SSL ALPHA 8 User Guide

Why Choose ALPHA 8?

The ultimate audio interface expander

Building on the acclaimed Alpha Link range, ALPHA 8 is an 8-in/8-out professional-grade analogue to digital, digital to analogue converter perfect for expanding your audio interface via ADAT and S/PDIF. Alternatively, you can configure ALPHA 8 to address all analogue and digital I/O simultaneously via USB, giving you an 18-in/18-out audio interface. Featuring class-leading conversion, flexible routing, and impeccable audio performance, ALPHA 8 unlocks the full potential of your setup.

No More Compromise

Using next-generation 32-bit/192 kHz converters, ALPHA 8 allows you to expand your audio interface with first-rate audio performance. Superior in every way, ALPHA 8 tops the charts with superb dynamic range, stunningly low THD+N and crosstalk so low it is unmeasurable beside the exceedingly low noise floor. Expanding the I/O of your existing interface no longer needs to be a compromise.

Configuration Flexibility

ALPHA 8 is capable of many different conversion configurations to suit your specific needs, ensuring you are able to get the most out of all the digital and analogue I/O it offers. Whether you need a simple bidirectional Analogue <> ADAT/SPDIF converter, a full-blown aggregate 18-in, 18-out USB audio interface, or a mixture of the two, ALPHA 8 provides a flexible range of options for how the physical outputs are fed.

The Great Connector

The operating level of each analogue input and output can be individually adjusted to best match the equipment you are connecting to ALPHA 8, whether it's 19" rack gear, vintage synthesisers, analogue mixers, 500-series modules or monitor controllers. On the digital side, comprehensive clocking options (including Wordclock In and Out, ADAT and S/PDIF) ensures Alpha 8 will never miss a beat, guaranteeing rock steady integration in your studio environment. Need more I/O or have an interface with 16 channels of ADAT? Just add an additional ALPHA 8.

Visual and Auditory Confidence

The front panel of ALPHA 8 features dedicated LED bargraphs so you can track your input and output levels at a glance, whilst the front panel high-current headphones output enables you to quickly audition any individual or stereo pair path as a way of confidence checking your audio signals.

Features

- The ultimate audio interface expander
- Premium, next-generation 32-bit / 192 kHz conversion
- Class-leading dynamic range, THD+N and crosstalk audio performance
- 8 balanced line inputs and outputs
- Up to 8 channels of analogue to ADAT and ADAT to analogue conversion
    - Configurable operating levels for each input and output to best match your external equipment: +24/+20/+18/+9 dBu
    - DC-coupled outputs are perfect for sending control voltages to synthesisers and modular rigs
- 10 digital inputs and outputs (8 channels of ADAT, 2 channels of S/PDIF)
    - Up to 2 channels of analogue to S/PDIF and S/PDIF to analogue conversion
    - Up to 2 channels of S/PDIF to ADAT and ADAT to S/PDIF conversion
    - S/PDIF available on coaxial or optical connectors
- Flexible conversion configuration
    - The physical outputs can be fed with a mixture of analogue, digital and USB audio signals, providing a great level of flexibility
- 18-in, 18-out USB audio interface
    - Use ALPHA 8 as an aggregate USB audio interface
    - Record and playback to all 8 analogue and 10 digital I/O via USB.
- High-current front panel headphone confidence check – audition any individual input or output (or stereo pair)
- Choose from 3 different settings to optimise for your headphones:
    - Standard
    - High Impedance
    - High Sensitivity
- Dedicated front panel input and output meters
- Wordclock in and out & input termination switch
- Clock internally, or from incoming ADAT, S/PDIF or Wordclock

Getting Started

Unpacking

The unit has been carefully packed and inside the box, you will find the following items:

- SSL ALPHA 8
- Safety Guide
- IEC Power Cable for your region

Registering Your SSL ALPHA 8

Registering ALPHA 8 will grant you access to an array of exclusive software from us and other industry-leading software companies - we call this incredible bundle the 'SSL Production Pack'.

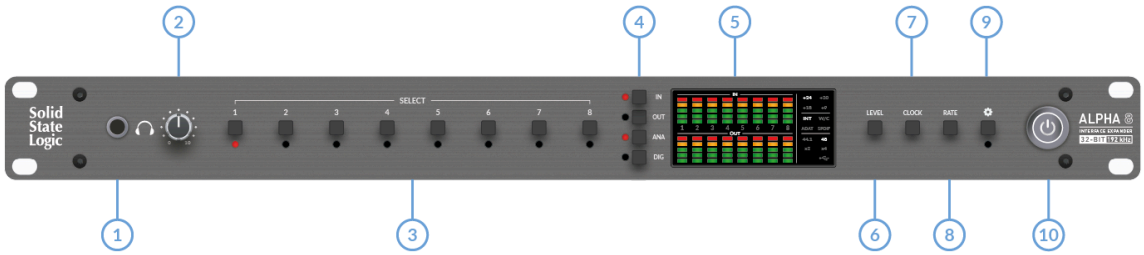
To register your product, head to www.solidstatelogic.com/get-started and follow the on-screen instructions. During the registration process, you'll need to input the serial number of your unit. This can be found on the label on the rear of your unit as displayed below.

Please note: the serial number begins with the letters 'AL8'

Once you have completed registration, all of your software content will be available in your logged-in user area. You can return to this area at any time by logging back into your SSL account at www.solidstatelogic.com/login should you wish to

download the software another time.

Front Panel Tutorial



1. HEADPHONES OUTPUT

The front panel headphones output allows you to confidence check the selected audio path individually or in stereo pairs (press and hold an odd-numbered select button and whilst keeping held, press the even number). Use in conjunction with the **IN**, **OUT**, **ANA** & **DIG** front panel buttons.

e.g. if you want to audition analogue input 5:

- Select **5**
- Press **IN**
- Press **ANA**

The headphone output power can be configured to best match different headphones impedances via the settings menu. More on this later.

2. HEADPHONES LEVEL CONTROL

Level control for the headphones output.

