SSL 12 User Manual

Introduction to SSL 12

Congratulations on purchasing your SSL 12 USB audio interface. A whole world of recording, writing and production awaits you! We know you're probably keen to get up-and-running, so this User Guide is set out to be as informative and useful as possible. It should provide you with a solid reference for how to get the best out of your SSL 12. If you get stuck, don't worry, the support section of our website is full of useful resources to get you going again.

Overview

What is SSL 12?

SSL 12 is a USB bus-powered audio interface that enables you to get studio-quality audio into and out of your computer with minimal fuss and maximum creativity. On Mac, it's class-compliant - this means that you don't need to install any software audio

drivers. On Windows, you'll need to install our SSL USB Audio ASIO/WDM driver, which you can download from our website or via the HOME page of the SSL 360° software - see the Quick-Start section of this guide for more information on getting up and running.

SSL 12's capabilities are further extended with the power of SSL 360°; an application hosted on your computer where the powerful SSL 12 Mixer page allows for super low latency (sub 1 ms) headphone mixes, flexible loopback functionality and customisation of the 3 user-assignable switches on the front panel. See the **SSL 360°** section for more information.

Features

- **4 x SSL-designed microphone preamps** with unrivalled EIN performance and huge gain range for a USB-powered device
- **Per-Channel Legacy 4K switches** - analogue colour enhancement for any input source, inspired by the 4000-series console
- **2 Hi-Z instrument inputs** for Guitars, Bass or Keyboards
- **2 professional-grade headphone outputs**, with plenty of power & switchable options for high impedance or high sensitivity headphones.
- **32-bit / 192 kHz AD/DA Converters** - capture and hear all the detail of your creations
- **ADAT IN** - expand the input channel count with up to 8 channels of digital audio.
- Easy-to-use **Headphone routing via SSL360°** for critical **low-latency monitoring** tasks
- Built In **Talkback Mic** that can be routed to Headphone A, B and Line 3-4 outputs
- **4 x balanced outputs** and precision Monitor Level, with stunning dynamic range
- Use Outputs 3-4 to connect an alternative monitor set to or as general additional line-level outputs.
- **Headphone Outputs are switchable to Balanced Line Outputs** for additional outputs.
- **DC-coupled outputs** for controlling CV input instruments & FX
- **3 user-assignable front panel switches** - assign to various monitoring functions and talkback open/close
- **MIDI I/O**
- **SSL Production Pack Software Bundle**: Includes the SSL Production Pack Software Bundle - an exclusive collection of DAWs, Virtual Instruments and Plug-ins
- USB bus-powered audio interface for Mac/Windows - power is provided by USB 3.0, audio via the USB 2.0 protocol
- K-Lock Slot for securing your SSL 12

Getting Started

Unpacking

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

- SSL 12

- Quickstart Guide

- Safety Guide

- 1.5m 'C' to 'C' USB Cable

- USB 'C' to 'A' adapter

USB Cables & Power

Please use the provided USB cable to connect the SSL 12 to your computer. The connector on the rear of SSL 12 is a 'C' type. The type of USB port you have available on your computer will determine if the USB C to A adapter is required. Newer computers may have 'C' ports, whereas older computers may have 'A'.

SSL 12 is powered entirely from the computer's USB 3.0-bus power and therefore requires no external power supply. When the unit is receiving power correctly, the green USB LED will light a steady green colour. SSL 12's power is based on the USB 3.0 specification (900mA) so ensure you are connected to a USB 3 port and not a USB 2 port.

For best stability and performance, we recommend using the included USB cable & adapter if required. It should be possible to use a longer cable, but your mileage may vary depending on the quality of the cable, as cables with lower quality conductors tend to drop more voltage.

USB Hubs

Wherever possible, it is best to connect SSL 12 directly to a spare USB 3.0 port on your computer. This will give you the stability of an uninterrupted supply of USB power. However, if you do need to connect via a USB 3.0 compliant hub, then it is recommended that you choose one of high enough quality to provide reliable performance - not all USB hubs were created equally.

Safety Notices

Please read the Important Safety Notice document included as a printed document shipped with your SSL 12 interface.

System Requirements

Mac and Windows operating systems and hardware are constantly changing. Please search for 'SSL 12 Compatibility' in our online FAQs to see if your system is currently supported.

Registering Your SSL 12

Registering your SSL USB Audio interface 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 base of your unit.

Please note: the serial number begins with the letters 'S12'

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.
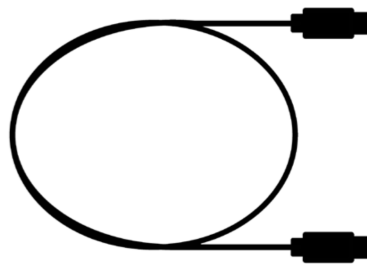
What is the SSL Production Pack?

The SSL Production Pack is an exclusive software bundle from SSL and other third-party companies. To find out more please visit the SSL Production Pack page for an up-to-date list of all included software.
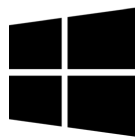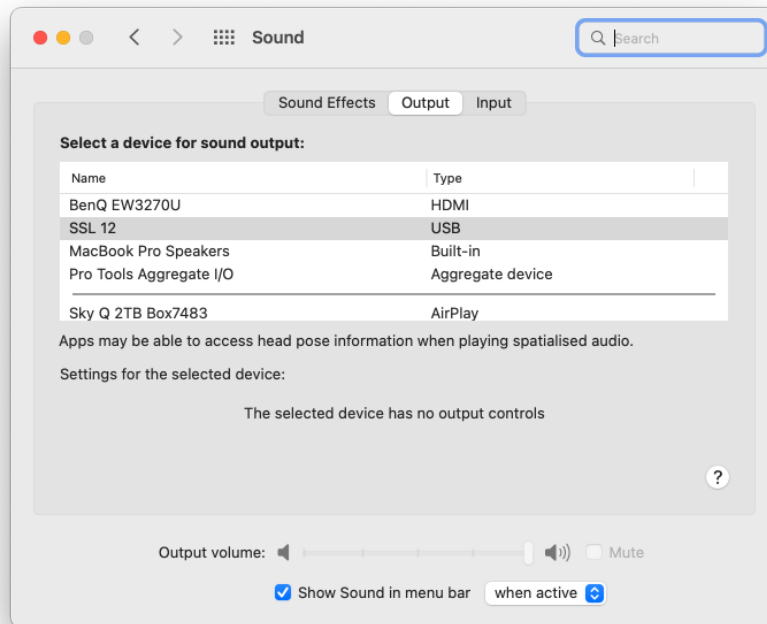
Quick-Start

Driver Installation

1M C to C

1. Connect your SSL USB audio interface to your computer using the included USB cable.

2. **(Windows)** Download and install the SSL 12 USB ASIO/WDM Driver for your SSL 12. Go to the following web address: www.solidstatelogic.com/support/downloads

2. **(Mac)** Simply go to '**System Preferences**' then '**Sound**' and select '**SSL 12**' as the input and output device (drivers are not required for operation on Mac)

Downloading SSL 360° Software

SSL 12 requires the SSL 360° software to be installed on your computer in order to fully function. SSL 360° is the brain behind your SSL 12 Mixer and controls all internal routing and monitoring configuration. Once you have connected your SSL12 hardware to your computer as described on the previous page, please download SSL 360° from the SSL website.
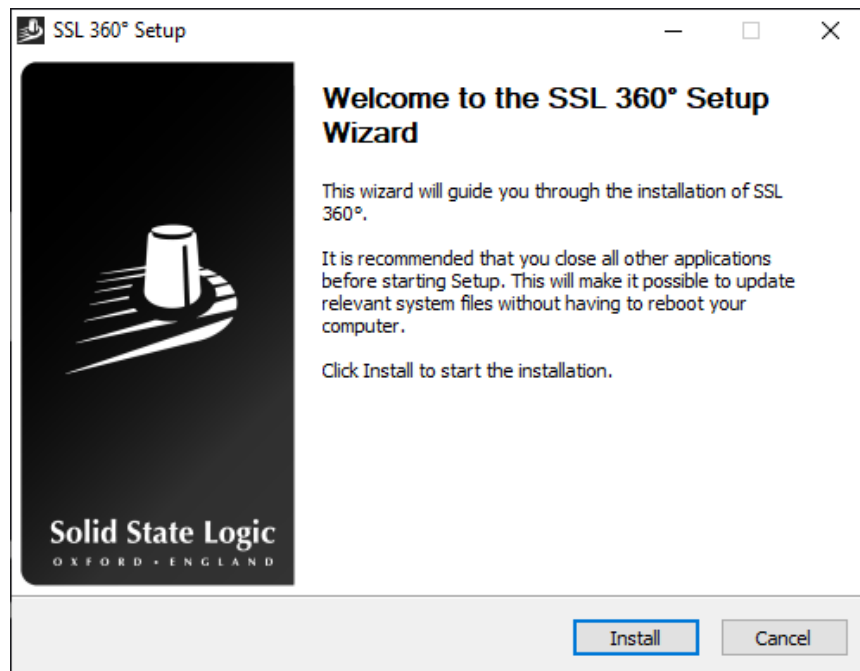

http://www.solidstatelogic.com/support/downloads

1. Go to www.solidstatelogic.com/support/downloads

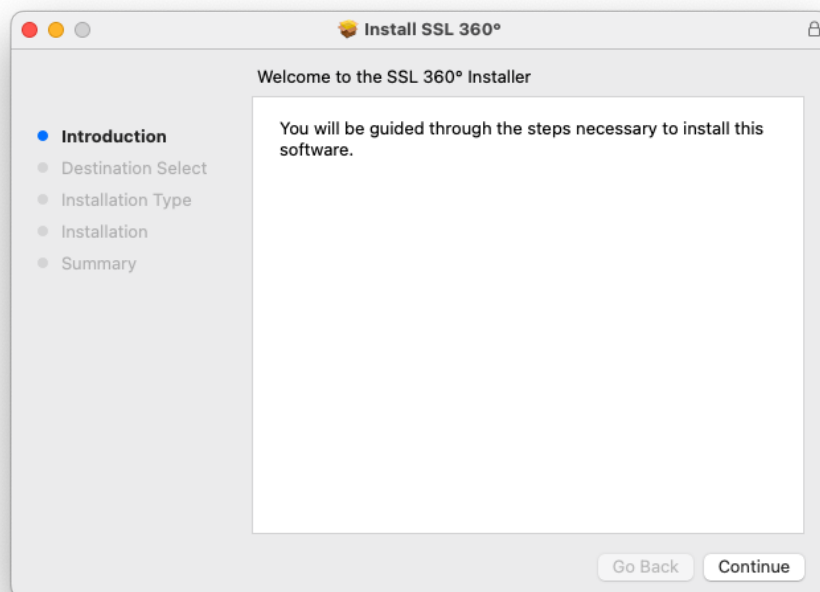2. Select SSL 360° from Products drop-down list

3. Download the SSL 360° software for your Mac or PC

Installing SSL 360° Software

1. Locate the downloaded SSL 360°.exe on your computer.
2. Double-click to run the SSL 360°.exe.
3. Proceed with the installation, following the on-screen instructions.

