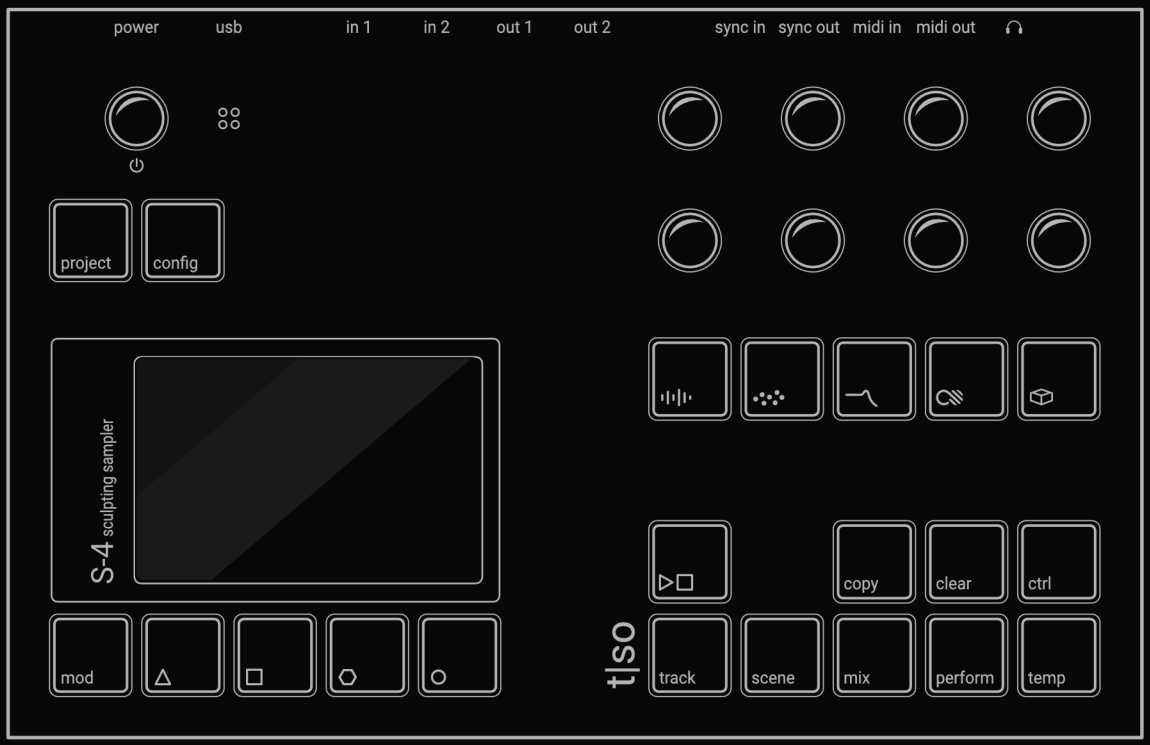
S-4

A Guidebook
A Notebook
A Reference Book



t|so

The Official Reference for the
Torso S-4 Sculpting Sampler

OS
1.2.0

Contents

1. Getting Started

1.1 Introduction 10

1.2 How to Use This Manual 11

1.3 Power Up 12

1.4 Hardware Overview 13

1.5 Architecture 16

1.6 Command Quick Reference 17

1.7 User Interface 18

1.8 Naming Editor 20

2. Projects & Tracks

2.1 Project Management 24

2.2 Track Basics 27

2.5 Clear Function 34

2.6 Global Tempo 35

3. Audio Engine

3.1 Audio Engine Basics 40

3.2 Material Devices 44

3.2.1 Tape - Material Device 45

3.2.2 Poly - Material Device 58

3.3 Granular Devices 60

3.3.1 Mosaic - Granular Device 62
3.4 Filter Devices 63
3.4.1 Ring - Filter Device 65
3.5 Color Devices 68
3.5.1 Deform - Color Device 69
3.6 Space Devices 71
3.6.1 Vast - Space Device 72
3.7 Bypass Mode 74
4. Modulators
4.1 Modulation Basics 78
4.2 Modulators 82
4.2.1 Wave - Modulator 83
4.2.2 Random - Modulator 85
4.2.3 ADSR - Modulator 87
5. Master Mix
5.1 Master Mix Overview 92
5.2 Master Output Level 95
5.3 Track Muting 96
5.4 DJ Style Filters 97
5.5 Master Compression 99
5.6 Recording the Main Output 100
6. Audio In & Out
6.1 Audio Connectivity 104
6.2 Internal Microphone 106

6.3 Managing the Line Inputs 107
6.4 Audio over USB 108
7. MIDI & Sync
7.1 MIDI Connectivity 114
7.2 MIDI Channel 116
7.3 MIDI Synchronisation 117
7.4 MIDI CC 119
7.5 Sync In / Out 127
8. System
8.1 Config Menu Options 130
8.2 Connecting the S-4 to a PC / Mac for Data Transfer 132
8.3 S-4 as a Mass Storage Device 133
8.4 Connecting an External USB Drive 135
8.5 Firmware Update of the S-4 136
8.6 Installing Factory Samples 137
8.7 Display Brightness 138
8.8 Power Considerations 139
9. Appendix
9.1 Scales 142
9.2 Modulator Destination Summary 143
9.3 Timing Rate Options 145
9.4 Manual Change Log 146
9.5 Contacts & Acknowledgements 147
10. Index

1

Getting Started

Torso S-4 is a tool made for sonic explorers. It is a sculpting sampler designed to capture and transform sounds. Merging tape-era workflows with cutting-edge technology, the S-4 redefines sound mangling by providing a futuristic platform for crafting unique soundscapes and compositions, using samples and real-time audio processing. It has four parallel stereo tracks, each with an audio engine featuring a chain of audio devices including samplers, live granular processing, morphing resonators, and a range of audio effects. A novel modulation system allows anything and everything to be modulated with four modulators per track. Capture sounds on the fly with the onboard microphone and the stereo line input, or load samples from the four gigabyte internal flash storage. The S-4 is designed with durable RGB buttons offering tactile feedback and a high-quality 3.5-inch LCD display ensuring all the visual feedback you need. It features USB connectivity for seamless connection to class-compliant devices and effortless file transfers to and from your laptop. Moreover, it can function as an audio interface when you require a simplified setup. You can also expand the number of inputs and outputs by connecting a class-compliant external USB interface. The S-4 is all about exploration and experimentation, sound design and letting the journey lead the way. The Torso S-4 Notebook is more than a manual. It is a guide, a reference and a notebook that helps you grow while exploring and while having fun along the way.

1 Getting Started

1.1 Introduction

NOTES

Torso S-4 is a sculpting sampler which modulates, edits and transforms audio samples as a sound design option or for live performance.

What's in the box?

- S-4 Sculpting Sampler Device
- Mains Power Supply plus international power outlet adapters. PSU rated at 12V DC Output, 2A, Centre Positive (2,5mm x 5,5mm Plug).
- MIDI Type A: DIN to 3.5mm Jack Adapter

Core Features

- Quad-core 1.5 GHz processor
- 4 GB flash memory (sample pool)
- 24-bit / 48 kHz stereo audio in and out
- 4 parallel stereo audio tracks each with 5 audio devices.
- 4 modulators per track
- 2 line-inputs and 2 line-outputs
- Built-in microphone
- Stereo headphone output
- MIDI in/out via DIN to 3.5mm Type A Adapter
- Analog sync in/out
- USB-C with class-compliant USB audio interface.
- WiFi – Ableton Link
- High-resolution LCD color display, 3.5 inch
- 21 tactile RGB buttons
- 9 high-quality endless encoders

NOTES

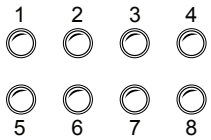
1.2 How to Use This Manual

This book is more than a manual. It combines a reference and notebook, collectively bringing together a comprehensive guide to the S-4 Sculpting Sampler.

Sections are laid out to cover the full workflow with walkthroughs, step by step guides and tips. Some pages carry a wide margin and some are intentionally blank enabling you to make your own notes.

Conventions used in this book.

(KNOB)



Rounded parentheses represent the 9 endless rotary and push control knobs. Where necessary, the command action will be presented and the actual parameter function named in uppercase text inside the parenthesis. The 8 knobs are mapped 1 - 4 top row left to right and 5 - 8 bottom row left to right. In practice the knob will represent the parameters as displayed on the screen and will be based on the mode selected.

The 9th knob is the single detented rotary encoder located upper left. This is named (SELECT) and is used for tempo, volume levels, system functions and to select through menu options.

Examples:

'Turn (LENGTH)' or 'Turn (START)'

'Press (SELECT)'.

[TRACK]

Square parentheses contain functions that are selectable using one of the dedicated physical buttons. These are also labelled on the front panel with text labels or represented by a symbol for action and audio device buttons. Symbols may also be indicated in the text.

Note that action buttons are dynamic and will represent the function displayed on the screen above the button.

Examples:

'Press [TRACK]' or 'Press [MATERIAL] '

'Press [MOD 1], △ action button'

[CTRL] + (KNOB)

Button combinations are indicated with a '+' between commands when used together. The 'ctrl' button is commonly used to select a secondary control function accessing additional options for example to change parameters in smaller increments.

Examples:
'Hold [CTRL] + Turn (*KNOB 1*)'

Your Notes Can be written here Here

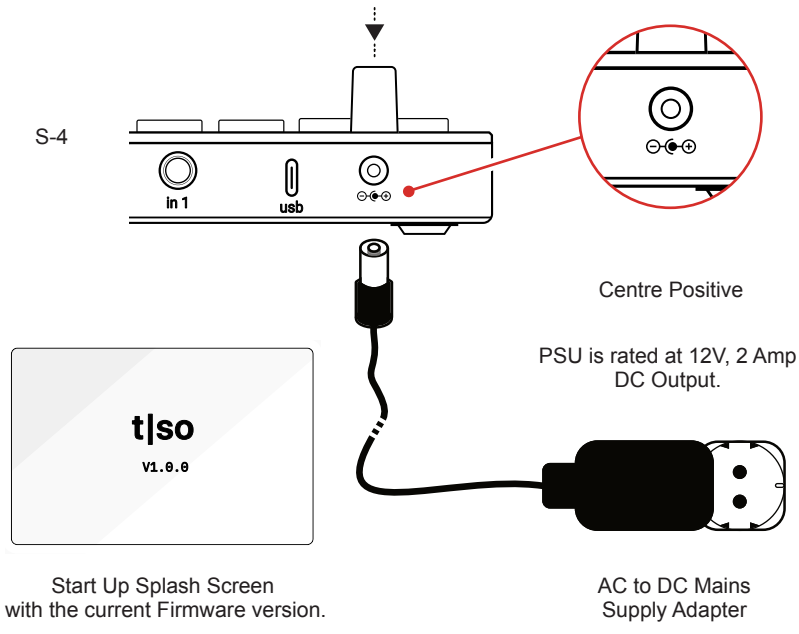
1.3 Power Up

NOTES

S-4 is powered using the dedicated 12V AC to DC power supply, connected using the rear socket and is switched on or off by pressing the top panel On/Off Push encoder. This knob also acts as the tempo, menu navigation and when in mixer page, the master output volume level control.

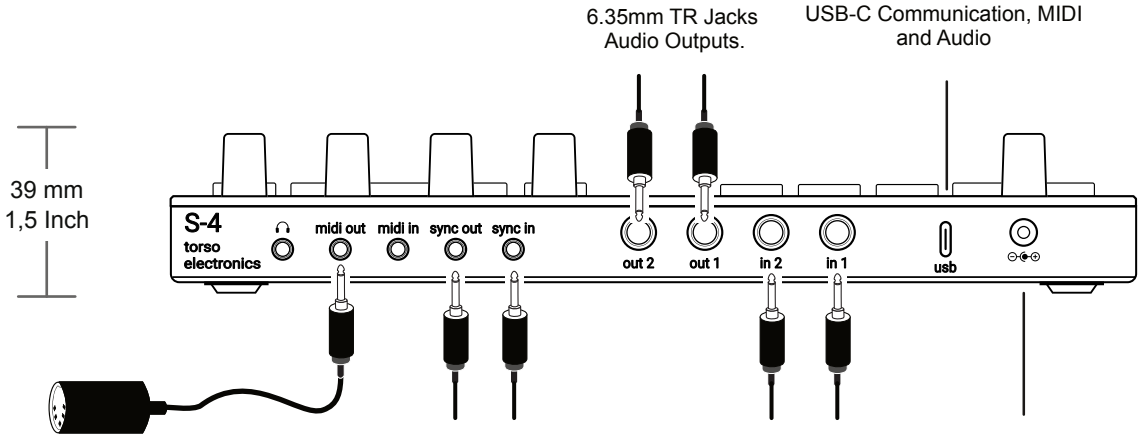
POWERING STANDBY MODE ON / OFF

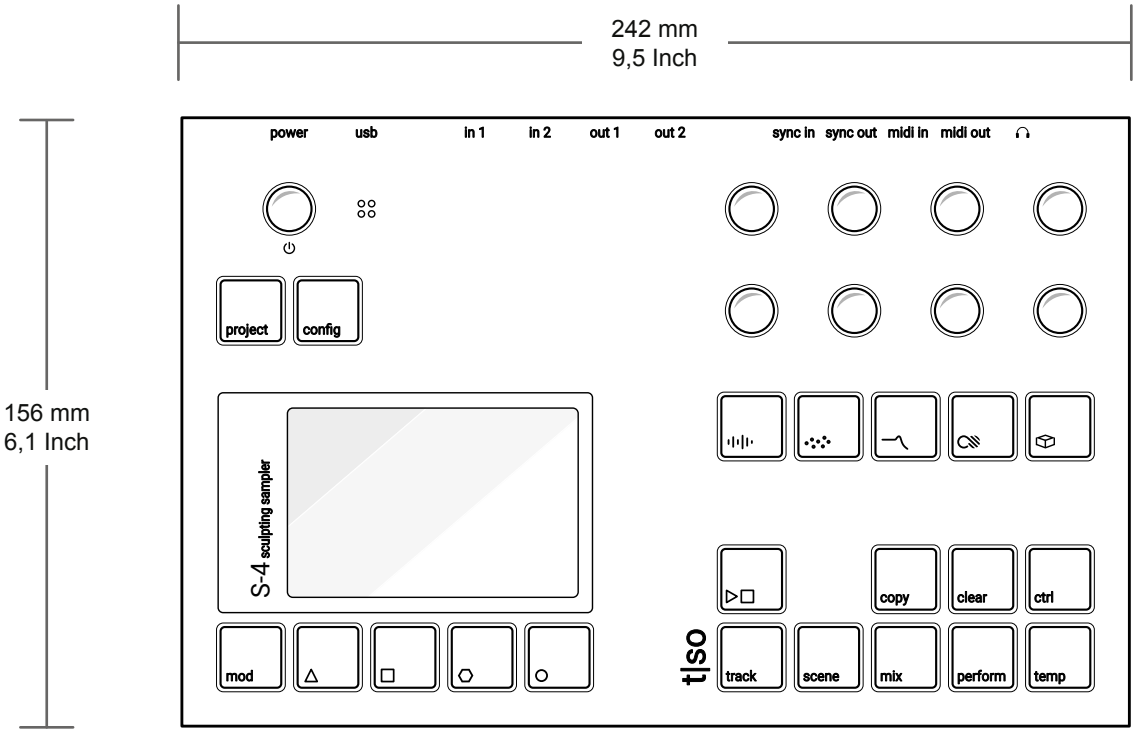
1. Connect the supplied power supply cable to S-4 and then connect to the PSU mains supply. The mains will immediately and constantly power up the S-4. It can be placed in standby power mode manually.
2. To turn OFF. Press & Hold S-4 Power Knob >1 Second.
3. A prompt asking, do you want to 'POWER OFF?' is presented. Press [YES], △ or [NO], ○ Action button to choose the desired option.
4. If yes, the device will enter standby mode. If no, the S-4 will remain powered on.
5. To turn ON. Press the S-4 Power Knob to switch on
6. The device will start up, displaying the start up screen and firmware version. This will take a few seconds.
7. It is recommended to completely power the S-4 off, remove the mains supply connection.