3. SELECT BUTTONS

In addition to auditioning audio paths, the **SELECT** buttons also allow you to configure the operating levels for each analogue input and analogue output separately. You can choose from the following options to best suit the analogue equipment you have connected: **+24**, **+20**, **+18**, **+9 dBu**.

e.g. you want to set analogue output 1 to +24 dBu operating level

- Select **1**
- Press **OUT**
- Press the **LEVEL** button until **+24** is lit in the central panel area.

You can set the operating level for a range of consecutive channels at once by pressing and holding a select key and then pressing another in the first step of the above process.

4. IN, OUT, ANA(LOGUE) & DIG(ITAL) buttons.

Use these buttons in conjunction with the **SEL 1-8** buttons to do the following:

- Audition audio paths
- Set operating levels

Please note when setting the operating level of an analogue input or output the selection of **ANA** or **DIG** does not make a difference, only the choice of **IN** (for analogue input) or **OUT** (for analogue output) matters.

5. CENTRAL PANEL

5-segment LED metering for all 8 analogue inputs and outputs. Top to bottom:

- Red = 0 dBFS
- Yellow = -10 dBFS
- Green = -20 dBFS
- Green = -30 dBFS
- Green = -40 dBFS

+24/+20/+18/+9 – indicates the operating level of the selected analogue input or analogue output

INT/W/C/ADAT/SPDIF - indicates the selected clock source

44.1/48/x2/x4 - indicates the current sample rate. E.g. If both **48** and **x2** are lit, this means 96 kHz

USB – indicates USB connection

6. LEVEL

Allows you to set the analogue input or analogue output operating level. Use in conjunction with the **SEL 1-8** and **IN** and **OUT** buttons. When pressing the **LEVEL** button, a long press will allow you to cycle through the options in the reverse direction.

7. CLOCK

Press to toggle the clock source. Choose between **INT** (internal), **W/C** (wordclock input), **ADAT** input or **S/PDIF** input. When pressing the **CLOCK** button, a long press will allow you to cycle through the options in the reverse direction.

8. RATE

Sets the sample rate for the internal clock – choose between 44.1/48/88.2/96/176.4/192 kHz. When pressing the **RATE** button, a long press will allow you to cycle through the options in the reverse direction.

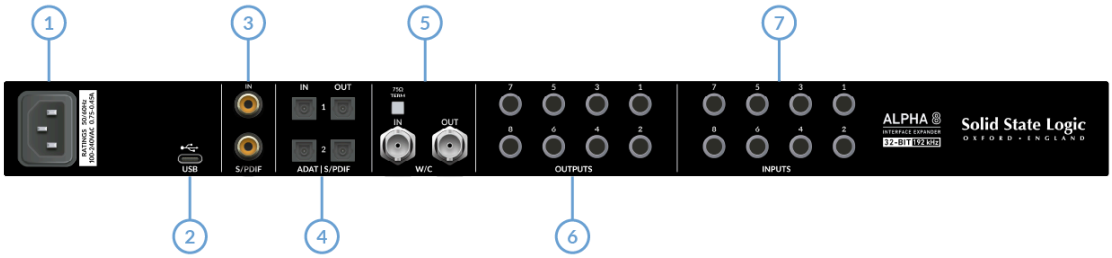
9. SETTINGS

Press to enter the settings menu.

10. POWER

Press to power the unit.

Rear Panel Tutorial



1. POWER

IEC Power Inlet.

2. USB

USB 'C' Type Connector - To use ALPHA 8 as a USB audio interface, connect a USB cable to your computer from here. If you are using ALPHA 8 only to convert between Analogue/ADAT/S/PDIF, the USB connection is not required.

3. COAXIAL S/PDIF I/O

2 Channels of S/PDIF input & output on RCA connectors. ALPHA 8 supports sample rates up to 192 kHz for S/PDIF on coaxial. The coaxial S/PDIF output is always active and fed by the source determined in Settings Option 1 (see settings menu for more information).

4. DIGITAL AUDIO OPTICAL PORTS

ALPHA 8 supports sample rates up to 96 kHz for ADAT or S/PDIF on optical.

Inputs

By default, Optical Input 1 is configured for ADAT inputs 1-8 at 44.1/48 kHz or ADAT inputs 1-4 at 88.2/96 kHz (SMUX).

Optical Input 2 is configured for ADAT inputs 5-8 at 88.2/96 kHz (SMUX)

or

Optical Input 2 can be configured as an optical 2-channel S/PDIF input via the ALPHA 8 settings menu. When configuring Optical Input 2 for S/PDIF, the **S/PDIF Coaxial Input is disabled**.

Outputs

Optical Output 1 is configured for ADAT outputs 1-8 at 44.1/48 kHz or ADAT outputs 1-4 at 88.2/96 kHz (SMUX).

Optical Output 2 is configured as a mirror of Optical Output 1 at 44.1/48 kHz (i.e. ADAT outputs 1-8). At 88.2/96 kHz Optical Output 2 carries ADAT outputs 5-8 (SMUX).

or

Optical Output 2 can be configured as a 2-channel optical S/PDIF output via the ALPHA 8 settings menu.

5. WORDCLOCK I/O

Wordclock in and out connections on BNC offer flexible clocking options.

If ALPHA 8 is receiving wordclock (wordclock input) from an external device and it is the last unit in the wordclock chain, press the **75 Ω termination** button.

6. OUTPUTS 1-8

8 x balanced analogue inputs and outputs on TRS jacks.

Configurable operating levels for each input and output to best match your external equipment: +24/+20/+18/+9 dBu.

The outputs are all DC-coupled - perfect for sending control voltages to synthesisers and modular rigs.

7. INPUTS 1-8

8 x balanced analogue inputs and outputs on TRS jacks.

