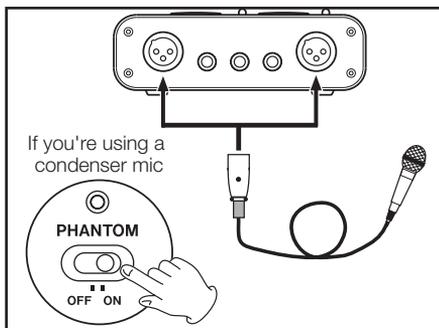
Guitar

Connect your guitar to the **R**-channel **LINE/GUITAR IN** jack (1/4" phone jack) and set the **MIC/LINE-GUITAR** switch to **GUITAR**.
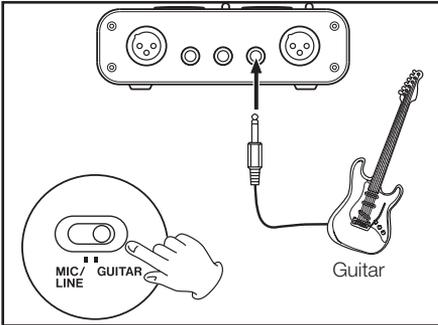
Guitar

Keyboard / drum machine / sound module / cassette deck / MD / CD etc. (analog connection)

Connect the analog audio output of these devices to the **LINE IN L** or **LINE/GUITAR IN R** jacks (1/4" phone jack). If you use the **R**-channel, set the **MIC/LINE-GUITAR** switch to **MIC/LINE**.

OUT

Keyboard / drum machine / sound module / cassette deck / MD / CD or similar device
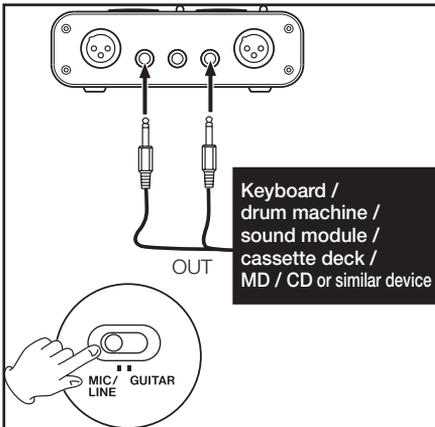
Analog record player

The output of an analog record player cannot be connected directly to the US-122L. You must connect a phono amp between your analog record player and the US-122L. (Alternatively, you can connect it via an audio amp that has **PHONO** inputs.)

OUT

Phono amp or amp with PHONO input

Analog record player

Speakers/headphones
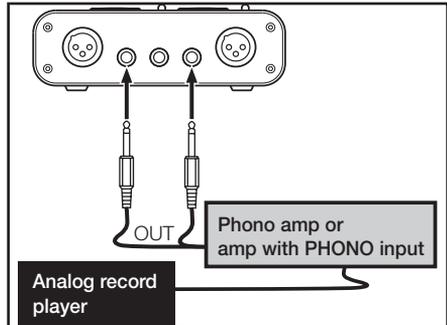
Headphones   Powered speakers, or amp and speakers
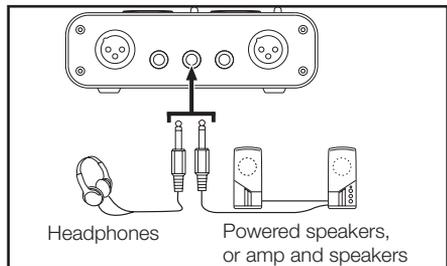
5 – Connections

MIDI connections

Connect your sound module, keyboard/synthesizer, drum machine, or other MIDI device to the US-122L as shown below.
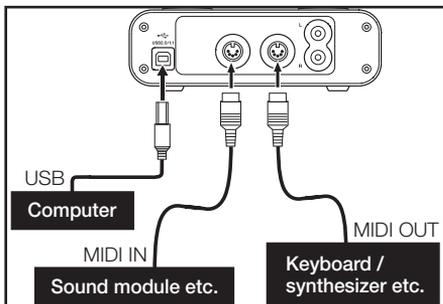
You can use the **MIDI IN**/**MIDI OUT** connectors to transmit and receive MTC (MIDI Time Code). This allows the MTC-compatible DAW (Digital Audio Workstation) computer application to synchronize with your MIDI equipment.
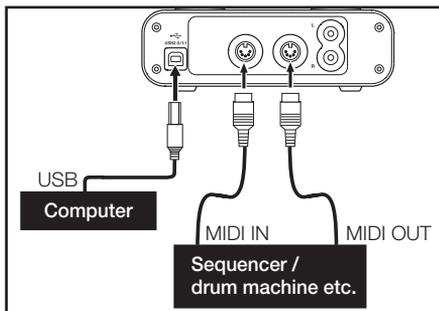
6 – MIDI Implementation Chart