1.4 Hardware Overview

The S-4 Sculpting sampler can handle audio, MIDI and Analog Sync in and out as well as the digital USB interface to a PC or Mac or used for USB Audio.



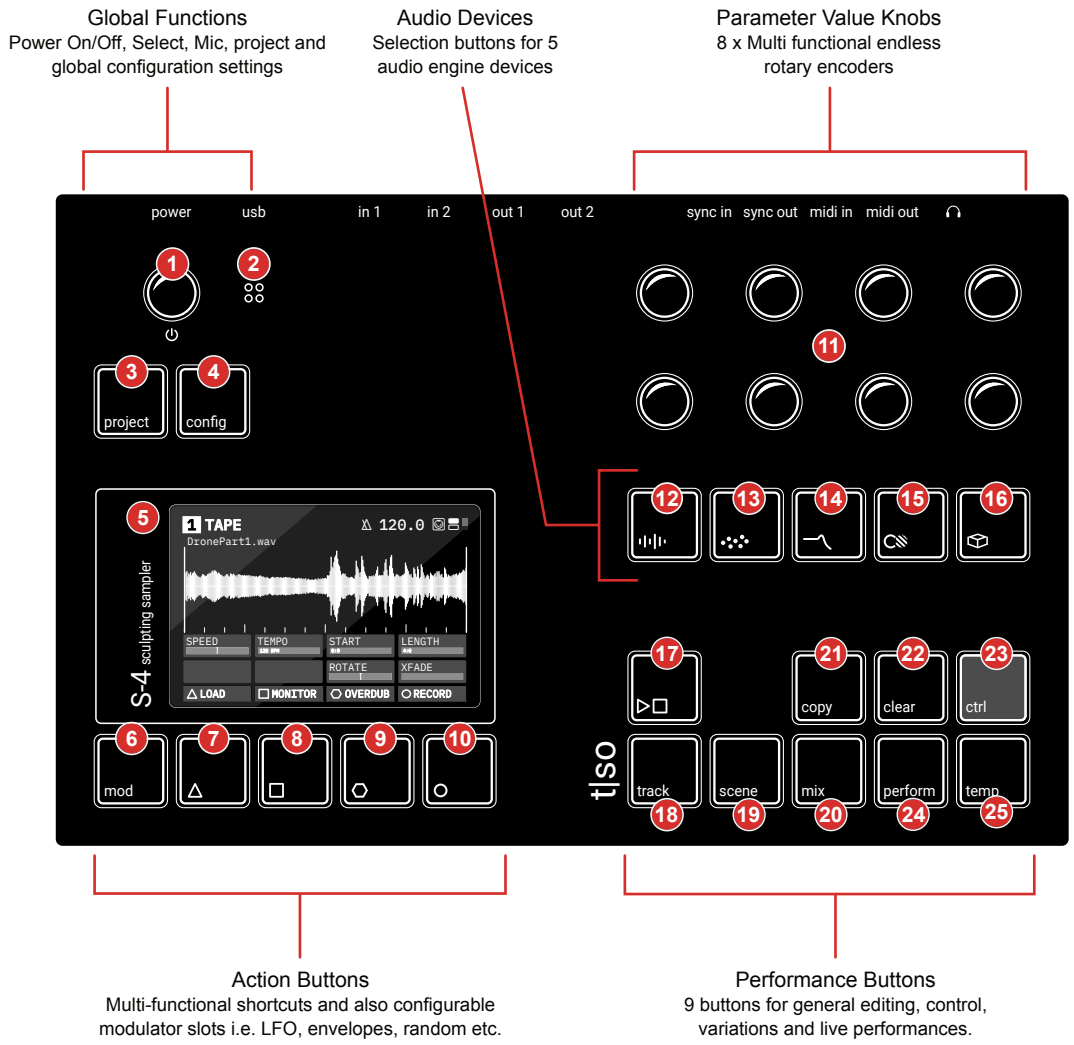


Dimensions include enclosure plus the knobs, buttons and rubber feet. Weight is 820 grams (1,8 lbs).

1 Getting Started

S-4 Sculpting Sampler

The user interface has 6 control areas consisting of 9 endless rotary / push knobs, 21 Tactile RGB buttons, internal microphone and a high quality LCD display screen. The 8 multi-functional knobs are focussed towards specific workflow and operating mode parameters as defined on the display. Action buttons are located below the display which typically control modulation and command shortcuts. The audio engine devices are selectable individually by using the dedicated audio engine buttons, some of which will become valid in a future OS release.



Main functions are labelled in black on the button by text or by a unique symbol. Secondary functions are accessed by holding button combinations. Typically the **[CTRL]** button plus another function accesses secondary functions.

Global

1 Select - Detent Push / Rotary Encoder
Primary function is tempo, press + hold to turn off, Press Mix, Turn Select for Master volume.

2 Microphone
Internal microphone input.

3 Project
Access to project management menu options.

4 Config
Access to global settings and configuration options.

Action Buttons & Display

5 Display Screen
3,5 inch LCD High resolution color display.

6 Modulation Options
Allows modulation source configuration and routing.

Action Buttons. Allows quick access to context dependant options and controls modulation functions.

7 Action Button △

8 Action Button □

9 Action Button ⬡

10 Action Button ○

Parameter Value Controls

11 Dynamic Parameters - Push Rotary Knobs
8 Multi-functional push / endless smooth encoders for parameter adjustment and value setting.

Audio Engine Devices

12 Material
Selects the sound source device. Default is Tape, sample looper. Other options include Poly and Bypass.

13 Granular
Granular devices. Default is Mosaic a Live granular processor with pitch shifting and time warping algorithms.

14 Filter
Filter devices. Default is the Morphing resonator, Ring device, a 48 band tuned filter bank with animation.

15 Color
Destructive effect devices. Deform is the default device which includes bit crushing, drive and compression.

16 Space
Space and time based effect devices. Vast is the default device which Includes both reverb and delay.

Performance Buttons

17 Play / Stop
Transport control for starting and stopping the internal clock.

18 Track
Press to open the track view option and access to track selection and track sends.

19 Scene
Planned for future update.

20 Mix
Press to select the 4 track mixer and master output.

21 Copy
Planned for future update.

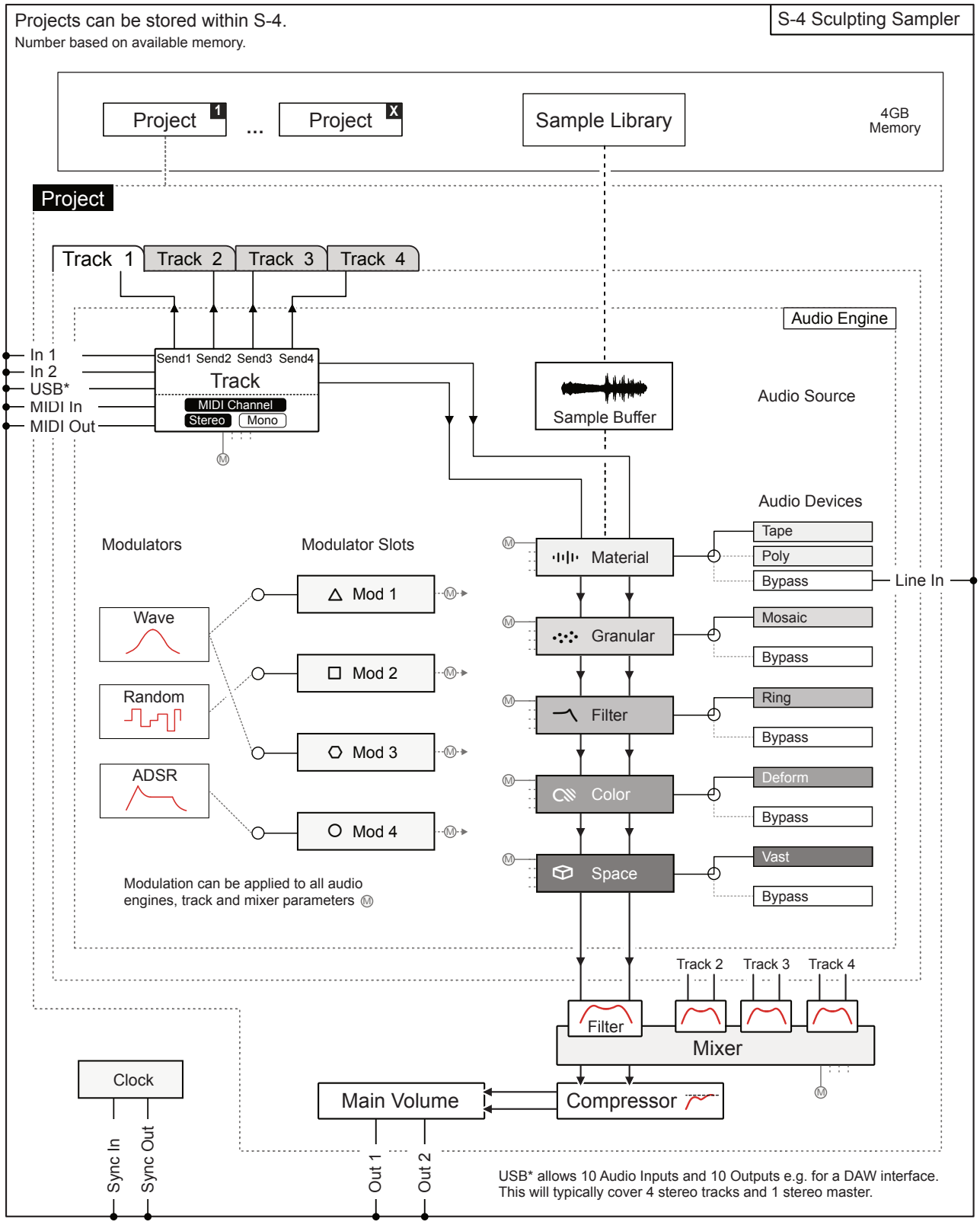
22 Clear
Hold along with another function to clear / delete.

23 Ctrl
Hold to access secondary functions.

24 Temp
Planned for future update.

25 Perform
Planned for future update.

1.5 Architecture



1.6 Command Quick Reference

Function	Action	S-4 Sequencer Command	Description
General	Play / Stop	Press [PLAY]	Press the play transport button to play or stop a function, for example to start and stop the tape looper.
General	Main Out Level	Press [MIX], Turn (SELECT)	Adjustment of the main audio output level with (SELECT) within the Mix page. Also adjustable on Page 2.
General	Configuration	Press [CONFIG]	Open the configuration setting options.
General	Tempo Adjust	Turn (SELECT)	Adjusts the tempo 1 BPM per knob indent.
General	Select Track View	Press [TRACK]	Select the track view page.
General	Select Track	Hold [TRACK] + Action Button	Select the active track.
General	Material Page	Press [*DEVICE*]	Select the audio engine page for the desired option.
General	Material Devices	Hold [CTRL] + [DEVICE]	Select the device from the list to load into the slot.
General	Mix Page	Press [MIX]	Select the main mixer page for the master output section.
General	Adjust Parameter	Turn (VALUE KNOB) 1-8	Adjust the parameter rotary knob respective to the displayed parameter to adjust its value.
General	Fine Adjustment	Hold [CTRL] + (VALUE KNOB)	Adjust with a knob respective to the displayed parameter to adjust its value in fine adjustments for some parameters.
Clear	Reset Parameter	Hold [CLEAR] + Turn or Press Knob	Resets the selected individual parameter for the currently selected track and device.
Clear	Reset Buffer	Hold [CLEAR] + [BUFFER] △	Clears the material sample buffer.
Clear	Reset Parameters	Hold [CLEAR] + [PARAMS] ⬡	Resets all general parameters for the currently selected track and device.
Clear	Reset Modulation	Hold [CLEAR] + [MODS] ☐	Resets all modulation amount values for the currently selected track and device.
Clear	Reset All	Hold [CLEAR] + [DEVICE] ○	Resets all general and modulation parameters for the currently selected track and device.
Clear	Reset Track	Hold [CLEAR] + [TRACK]	Resets all general and modulation parameters for all devices on the currently selected track. Buffer is retained.
Clear	Delete Project	Press [CLEAR] on a highlighted project	In the project browser / load page, highlight a project and press clear to delete the project.
Text Editor	Move Cursor	[LEFT] or [RIGHT] Action Button	Operates when the text editor is displayed to navigate and move the edit cursor.
Text Editor	Delete / Backspace	Press [CLEAR]	In the text editor screen, deletes the highlighted character and backspaces the cursor
Text Editor	Change Character	Turn (SELECT)	Changes the highlighted character under the cursor

1.7 User Interface

NOTES

The front panel controls are designed to encourage exploration and experimentation giving fast and easy access to the wide range of parameters and functions. There are some generic conventions that apply globally when using the user interface.

Buttons

Selected buttons will illuminate brightly when the function is selected.



Sometimes the illuminated button and color represents its functions current state. The button can be dim, static lit or flashing.



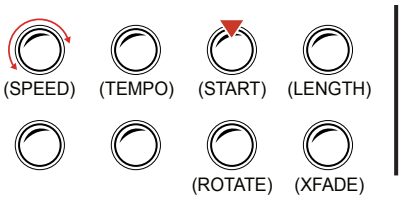
Flash during playback

Parameters & Value Knobs

Each of the 8 push / rotary knobs represent the current display page parameters.

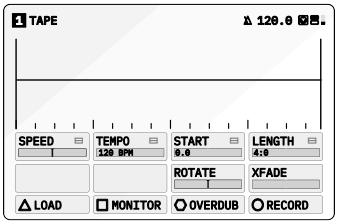
Any instruction will give the parameter name relevant to the knob, i.e. Turn (SPEED).

Holding a knob while adjusting some parameters will open a ‘mode select’ menu. These parameters are shown with a ▭ tag.