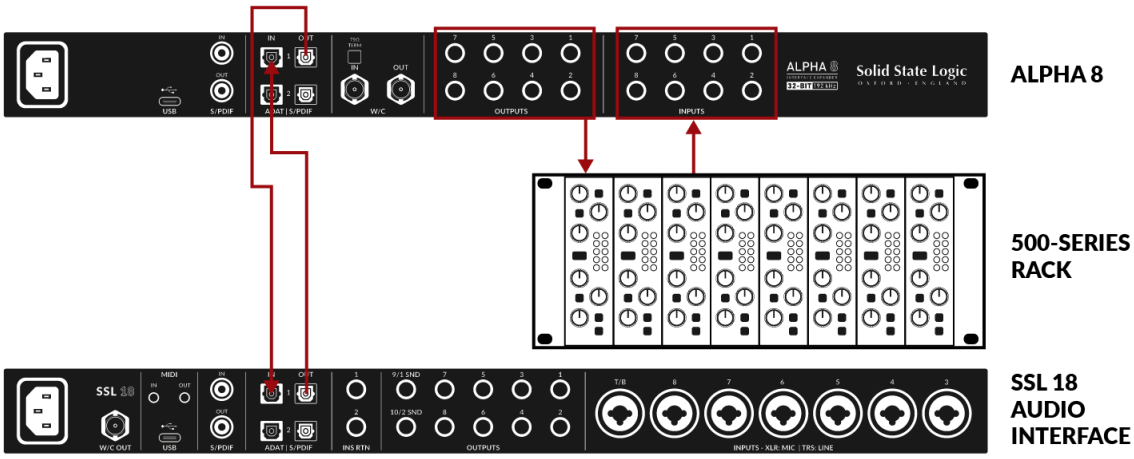
Configurable operating levels for each input and output to best match your external equipment: +24/+20/+18/+9 dBu.

Application Examples

Application Example 1

8 channels of Analogue to ADAT and ADAT to Analogue Conversion

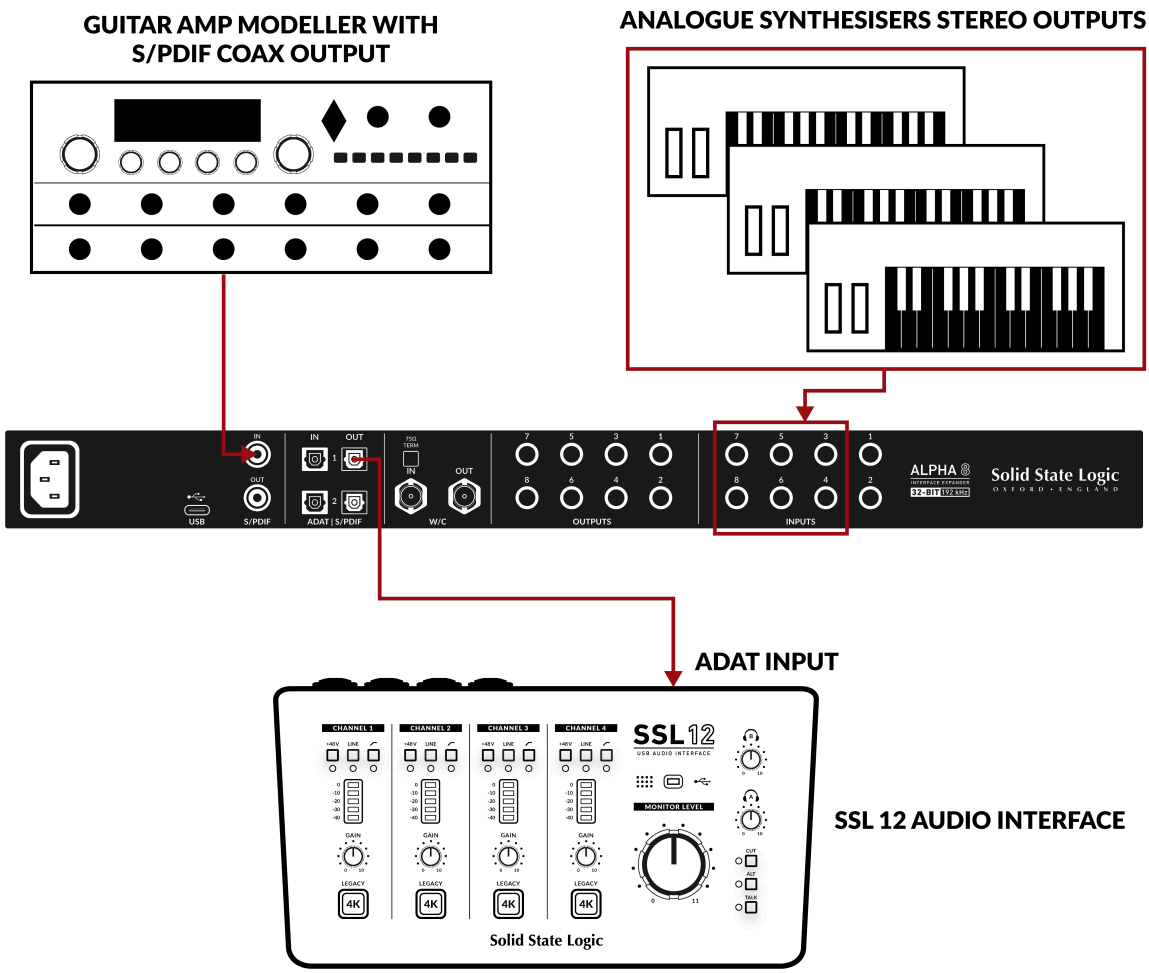
In this example, ALPHA 8 is converting ADAT to Analogue and Analogue to ADAT, allowing a convenient way of connecting 8 x 500-series modules of processing to an audio interface with ADAT connectivity, such as SSL 18. This would typically be achieved by configuring the SSL 18 ADAT inputs and outputs as ‘hardware inserts’ in the DAW.