1. Locate the downloaded SSL 360°.dmg on your computer.

2. Double-click to open the .dmg

3. Double-click to run the SSL 360°.pkg

4. Proceed with the installation, following the on-screen instructions.

Selecting SSL 12 As Your DAW's Audio Device

If you have followed the Quick-Start / Installation section then you are ready to open up your favourite DAW and start creating. You can of course use any DAW that supports Core Audio on Mac or ASIO/WDM on Windows.

No matter which DAW you are using, you need to ensure that SSL 12 is selected as your audio device in the audio preferences/ playback settings. Below is an example in Pro Tools. If you are unsure, please refer to your DAW's User Guide to see where these options can be found.

Pro Tools
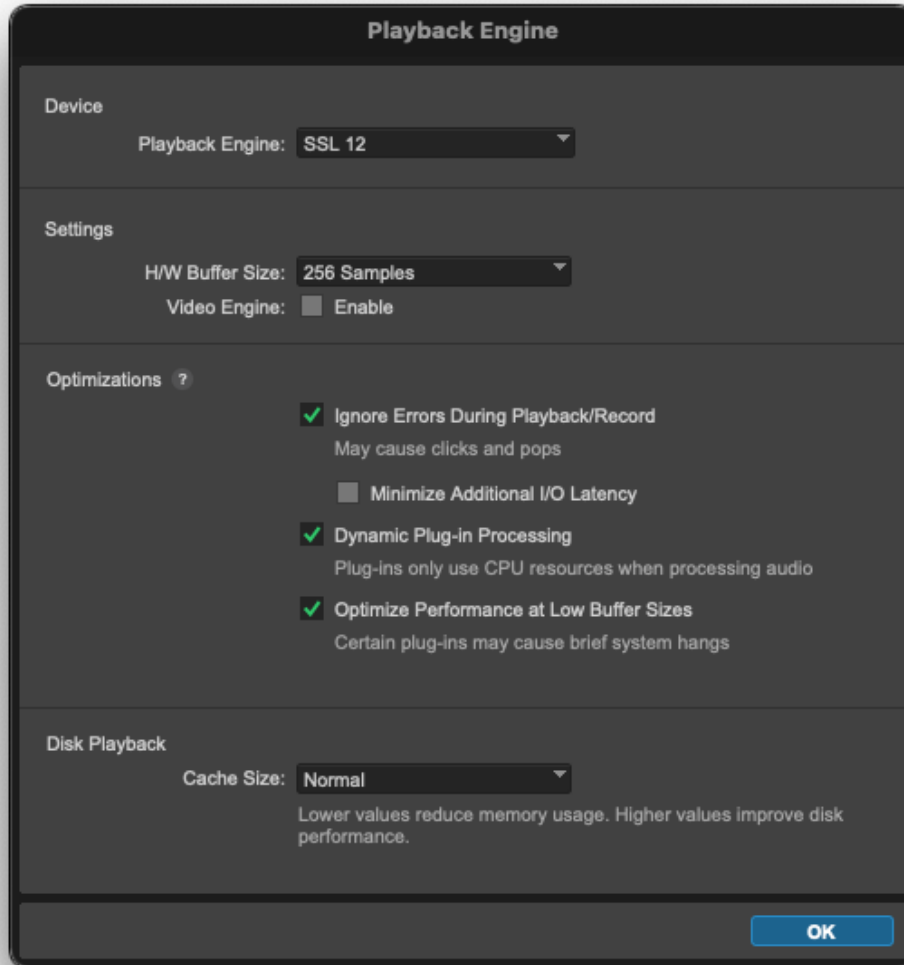
Open up Pro Tools and go to the 'Setup' menu and choose 'Playback Engine...'. Make sure that SSL 12 is selected as the 'Playback Engine' and that 'Default Output' is Output 1-2 because these are the outputs that will be connected to your monitors.
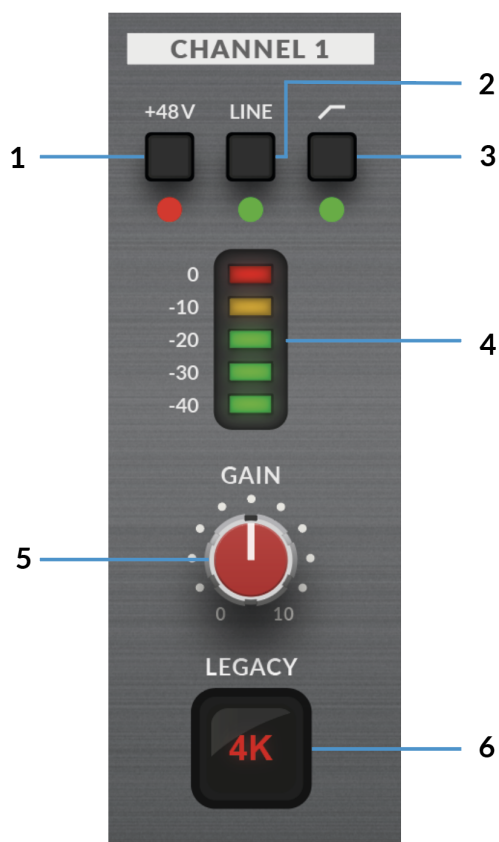
Note: On Windows, ensure that 'Playback Engine' is set to 'SSL 12 ASIO' for the best possible performance.

Front Panel Controls

Input Channels

This section describes the controls for Channel 1. The controls for Channels 2-4 are exactly the same.

1. +48V

This switch enables phantom power on the combo XLR connector, which will be sent down the XLR microphone cable to the microphone. When engaging/disengaging +48V, the LED blinks a couple of times and the audio is temporarily muted to avoid any unwanted audio clicks/pops. Phantom power is required when using Condenser microphones or certain active Ribbon mics. Dynamic or Passive Ribbon microphones do not require phantom power to operate, and in some cases can cause damage to the microphone. If in doubt, make sure +48V is off before plugging in any microphone and consulting the user manual from the manufacturer to ensure correct operation

2. LINE

This switch changes the source of the channel input to be from the balanced Line input. Connect line-level sources (such as keyboards and synth modules) using a TRS Jack cable into an input on the rear panel. The **LINE** input bypasses the pre-amp section, making it ideal to connect the output of an external preamp to if you so wish. When operating in **LINE** mode, the **GAIN** control provides up to 17.5 dB of clean gain.

3. HI-PASS FILTER

This switch engages the Hi-Pass Filter with a cut off frequency at 75Hz with a 18dB/Octave slope. This is ideal for removing unwanted low-end frequencies from an input signal and cleaning up unnecessary rumble. This is suitable for sources such as Vocals or Guitars.

4. LED METERING

5 LEDs show the level at which your signal is being recorded into the computer. It is good practice to aim for the '-20' mark (the third green meter point) when recording. Occasionally going into '-10' is fine. If your signal is hitting '0' (top red LED), that means it is clipping, so you'll need to lower the GAIN control or output from your instrument. Scale markings are in dBFS.

5. GAIN

This control adjusts the pre-amp gain applied to your microphone, line-level or instrument. Adjust this control so that your source is lighting all 3 green LEDs most of the time whilst you are singing/playing your instrument. This will give you a healthy recording level into the computer.

6. LEGACY 4K - ANALOGUE ENHANCEMENT EFFECT

Engaging this switch allows you to add some extra analogue 'magic' to your input when you need it. It injects a combination of high-frequency EQ-boost, together with some finely tuned harmonic distortion to help enhance sounds. We have found it to be particularly pleasant on sources such as vocals and acoustic guitar. This enhancement effect is created completely in the analogue domain and is inspired by the kind of extra character the legendary SSL 4000-series console (often referred to as '4K') could add to a recording. The 4K was renowned for many things, including a distinctive 'forward', yet musical-sounding EQ, as well as its ability to impart a certain analogue 'mojo'. You will find that most sources become more exciting when the 4K switch is engaged!

Monitor Controls

1. GREEN USB LED

Illuminates solid green to indicate that the unit is successfully receiving power over USB.

2. MONITOR LEVEL (Large Blue Control)
The MONITOR LEVEL directly affects the level sent out of OUTPUTS 1 (Left) and 2 (Right) to your monitors. Turn the knob to make the volume louder. Please note the MONITOR LEVEL goes to 11 because it's one louder.

Note that if **ALT** is engaged, Monitors connected to OUTPUTS 3 & 4 will also be controlled via the Monitor Level Control.

3. PHONES A & B
These controls each set the level for the **PHONES A & B** headphones output.

4. CUT

This button mutes the Monitor Output Signal

5. ALT

Switches the Monitor Bus to an alternative set of monitor speakers that you have connected to OUTPUTS 3&4. To do this **ALT SPK ENABLE** must be active in SSL 360°.

6. TALK

This button engages the on-board Talkback mic. The signal can be routed to any combination of Headphones A, Headphones B and Line 3-4 (providing Line 3-4 is not being used as ALT monitors) in the SSL 12 Mixer page of SSL 360°. The Talkback Mic is located to the left of the green USB light.