The selected function and its currently active page parameter values can be adjusted by the respective rotary knob. Pressing a page button repeatedly will cycle through is pages.

Some parameters operate on a single scale i.e. 0-100%, some have a bipolar range ie -50 to +50 and others may be an option selection ie ‘Chromatic’

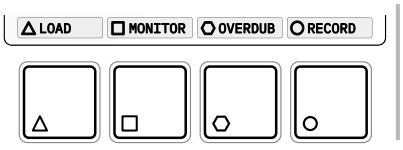




Unipolar Bipolar Options

Action Buttons

The 4 Action buttons operate dynamically. Their function changes to represent the option currently displayed directly above the button.



Select Knob

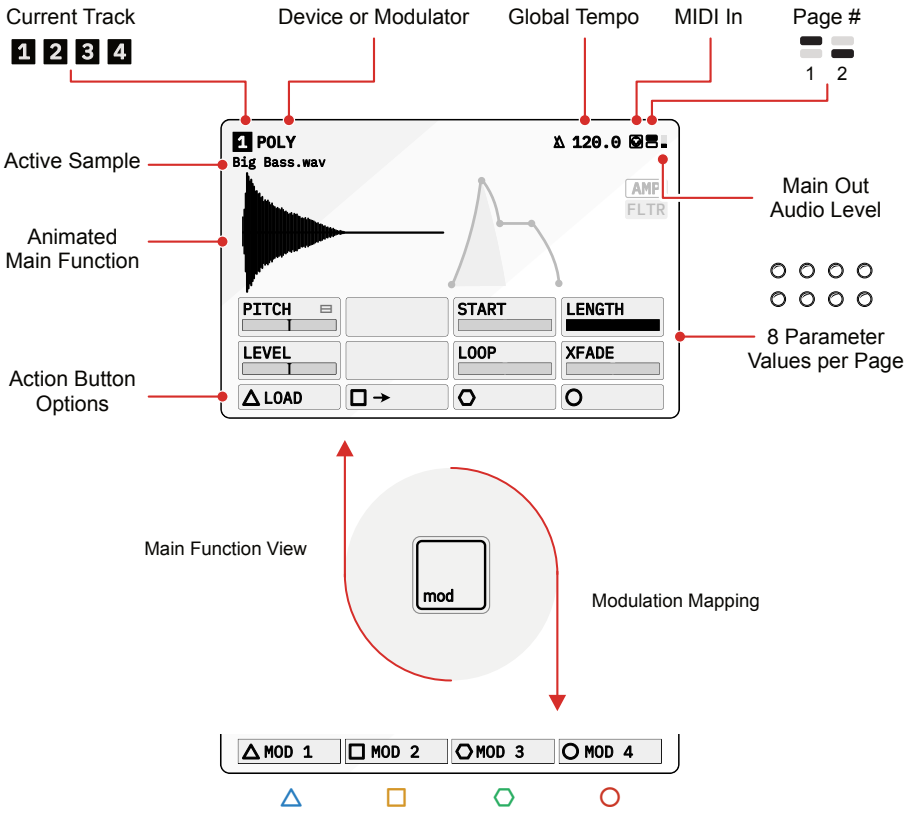
The select knob is a tactile push / rotary encoder with detent rotation for iterative, precise changes.

This selects from menus and options. By default this changes tempo 1 BPM increments.

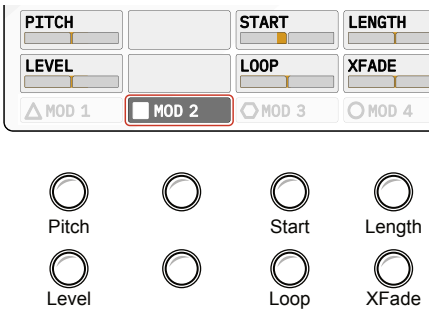


NOTES

The hi resolution screen displays both parameter values and a functional animation of the selected option. For example the material tape device page will show the sample playback. If multiple pages exist, pressing the device button repeatedly will cycle through each page and its parameters. The display format style follows a generic structure and layout.



The [MOD] Button will switch the action buttons between the device specific actions and the modulation mapping. In modulation mapping view, the active modulator will illuminate its corresponding action button in color. The parameter values now represent the amount of modulation applied to each parameter.



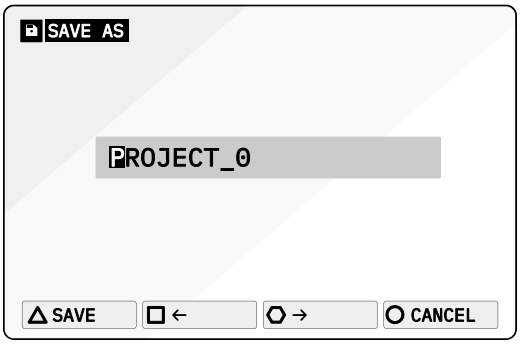
Modulation amount applied to each parameter.
Adjusted in this mode with the 8 parameter control knobs.

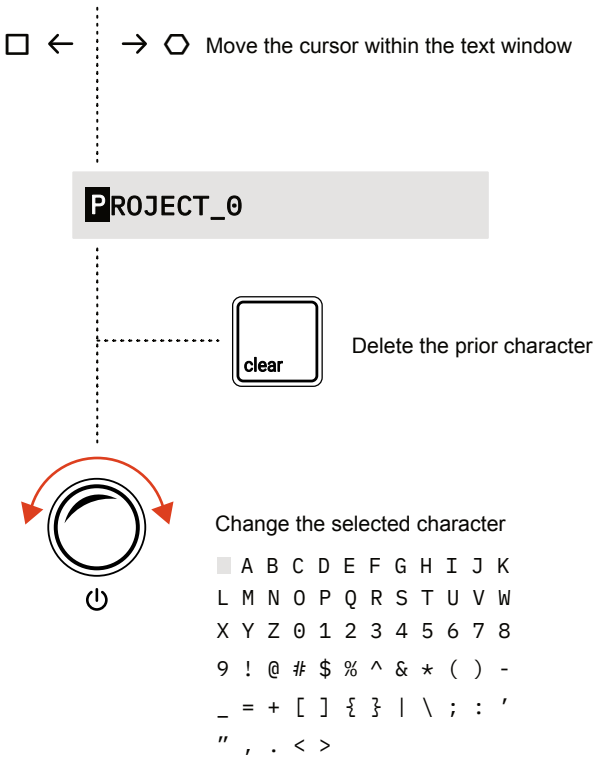
1.8 Naming Editor

NOTES

Several functions will require text editing. For example naming a project or saving a sample. The process of editing names follows a similar workflow when the naming editor pop up is presented.

The position in the name is navigated using the action buttons while changing the character is performed using the screen knob which cycles through the alpha-numeric options. To clear a character use the dedicated clear button. Names can be a maximum of 16 characters.





NOTES

When saving a project the option to rename it will be presented when selecting the ‘Save As’ option. This workflow of saving a project will be used as an example to illustrate the steps in changing and editing a name.

EDITING A PROJECT NAME DURING ‘SAVE AS’

1. Press [PROJECT] to open the project management options.
2. The option to save as a new file and create a new name is available. Press [SAVE AS], ⎔ action button to request saving the current project.
3. The prompt to assign a name will be presented. Use the naming editor to change the name of the file to save. To edit the name:-
    - Navigate across the text string using the (LEFT) ☐ and (RIGHT) ⎔ arrowed, action buttons.
    - The cursor will highlight the current character to edit. For example highlight the first character of the name.
    - Turn (SELECT) to adjust the character under the cursor. Once completed use the arrow buttons to move to the next character.
    - To delete the previous character in the text string, Press [CLEAR], the dedicated function button. The cursor will backspace from its current location when pressing clear.
4. Once a name is edited and defined, Press [SAVE], △ action button to confirm saving and proceed.
5. A prompt may be shown ‘File already exists, overwrite?’. Confirm to save and proceed.
6. The project will be saved.

2

Projects & Tracks

A project exists at the highest level in the structure in which the elements of the S-4 are organised. This allows the entire collection of tracks and their components to be stored and managed. Global settings are managed and configured at project level. Next in the hierarchical structure is a track. A track is an audio function that contains a chain of 5 audio engine devices along with the 4 modulation slots. All configurations for the track are set within the workflow of sound design. A track is a self contained audio environment where sounds can be created and developed. The S-4 has 4 identical, parallel tracks, all of which operate in stereo end to end.This allows layering of tracks in order to develop more interesting sounds. Tracks can also be routed into each other allowing the design of complex and intricate soundscapes and audio textures and expanding the creative experience further. A dedicated master mixer with level and pan controls operates at the final stage before the audio output.

2 Projects & Tracks

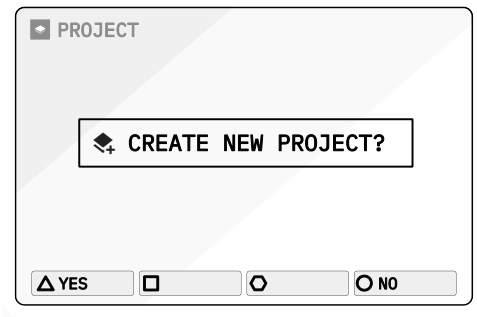
2.1 Project Management

NOTES

Projects are the highest structural element in the S-4 that contains all the audio components and is an aid to organising S-4 activities. Projects can be created, saved and loaded and the number stored is limited only by the available memory.

CREATING A NEW PROJECT

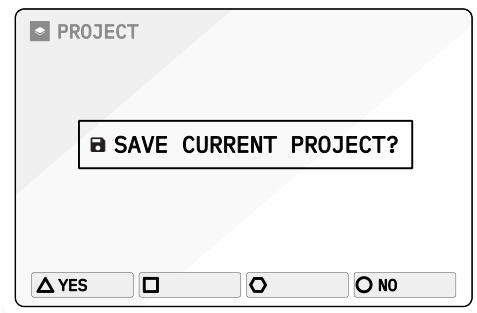
1. Press [PROJECT] to open the project management options.
2. Press [NEW], ○ action button to request creation of a new project.
3. The prompt ‘create new project?’ will be presented.
   - Press [YES], △ action button to confirm and proceed.
   - Alternatively, [NO], ○ action button will cancel the request and exit the menu without creating a project.
4. A prompt to ‘save the current project?’ will be presented.
   - Press [YES], △ action button to confirm and proceed.
   - Alternatively, [NO], ○ action button will proceed without saving.
5. The current project will be saved and a new, blank project will be created. It is advised to save the project at the outset and during project development.



NOTES

SAVING THE CURRENT PROJECT

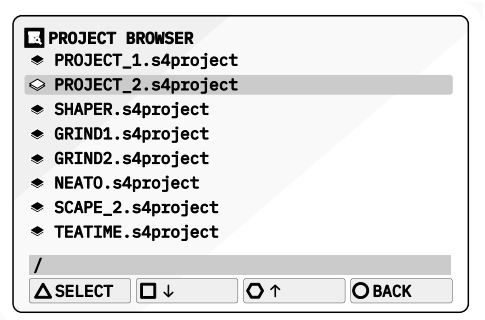
1. Press [PROJECT] to open the project management options.
2. Press [SAVE], ☐ action button to request saving the current project.
3. The prompt ‘save current project?’ will be presented.
   - Press [YES], △ action button to confirm and proceed.
   - Alternatively, [NO], ○ action button will cancel the request and exit the menu without saving the project.
4. An option to save as a new file and create a new name is also available as an alternate choice. Press [SAVE AS], ⬡ action button to request saving the current project.
5. The prompt to assign a name will be presented. Use the naming editor to change the name of the file to save.
6. Once a name is edited and defined:
   - Press [SAVE], △ action button to confirm saving and proceed.
   - Alternatively, [CANCEL], ○ action button will exit without saving.
7. A prompt may be shown ‘File already exists, overwrite?’. Select the desired option, [YES], △ or [NO], ○ action button to confirm overwriting an existing file if one exists.
8. The project will be saved.



NOTES

LOADING A PROJECT

1. Press [PROJECT] to open the project management options.
2. Press [LOAD], ☐ action button to request loading a project.
3. The project list will be presented where a project can be loaded.
4. The (SELECT) Knob or the [DOWN], ☐ and [UP], ⬡ action buttons will navigate to highlight project to load.
5. Press [SELECT], △ action button to select the file to load and to proceed. Press [BACK], ○ action button to return to the prior menu and to cancel without loading a project.
6. The selected project will be loaded as the active project.



DELETING A PROJECT

1. Press [PROJECT] to open the project management options.
2. Press [LOAD], ☐ action button to open the project list.
3. The project list will be presented where a project can be highlighted.
4. The (SELECT) Knob or the [DOWN], ☐ and [UP], ⬡ action buttons will navigate to highlight project to delete.
5. Press [CLEAR] dedicated button to delete the highlighted project.
6. A prompt to remove the project is presented. To delete Press [YES], △ action button or Press [NO], ☐ action button to cancel without deleting.

NOTES

2.2 Track Basics

The S4 has 4 stereo tracks each with its own 5 device audio engine and 4 modulation functions. Tracks operate in parallel with synchronised playback. Think of a track as a self contained audio environment used to sculpt and shape sounds and generate a sound source individually or to be combined with other track audio sources.

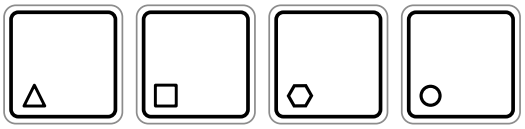
Track Button



Press [TRACK] to open the track view. The selected track can be chosen from the action buttons.

or

Hold [TRACK] + Action Button for quick track selection.



[TRACK 1] [TRACK 2] [TRACK 3] [TRACK 4]

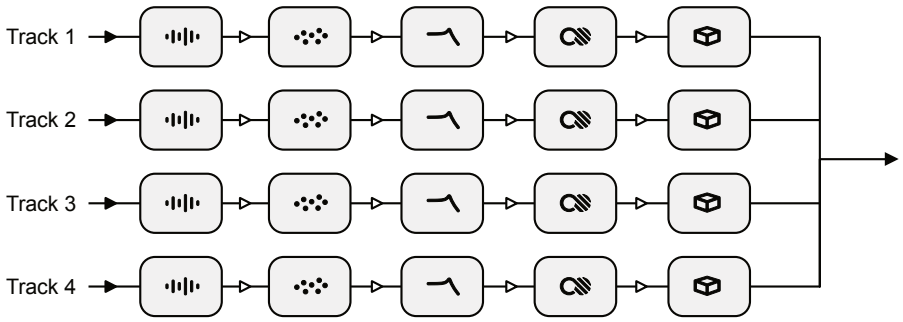
1 2 3 4

SELECTING A TRACK

1. Press [TRACK] to open the track view.
2. Select a track using the action buttons in the track view.
   - For Track 1, Press [TRACK 1], action button, symbol △.
   - For Track 2, Press [TRACK 2], action button, symbol □.
   - For Track 3, Press [TRACK 3], action button, symbol ⬡.
   - For Track 4, Press [TRACK 4], action button, symbol ○.
3. The chosen track will be selected and the track number will be displayed on the screen pages, top left of the header. The action button label will also be highlighted to show the currently selected track.
4. Alternatively, Hold [TRACK] + Press Action Button for the track. This quick selection of the track will close the page when buttons are released and revert to the current display.
5. Any sound design edits made in the audio devices or the modulation section will be performed for the chosen track.