Application Example 2

2 channels of S/PDIF to ADAT and 6 channels of Analogue to ADAT

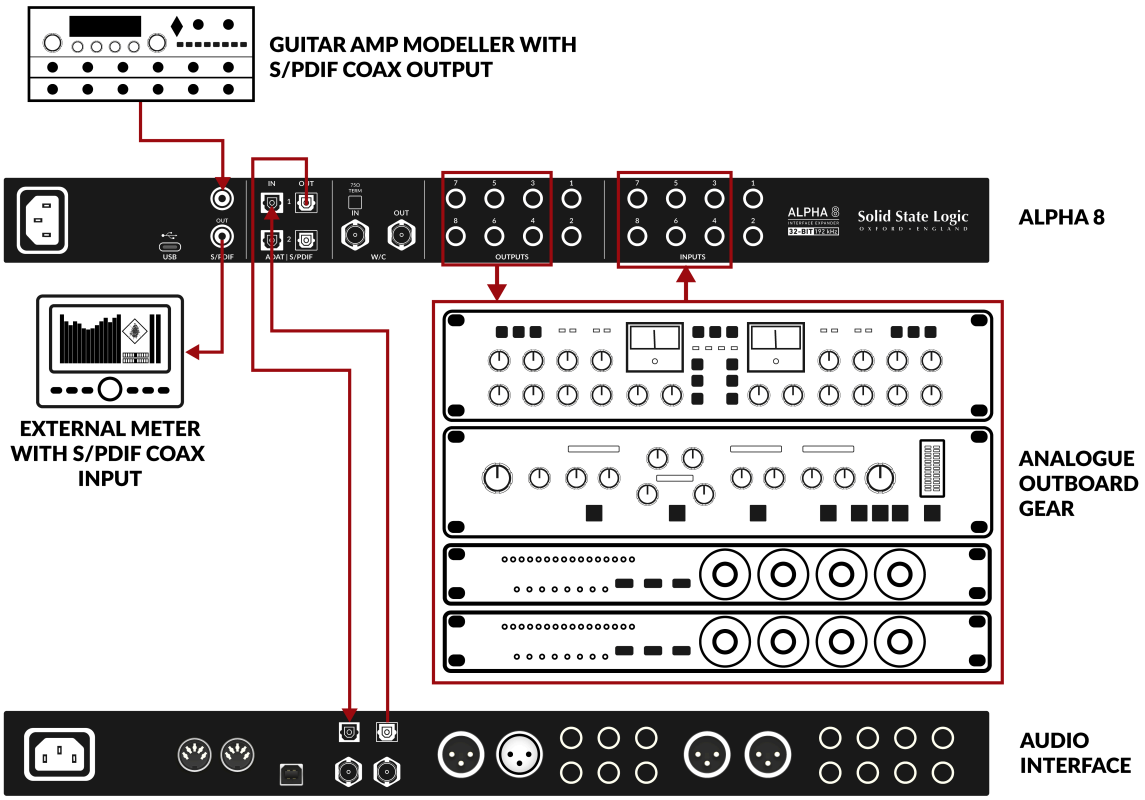
In this example, an SSL 12 audio interface is connected to ALPHA 8 via ADAT. 2 channels of S/PDIF from a guitar amp modeller are being converted to ADAT and sent to SSL 12 (ADAT inputs 1-2). The remaining ADAT input channels (3-8) are being fed from multiple stereo analogue synthesisers.



Application Example 3

2 channels of ADAT to S/PDIF, 2 channels of S/PDIF to ADAT and 6 channels of Analogue to ADAT and ADAT to Analogue Conversion

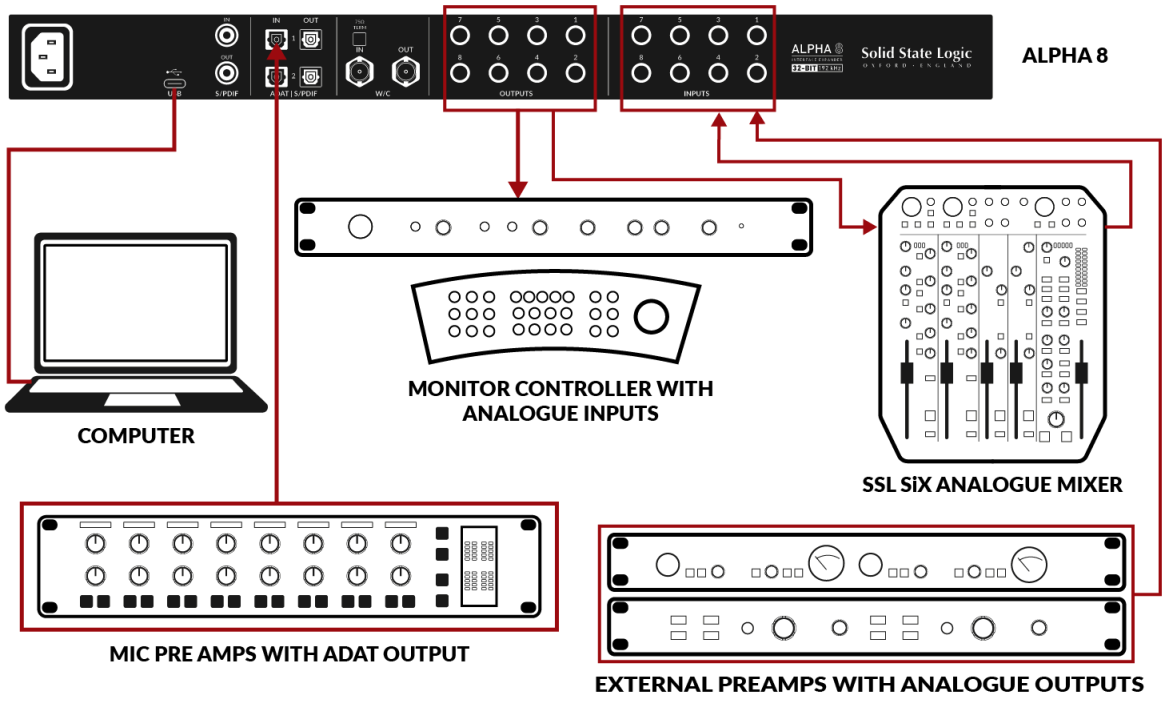
In this example, a third-party audio interface that only has optical ADAT input and output is connected to Alpha 8. ADAT inputs 1-2 on ALPHA 8 (fed from the audio interface) are being converted to coaxial S/PDIF, which then feeds an external metering device. Also, 2 channels of S/PDIF output from a guitar amp modeller are being converted to ADAT and sent back to the audio interface The remaining ADAT input and output channels (3-8) are being converted between ADAT and Analogue and Analogue and ADAT, allowing the 3rd party interface to access analogue outboard gear (6 channels worth).