Please Note: *Interface buttons annotated as* **4, 5 & 6** *in the description are also user-assignable using SSL 360° but they come defaulted to the silkscreened functions (CUT, ALT, TALK) on the front panel.*

Front Panel Connections

1 . INSTRUMENT INPUTS

INST 1 & **INST 2** are the HI-Z Instrument inputs that allow high impedance sources such as Guitars & Basses to be recorded without the need for an external D.I. Plugging into an Instrument input will automatically over-ride the Mic/Line input on the rear.
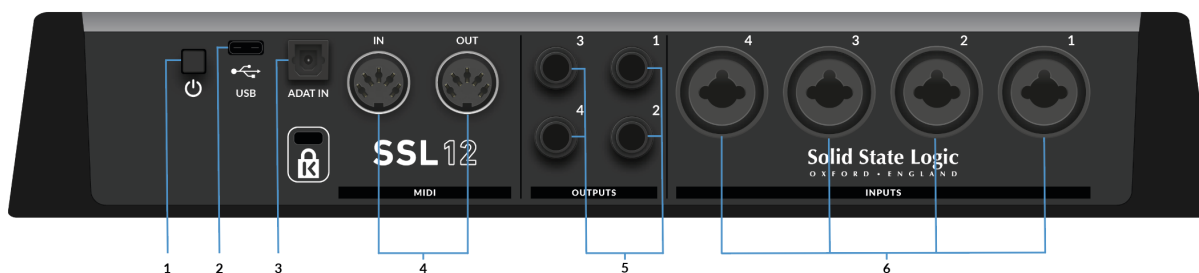
2. HEADPHONE OUTPUTS

PHONES A & **B** allow for two sets of headphones to be connected, both of which can be configured to allow independent mixes for artist and engineer. The master output levels are set by the **PHONES A** and **PHONES B** controls on the front panel.

Rear Panel Connections

1 . POWER

The power button toggles power on/off to the unit.

2. USB

USB 'C' Type Connector - connect SSL 12 to your computer using the included cable.

3. ADAT IN

The ADAT IN - a further 8 input channels to be added to the interface at 48 kHz, 4 channels at 96 kHz, and 2 channels at 192 kHz, allowing expansion to enable larger recording projects.

4. MIDI IN & OUT

The MIDI (DIN) IN & OUT allow the SSL 12 to be used as a MIDI interface. MIDI IN will receive MIDI signals from keyboards or controllers & MIDI OUT allows MIDI information to be sent out to trigger Synths, Drum machines or any MIDI controllable equipment you have available.

5. OUTPUTS

1/4" TRS Jack Output Sockets

Outputs 1 & 2 are primarily to be used for your main monitors and the physical volume is controlled by the Monitor Knob on the front of the Interface. Outputs 3 & 4 can be set up as a secondary **ALT** pair of monitors (switchable to be controlled by the Monitor Knob when the **ALT** button is engaged).

All Outputs (including headphone outputs as previously described) are also **DC-coupled** and able to send +/-5v signal to allow CV control to Semi & Modular Synths, Eurorack and CV-enabled outboard FX.

Please Note: More information is available in the **CV Control via Ableton® Live CV Tools** section in this User Guide.

 A few things to be aware of when using the **DC-coupled** outputs:

- When using output 1-2 for CV output, remember the Monitor Control Knob is still affecting the signal. Some experimentation on finding the best level for your connected CV controlled synth/FX unit may be required.
- Meters in the 360° Mixer are DC-coupled hence you can still expect them to work and show a DC signal.

6. INPUTS

Combo XLR / 1/4" Jack Input Sockets

The 4 rear combo jacks accept Mic-level inputs (on XLR) and Line-level inputs (on TRS). Hi-Z inputs for Channels 1 & 2 are located at the lower front of the interface and plugging into these will over-ride any Mic/Line rear panel inputs.

SSL 360°

Overview & Home Page

SSL 12 is configured via the SSL 12 page in SSL 360°. SSL 360° is a cross-platform Mac and Windows application that also manages other SSL 360°- enabled products.
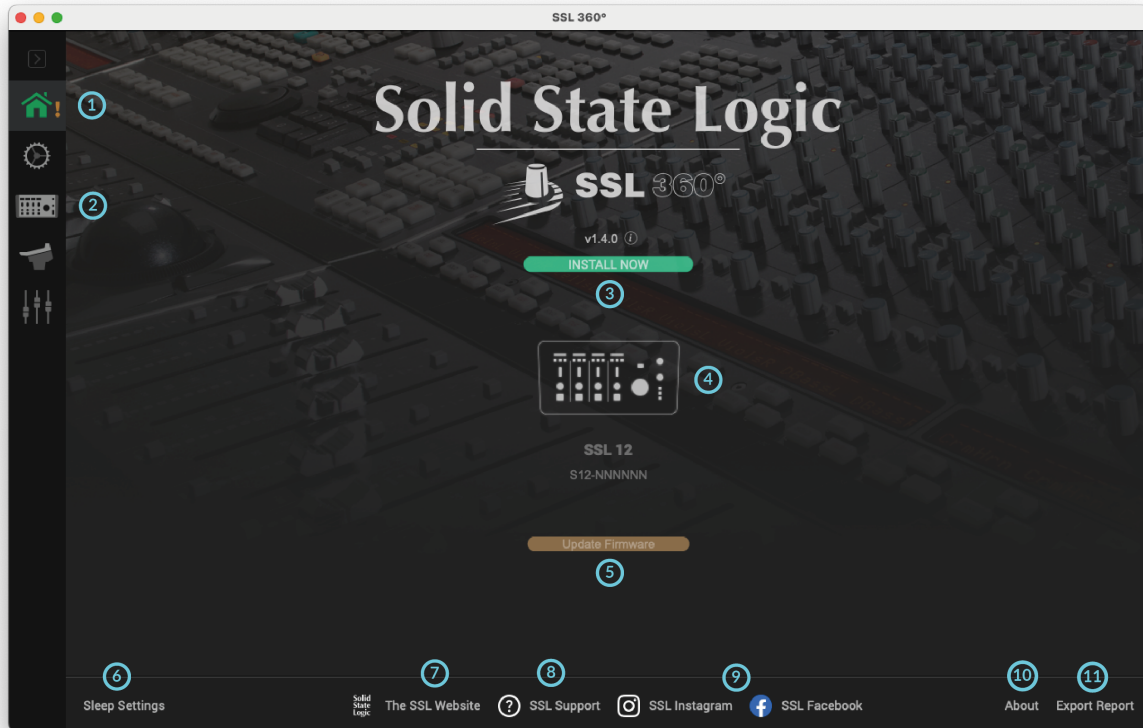
The Home Screen

1. Menu Toolbar

This toolbar allows you to navigate through the various pages of SSL 360°.

2. SSL 12 Mixer

This tab opens the SSL 12 Interface Mixer; allowing for Routing, Input channel & Playback management, Monitor controls & settings for the SSL 12 interface within your system. More information on the SSL 12 360° Mixer is detailed in the next chapter.

3. Software Version Number & Update Software Button

This area displays the version number of SSL 360° that is running on your computer. When software updates become available, the **Update Software** button (pictured above) will appear. Click this to download and update your software. Clicking on the 'i' symbol will take you to the Release Notes information on the SSL website for the version of SSL 360° you have installed

4. Connected Units

This area shows if you have SSL 360° hardware (SSL 12, UF8, UC1) connected to your computer, along with its serial number. Please allow 10-15 seconds for units to be discovered once they are plugged in.

5. Firmware Updates Area

If a firmware update becomes available for your SSL 12 unit, then an **Update Firmware** button will appear below each unit. Click on the button to start the firmware update process, being sure to not disconnect the power or USB cable whilst it is in progress.

6. Sleep Settings (applies only to UF8 and UC1, not SSL 12)
Clicking this will open a pop-up window that allows you to determine the length of time before your connected 360° control surfaces go into Sleep mode.

7. SSL Website

Clicking this link will take you directly to the Solid State Logic website.

8. SSL Support

Clicking this link will take you directly to the Solid State Logic Support website.

9. SSL Socials
The bar at the bottom has quick links to the SSL Socials to keep up to date on the latest news, product tutorials & updates on SSL users.
10. About
Clicking this will open a pop-up window detailing software licensing relating to SSL 360°

11. Export Report
Should you encounter any issues with your SSL 12 or SSL 360° software, you may be asked by a support agent to use the **EXPORT REPORT** feature. This feature generates a text file containing the essential information about your computer system and SSL 12, alongside technical log files relating to SSL 360° activity, which may help to diagnose any issues. When you click **EXPORT REPORT**, you'll be asked to choose a destination on your computer to export the generated .zip file to, which you can then forward onto a support agent.

SSL 12 Mixer Page

In order to access the powerful routing and input channels from ADAT & your DAW, the 360° Mixer presents you with a console-style layout with all controls available in a detailed but intuitive workspace. In this page you can:
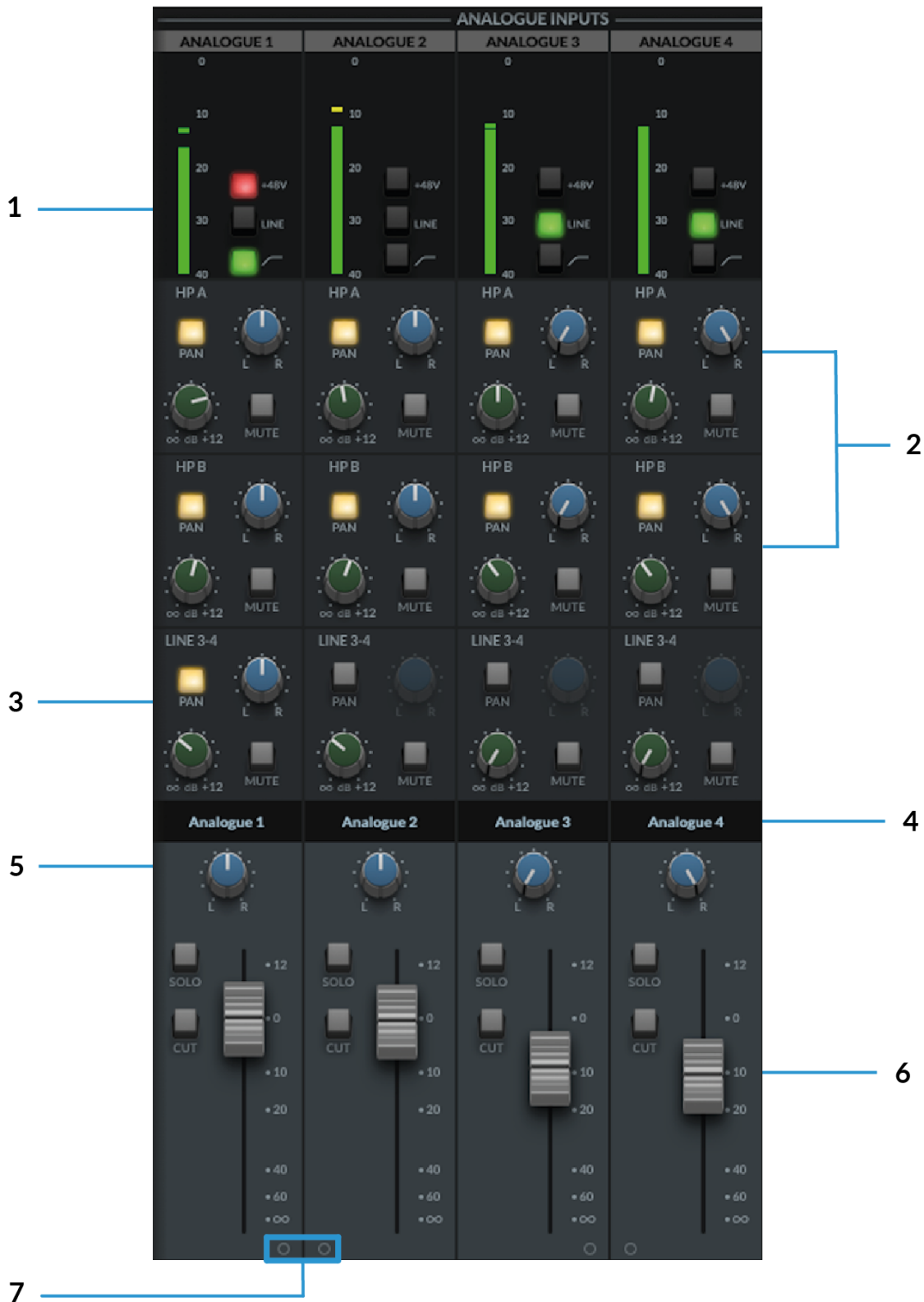
- Easily set up multiple headphone mixes
- Configure your control room monitor mix
- Choose your Loopback source
- Change the 3 user-assignable front panel buttons