NOTES

Tracks are an ideal way to layer and stack audio sounds, building textures and depth to the audio created. Each tracks audio engine and device chain is identical in scope but can be configured and set up independently for example with unique samples and modulation mapping. Each track audio output can also be sent into any track.



PLAYING TRACKS

1. Play tracks simultaneously. Press [PLAY/STOP] ■► to start playback of all four tracks in sync. Playback will reset and commence from the start position.

2. Button flashes white in time with Global BPM Tempo.

3. Stop tracks simultaneously. Press [PLAY/STOP] ■►again to stop the currently playing tracks.



Press [PLAY/STOP]
to start and stop the track playback

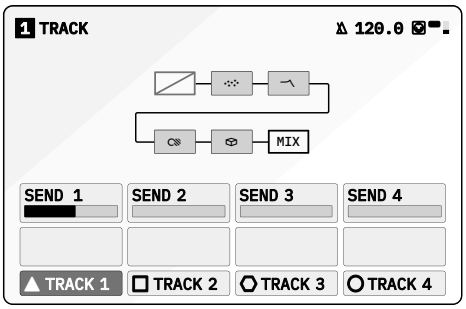
Flashes white when playing ▷□

NOTES

2.3 Track View

The track page view allows selection of tracks as well as management of the current audio. Audio output from the currently selected track can also be sent into any other track including back into itself. A dynamic view of the audio chain is also presented which represents the device states.

Track Mixer Press [TRACK] to open track page



Sends: Routing of this track into other tracks

Track Select

Active audio device Bypass device

Action Buttons			
Track 1 △	Track 2 □	Track 3 ⬡	Track 4 ○
Selection of Track 1.	Selection of Track 2.	Selection of Track 3.	Selection of Track 4.
This will select the working track, the one that will be configured or edited.			

Parameter Knobs			
Send 1 ◯	Send 2 ◯	Send 3 ◯	Send 4 ◯
Adjusts the amount of this track's processed audio sent to the input of Track 1	Adjusts the amount of this track's processed audio sent to the input of Track 2	Adjusts the amount of this track's processed audio sent to the input of Track 3	Adjusts the amount of this track's processed audio sent to the input of Track 4
◯	◯	◯	◯

If 'Sends Only' is set to ON in the Track Config settings the Mic and Line in audio is disconnected from the track input stage. If this is the default of OFF, audio is routed to the track along with the external audio coming in.

NOTES

When working with external audio into tracks, the source configuration will be required to select the input. This is accessible within the [CONFIG] options within the track.

CONFIGURING EXTERNAL STEREO / MONO AUDIO

1. Press [CONFIG] and navigate to the track to edit with the arrow action buttons or Turn (SELECT). The Mono/Stereo setting is edited per track.

2. Press [OPEN] to select the track options. This presents the Track Input and MIDI Channel options for the track.

3. Navigate to ‘TRACK INPUT’ and press [SELECT] or Turn one of the 8 Parameter knobs to change.

4. The option to set Stereo or Mono for the external audio in is available.

5. Note that there is also a ‘Sends Only’ option available in the track input selection. Setting the track input to ‘Sends Only’ will only use the audio that is set to send from other tracks and essentially ignore the line and mic inputs.

NOTES

CONFIGURING THE EXTERNAL AUDIO SOURCE

1. The external audio input source can also be selected in the [CONFIG] settings where the ‘AUDIO’ sub menu allows selection of the Line, Mic or Headset audio inputs.

2. Turn (SELECT) to navigate to select the ‘AUDIO’ option. Also press the [DOWN], ☐ or [UP], ⎔ Action buttons to navigate the menu.

3. Press [OPEN], △ or Press (SELECT) to open the audio sub-menu.

4. Navigate to highlight the ‘INPUT MODE’ option.

5. Turn any of the 8 parameter knobs to adjust the setting. Alternatively, Press [OPEN] to cycle the available options.

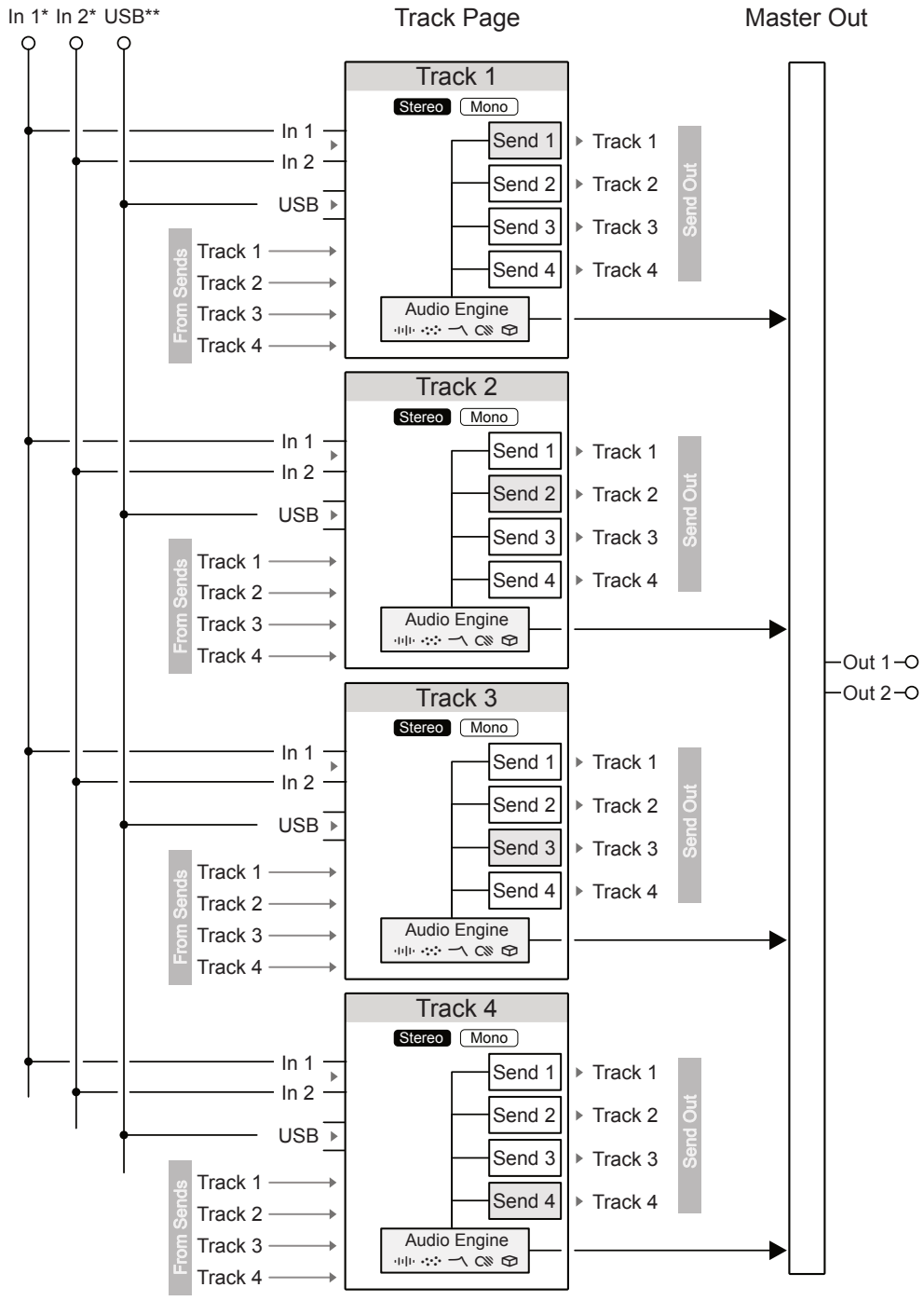
    - LINE: Audio Line Inputs In 1 / In 2.
    - MIC. Microphone. Front panel access to mic. Select This Option
    - HEADSET. Connected TRRS headset microphone.

6. The microphone audio input gain can also be adjusted. Navigate to highlight the ‘MIC GAIN’ option and Turn any of the 8 parameter knobs to adjust the setting.

NOTES

2.4 Track Signal Flow

Each of the 4 tracks has its own track signal flow especially for controlling the audio sends to any other track. Configuration for the track stereo or mono audio is set in the Config > Track X settings.



* Line in or Mic. Excluded from track if 'SENDS ONLY' is Track Input.

** USB Audio has 10 In and 10 Outs

NOTES

Audio can be routed using ‘sends’ from one track to another track. So the processed audio from the Material, Granular, Filter, Color and Space device chain along with any modulation is applied before being routing to mix into another tracks audio. This allows chaining of tracks and offers control of the incoming audio feedback level and the track send output amounts. If ‘Sends Only’ is set as the Track input then only sent audio is used.

CONFIGURING AUDIO SEND ROUTING FOR TRACKS

1. Open the track page. Press [TRACK].

2. Select a track using the action buttons. For example, Press [TRACK 2], ☐ action button. The selected track will be the working track to edit.

3. Select and adjust the audio ‘Send’ levels. This is will direct a selected amount of the processed audio into another track.

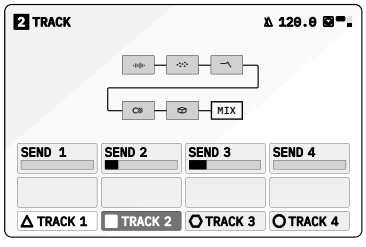
    - Adjust the send option using the parameter knobs based on the action buttons. Audio can be sent to another track, for example adjust (SEND 3) to send the amount to Track 3.

    - Audio can be sent to back into the same track, for example if Track 2 is selected, adjust (SEND 2) to send the output amount back into to Track 2. This feedback can generate interesting effect chains.

    - All track outputs are also by default mixed fully at the master output stage accessed using [MIX].

Track Routing Example

Track 2 is the currently selected track



Each device slot is loaded with a device

Track 2 is sending an amount of its audio output to Track 3 and also to Track 2 i.e. back into its own input. No audio from track 2 is being sent to Track 1 or Track 4.

Track 2 Output is also mixed in the Main MIX with all other tracks.

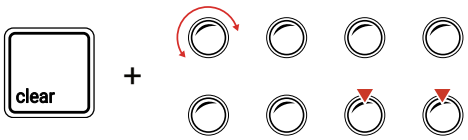
2.5 Clear Function

NOTES

The clear function offers a number of project and track orientated options to erase or reset the various parameter states and settings for the selected device or all devices. Clear is controlled with the dedicated button along with a series of action button and secondary options. The device parameter values will be ‘cleared’ which will mean they are erased to zero or they will be reset to their individual default value state. This will depend on the specific parameter.

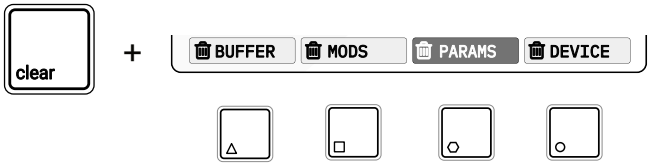
The sample buffer can be cleared individually.

Clear Parameter — Hold [CLEAR] + Turn or Press (*Knob*)



With clear held turning or pressing the selected parameter knob will clear the individual parameter value for the selected device.

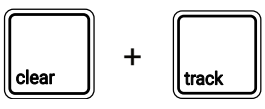
Clear Device — Hold [CLEAR] to open the available options



The action buttons will reflect the different options for clearing the device specific parameters.

Action Buttons			
Buffer △	Mods □	Params ⬡	Device ○
Clears the sample buffer for the selected device.	Clears all modulation values for the selected device.	Clears all general parameter values for the selected device.	Clears all general parameter and modulation values for the selected device.

Clear Track — Hold [CLEAR] + [TRACK]

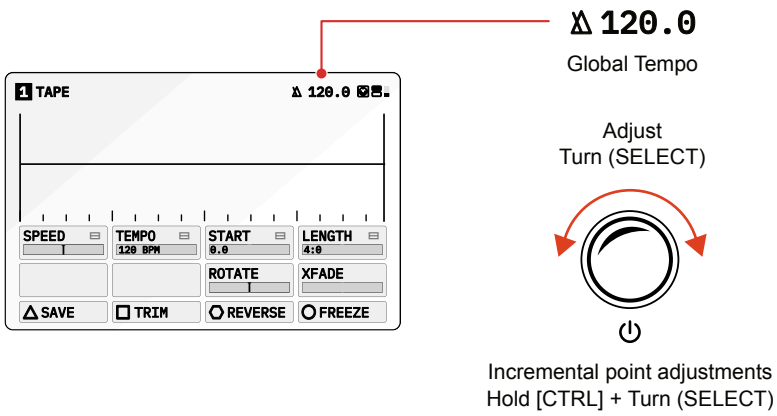


The currently selected track parameters and modulation are cleared for all devices in the track. The sample buffer is retained.

NOTES

2.6 Global Tempo

The global tempo sets the project tempo in beats per minute across all tracks. This can be adjusted between from 24 BPM up to 284 BPM. The global tempo is displayed in the top right header of each device page. The global tempo can be set manually but can also be synchronised to an incoming MIDI Clock if ‘Sync In’ is set to on in the Config settings.



SETTING THE GLOBAL TEMPO

1. Turn (SELECT) from within any page that the tempo value is on display. The Tempo will be changed in 1 BPM whole increments per iterative ‘click’ of the controller knob.

2. To change the global tempo value in smaller point value increments, Hold [CTRL] + Turn (SELECT).

3. Note that the Config MIDI settings also determine if the tempo is controlled from an external clock. If the ‘SYNC IN’ is ON, then manual tempo adjustments are ignored, as MIDI clock in will control tempo.

4. The global tempo is saved with the project.

Note:

Several time based parameters within the S-4 will be synchronised to the Global Tempo BPM, for example the Tape Tempo parameter.

2.7 Sample Browser

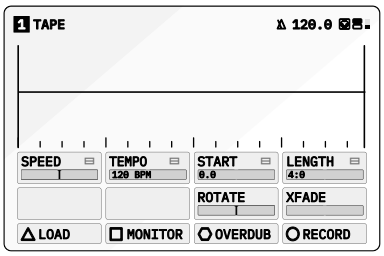
NOTES

The S-4 onboard memory has a common sample pool containing a collection of factory samples as well as any installed user samples. In particular the Material devices have a 6 min sample buffer and can access the libraries to select a sample source. Sample buffers are saved as part of the project.

User samples can be copied, backed up and transferred in and out by connecting to a PC/Mac using the USB Mass Storage mode. An external USB drive can also be connected in order to access additional remote sample libraries.