Application Example 4

Using ALPHA 8 as a USB audio interface connecting to various pieces of analogue and digital equipment

In this example, ALPHA 8 is connected to a Mac/Windows computer and is being used as the main USB audio interface. In this configuration, all analogue and digital inputs are available to the DAW as inputs (18 total) and all analogue and digital outputs are available to send to from the DAW as outputs (18 total). In this particular case, the SSL SiX analogue mixer and outboard preamps are connected to the analogue inputs of Alpha 8 and PURE DRIVE mic preamps are connected to the ADAT input. The analogue outputs are connected to an external monitoring unit, as well as the SiX analogue mixer.



Using ALPHA 8 as an Audio Interface

The USB audio interface functionality of ALPHA 8 offers some extra flexibility to those who need it. To this end, ALPHA 8 can be used as an 18-in, 18-out USB audio interface when connected to the computer via USB.

If you already own various high-quality analogue equipment such as an analogue mixer or monitor controller, then ALPHA 8 is the perfect high-performance USB audio interface to tie your studio together.

Alternatively, you could use ALPHA 8 as an aggregate audio interface on Mac, to supplement your existing audio interface.

The **USB audio (DAW) inputs** are fed as follows:

ALPHA 8 Analogue inputs 1-8 feed DAW inputs 1-8

ALPHA 8 S/PDIF inputs 1-2 feed DAW inputs 9-10

ALPHA 8 ADAT inputs 1-8 feed DAW inputs 11-18

The **USB audio (DAW) outputs** are fed as follows:

DAW outputs 1-8 feed Analogue outputs 1-8 (if configured in settings menu)

DAW outputs 9-10 feed S/PDIF outputs 1-2 (if configured in settings menu)

DAW outputs 11-18 feed ADAT outputs 1-8 (if configured in settings menu)

Mac

Mac does not require drivers to be installed because ALPHA 8 is a class-compliant USB Audio 2.0 device. ALPHA 8 will show up as a USB Audio device using the inbuilt Core Audio driver. Simply select ALPHA 8 in System Preferences / your DAW to use it as an audio interface.

Driver Installation (Windows Only)

1. Connect your SSL USB audio interface to your computer using a USB Type-C cable.

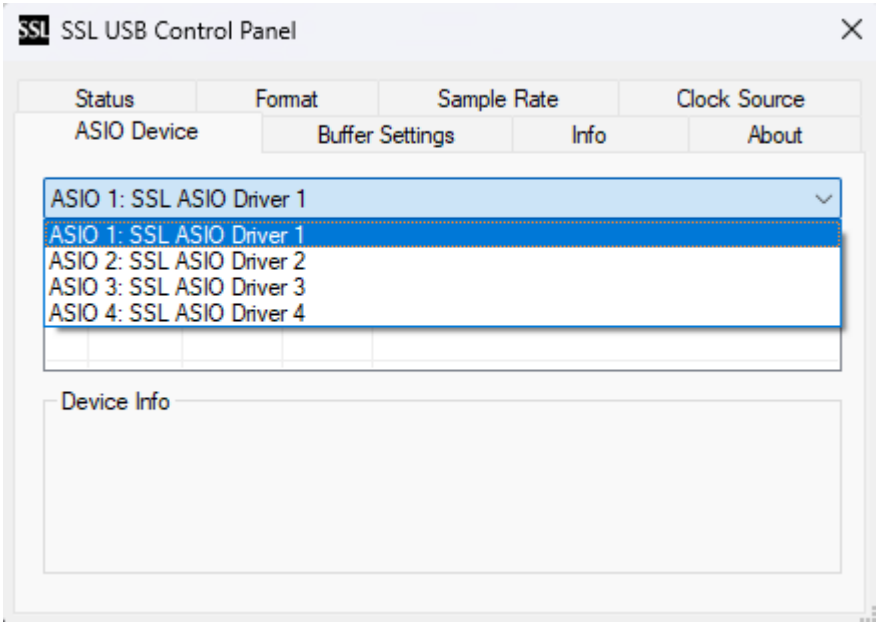
2. Download and install the SSL ALPHA 8 USB ASIO/WDM Driver for your SSL ALPHA 8

SSL USB Control Panel (Windows Only)

After installing the driver, the SSL USB Control Panel application will be available onto your computer.

This Control Panel will report details such as what Sample Rate and Buffer Size. Please note that both Sample Rate and Buffer Size will be taken control of by your DAW when it is opened. The SSL USB Control also allows access to Clock source settings - internal clock, ADAT (Optical 1) or S/PDIF (Coaxial).

The Control Panel is also where you need to assign your SSL ALPHA 8 to an instance of the ASIO Driver (1-4). This allows multiple ASIO applications working with multiple SSL USB devices to be used on a single system or in a multi-client environment.

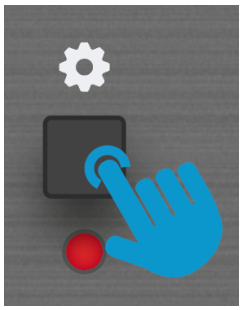


Please refer to this article for a detailed explanation of linking your interface to one of the 4 ASIO Driver slots to ALPHA 8.