VIEW
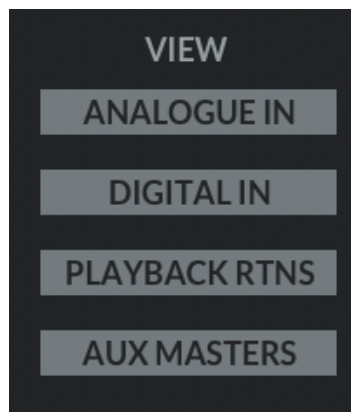
Within the mixer, use the **VIEW** buttons on the right-hand side to hide/show different input channel types (Analogue Inputs, Digital Inputs, Playback Returns) and the Aux Masters.

Inputs - Analogue & Digital

1. Meters

The meters indicate the incoming signal level to the channel. If the meter turns red then it demonstrates the the channel has clipped. Click on the meter to clear the clip indication.

The **+48V**, **LINE** & **HI-PASS** functions can be controlled from either the hardware or SSL 12 software mixer.

2. Headphone Sends

This is where you can create independent mixes for **HP A, HP B** and **Line 3-4 Outputs.**

- The Green Knob controls the set level for each Mix Bus (HP A, HP B & Outputs 3-4)
- **MUTE** button mutes the send and illuminates red when activated.
- The Pan control allows you to determine the pan position for that send. The **PAN** button must first be engaged.
    If **PAN** is not engaged, then the send follows the main monitor bus Pan control in the fader section.

Tips:

Shift + Mouse Click sets a send to 0 dB.

Alt + Mouse Click (Mac) or Option+Click (Windows) sets a send to Off.

3. Line 3-4 Sends

Similar to the headphone sends, the Line 3-4 sends allow the signal to be routed to Outputs 3-4. When the output channel is stereo linked, a single set of controls for Pan, Level and Mute are controllable.

When the output channel is split into dual-mono, independent level controls appear, one for Output 3 and one for Output 4.

4. Scribble Strips

These are the text boxes on each channel identifying its input/output type and number order as default. These text boxes are editable, allowing each channel in the 360° mixer to be renamed by the user.

To re-name the Scribble Strip on the channel, simply double-click on the text box and type your preferred name.

5. Pan

The Pan control determines the position of the signal in the Monitor Bus stereo image.

6. Faders

The Fader section of the mixer allows control of the signal going out to the **Monitor Bus** & consists of 4 control parameters.

- **Pan Knob** as previously described.
- **Solo** button, soloing the channel in the **Monitor Bus.** This illuminates yellow when activated.
- **Cut** button mutes the channel to the Monitor Bus. This illuminates red when activated.
- **Fader** control the level, with a range from +12dB to -Infinite dB being sent to the **Monitor Bus.**

Tip:

Shift + Mouse Click sets the fader to 0 dB. Alt + Mouse Click also sets the fader to 0 dB.

7. Stereo Link

Clicking on either 'O', two sequential channels can be stereo linked and will convert to a single fader stereo channel. When activated this 'O' will change to a green linked symbol as shown below:

Note: These controls affect only the playback of the signal via the **Monitor Bus**, and won't affect the signals recorded into your DAW.

Talkback

Routing Sections *HP A Highlighted as an example*

In the same way as the Input channels, the TALKBACK channel can be routed to the Headphones & Line Output 3&4.

1. The **PAN** button when illuminated engages the send's Pan.
2. Pan Knob allows you to determine the pan position for that mix being sent to the Aux Bus.
3. The Green Knob controls the set level for each Aux Bus (HP A, HP B & Outputs 3-4) from +12dB to -Inf dB.
4. **MUTE** button mutes the send and illuminates red when activated.

This layout is identical for Headphones B & Line Out 3-4

5. Scribble Strip

This text box identifies the TALKBACK channel and is named as default. This text box is also editable, allowing it to be renamed by the user.

6. TALKBACK ENGAGE BUTTON

When illuminated green, the built-in TALKBACK mic will send the signal to the routed aux buss(es) (HP A, HP B & LINE 3-4). This can also be controlled by physically engaging the TALKBACK button on the SSL 12 Interface, or via the SSL 360° TALK

software button (if assigned).

7. FADER

The red capped fader sets the master output level of the TALKBACK signal. The fader ranges from +12 dB & -Inf dB.

8. NO OUTPUT TO MASTER

The text at the bottom of the TALKBACK channel is a reminder that the TALKBACK signal is not sent to the **MASTER BUS** & can only be routed via the aux sends.

Digital Inputs

The 8 channels of Digital Inputs are provided by the optical **ADAT IN** port at the rear of the interface, accepting 8 channels at 44.1/48 kHz, 4 Channels at 88.2/96 kHz and 2 channels at 176.4/192 kHz.

The Digital Inputs provide no gain controls. Gains should be set on the external ADAT device.

Routing to the HP A, HP B & LINE 3-4 is identical to the Analogue Input Channels.

Playback Returns

The 4x Stereo **Playback Return** channels allow separate stereo signals to be sent out of your DAW or other programs with assignable audio outputs, into the SSL 12 Mixer as inputs.

At the top of the channel next to the meters, the **'Direct'** button allows each stereo Playback Return to bypass the SSL 12 Mixer's Routing Matrix and instead the signal is sent directly to the corresponding Aux/Bus Master.
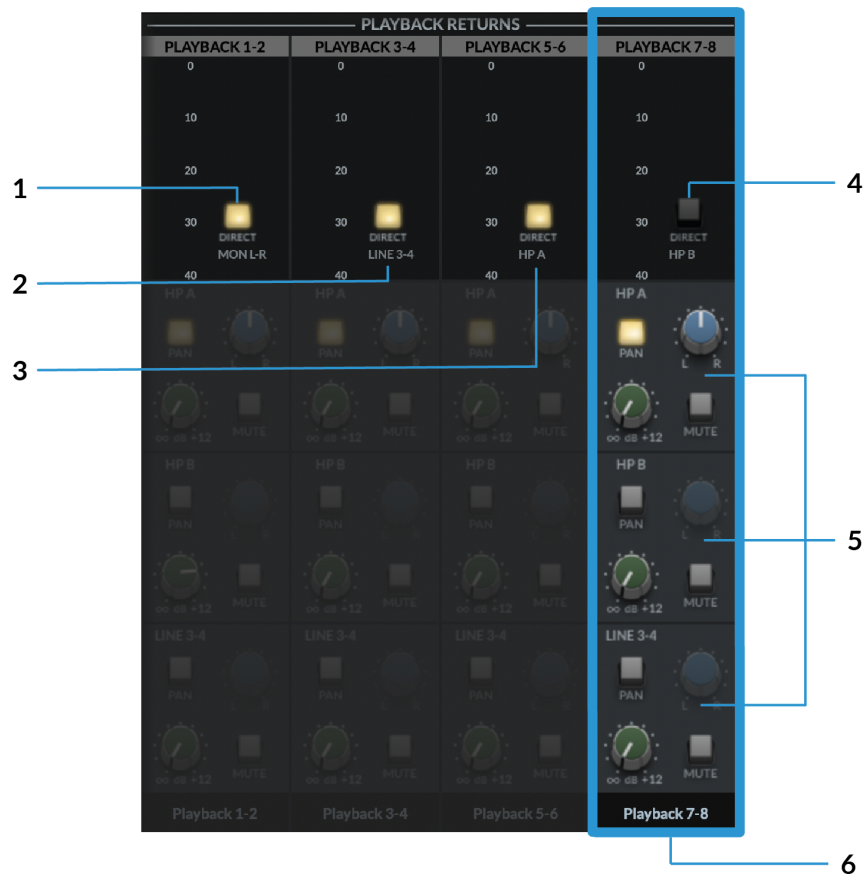
In the above diagram, Playback 7-8 is highlighted in Blue to distinguish the difference between engaged & disengaged Direct Buttons.

1. DIRECT MON L-R

Engaging the **DIRECT** button will send the DAW Mon L/R outputs directly to the main Monitor Bus (OUT 1-2), bypassing the Routing Matrix.

2. DIRECT LINE 3-4

Engaging the **DIRECT** button will send the DAW 3-4 outputs directly to Line 3-4 Aux Master (OUT 3-4), bypassing the Routing Matrix.

3. DIRECT HP A

Engaging the **DIRECT** button will send the DAW 5-6 outputs directly to Headphone A Aux Master (OUT 5-6), bypassing the Routing Matrix.