The sample browser opens by selecting [LOAD], △ Action button when a sample device such as Tape is open. A protected factory bank, organised by theme is pre-installed on the S-4.

Tape Device



Press [LOAD] to open the sample browser

Loading a sample with a filename containing ‘XXXBPM’ or ‘XXXbpm’ will automatically assign the ‘XXX’ value as the TEMPO parameter value.

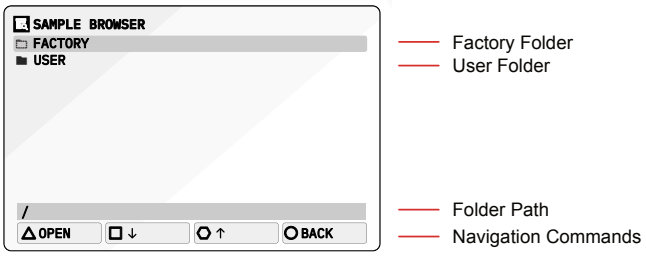
Note:

Sample format is .flac or .wav files, 8, 16, 24 or 32 bit. Files are internally converted to 48kHz. Recorded files are stored in 48 kHz 24-bit stereo .wav format.

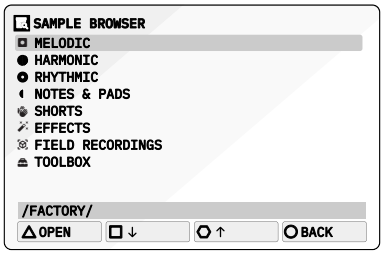
NOTES

Access to the sample browser is found in a device that is capable of loading a sample. Selecting [LOAD] will open the sample browser for selection from the libraries. Files can also be accessed from an external USB drive which is connected to the S-4.

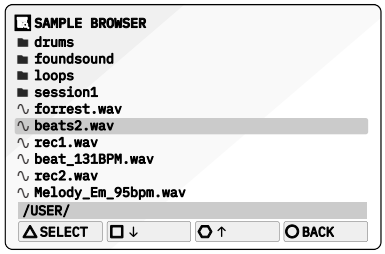
Sample Browser - Main Menu



FACTORY - Sub Menu



USER - Sub Menu - *Example*



Function	Command	Description
Scroll Options	[DOWN] ↓ [UP] ↑ or Turn (SELECT)	Use the action buttons to scroll and highlight the available options in the sample list.
Delete Sample	Press [CLEAR]	Will delete the selected, highlighted sample. A prompt will be presented in order to confirm removing from memory.
Open Sub folder	Press [OPEN] or Press (SELECT)	Press [OPEN] to open the sub folder. Back up using the [BACK] action button option.
Select sample	Press [SELECT] or Press (SELECT)	Use the action buttons to select and load to the device the highlighted sample from the list.
Eject USB	Hold [CTRL] + Press [EJECT]	Eject a connected USB device from the S-4

3

Audio Engine

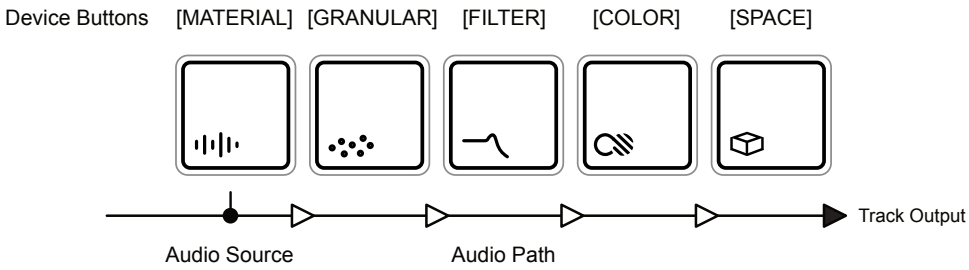
The S-4 is a sculpting sampler audio engine consists of 5 audio device slots chained in series. Each device slot can be configured by loading a device from the collection available and by setting and/or modulating its parameters. Material is the first device slot and the one which manages the audio source whether using a sample within the Tape device, a sample as a synth source in the Poly device or using the audio line inputs with the Bypass. The next slot is called Granular, and features Mosaic, a live granular processor with time-warping and pitch-shifting algorithms. The Filter slot houses a Ring device with a 48-band, tuned filter bank with animation, tonal control and classic filter functionality. The penultimate device slot is Color. A Deform device with a collection of distortion based effects is available in this slot. The final device slot is Space, and its Vast device combines a reverb and delay. Routing the audio and parameter configuration of the audio chain is only a part of the sound design experience. Add modulation to any device parameter and the creative journey really opens up.

3 Audio Engine

3.1 Audio Engine Basics

NOTES

Each track has a dedicated audio engine. This consists of 5 device slots per track which route the stereo audio through each device in series starting with material, granular, filter, color and finally space.



SELECTING AN TRACK DEVICE SLOT

1. Select a track to edit. Press [TRACK], then select a track using the action buttons located under the screen display. Track 1 is [TRACK 1], △ action button, Track 2 is [TRACK 2], ☐ etc.
2. Select the device slot:-
   - For Material, Press [MATERIAL], shown by button symbol.
   - For Granular, Press [GRANULAR], shown by the symbol.
   - For Filter, Press [FILTER], shown by the symbol.
   - For Color, Press [COLOR], shown by the symbol.
   - For Space, Press [SPACE], shown by the symbol.
3. The selected device button will be lit brightly and the respective page will be presented.
4. The selected page is indicated by the top right page number tag indication. Each press of the device button will cycle through pages.



5. Each page consists of up to 8 parameters each of which can be adjusted with the respective 8 rotary encoders. Also a set of commands for each device are also assigned to the action buttons located under the display.

NOTES

Each of 5 audio device slots can be configured from a library of device models. These are loaded per slot depending on the function required.

Device Slot	Device	Function
Material	Tape	Primary sound source for the track. Load a sample or record in. Tape style looping and speed adjustment.
	Poly	Primary sound source for the track. Load a sample for classic sampler style chromatic synth playback and shaping with pitch and amplitude modulation.
	Bypass	Uses the incoming live audio source. Operates as an effects processing track.
Granular	Mosaic	Granulates the incoming sound. Operates with its own dedicated buffer where parameter modulation spawns and manipulates audio grains ideal for live performance.
	Bypass	Audio is passed through the device slot with no audio processing applied.
Filter	Ring	Filtering of the audio. Processes incoming audio using a 48 band resonant filter bank.
	Bypass	Audio is passed through the device slot with no audio processing applied.
Color	Deform	Colors the sound tone. Destructive and distortion applied through drive, bit crushing, noise generation and compression to affect the sound.
	Bypass	Audio is passed through the device slot with no audio processing applied.
Space	Vast	Applies space and time orientated effects to the sound. This model applies both delay and reverb within an integrated effect function.
	Bypass	Audio is passed through the device slot with no audio processing applied.

NOTES

SELECTING A DEVICE

1. Select a track to edit. Press [TRACK], then select a track using the action buttons located under the screen display.

2. If not already selected, choose a device slot, Press [MATERIAL] or [GRANULAR] or [FILTER] or [COLOR] or [SPACE].

3. To assign a device to a slot Hold [CTRL] + Press an Audio Device button. For example Hold [CTRL] + Press [MATERIAL].

4. A pop-up list of specific options for the selected device will be displayed while ever the [CTRL] button is held. The Bypass device acts as a bypass, passing audio through the slot without applying any processing.

5. To select the device, either:

    - Tap the device button while holding [CTRL] to cycle through the options. For example, Hold [CTRL] + Tap [MATERIAL].

    - Press the [UP] or [DOWN] action buttons to navigate the list and highlight and option while the pop-up window list is open.

    - Turn (SELECT) Knob while the pop-up window list is open.

NOTES

Device selection and assigning a device to a slot is an intuitive process. The currently selected device is shown next to the track number in the display header.

Device Set Up Workflow Example

Select Device Slot



Selected device button symbol brightly lit.
Press again to change page.

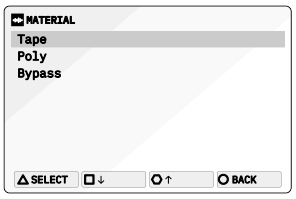
Select Device Model



Keep Hold Tap Turn

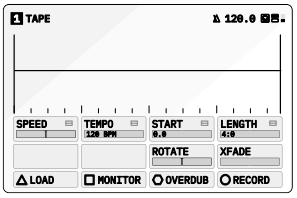
Tap device button to cycle option or turn select.

Device List



Selection of the highlighted option.

Device Page



Material page example with no sample loaded. Device name in the header

8 Parameters, represented by the 8 value knobs.

Action button commands.

3.2 Material Devices

NOTES

The Material device slot is dedicated to manage the internal primary sound source for the track sound engine. The available devices typically use a sample from the sample library, record a new sample audio or the incoming audio can be passed through from the line inputs. A material device can be loaded to the slot depending on the function desired. Material focuses on the initial capturing, editing and transformation of audio as the first function in the audio engine chain.

Material

Press [MATERIAL] to open the device page.



Selected device button symbol brightly lit

Hold [CTRL] + Press [MATERIAL] to open the device list.

The page displayed will reflect the material device loaded.

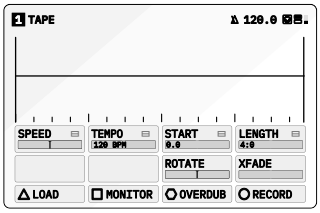
NOTES

3.2.1 Tape - Material Device

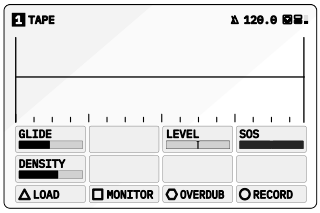
Tape is a looping sampler with adjustable speed that emulates many of the classic tape recorder features. It allows capturing incoming audio by recording either to new tape or overdubbing to the existing tape. Samples can also be loaded to the tape buffer from the sample library.

Material

Hold [CTRL] + Press [MATERIAL] to select Tape device



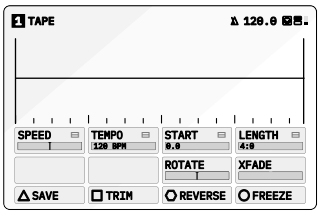
Page 1/2



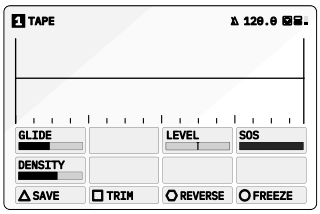
Page 2/2

Press [MATERIAL] to select and cycle through pages

Hold [CTRL] to access secondary action button functions



Page 1/2



Page 2/2

Action Buttons			
Load △	Monitor □	Overdub ⬡	Record ○
Open the sample library to select and load a sample.	Toggles on / off the live input audio monitoring option.	* Arm recording to overdub the existing tape reel.	* Arm recording to a new tape reel.
Hold [CTRL] + Press			
Save △	Trim □	Reverse ⬡	Freeze ○
Save the current tape sample to the library.	Trims the current sample at the START and LENGTH points.	Toggle playback direction of the tape loop reel.	Toggles freeze on/off to scrub playback of the audio region at the current location.

* Record and overdub will only arm recording. Press Play / Stop to initiate the actual recording process. Arming recording while playing will initiate recording at the appropriate time.

NOTES

Tape has a number of parameter settings available across the two pages. Press the [MATERIAL] button to switch between the available pages. The selected page is indicated in top right display with the pages symbol.

Parameter Knobs			**Page 1**
Speed ⊟ ◯	Tempo ⊟ ◯	Start ⊟ ◯	Length ⊟ ◯
Speed of the audio playback on the tape.	Adjust the sample tempo BPM **. Synchronised to the master tempo.	Start position of the tape ‘reel’.	Length of the tape ‘reel’. Can add silence at the buffer end by turning clockwise.
◯	◯	Rotate ◯	XFade ◯
		Shift the audio sample tape position.	Applies a cross fade at the loop end/start crossover point.

Parameter Knobs			**Page 2**
Glide ◯	◯	Level ◯	SOS ◯
Glide between the tape speed changes. Not available in Tempo Sync Mode.		Gain level of the existing tape audio.	Sound on Sound *. Amount of audio overdubbed from the old to the new tape.
Density ◯	◯	◯	◯
Controls grain rate and size of the playback. Can also be used in freeze and stretch modes.			

* SOS, Sound On Sound is applied to both overdubbed and new recordings and will apply an amount of existing audio to the recording / overdub based on the %.

** Tempo will be set automatically if a sample is loaded with the text ‘XXXBPM’ or ‘XXXbpm’ contained in the filename. The XXX number stated will be applied to the tempo parameter. For example ‘CONTRA_Em_95BPM.wav’ sample will set the tempo to 95 BPM automatically when loaded.

Some parameters tagged ⊟ offer a number of ‘Mode Select’ options from a pop-up list. This can be accessed for some parameters by pressing the knob. Press and turn to select an item from the presented list.

Speed
Quantize to Scale
Chromatic, Major, Minor, Dorian, Lydian, Mixolydian, Super Locrian, Hex Aeolian, Hex Dorian, Blues, Pentatonic, Hirajoshi, Kumoi, Iwato, Whole Tone, Pelog, Tetratonic, Fifths, Octaves, Free

Tempo
Tempo Mode
Sync Stretch Free

Sync is Default

Start
Quantize Resolution
8/1 4/1 2/1 1/1 1/2 1/4 1/8 1/16 Free

Length
Quantize Resolution
8/1 4/1 2/1 1/1 1/2 1/4 1/8 1/16 Free

NOTES

Tempo Sync, Stretch or Free Mode

SYNC mode ensures that the loaded sample will always stay in time with the BPM set by the TEMPO parameter. As START and LENGTH are moved, the playhead will regulate itself, ensuring that the first beat of the sample always stays in sync. In this mode, scales for the SPEED parameter will always jump in octaves. GLIDE is disabled.

FREE mode caters to a more classic tape workflow, where the sample is no longer bound to the constraints of a grid. In this mode, stretching with the TEMPO parameter is disabled, and the START and LENGTH parameters are indicated as seconds, instead of the bars and beats in SYNC mode. In FREE mode, you can freely choose a scale, and the GLIDE parameter will apply slew to sample playback when using the SPEED parameter.

STRETCH mode enables granular or tape style playback separating the pitch and time. The sample can be freely pitched without affecting the timing. GLIDE is also enabled in this mode.