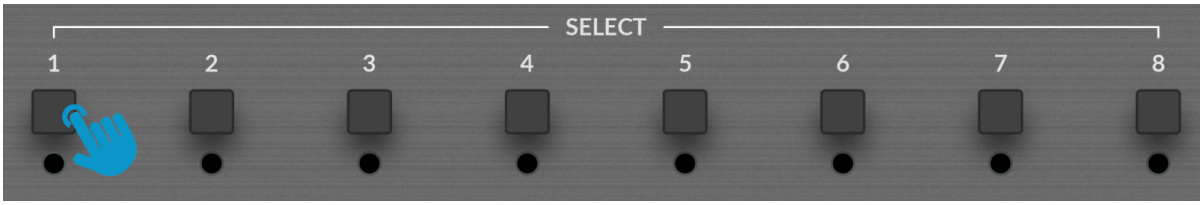
Safe Mode

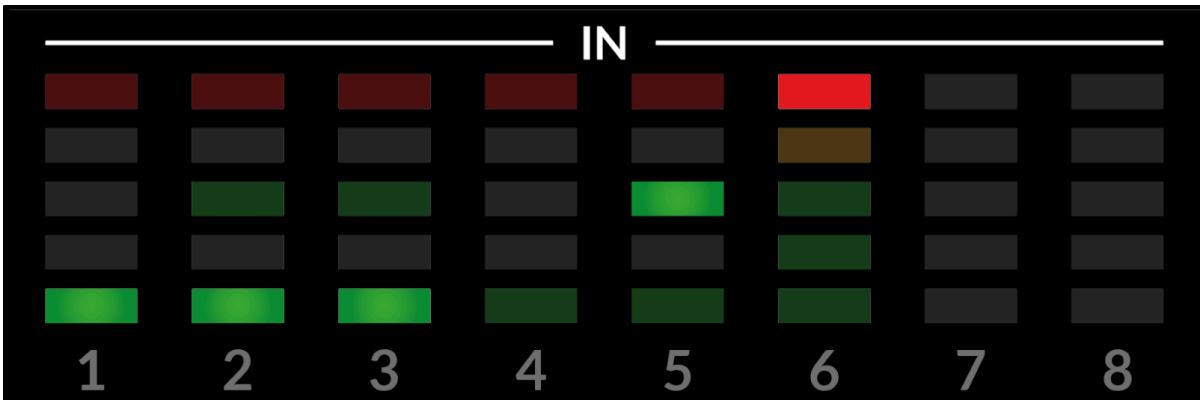
In the Control Panel there is a tickbox for Safe Mode on the 'Buffer Settings' tab. Safe mode defaults to ticked but can be unticked. Unticking Safe Mode will reduce the overall Output Latency of the device, which may be useful if you are looking to achieve the lowest possible roundtrip latency in your recording. However, unticking this may cause unexpected audio clicks/pops if your system is under strain.

Settings Menu

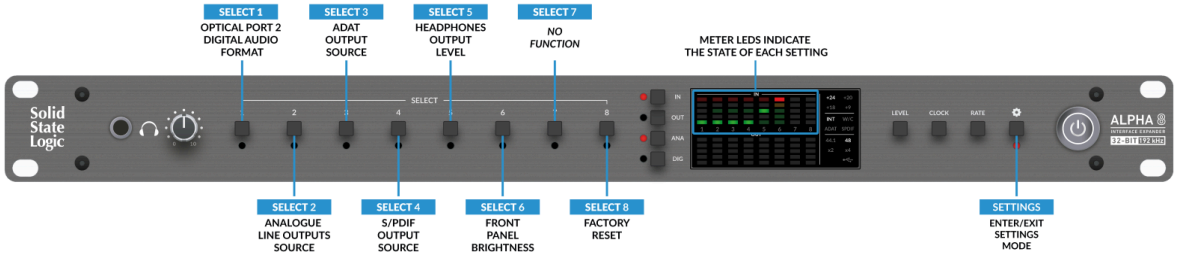


Press the settings cog button to enter/exit the settings menu. When in the settings menu, the **SELECT 1-8** keys toggle various functions and their state is indicated on the corresponding input LED metering.

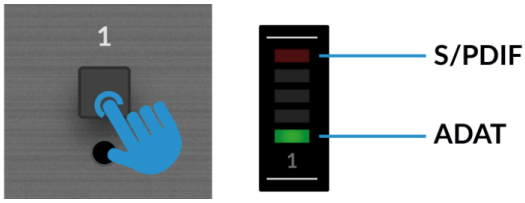




Below is an overview of the various settings:



SETTING 1 – OPTICAL PORT 2 DIGITAL AUDIO FORMAT

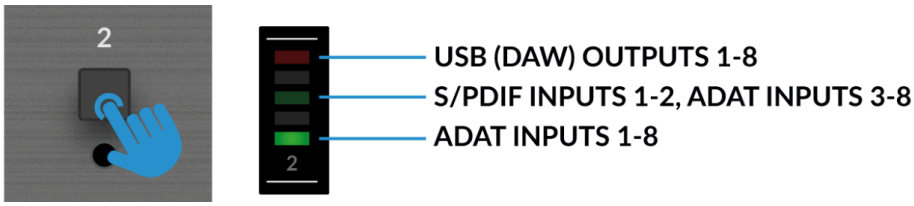


Determines the digital audio format of optical input 2 and optical output 2 on the rear of the unit. Use select button 1 to change this setting. The default setting is ADAT, indicated by the bottom green LED being lit on input meter 1. If you are working with ADAT at sample rates of 88.2 or 96 kHz, the 2nd optical ports are needed for ADAT channels 5-8 (SMUX).

Press select button 1 to change the format of the 2nd optical ports to S/PDIF (top red LED lights). This allows you to use the 2nd optical ports for optical S/PDIF I/O. Please note that changing to this setting **disables the coaxial S/PDIF input** and will also mean you are unable to use ADAT channels 5-8 if you are working at 88.2 or 96 kHz. However, if you are working with ADAT at 44.1 or 48 kHz then both ADAT and S/PDIF optical formats can be used simultaneously, as ADAT 1-8 only requires the 1st optical ports.

ALPHA 8 will restart to enact this change.

SETTING 2 – ANALOGUE LINE OUTPUTS SOURCE

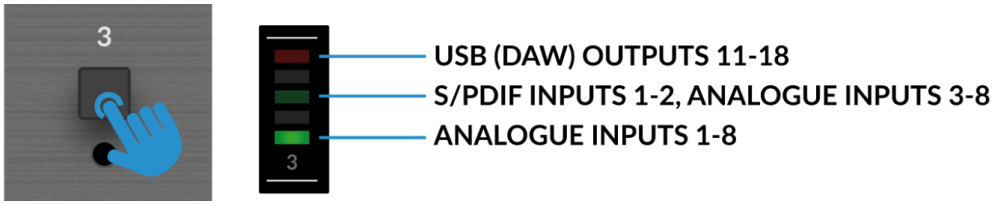


Determines which digital audio source feeds the 8 analogue line outputs. Use select button 2 to change this setting. The default setting (bottom green LED lit) is **ADAT INPUTS 1-8**. In this case, ALPHA 8 converts all 8 channels of ADAT inputs to 8 channels of analogue outputs.