4. DIRECT HP B

On Playback 7-8, engaging the **DIRECT** button will send the DAW 7-8 outputs directly to Headphone B Aux Master (OUT 7-8), bypassing the Routing Matrix.

5. ROUTING MATRIX

When the **DIRECT** Button is disengaged, the signals can be routed to the HP A, HP B & Line 3-4 from the SSL Mixer. As with the **Input Channels,** sends to the aux busses are controlled via the **HP A, HP B & LINE 3-4** Send Level Knobs, with Pan, and muting button also accessible.

6. SCRIBBLE STRIP

This text box identifies the Playback Return Channel and is named as displayed by default. The text box is editable, allowing it to be renamed by the user.

FADER

The fader controls the level sent to the Monitor Bus for each Playback Return Channel (providing DIRECT is disengaged), as well as providing **SOLO, CUT & PAN** functionality.

Below is a visual illustration of **DIRECT MODE**. For simplicity, the illustration shows all Playback Returns with DIRECT Enabled (left-hand side) and all Playback Returns with DIRECT Disabled (right-hand side). Of course, you have the ability to toggle the DIRECT mode on/off for each Stereo Playback Return Channel.
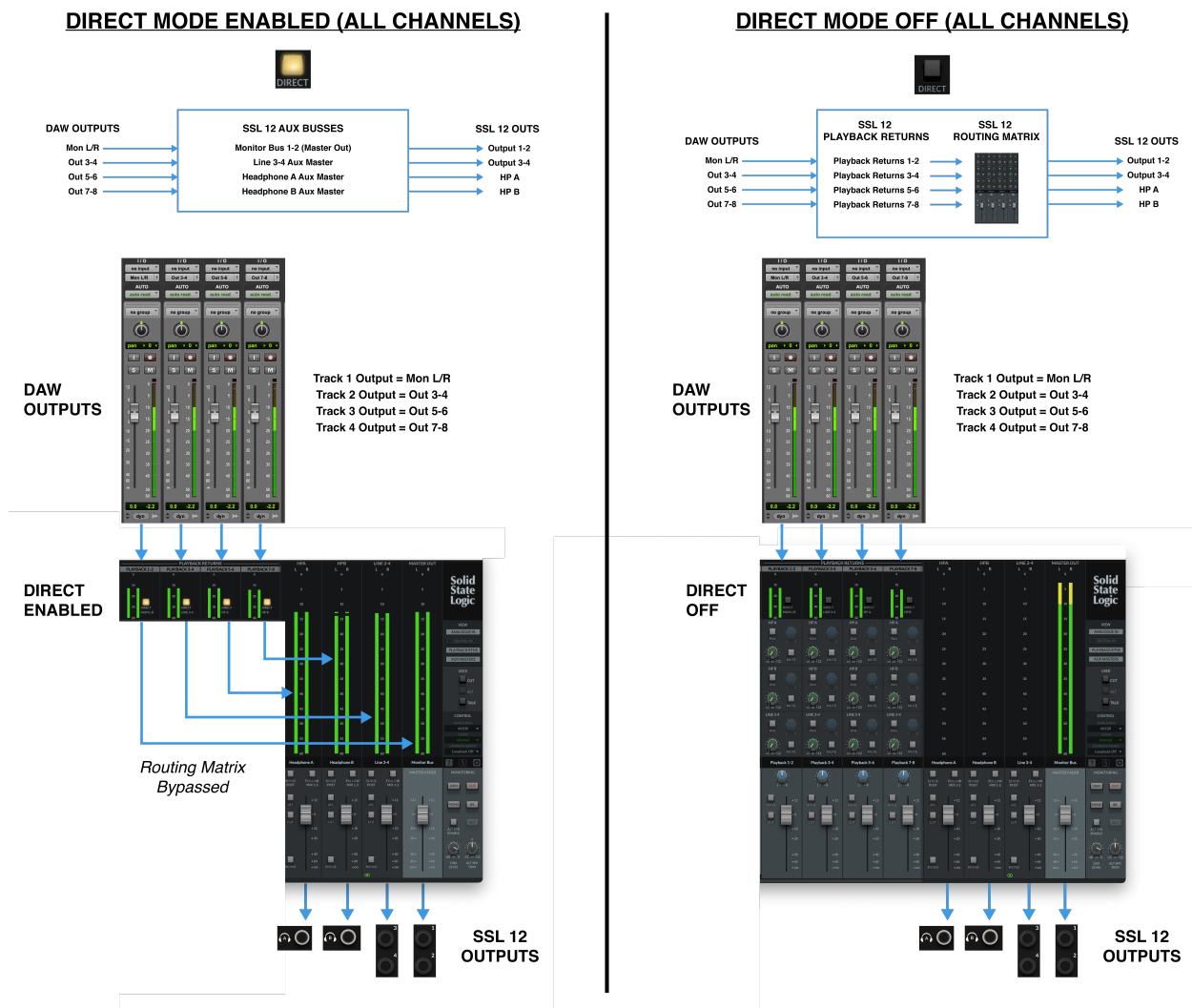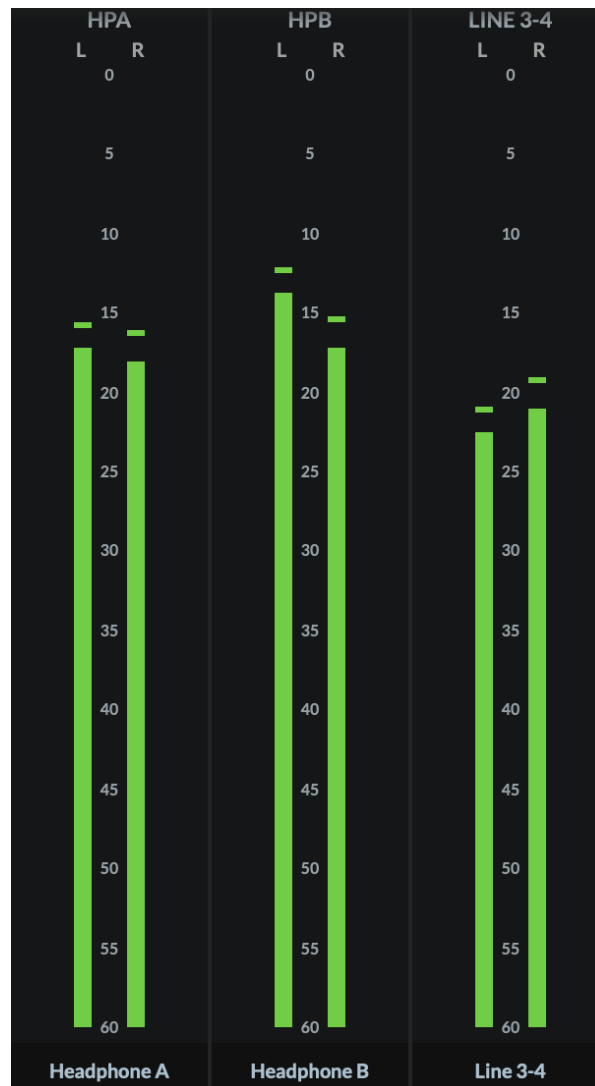
AUX Masters

The Aux Masters section of the Mixer View consists of both Headphones A, Headphones B & Line Out 3&4 aux master outputs.
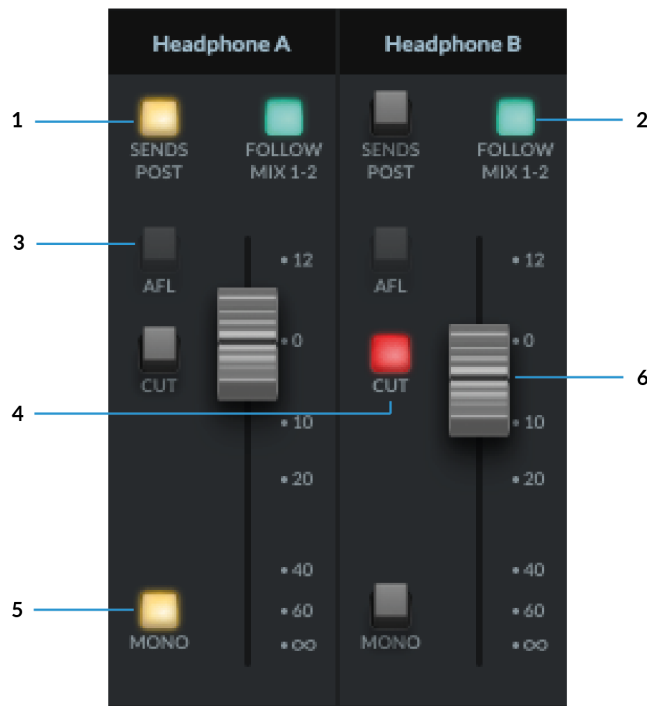
Headphone Outputs

Each Headphone Output consists of a large Signal Metering section with a resolution from 0dB down to -60dB.

Below are details of the Fader section with the following parameters:

1. SENDS POST

When selected, send levels to the aux busses from the channels will be **Post Fader** level.

2. FOLLOW MIX 1-2

Over-rides the aux master so that it follows the Monitor Bus mix, providing an easy way to send what you are listening to on the Monitor Bus (through your monitor speakers) to the Headphones.

3. AFL

Short for *'After Fade Listen' a*llows the user to monitor the Aux Mix on the Main Outputs; ideal for quickly listening to the Artist's headphone mix.

4. CUT

Mutes the signal output of the HP Aux channel

5. MONO

Switches the output to Mono, summing both L&R signals together.

6. Fader

Sets the master level for the HP Bus. Remember this is pre physical gain control on the SSL 12 front panel.

Line Output 3-4 Master

The Line 3&4 aux master has all the same parameter controls as the Headphones aux masters, but with the addition of the Channel linking button at the very bottom of the fader section.

When linked, the button glows green and represents Stereo Operation

Unlinked

*. When unlinked, this will configure **Line 3** & **4** as independent mono busses.*

Left: Sends when Line 3-4 is linked , Right: Sends when Line 3-4 are unlinked.

When unlinked all input channels in the SSL 12 mixer will change their **Line 3&4** sends to individual levels & mutes. If already set as a send to 3&4, the levels already set will be maintained in Mono between each channel.

Within the SSL 12 360° Mixer, the signal sent to each Headphone Mix can be derived from any **Input Channel** or **Playback Return** or can mirror the main output mix by implementing the '**Follow Mix 1-2**' button on the HP Channel in the Mixer.