Loading a Sample

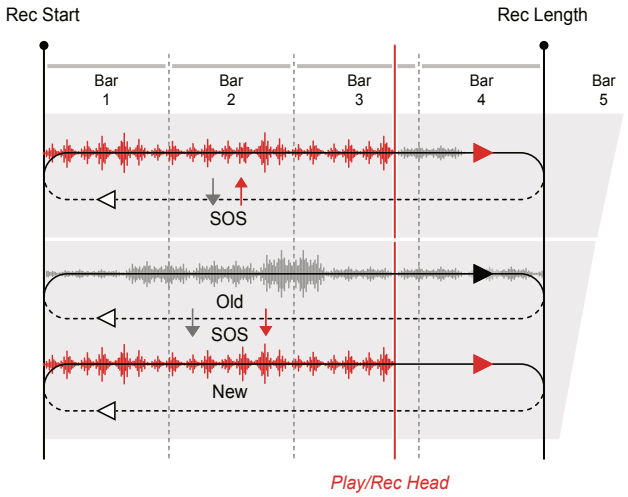
LOADING A SAMPLE TO THE TAPE DEVICE

1. Select a track to edit. Press [TRACK], then select a track using the action buttons located under the screen display.
2. Select the audio device slot, Press [MATERIAL] .
3. If not already set, select the ‘TAPE’ device for the active material slot, Hold [CTRL] + Tap [MATERIAL] .
4. Press [LOAD], △ action button to open the sample browser.
5. The sample browser will open and prompt to navigate and select a sample to load.
    - Navigate by Turning (SELECT) or Press [UP] or [DOWN] action buttons to highlight a file or folder.
    - Press [BACK], ○ to back up a level in the browser structure. The current file location is shown at the bottom of the page.
    - To navigate into folders, Press [OPEN], △ action button or Press (SELECT) to open the folder and drill down to the folder sub level.
    - Press [SELECT], △ action button to load an highlighted sample.

NOTES

Recording onto a Tape

Tape can be used for recording audio and samples. Audio can be recorded from the Audio Line Inputs or from the Internal Microphone. It is also possible to record the output of the tracks for use in the tape buffer.



Recordings are made to the device audio buffer, not the sample library.

Overdub ⎔ Arm

Records and adds to any existing audio on the current tape. Select using [OVERDUB].

SOS

Sound on Sound controls the amount of existing original tape audio recorded with a new recording or overdub.

Record ○ Arm

Creates a new, clean tape and records onto this tape. Existing tape continues to loop playback. Select using [RECORD].

SETTING UP AUDIO INPUTS TO RECORD

1. Press [CONFIG] to open the configuration settings
2. Turn (SELECT) to navigate to select the ‘AUDIO’ option. Also press the [DOWN], ☐ or [UP], ⎔ Action buttons to navigate in the menu.
3. Press [OPEN], △ or Press (SELECT) to open the audio sub-menu.
4. Navigate to highlight the ‘INPUT MODE’ option.
5. Turn any of the 8 parameter knobs to adjust the setting.
    - LINE: Audio Line Inputs In 1 / In 2.
    - MIC. Microphone. Internally front panel access to mic.
    - HEADSET. Connected USB headset microphone.
6. The microphone audio input gain can also be adjusted if using the mic. Navigate to highlight the ‘MIC GAIN’ option and turn any of the 8 parameter knobs to adjust the setting.

NOTES

PREPARING TO RECORD

1. Select the desired track 1-4 and ensure that a tape device is assigned to the material slot.

2. Set up the audio inputs as previously described for the desired audio source to record from.

3. If required, toggle ‘MONITOR’ On/Off. When on the assigned audio source will be audible. The audio level is visible on the meter top right of the page header.

4. Set or check the tempo.

    - Tape Tempo is synchronised to the Global Tempo. To ensure playback is by default the same as the recorded audio, set the Tape (TEMPO) Knob 2, to the same as the Global Tempo. Global Tempo is set by Turning (SELECT).

5. Adjust the start position.

    - Turn (START) to adjust the start position of the tape.

    - To change the start position quantize resolution or set to free adjustment, Push and Turn (START). The pop-up mode select list is presented to select from.

    - The tape markers will reflect the resolution selected.

6. Adjust the length position.

    - Turn (LENGTH) to adjust the end position of the tape.

    - To change the end position quantize resolution or free adjustment, Push and Turn (LENGTH). The pop-up mode select list is presented to select from.

    - The tape markers will reflect the resolution selected.

NOTES

RECORDING A SAMPLE TO THE TAPE DEVICE

1. Select the desired track 1-4 and ensure that a tape device is assigned to the material slot. Also se any tempo and start / length positions.

2. On the Tape device, Arm to set the recording mode desired.

    - Record. Press [RECORD], ○ action button to select this mode. Record will create a new blank tape and ready the recording. Recording is currently armed indicated on the action button in yellow when a recording is queued & red when the quantized start position is triggered. Recording will start if already playing or when Play/Stop is pressed.

    - Overdub. Press [OVERDUB], ⬡ action button to select this mode. Overdub will ready the recording to add new audio to the existing tape. Recording is currently armed, indicated by the button highlight. Recording will start if already playing or when Play/Stop is pressed.

    - SOS. Sound On Sound sets the amount of audio from the old, original tape that will be re-recorded into the new overdub or to the new tape recording. If this is set to ‘0 DB’ then only new audio recordings are captured.

3. To start recording, Press [PLAY/STOP]. Recording will automatically start if play is already in progress. Press [PLAY/STOP] at anytime to stop the recording. Recording will operate in the mode selected above and the button will flash.

4. Recording is captured into the Tape Device audio buffer which is not saved into the sample library automatically. To save to the ‘BOUNCES’ folder in the sample library, Hold [CTRL] + Press [SAVE], △ action button.

NOTES

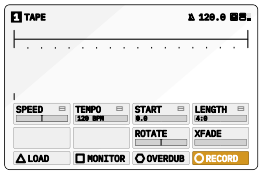
Recording Process

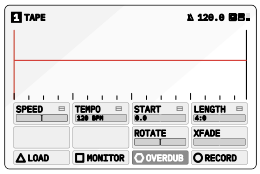
Record *To a New Tape*	Overdub *On the Same Tape*

Arm Recording

[RECORD]
Arm Recording

[MONITOR] to preview the audio on or off.



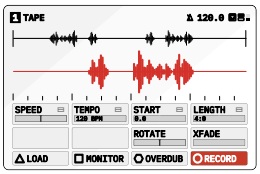


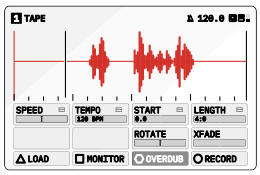
[OVERDUB]
Arm Recording

[MONITOR] to preview the audio on or off.

Record

[PLAY/STOP]
Start Recording

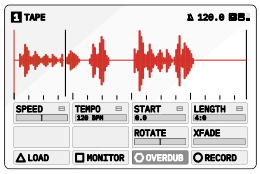




[PLAY/STOP]
Start Recording

Record - Yellow
Queued recording mode.

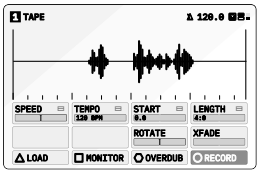
Record - Red
Quantized start position triggered

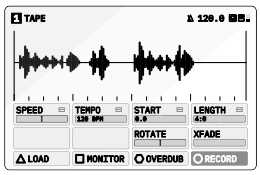


[PLAY/STOP]
Stop Recording

[PLAY/STOP]
Overdub Record

[PLAY/STOP]
Stop Recording



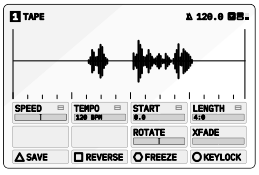


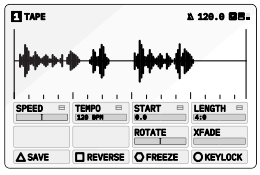
[OVERDUB]
Unarm Recording

[PLAY/STOP]
Play / Stop the Playback

[CTRL] + [SAVE]
Save the Recording

[CLEAR] + [BUFFER]
Clear Recording





[CTRL] + [SAVE]
Save the Recording

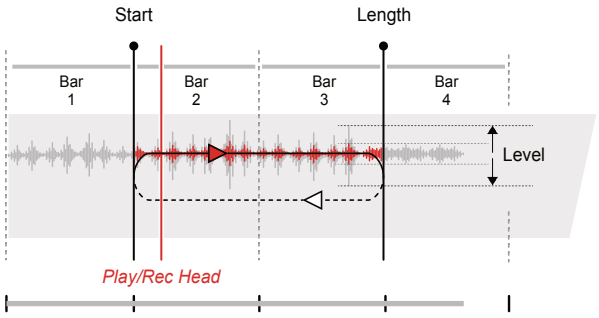
[CLEAR] + [BUFFER]
Clear Recording

For the Page 2 Action button options - Hold [CTRL] to access.

NOTES

Tape Editing

A number of classic tape characteristics can be applied to a recording. Speed and pitch variations are typical elements that not only add character but can transform the sound creatively.



A sample can be recorded or loaded from the sample library.

Extending the length can add silence in the buffer. A small bar will in the division display indicates the sample or the silence

Speed

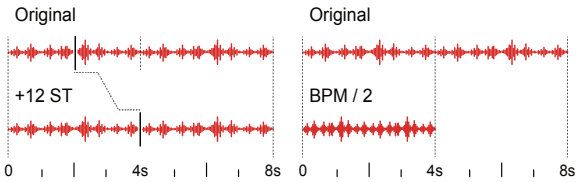
Playback speed of the tape will affect the pitch of the audio. Adjust based on the scale selected.

Tempo

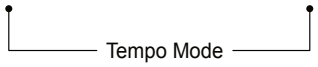
Tempo adjustment of a tape will affect the grid based timing. Classic tape sampling techniques affect pitch when editing a sample.

Scale - Press + Turn (Speed)

Selects a note scale for quantizing any speed changes in order to maintain a level of musicality.



Scale Options available:-
0. Chromatic
1. Fifths
2. Pentatonic
3. Octaves
4. Hex Aeolian
5. Major
6. Free



Tempo mode options determine the sync, free running and stretch behaviours.

The option to trim the sample between the start and length positions is possible. The Trim command is available in the TAPE page by holding the CTRL button. The trimmed sample is saved inside the project, and does not affect the loaded sample. When a sample is trimmed, it can be saved to be used elsewhere.

NOTES

EDITING A TAPE

1. Select the desired track 1-4 and ensure that a tape device is assigned to the material slot and a sample is present in the tape device.

2. Press [MATERIAL] to cycle the pages and select page 1.

3. Adjust the start position.

    - Turn (START) to adjust the start position of the tape.

    - To change the start position quantize resolution or set to free adjustment, Push and Turn (START). The pop-up mode select list is presented to select from.

    - The tape markers will reflect the resolution selected.

4. Adjust the length position. Iterate step 3 & 4 to fine tune the sample loop positions.

    - Turn (LENGTH) to adjust the end position of the tape. Turn clockwise to extend silence in the buffer.

    - To change the end position quantize resolution or free adjustment, Push and Turn (LENGTH). The pop-up mode select list is presented to select from.

    - The tape markers will reflect the resolution selected and will show a grey line representing the sample location within the buffer.

5. If required turn (ROTATE) to shift the audio sample within the current start / end points. This will shift the sample within the sample window not the overall buffer window.

6. To optionally Trim the sample between the start and length points, Hold [CTRL] + [TRIM]. Confirm trim by pressing Yes or press No to exit.

7. The pitch and time based elements can be applied for sound design to mangle or transition the audio sample or to help correct tuning or fit the sample to the project tempo.

    - Turn (SPEED) for pitch adjustment. Reduce the speed and therefore time duration will decrease pitch. Increasing speed will increase pitch. To adjust quantization, Press + Turn (SPEED).

    - Turn (TEMPO) to time stretch. This adjusts the BPM and hence affect pitch. This behaviour is be based on the tempo mode setting.

NOTES

7. Press [MATERIAL] to cycle the pages and select Page 2.

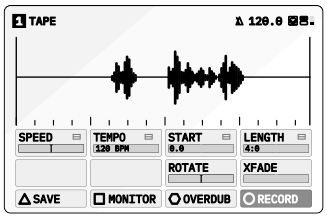
8. Adjust the audio gain level if required, Turn (LEVEL). It is useful to adjust this to the desired level by ear while playing back the sample.

9. Glide can be adjusted to smooth any changes that are applied through speed adjustments. Turn (GLIDE). Glide is not available in the Sync Tempo Mode.

10. Xfade introduces a crossfade at the loop and/start points. This will avoid any audio transition artefacts and clicks at the loop point. Turn (XFADE) to apply the crossfade.

11. To start playing with record and overdub deselected, Press [PLAY/STOP]. Press [PLAY/STOP] at anytime to stop the playing.

12. Once completed the tape can be manually saved. To save the tape, Hold [CTRL] + Press [SAVE], △ action button.



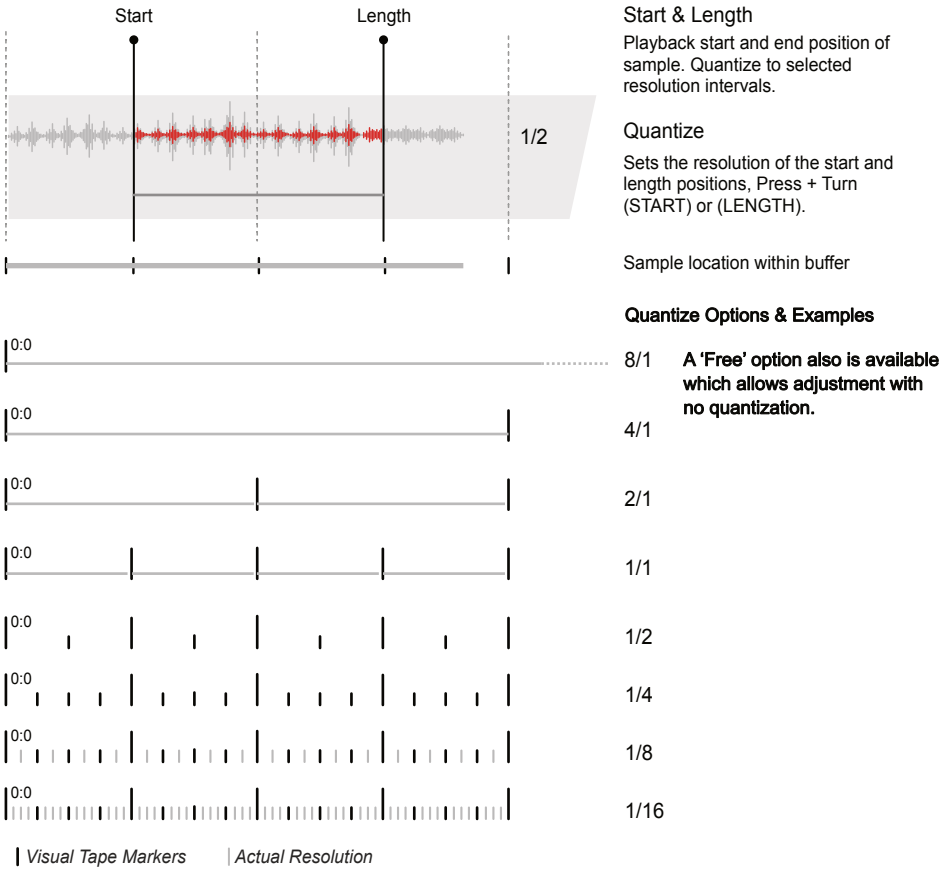
Note:

The [CTRL] Button can be held when adjusting some parameters to enable finer control of the parameter values.