The second option (middle green LED lit) is **S/PDIF INPUTS 1-2, ADAT INPUTS 3-8**. This setting allows you the flexibility to have 2 channels of S/PDIF to analogue conversion. The S/PDIF inputs are converted to analogue and sent out of analogue outputs 1-2. Also, ADAT inputs 3-8 are converted and sent out of analogue outputs 3-8.

The third option (top red LED lit) is **USB (DAW) OUTPUTS 1-8**. This setting allows you to feed analogue outputs 1-8 from USB audio (your DAW/computer audio). Ensure you have connected the USB cable to ALPHA 8 to use it as a USB audio device.

SETTING 3 – ADAT OUTPUT SOURCE

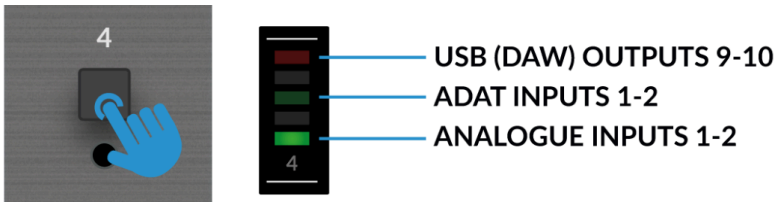


Determines which audio source(s) feeds the ADAT outputs. Use select button 3 to change this setting. The default setting (bottom green LED lit) is **ANALOGUE INPUTS 1-8**. In this case, ALPHA 8 converts all 8 channels of analogue inputs to 8 channels of ADAT outputs.

The second option (middle green LED lit) is **S/PDIF INPUTS 1-2, ANALOGUE INPUTS 3-8**. This setting allows you the flexibility to have 2 channels of S/PDIF to ADAT conversion. The S/PDIF inputs are converted to ADAT and occupy channels 1-2 of the ADAT output stream. Analogue inputs 3-8 are also converted and occupy channels 3-8 of the ADAT output stream.

The third option (top red LED lit) is **USB (DAW) OUTPUTS 11-18**. This setting allows you to feed ADAT outputs 1-8 from USB audio streams 11-18 (your DAW/computer audio). Ensure you have connected the USB cable to ALPHA 8 to use it as a USB audio device.

SETTING 4 – S/PDIF OUTPUT SOURCE



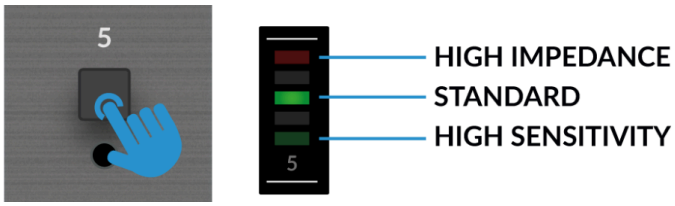
Determines which audio source(s) feeds the S/PDIF outputs. Use select button 4 to change this setting. The default setting (bottom green LED lit) is **ANALOGUE INPUTS 1-2**. In this case, ALPHA 8 converts analogue inputs 1-2 to S/PDIF outputs.

The second option (middle green LED lit) is **ADAT INPUTS 1-2**. In this case, ALPHA 8 converts ADAT inputs 1-2 to S/PDIF outputs.

The third option (top red LED lit) is **USB (DAW OUTPUTS 9-10)**. This setting allows you to feed the S/PDIF output from USB audio stream 9-10 (your DAW/computer audio). Ensure you have connected the USB cable to ALPHA 8 to use it as a USB audio device.

Please note that the coaxial S/PDIF output is always active and respects the source chosen above. The S/PDIF optical output (Optical Port 2), needs to be enabled via Setting 1. If enabled, the S/PDIF optical output is fed from the same source as the coaxial output.

SETTING 5 – HEADPHONES OUTPUT LEVEL

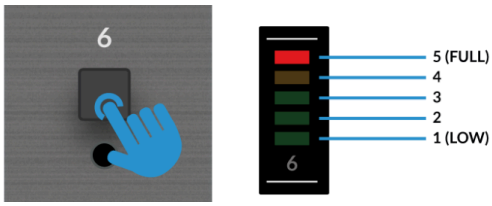


Allows you to adjust the headphones output level to best suit your headphones. Use select button 5 to change this setting. The default setting is **STANDARD** (middle green LED lit) which is suitable for a wide range of headphones.

HIGH IMPEDANCE (top red LED lit) is ideal for high impedance headphones which require greater voltage drive to produce the expected output level. Typically, headphones with an impedance of 250Ω or greater will benefit from this setting.

HIGH SENSITIVITY (bottom green LED lit) is most applicable for use with certain In-Ear Monitors (IEMs) or headphones that have especially high sensitivity (expressed in dB/mW). Typically, headphones that specify their performance at 100 dB/mW or higher.

SETTING 6 – FRONT PANEL BRIGHTNESS

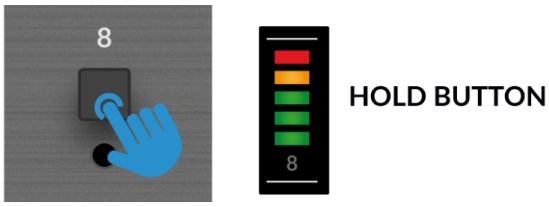


Allows you to adjust the brightness level of the front panel LEDs. Use select button 6 to change this setting. The default setting is '**FULL**' (top red LED lit) which is full brightness.

SETTING 7 – NO FUNCTION

There is no function for button 7 in the settings menu.

SETTING 8 – FACTORY RESET



Allows you to perform a factory reset of the unit. This will reset all settings, operating levels, clock source and sample rate to their factory default states.

Press and hold button 8. Keep held whilst all 5 LEDs on Input 8 light up in sequence. When you see the unit reboot itself and start performing the start-up sequence, you may release button 8 – a factory reset has been successfully performed.

Using ALPHA 8's DC-Coupled Outputs

All analogue outputs on the ALPHA 8 are DC-coupled and therefore able to send +/-5V signal to allow CV control to Semi & Modular Synths, Eurorack and CV-enabled outboard FX.