MASTER OUT

This is the MONITOR BUS feeding your monitors via **OUTPUTS 1-2 (or ALT OUTPUTS 3-4)**.

The MASTER FADER level will control the output volume signal, pre the physical Monitor Level Control on the SSL 12 Interface.

MONITORING

This section of the Mixer pertains to the control of your SSL 12's range of comprehensive monitoring features.

1. DIM

The DIM button will engage a level attenuation set by the DIM LEVEL (**7**)

2. CUT

Cuts the output to the monitors.

3. MONO

This will sum the Left & Right channel signals of the **Master Out** together and provide a MONO output signal to the Main Outputs.

4. POLARITY INVERT

This will invert the left side signal, allowing assessment of the phase relationship between the left & right signal.

5. ALT SPEAKER ENABLE

This function allows you to connect a second set of monitors to Line Outputs 3-4. When **ALT SPK** is enabled, the MONITOR LEVEL will also affect the output signal level to Outputs 3&4 when **ALT** is engaged.

6. ALT

With **ALT SPK ENABLE (5)** engaged, engaging the **ALT** button will transfer the **MASTER BUS** signal to **Outputs 3&4**.

7. DIM LEVEL

The **DIM LEVEL** control adjusts the level of attenuation provided when the **DIM (1)** button is engaged. This allows up to -60dB of attenuation when fully tuned counter-clockwise.

8. ALT SPEAKER TRIM

The **ALT SPKR TRIM** knob allows gain adjustment to offset the output level sent to the **ALT** monitors connected to **Outputs 3&4.** This allows the levels to be adjusted between the Main Monitors and Alt Monitors so the **Monitor Control** level doesn't need to be changed when A/Bing between two different sets of speakers for a more accurate comparison.

SETTINGS

In the bottom-right of the SSL 12 Mixer, you can access the Settings panel, which contains configuration options for the Headphone outputs and also Peak metering.

HEADPHONE OUTPUTS MODES

The HP outputs can operate in one of 2 modes:

- Headphones Mode
- Line Output Mode

Headphones Mode Options

When operating in Headphones Mode, you can choose between 3 different options:

- **Standard** - The default setting and is suitable for a wide range of headphones.
- **High Sensitivity** - This 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.
- **High Impedance** - This setting is ideal for High Impedance headphones which require greater voltage drive to produce the expected output level. Typically, headphones with an impedance of 250 Ohms or greater will benefit from this setting.
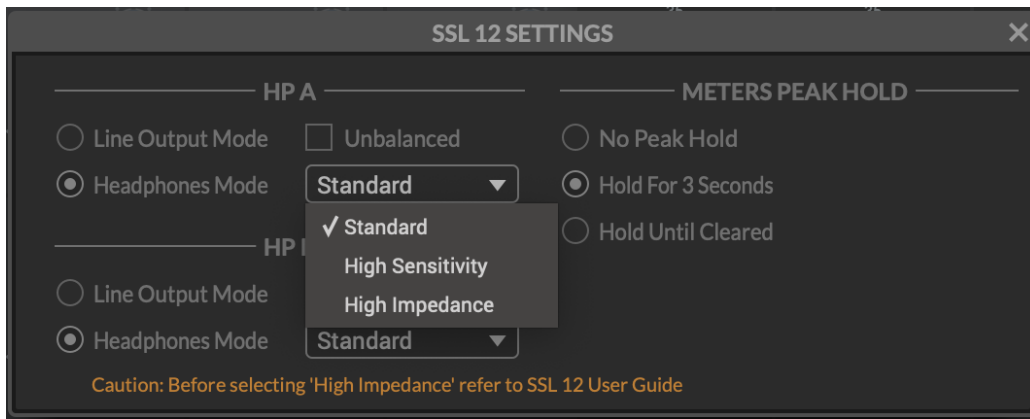
*Beware: Always make sure **BEFORE** you switch your headphone output to **High Impedance**, to turn the front panel level control down to avoid accidentally overloading your headphones if you are unsure of what sensitivity they are.*

Line Output Mode Options

HP A and HP B can be switched into Line Output Mode. This allows you to use them as additional mono line outputs, instead of headphone outputs.

By default they are balanced but you can make them unbalanced by click the **Unbalanced** box.

Please beware when switching the output setting between Balanced & Unbalanced to be aware of the cables being used and the destination of the signal as not to introduce noise or distortion into the circuit.

METERS PEAK HOLD
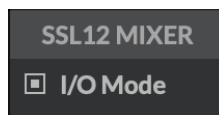
Determines how long the peak hold segment of the SSL meters hold for.
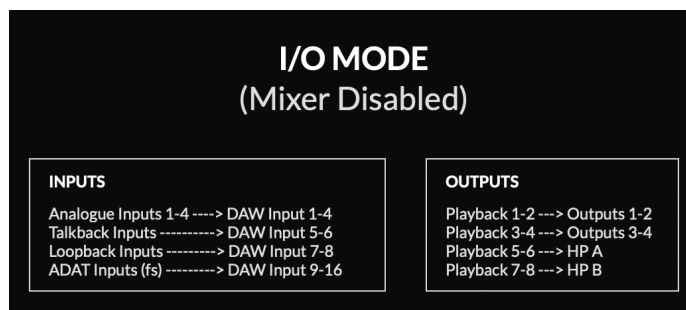
- No Peak Hold
- Hold for 3 Seconds
- Hold Until Cleared

I/O MODE

You can put SSL 12 into **I/O Mode** by engaging the tickbox in the upper-left corner of the SSL 12 Mixer.

I/O Mode bypasses the SSL 12 Mixer's routing matrix and fixes the routing as shown in the table below:

I/O Mode can be used for different purposes:

- To simplify the operation of the unit when you do not need the full flexibility that the SSL 12 Mixer offers.
- It allows SSL 12's outputs to operate at 176.4 or 192 kHz, instead of downsampling them.
  > When **I/O Mode** is not engaged (SSL 12 Mixer is active) and you are operating at sample rates of 176.4 or 192 kHz, SSL 12's outputs are automatically downsampled to 88.2 or 96 kHz in order to preserve the full mixing capability of the mixer. Other audio interfaces typically limit mixer capability in the same scenario.

So if you want end-to-end 176.4 or 192 kHz performance, then **I/O Mode** is a useful option.

PROFILE
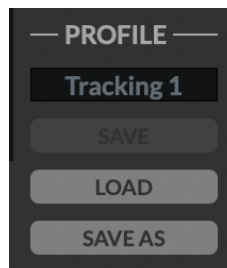
The user can Save and Load customised profiles for the SSL 12 Mixer. To Save a Profile, simply press **SAVE AS** and name your new Profile, which will be saved in the SSL 12 folder for easy recall.

To load an existing profile, press the **LOAD** button, which will then open a window to all the saved profiles, and can be selected by pressing 'Open'.

The default storage location for both Mac & Windows OS's is shown below, although they can be saved & stored from any location.

- Mac – Mac HD\Users\%userprofile%\Documents\SSL\SSL360\SSL12
- Windows – %userprofile% \Documents\SSL\SSL360\SSL12

Click the **DEFAULT** button, to return the SSL 12 Mixer to its factory-shipped, default state.
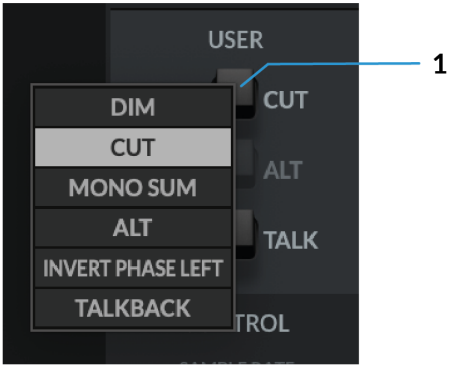
USER Buttons

By Default, the User buttons are assigned to match the printing on the SSL 12 Interface front panel - **CUT**, **ALT** & **TALK**.
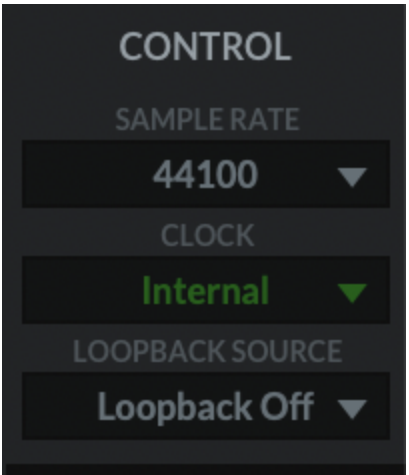
A right-mouse click presents a menu whereby you can change the assignment of these buttons. You can choose between **DIM**, **CUT**, **MONO SUM**, **ALT**, **INVERT PHASE LEFT**, **TALKBACK ON/OFF**.

CONTROL

The Control section displays key information in setting up your Interface ready for working within your DAW.

1. SAMPLE RATE

The drop-down menu allows the user to select the Sample Rate that the SSL 12 Interface will operate at. The selection allows for 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz & 192 kHz. Note, that when any DAW is opened, SSL 12 will follow the DAW's sample rate setting.

2. CLOCK

The Clock source menu allows the change between **INTERNAL** clocking or **ADAT**.

When using an external ADAT unit connected to the SSL 12, select the source to **ADAT,** allowing the ADAT-connected device to act as the clocking source (set the ADAT device to Internal).