NOTES

Tape Grid

A tape grid markers are presented in the tape device screen for timing alignment especially when adjusting the start and length of the tape reel with respect to the Tempo BPM.



CONFIGURING TAPE QUANTIZATION

1. Select the desired track 1-4 and ensure that a tape device is assigned to the material slot and a sample is present in the tape device.

2. The main start and length editing parameters are located on Page 1 of the 'Tape' Device page. Press [MATERIAL] to cycle the pages and select page 1.

3. Adjusting (START) and (LENGTH) will adjust the positions in quantized intervals.

4. Press + Turn (START) or (LENGTH) to select a quantize resolution to be applied when editing the start and length positions.

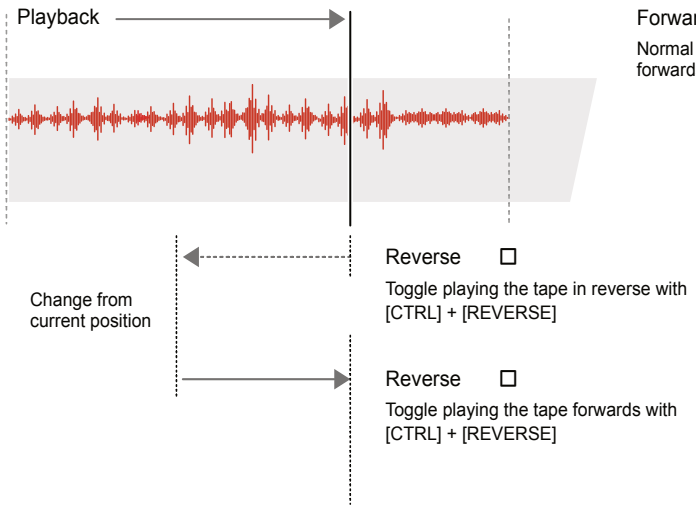
NOTES

Reverse & Freeze

Several creative effects can be applied, typically on the fly to enhance and create interest during a tape performance. These are similar to punch in style effects and can be applied in and out while playing tape track.

Reverse

Reverse changes the direction of the tape playback permanently until changed again.



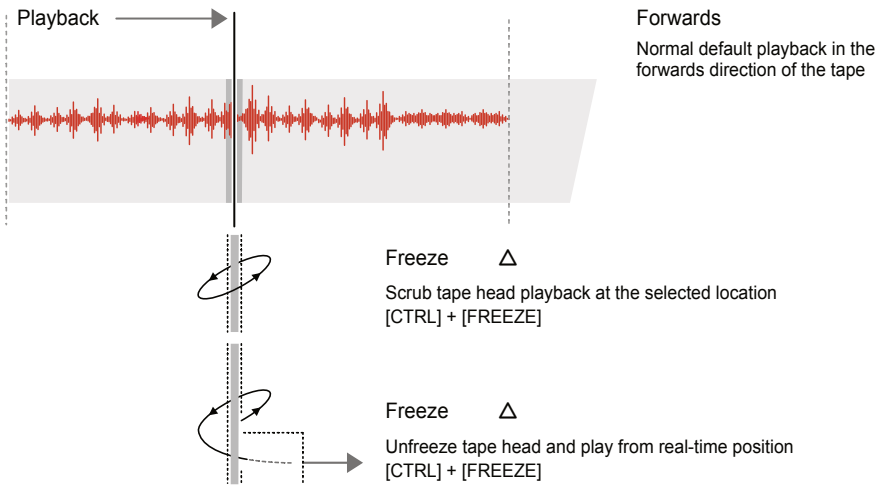
ON THE FLY TAPE REVERSE EFFECTS

1. Select the desired track 1-4 and ensure that a tape device is assigned to the material slot and a sample is present in the tape device.
2. Press [PLAY/STOP] to play the tape.
3. To reverse tape playback while the tape is playing.
    - Toggle Reverse Playback. Hold [CTRL] + Press [REVERSE], ☐ Action button. The tape will switch to play in reverse from its current point and will continue playing in reverse. The action button will be highlighted when reverse is on.
    - Toggle Forward Playback. Hold [CTRL] + Press [REVERSE], ☐ Action button when playing in reverse. The tape will switch back to play forwards from its current point.

NOTES

Freeze

Freeze scrubs playback of the tape head over a short region at the current location. The tape head is tracked so as to restart when freeze is released at its real-time and not current position. Density parameter also affects this behaviour when using Freeze.



ON THE FLY TAPE FREEZE EFFECTS

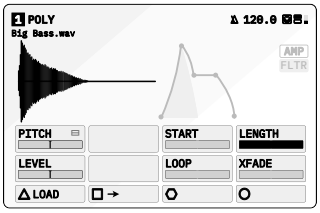
1. Select the desired track 1-4 and ensure that a tape device is assigned to the material slot and a sample is present in the tape device.
2. Press [PLAY/STOP] to play the tape.
3. To freeze tape playback while the tape is playing.
    - Freeze Playback. Hold [CTRL] + Press [FREEZE], ⎔ Action button. The tape will play on loop, stuttered across the current narrow tape region. The action button will be highlighted when freeze is on.
    - Unfreeze Playback. Hold [CTRL] + Press [FREEZE], ⎔ Action button when the tape is in freeze mode. The tape will switch back to play normally across the tape.
    - When freezing the tape head position and timing will continue to be tracked ensuring that upon release playback continues from its expected real-time position and not necessarily the freeze position.

3.2.2 Poly - Material Device

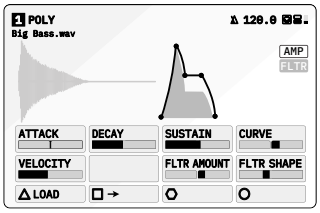
NOTES

Poly is a classic 8 voice polyphonic sampler which plays pitch sample voices. Note that a voice is released when sustain reaches 0. An external sequencer or keyboard can then play this device like a synth.

Material — Hold [CTRL] + Press [MATERIAL] to select Poly



Page 1/2



Page 2/2

Press [MATERIAL] to select and cycle pages

Action Buttons			
Load △	→ Loop Mode □	⬡	○
Open the sample library to select and load a sample.	Toggle playback between Fwd, Loop or Flip Loop mode.		

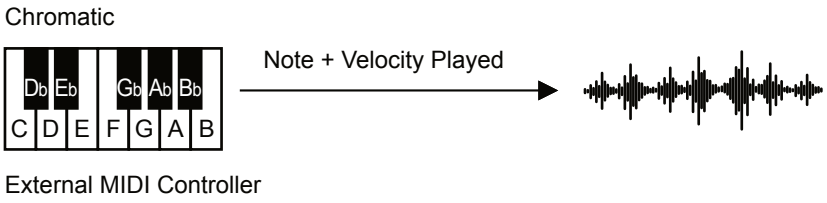
Parameter Knobs			**Page 1**
Pitch ▭ ◯	◯	Start ◯	Length ◯
Pitch offset of the audio sample.		Start position of the sample playback.	Length of the sample or loop to be played back.
Level ◯	◯	Loop ◯	Xfade ◯
Gain level of the current audio.		Sets the loop start point. The loop end is governed by the length parameter.	Applies a fade at the crossover start / end position of the loop.

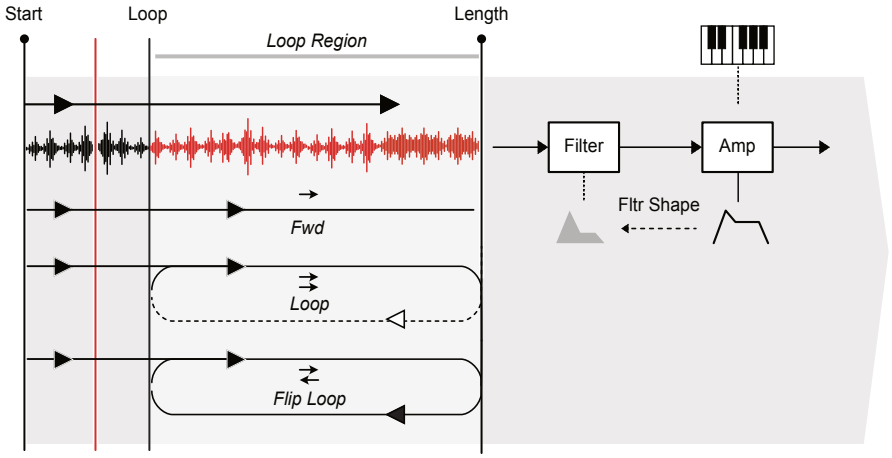
Parameter Knobs			**Page 2**
Attack ◯	Decay ◯	Sustain ◯	Curve ◯
Attack time of the amplitude envelope, scaled also to the filter envelope.	Decay and release time of the amplitude and envelope, scaled also to filter envelope.	Sustain level of the amplitude envelope, scaled also to the filter envelope.	Curve amount of the time based envelope element shapes.
Velocity ◯	◯	Fltr Amount ◯	Fltr Shape ◯
Velocity sensitivity applied from the external controller.		Amount of filter envelope applied to the filter.	Filter envelope shape with respect to the settings and shape of the amp envelope.

Pitch
Quantize to Scale
Chromatic Free

Some parameters tagged ▭ offer a number of 'Mode Select' options from a pop-up list, accessed by pressing the knob. Press and turn to select an item from the presented list.

NOTES





Loop

Loop Start is set with the (LOOP) Parameter. End is set with length. The Loop, ☐ Action button toggles the loop mode between; Forward - Plays once to the end and does not follow the loop, Loop plays continuously start to end, or Flip Loop - loops start - end - start in a continuous ping pong style. The selected loop option is shown with the symbol shown above.

Pitch

Pitch offset of the sample. Assists in tuning the sample playback to the incoming notes

Incoming MIDI notes from a keyboard or sequencer will play the sample chromatically. The MIDI Channel is set in the config track settings. The pitch offset can be changed to calibrate the sample to any incoming MIDI. Velocity sensitivity will affect how the incoming velocity is applied to the played note.

Envelopes control the audio shape over time. An amplitude envelope is applied to manage the amp shape. A filter carves out audio frequencies to affect the sound tone. The filter is also controlled by an envelope which shadows the amp envelope.

3.3 Granular Devices

NOTES

The Granular device slot is the second element in the audio chain. These devices are aimed at granular processing and includes time-warping and pitch-shifting algorithms to create interesting textures and sounds. Granular is ideal for on-the-fly audio deconstruction and live performances.

Granular

Press [GRANULAR] to open the device page.



Selected device button symbol brightly lit

Hold [CTRL] + Press [GRANULAR] to open the device list.

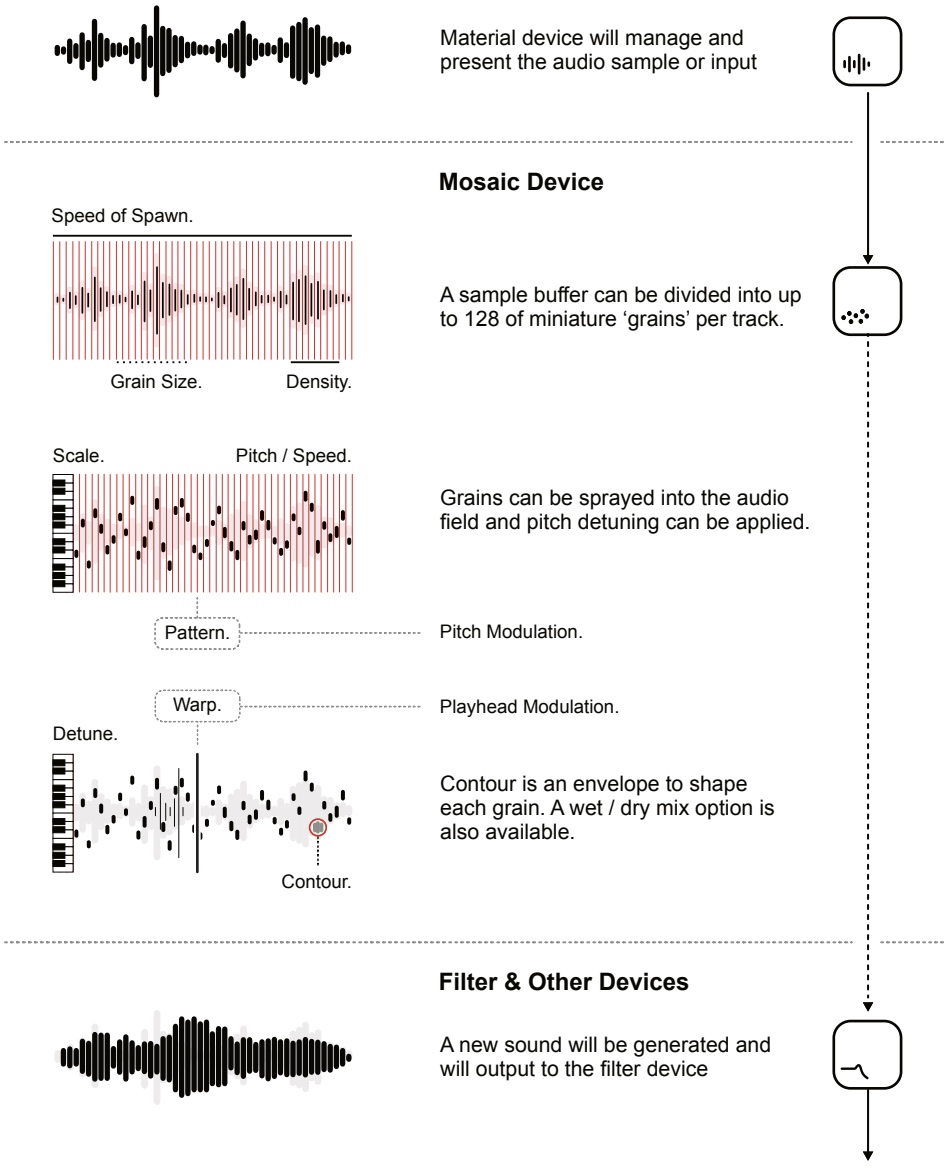
The page displayed will reflect the granular device loaded.

NOTES

About Granular Synthesis

Granular synthesis is based on the concept of taking an audio input or sample and dividing it into multiple, small segments called grains. Instead of manipulating an oscillator, granular synthesis manipulates these tiny pieces of audio by spraying them into the audio field and adjusting the size and shape. Control over the breadth of parameters involved serves to create the output tone and sound with modulation adding more interest and movement to the sound.