Function		Transmitted	Received	Remarks
Basic Channel	At power ON	X	X	Through
	Changed	X	X	
Mode	At power ON	X	X	Through
	Messages	X	X	
	Altered	*************		
Note		X	X	Through
Number	Range	*************		
Velocity	Note ON	X	X	Through
	Note OFF	X	X	
After Touch	Polyphonic	X	X	Through
	Channel	X	X	
Pitch Bender		X	X	Through
Control Change		X	X	Through
Program Change		X	X	Through
	Range #	*************		
System Exclusive		X	X	Through
System Common	:Song Pos	X	X	Through
	:Song Sel	X	X	
	:Tune	X	X	
System	:Clock	X	X	Through
Real Time	:Commands	X	X	
Other	:Local on/off	X	X	Through
	:All note off	X	X	
	:Active sensing	X	X	
	:Reset	X	X	
Notes				

Mode 1: Omni on, Poly	Mode 2: Omni on, Mono	O:Yes
Mode 3: Omni off, Poly	Mode 4: Omni off, Mono	X:No

7 – Specifications and performance

Audio specifications

Nominal input levels

MIC IN L and **R** (XLR balanced)	−58 dBu (**TRIM**=max) to −14 dBu (**TRIM**=min)
LINE IN L and LINE/GUITAR IN R in **MIC/LINE** position (1/4" jack, balanced)	−40 dBu (**TRIM**=max) to +4 dBu (**TRIM**=min)
LINE/GUITAR IN **R** in **GUITAR** position (1/4" jack, unbalanced)	−51 dBu (**TRIM**=max) to −7 dBu (**TRIM**=min)

Maximum input levels

MIC L and **R** (XLR balanced)	+2 dBu (**TRIM**=min)
LINE IN L and LINE/GUITAR IN R in **MIC/LINE** position (1/4" jack, balanced)	+20 dBu (**TRIM**=min)
LINE/GUITAR IN **R** in **GUITAR** position (1/4" jack, unbalanced)	+9 dBu (**TRIM**=min)

Input impedance

MIC IN L and **R** (XLR balanced)	2.4 kΩ
LINE IN L and LINE/GUITAR IN R in **MIC/LINE** position (1/4" jack, balanced)	10 kΩ
LINE/GUITAR IN **R** in **GUITAR** position (1/4" jack, unbalanced)	1 MΩ

Nominal output level

LINE OUT (RCA unbalanced)	−10 dBV

Maximum output level

LINE OUT (RCA unbalanced)	+6 dBV

Output impedance

LINE OUT (RCA unbalanced)	100 Ω

Maximum output power

PHONES (1/4" stereo jack)	14 mW + 14 mW (32 Ω)

7 – Specifications and performance

Audio performance

Signal-to-noise ratio	
LINE IN (through ADC and DAC) to **LINE OUT**	> 96 dB (A-weighted, **TRIM**=min., input impedance at 40 Ω)
LINE IN (through direct monitor) to **LINE OUT**	> 100 dB (A-weighted, **TRIM**=min., input impedance 40 Ω)
Total harmonic distortion (THD+N, 22 Hz to 22 kHz)	
LINE IN (through ADC and DAC) to **LINE OUT**	< 0.006% (1 kHz sine +20 dBu input, **TRIM**=min.)
LINE IN (through direct monitor) to **LINE OUT**	< 0.004% (1 kHz sine +20 dBu input, **TRIM**=min.)

Other characteristics

Digital audio		
A/D Conversion (AK5381)		24-bit/96 kHz
D/A Conversion (AK4384)		24-bit/96 kHz
MIDI		
MIDI IN and **MIDI OUT** ports (DIN 5-pin)		Conform to MIDI standards
USB		
USB port (down stream connector)		USB 2.0 Format
Host computer compatibility		
Operating system	Windows	32-bit Windows XP SP2 or 32-bit Windows Vista
	Macintosh	Mac OS 10.3.9 or later
Communication		USB 2.0
Audio/MIDI interface protocols	Windows	WDM(KS), ASIO/AISO2 and GSIF2
	Macintosh	Core Audio, MIDI interface (OS X)
Bundled software		Cubase LE4 (for Windows or Macintosh)

7 – Specifications and performance

Physical characteristics

Dimensions		
	External dimensions (w x h x d)	147 x 192 x 48 mm
	Weight	1 Kg
Power		
	Supplied via USB	5V, maximum current 500 mA

Dimensions

Notes

Notes

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