3. LOOPBACK SOURCE

This option allows you to record USB audio back into your DAW. This is especially useful for recording audio from other applications such as Youtube.
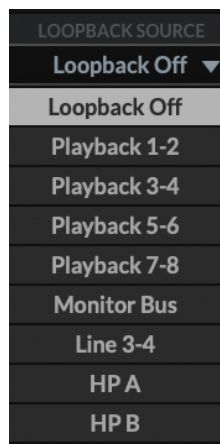
To set this up, simply select the **LOOPBACK SOURCE** channel you wish to record from the drop-down menu (for example Playback 1-2 to record the output of a media player), then in your DAW, select the input channel as **Loopback** as shown below and record the audio as you would with any other input channel. Be sure to mute the recording channel in your DAW to avoid creating a feedback loop!
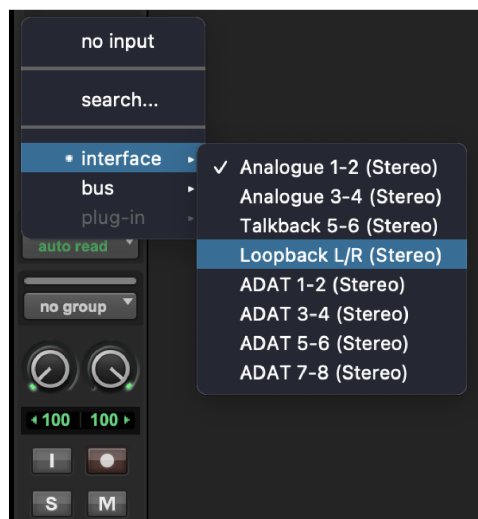
Contextual Help

The Contextual Help, once activated by clicking the **?** button (as shown above) adds a text bar to the tooltip with a brief explanation of the parameter's function. The below image demonstrates this with an explanation text box when hovering the mouse over the **SENDS POST** on the HP B Channel.
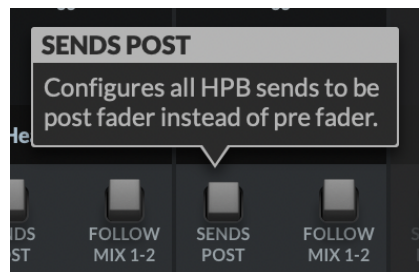
Solo Clear

The Solo Clear button allows you to quickly clear any active solo's (or AFLs) in the SSL 12 Mixer. When any channels have been put into **SOLO** or **AFL**, the Solo Clear button will illuminate yellow.

How-To / Application Examples

Connections Overview

The diagram below illustrates where the various elements of your studio connect to SSL 12 on the front panel.
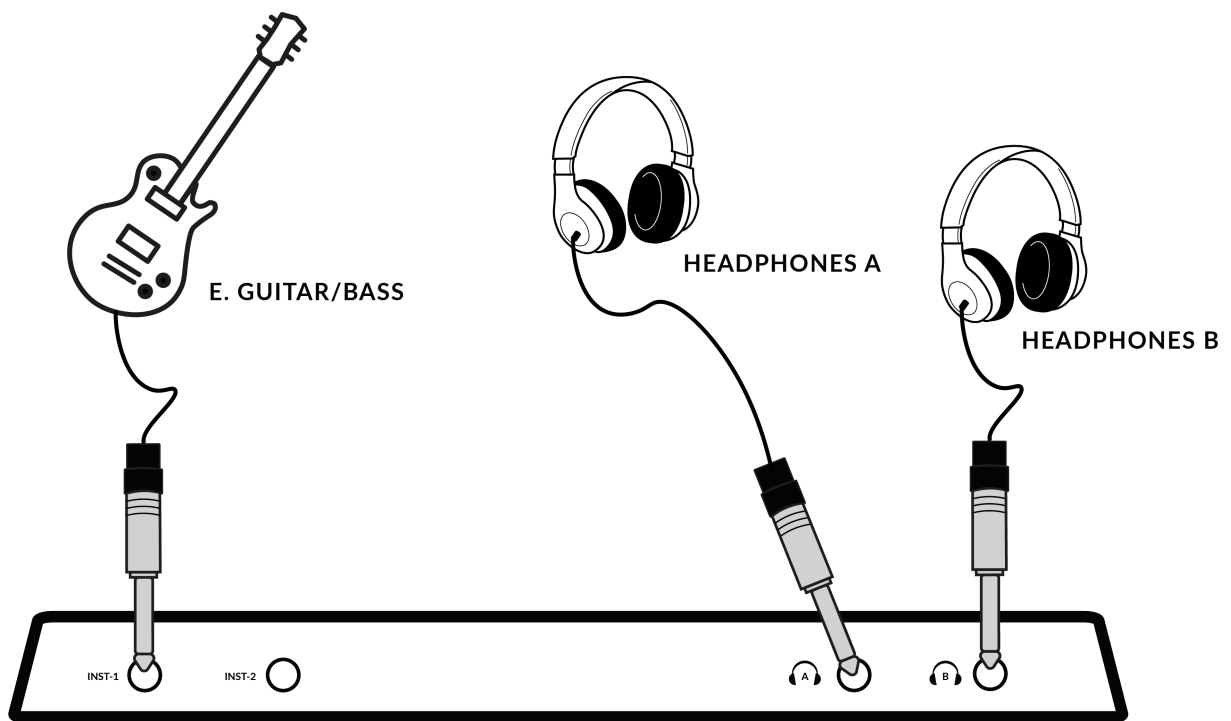
This diagram shows the following:

- An E Guitar/Bass plugged into **INST 1**, using a TS Jack Instrument cable.

- Two pairs of Headphones each connecting directly to the Headphone Outputs **HP A** & **HP B**

The below example visually details some likely uses for all the potential connections available on the rear panel of the SSL 12 Interface.
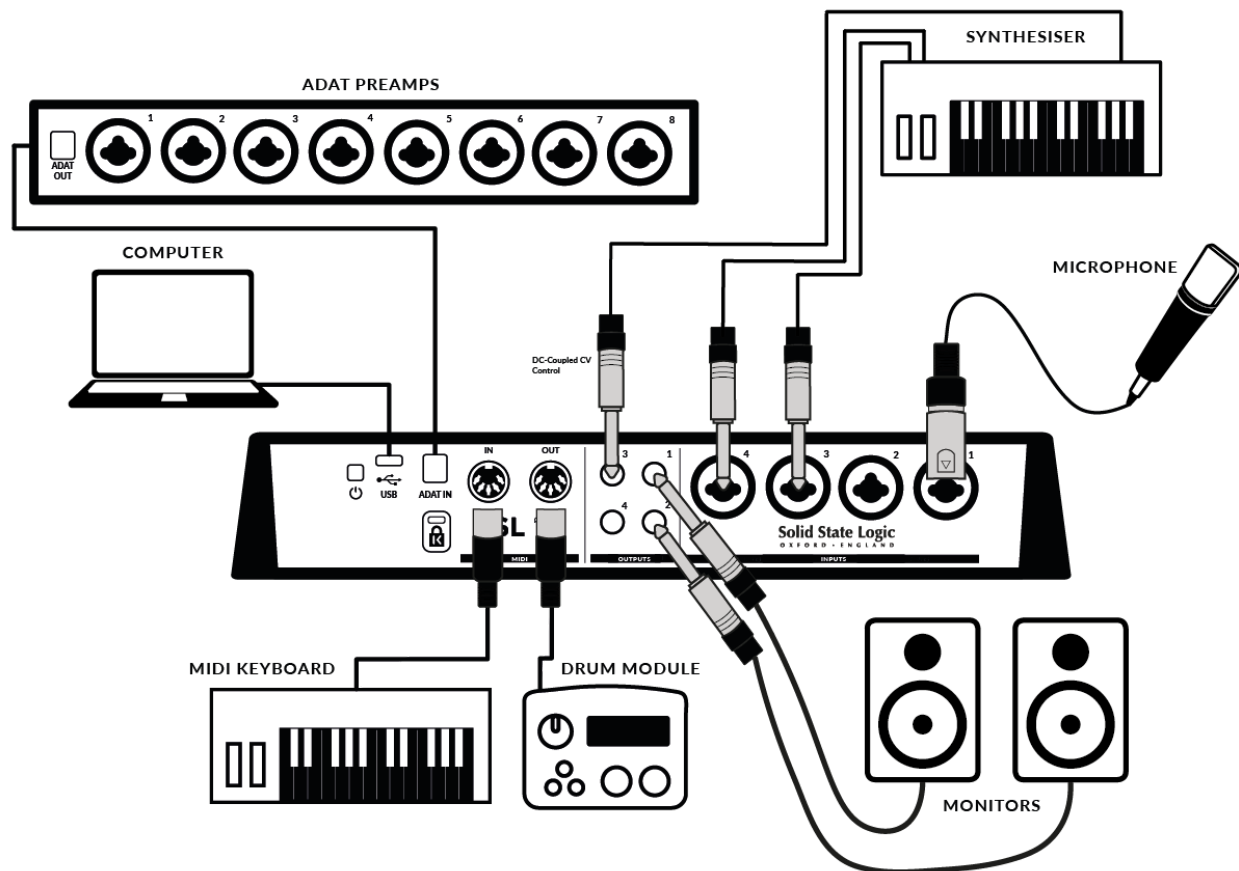
This diagram shows the following:

- A microphone plugged into **INPUT 1**, using an XLR cable

- A Stereo Synthesiser plugged into **INPUT 3&4**, using jack cables

- Monitor speakers plugged into **OUTPUT 1** (Left) and **OUTPUT 2** (Right), using TRS jack cables (balanced cables)

- A jack cable sending DC (+/-5V) out of **OUTPUT 3** signal to the Synthesiser to control CV parameters.

- **MIDI OUT** to trigger a Drum Machine
- **MIDI IN** from a MIDI Control Keyboard
- **ADAT IN** from an ADAT-enabled Preamp rack feeding 8x Channels of INPUT signal to the DIGITAL IN Channels of the SSL 12 360° Mixer
- USB cable connecting SSL 12 to the computer

CV Control via Ableton® Live CV Tools

All Outputs on the SSL 12 are **DC-coupled** (1, 2, 3, 4 and Headphone A and Headphone B) and able to send +/-5v signal to allow CV control to Semi & Modular Synths, Eurorack and CV-enabled outboard FX.

When using **DC-coupled** outputs there are a few things to keep in mind:

- When using Outputs 1-4 for CV Control, if you are using mono jack cables (TS to TS) to connect to your CV-controlled equipment, it is recommended to apply a -10 dB level trim (which can be done in the DAW or via the Aux Masters/Master Output fader(s) in SSL 360°. We've found that this results in a more reliable calibration process with Ableton's CV Tools (achieving 1V/oct).
  - Alternatively, when using Outputs 1-4 for CV Control, you can use 'Insert cables' (TRS to 2 x TS jacks), with the TRS connected to the SSL 12 output(s), and the Send jack cable plugged into the CV-controlled synth/FX unit. In this scenario a -10 dB level trim may not be required.
- When using Outputs 5-6 and 7-8 for CV Control (HP A and HP B), be careful to first unplug any attached headphones from the front panel outputs.
  - When using these outputs with for CV control, we found that using **High Impedance Headphones Mode** or **Line Output Mode** with **unbalanced** ticked generally provided the most reliable results.
  - Remember Headphone level knobs are still affecting the signal and some experimentation may be required to find the optimal level required for your connected equipment.