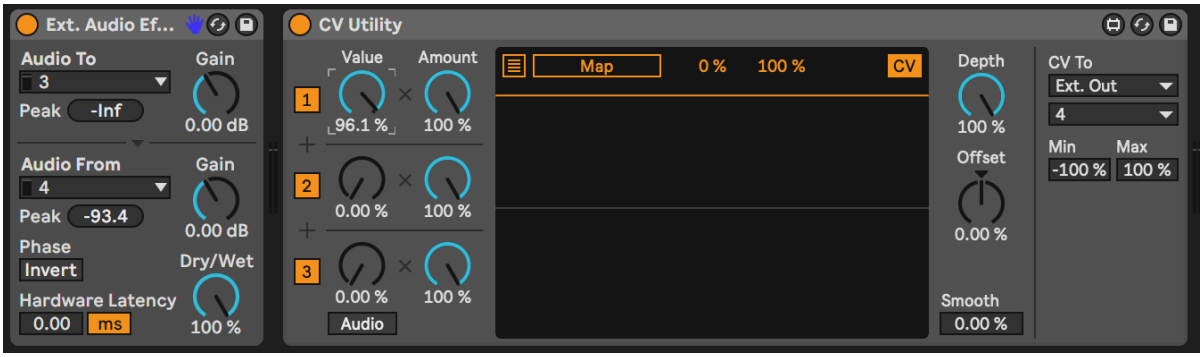
What is CV?

CV is an abbreviation of "Control Voltage"; an analogue method of controlling synthesizers, drum machines and other similar equipment.

What are CV Tools?

CV Tools is a free pack of CV-enabled instruments, synchronisation tools, and modulation utilities that enable users to seamlessly integrate Ableton Live with various devices in the Eurorack format or Modular Synthesisers & Analog effects units.

Setting Up Ableton Live CV Tools



- Open your Ableton Live session
- First set up a new Audio Track that you'll use to send out the CV Signal.
- Then insert onto the Audio track a CV Utilities Plug-In from the packs menu.
- Once the CV Utility Plug-In is Open, set the CV **To** your designated Output. In this example we've set this to Output 4 from the ALPHA 8.
- Set up a second Audio track with the input signal from the Effect/Instrument and record arm to monitor the input back into Ableton Live.
- Now using the CV Value knob on the CV Control channel, you can automate the CV signal sent out of Ableton to your External Instrument/FX unit. This can then be mapped to a MIDI controller to control in realtime, or record the Automation into your session.
- Now you can record the audio back into your Ableton Session, or other DAW you may be using to record your Audio back onto your system.
- Please note that multiple CV Utility plugs can be set up when using the ALPHA 8 as EVERY PHYSICAL OUTPUT is able to send DC signal for CV Control. Therefore you can use up to 8 CV control signals at any one time using CV Tools and an ALPHA 8

Requirements for CV Tools

- Live 10 Suite (version 10.1 or later)
- Live 10 Standard + Max for Live (version 10.1 or later)
- A DC-coupled interface (for CV hardware integration) such as the ALPHA 8
- Some understanding of Ableton Live Packs
- Some understanding of how to use CV-enabled hardware with Live

Best Practices & Safety

- **NEVER** send **CV** directly to your speakers (direct voltage can cause damage to your speakers).
- The **CV** Instrument device is only capable of calibrating oscillators that use bipolar voltage (+/-5V) for 1V/oct. tuning. However, some digital oscillator modules exclusively use unipolar signals (+5V or above) for tuning. As a result, CV Tools will be incompatible with these modules. If you are unsure whether this applies to the modules in your system, please consult the user manual for the device.

- Remember - Eurorack signals are up to 5x louder than line-level audio! Before connecting your modular system to a digital audio interface, be sure to reduce the signal down to line-level using a dedicated output module.

Specifications

Unless specified otherwise, default test configuration:

Sample Rate: 48kHz, Bandwidth: 20 Hz to 20 kHz

Measurement device output impedance: 40 Ω (20 Ω unbalanced)

Measurement device input impedance: 200 kΩ (100 kΩ unbalanced)

Unless otherwise quoted all figures have a tolerance of ±0.5dB or 5%

Inputs

Input Line-ups	+24 dBu, +20 dBu, +18 dBu, +9 dBu
Frequency Response 20 Hz - 20 kHz	+/-0.1 dB
Dynamic Range (+24 dBu A-weighted)	120 dB
Dynamic Range (+9 dBu, A-weighted)	114.5 dB
THD+N (-1 dBFS input level)	-110 dB/0.00034%
Input Impedance	10 kΩ
Crosstalk	-140 dB (effectively below the noise floor)

Outputs

Output Line-ups	+24 dBu, +20 dBu, +18 dBu, +9 dBu
Frequency Response 20 Hz - 20 kHz	+/-0.02 dB
Dynamic range (+24 dBu, A-weighted)	123 dB
Dynamic Range (+9 dBu, A-weighted)	114 dB
THD+N (-1 dBFS input level)	-108 dB/0.00038%
Output Impedance	150 Ω
Crosstalk	-140 dB (effectively below the noise floor)

Headphones

Output Levels	+18 dBu, +10 dBu, 0 dBu
Frequency Response 20 Hz - 20 kHz	+/-0.02 dB
Dynamic range (+18 dBu, A-weighted)	124 dB

THD+N (+18 dBu, at -1 dBFS)	-106 dB/0.0005%
Output Impedance	<1 Ω

Power

Power Consumption	< 30 Watts

Latency

Analogue to ADAT	0.09 ms @ 96 kHz 0.61 ms @ 48 kHz
USB Roundtrip Latency	**32 sample buffer, 96 kHz** Mac - 5.1 ms Windows - 3 ms Safe Mode Off, 5 ms Safe Mode On **32 sample buffer, 48 kHz** Mac - 7.8 ms Windows - 5 ms Safe Mode Off, 7.4 ms Safe Mode On

Dimensions and Weights

Product

Width: 482.6 mm / 19 inches

Height: 43.6 mm / 1.7 inches

Depth (including front panel controls and rear panel connectors): 294 mm / 11.6 inches

Depth (excluding front panel controls and rear panel connectors): 257.8 mm / 10.1 inches

Product Weight: 3.6 kg / 7.89 lbs

Boxed

Width: 630 mm / 24.8 inches

Height: 100 mm / 3.9 inches

Depth: 360 mm / 14.2 inches

Boxed Weight: 5.6 kg / 12.34 lbs