SSL 12 DC-Coupled Outputs

The SSL 12 Interface allows the user to send out a **DC** Signal from any output on the interface. This allows **CV-enabled** equipment to receive the signal to control parameters.

What is CV?

CV is an abbreviation of "**C**ontrol **V**oltage"; 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
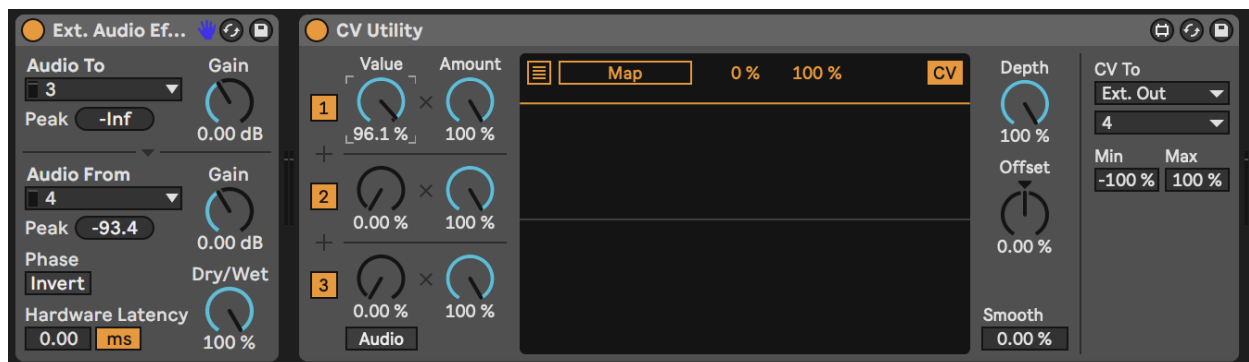
- Open your **Ableton Live** session

- 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** to your designated **Output.** In this example we've set this to **Output 4** from the **SSL 12**.
- 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 SSL 12 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 **SSL 12**

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 audio interface (for CV hardware integration) such as the **SSL 12**
- 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.

SSL USB Control Panel (Windows only)

If you're working on Windows and have installed the USB Audio Driver required to make the unit operational, you will have noticed that as part of the installation the SSL USB Control Panel will be installed onto your computer. This Control Panel will report details such as what Sample Rate and Buffer Size your SSL 12 is running at. Please note that both Sample Rate and Buffer size will be taken control of by your DAW when it is opened.

Safe Mode

One aspect you can control from the SSL USB Control Panel is the 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.
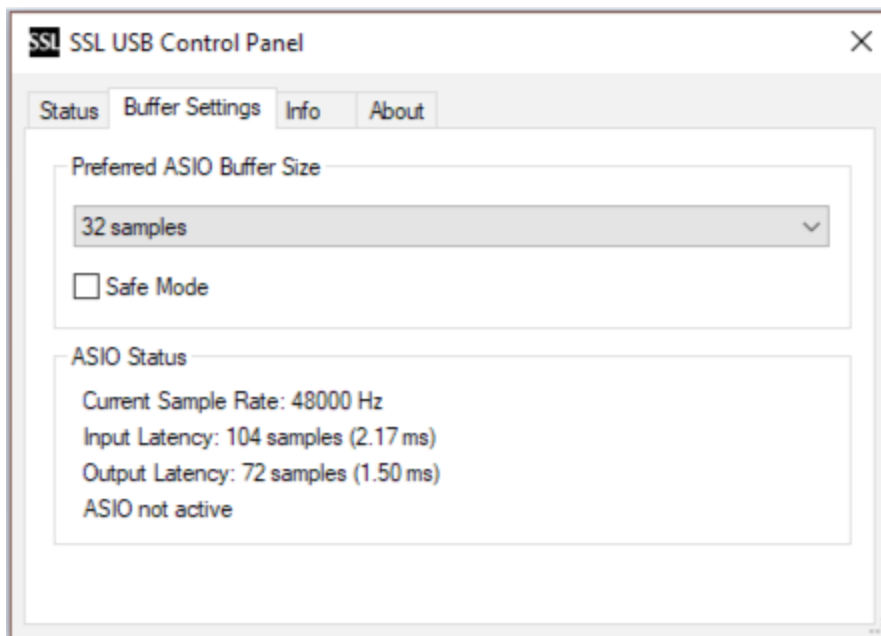
Specifications

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%

Audio Performance Specifications

Microphone Inputs	
Frequency Response 20Hz - 20kHz unweighted	+/-0.15 dB
Dynamic Range (A-weighted)	111 dB
THD+N (-8dBFS)	0.0015%
Gain Range	62 dB

EIN (A-weighted)	-130.5 dBu
Max Input Level	+6.5 dBu
Input impedance	1.2 kΩ

Line Inputs

Frequency Response 20Hz - 20kHz unweighted	+/-0.1 dB
Dynamic Range (A-weighted)	111.5 dB
THD+N (-1dBFS) (@1kHz)	0.0005%
Gain Range	17.5 dB
Max Input Level	+24.1 dBu
Input Impedance	15 kΩ

Instrument Inputs

Frequency Response 20Hz - 20kHz	+/-0.1dB
Dynamic Range (A-weighted)	110.5 dB
THD+N (-8dBFS) (@1kHz)	0.0015%
Gain Range	62 dB
Max Input Level	+14 dBu
Input Impedance	1 MΩ

Balanced Outputs (Out 1&2 and 3&4)

Frequency Response 20Hz - 20kHz	+/-0.05 dB
Dynamic range (A-weighted)	>120 dB
THD+N (-1dBFS) (@1kHz)	0.0005%
Maximum Output Level	+24 dBu
Output Impedance	75 Ω

Headphone Outputs (A&B) - Standard Mode

Frequency Response 20Hz - 20kHz	+/-0.02dB
Dynamic Range (A-weighted)	112dB

THD+N (-1dBFS) (@1kHz)	0.005%
Maximum Output Level	+10 dBu
Output Impedance	<1 Ω

Headphone Outputs (A&B) - High Sensitivity

Frequency Response 20Hz - 20kHz	+/-0.02dB
Dynamic Range (A-weighted)	108dB
THD+N (-1dBFS) (@1kHz)	0.001%
Maximum Output Level	-6 dBu
Output Impedance	<1 Ω

Headphone Outputs (A&B) - High Impedance

Frequency Response 20Hz - 20kHz	+/-0.02dB
Dynamic Range (A-weighted)	112dB
THD+N (-1dBFS) (@1kHz)	0.001%
Maximum Output Level	+18 dBu
Output Impedance	<1 Ω

Headphone Outputs (A&B) - Line Mode (Balanced)

Frequency Response 20Hz - 20kHz	+/-0.02dB
Dynamic Range (A-weighted)	115dB
THD+N (-1dBFS) (@1kHz)	0.005%
Maximum Output Level	+24 dBu
Output Impedance	<1 Ω

Digital Audio

Supported Sample Rates	44.1, 48, 88.2, 96, 176.4, 192 kHz
Clock Sources	Internal, ADAT
USB	USB 3.0 for power, USB 2.0 for audio

Low-Latency Monitor Mixing	< 1ms
Roundtrip Latency at 96 kHz	Windows (Safe Mode Off): 3.3 ms
	Mac: 4.9 ms

Physical Specification

Height: 58.65mm

Length: 286.75mm

Depth: 154.94mm

Weight: 1.4kg

Troubleshooting, FAQs, Important Safety Notices

Frequently Asked Questions and additional support contacts can be found on the Solid State Logic Support website.

General Safety

- Read these instructions.

- Keep these instructions.

- Heed all warnings.

- Follow all instructions.

- Do not use this apparatus near water.

- Clean only with dry cloth.

- Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that

  produce heat.

- Unplug this apparatus during lightning storms or when unused for long periods of time.

- Install in accordance with the manufacturer's instructions.

- Only use attachments/accessories recommended by the manufacturer.

- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way,

  such as 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.

- Do NOT modify this unit, alterations may affect performance, safety and/or international compliance standards.

- Ensure that no strain is placed on any cables connected to this apparatus. Ensure that all such cables are not placed where

  they can be stepped on, pulled or tripped over.

SSL does not accept liability for damage caused by maintenance, repair or modification by unauthorised personnel.

WARNING: To prevent possible hearing damage, do not listen at high volume levels for long periods. As a guide to setting the volume level, check that you can still hear your own voice, when speaking normally while listening with the headphones.

EU Compliance

$$C\epsilon$$

SSL 12 Audio Interfaces are CE compliant. Note that any cables supplied with SSL equipment may be fitted with ferrite rings at each end. This is to comply with the current regulations and these ferrites should not be removed.

Electromagnetic Compatibility

EN 55032:2015, Environment: Class B, EN 55103-2:2009, Environments: E1 - E4.

Audio input and output ports are screened cable ports and any connections to them should be made using braid-screened cable and metal connector shells in order to provide a low impedance connection between the cable screen and the equipment.

RoHS notice

Solid State Logic complies with and this product conforms to European Union's Directive 2011/65/EU on Restrictions of Hazardous Substances (RoHS) as well as the following sections of California law which refer to RoHS, namely sections 25214.10, 25214.10.2, and 58012, Health and Safety Code; Section 42475.2, Public Resources Code.

Instructions for disposal of WEEE by users in the European Union
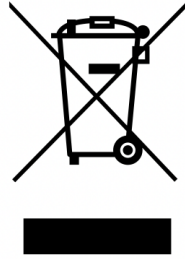
The symbol shown here, which is on the product or on its packaging, indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For USA – to the user

- Do not modify this unit! This product, when installed as indicated in the instructions contained in the installation manual,

  meets FCC requirements.

- Important: This product satisfies FCC regulations when high quality shielded cables are used to connect with other equipment.

  Failure to use high quality shielded cables or to follow the installation instructions may cause magnetic interference with

  appliances such as radios and televisions and will void your FCC authorisation to use this product in the USA.

Note: 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 environment. 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 into 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.

Industry Canada Compliance

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Evaluation of apparatus based on altitude not exceeding 2000m. There may be some potential safety hazard if the apparatus is operated at altitude exceeding 2000m.

Evaluation of apparatus based on temperate climate conditions only. There may be some potential safety hazard if the apparatus is operated in tropical climate conditions.

Environmental

Temperature: Operating: +1 to 40°C Storage: -20 to 50°C