S-4 Granular Processing

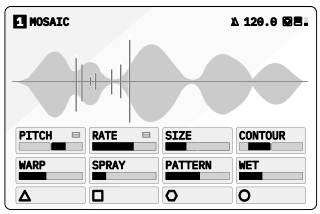


3.3.1 Mosaic - Granular Device

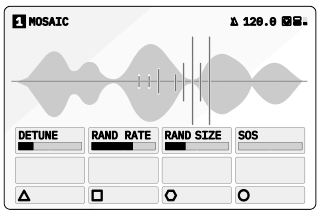
NOTES

Mosaic has a 4 second audio buffer for live granular processing with time-warping and pitch-shifting algorithms and up to 128 grains per track.

Granular — Hold [CTRL] + Press [GRANULAR] to select Mosaic



Page 1/2



Page 2/2

Press [GRANULAR] to select and cycle pages

Parameter Knobs			**Page 1**
Pitch ▭ ◯	Rate ▭ ◯	Size ◯	Contour ◯
Pitch of the audio by setting the speed playback.	Rate of grain spawning.	Grain size.	Grain shape envelope.
Warp ◯	Spray ◯	Pattern ◯	Wet ◯
Modulation to the playhead.	Randomization of grain position (Stereo) when spraying into the audio field.	Internal modulation of the grain pitch, quantized to the selected scale.	Controls the wet dry of the device.

Parameter Knobs			**Page 2**
Detune ◯	Random Rate ◯	Random Size ◯	SOS ◯
Detunes the individual grains.	Randomly changes the density of the grains.	Randomly changes the size of the grains.	Sound on Sound. Amount of original audio retained in the audio buffer.
◯	◯	◯	◯

Pitch
Quantize to Scale
Chromatic, Major, Minor, Dorian, Lydian, Mixolydian, Super Locrian, Hex Aeolian, Hex Dorian, Blues, Pentatonic, Hirajoshi, Kumoi, Iwato, Whole Tone, Pelog, Tetratonic, Fifths, Octaves, Free

Rate
Rate Mode
Straight Dotted Triplet Free

Some parameters tagged ▭ offer a number of 'Mode Select' options from a pop-up list. This can be accessed for some parameters by pressing the knob. Press and turn to select an item from the presented list.

NOTES

3.4 Filter Devices

The third device slot is the filter element located after the granular device. These devices are aimed at filtering the audio on creative way to change the tone and shape the sound.

Filter

Press [FILTER] to open the device page.



Selected device button symbol brightly lit

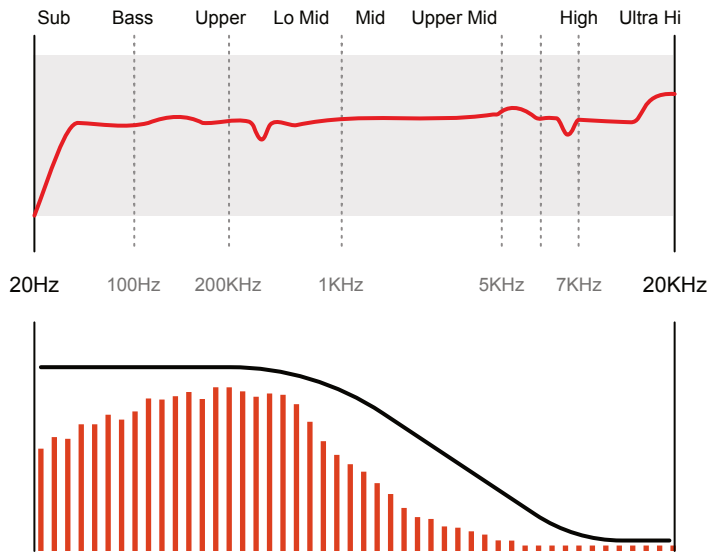
Hold [CTRL] + Press [FILTER] to open the device list.

The page displayed will reflect the filter device loaded.

NOTES

About Audio Filters

A filter operates across the audio frequency spectrum and is generally used to attenuate (sometimes boost) frequencies at points within the range. The audible frequency range is typically 20Hz to 20KHz and the pitch of each musical notes in a scale are tuned based on its frequency. Filtering can affect the tone and texture of a sound for example cutting high frequencies gives focus to bass sounds while boosting in the mid to high range adds sparkle and brightness. The S-4 filter is designed for creativity and brings various sound design and modulation techniques into the play to create interesting and evolving sounds.



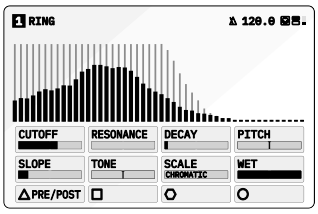
Filters can be used to attenuate parts of the audio frequency spectrum. A Low Pass (High Cut) filter is illustrated attenuating upper mid to high frequencies giving emphasis to the bass region.

NOTES

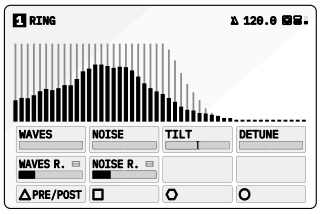
3.4.1 Ring - Filter Device

Ring is a morphing resonator with a 48-band tuned filter bank, with animation, tonal control, and classic filter functions.

Filter — Hold [CTRL] + Press [FILTER] to select Ring



Page 1/2



Page 2/2

Press [FILTER] to select and cycle pages

Action Buttons				
Pre/Post	△	□	⬡	○
Filtering is applied before / pre spectral effects or after / post spectral effects.				

NOTES

Parameter Knobs			Page 1
Cutoff	Resonance	Decay	Pitch
Cutoff frequency of the filter bank's filter.	Resonance amount of the filter bank's filter.	Resonance time for the filter bands	Pitch adjustments -24 to +24 Semitones.
Slope	Tone	Scale	Wet
Adjusts the frequency response by controlling the shape.	Adjustment of the frequency response to affect the tone.	Quantize individual bands of the filter to the specified scale.	Controls the dry/wet of the device.

Parameter Knobs			Page 2
Waves	Noise	Tilt	Detune
Modulates the frequency bands with a wave cycle.	Randomize the amplitude of each of the filter bands.	Tilt adjustment of the frequency response to affect each filter band.	Detune the individual bands of the filter bank.
Waves R. ⊟	Noise R. ⊟		
Waves Rate. Modulation speed of the wave function set in periodic intervals.	Noise Rate. Speed of change for applying noise randomisation set in periodic intervals.		

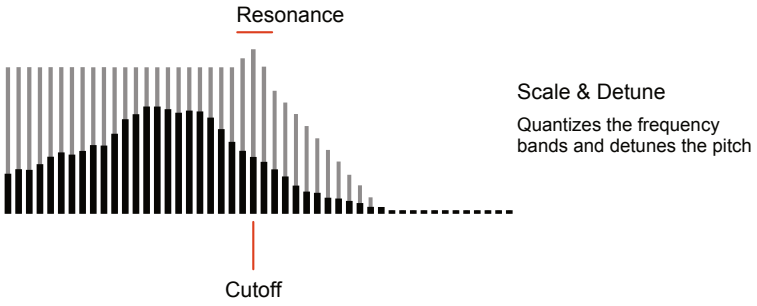
Rate
Rate Mode
Straight Dotted Triplet Free

Some parameters tagged ⊟ offer a number of 'Mode Select' options from a pop-up list. This can be accessed for some parameters by pressing the knob. Press and turn to select an item from the presented list.

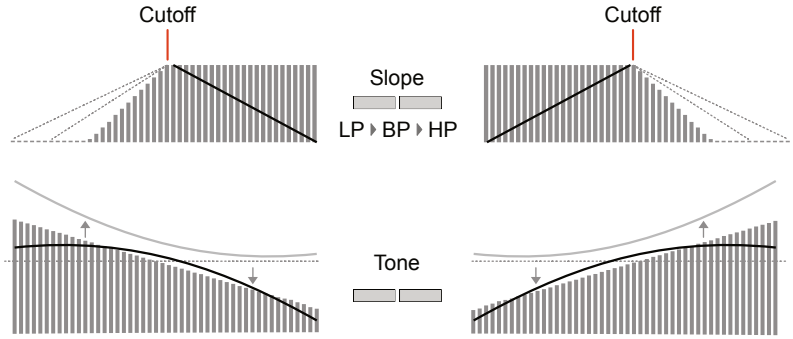
For full list of Scale and Rate options see the Appendix.

NOTES

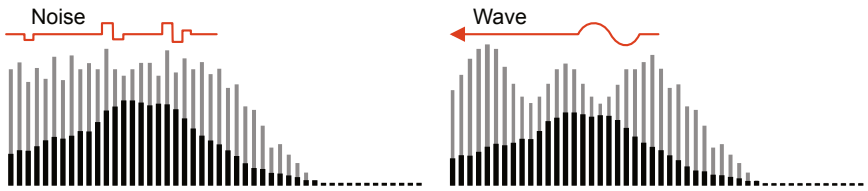
S-4 Ring 48 Band Filter Bank



Cutoff & Resonance
The cutoff point is where the low pass / high pass filter starts to attenuate. Resonance can be applied to emphasis the frequencies at the cutoff point giving the sound more buzz or grit.



Noise & Waves Modulation
The device has internal modulation features. Noise will randomly change the frequency bands amplitude. The rate of the noise modulation is available on page 2 parameters. Also a sine wave shape can be applied like an LFO to the frequency bands. The rate of the wave cycle is also adjustable in page 2 of the parameters.



Post / Pre Effects
Sets the configuration of the filter by controlling when the filtering is applied. Before or after the resonating bands controlled with Decay.

3.5 Color Devices

NOTES

The Color audio slots is the fourth in the audio chain. Color focuses on destructive effects including bit crushing, drive and compression adding dirt and distortion to the mix.

Color

Press [COLOR] to open the device page.



Selected device button symbol brightly lit

Hold [CTRL] + Press [COLOR] to open the device list.

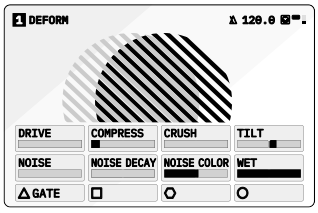
The page displayed will reflect the filter device loaded.

NOTES

3.5.1 Deform - Color Device

Deform is a dual-band integrated distortion device which includes drive and bit crushing plus a compressor and noise generator.

Color — Hold [CTRL] + Press [COLOR] to select Deform



Page 1/1

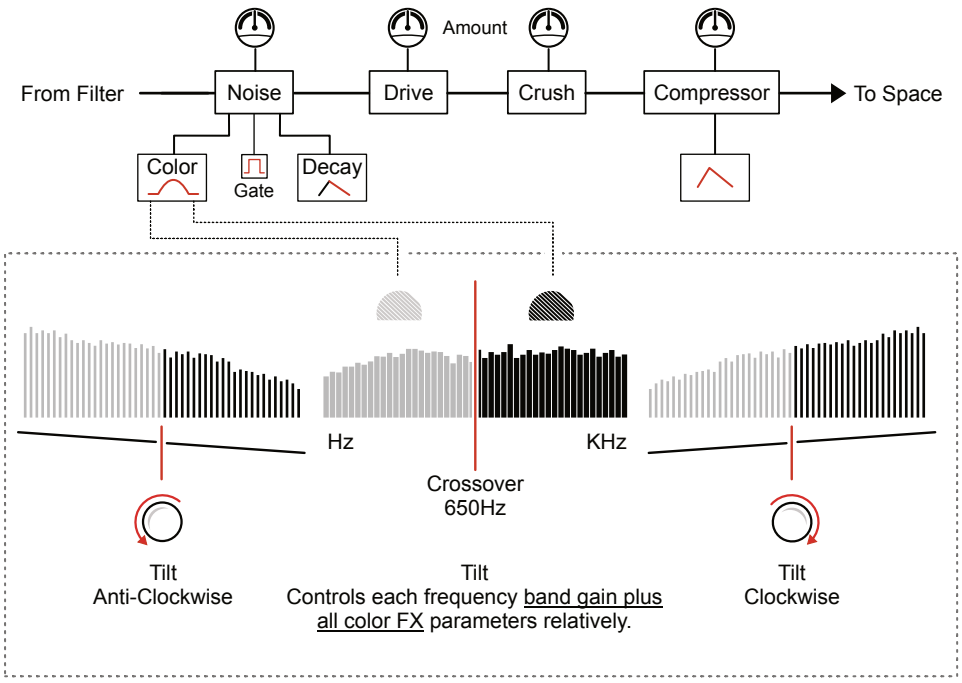
Press [COLOR] to select and cycle the pages

Action Buttons			
Gate △	□	⬡	○
Activates a gate on/off to tame and control the noise behaviour.			

Parameter Knobs			**Page 1**
Drive ◯	Compress ◯	Crush ◯	Tilt ◯
Amount of virtual analog drive effect applied.	Compression amount applied within the effect.	Amount of bit crushing effect introduced.	Adjusts each bands effect parameters and gains relatively.
Noise ◯	Noise Decay ◯	Noise Color ◯	Wet ◯
Amount of band pass filtered noise applied.	Adjusts the decay of the noise envelope follower.	Cutoff frequency of the noise band pass filter.	Control wet / dry of the device.

NOTES

The Deform device is a chain of integrated distortion based effects all of which are affected by a common dual-band control. The dual bands of low and high frequency are represented by the two spheres, animated on the display. The Tilt option operates on all FX parameters as well as the dual frequency band gain.



SETTING UP DEFORM

1. To adjust the amount of each effect applied to the audio chain, Turn (NOISE), (DRIVE) or (CRUSH). This is an effect chain so adjustments are integrated into the final mix out.

2. To adjust the noise characteristics, Turn (NOISE DECAY) to adjust the envelope decay time of the noise envelope. A manual [GATE] can be applied to tame the noise characteristics. Turn (NOISE COLOR) to affect the bandpass filter cutoff applied to the noise. The BP cutoff is positioned with a 1 Octave offset between bands.

3. Tilt is applied to all of the effect parameters and the dual band gains. These characteristics shape the overall sound. Turn (TILT) to apply a shift to the frequency bands.

4. The compressor is applied at the final stage. Turn (COMPRESS) to adjust the compressor and its envelope behaviours. Clockwise for a longer attack / shorter decay and anti-clockwise to reduce attack / increase decay.

NOTES

3.6 Space Devices

The Space audio slots is the fifth and final device in the audio chain. This section covers time and space based effects including delay and reverb.

Space

Press [SPACE] to open the device page.



Selected device button symbol brightly lit

Hold [CTRL] + Press [SPACE] to open the device list.

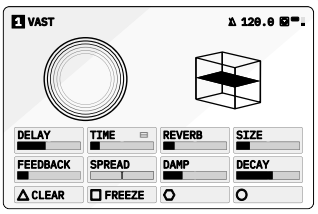
The page displayed will reflect the filter device loaded.

3.6.1 Vast - Space Device

NOTES

The Vast device is an integrated delay and hall style reverb. The parameters not only offer effect configuration options but also form an interesting and useful collection of live performance controls.

Space — Hold [CTRL] + Press [SPACE] to select Vast



Page 1/1

Action Buttons			
Clear	Freeze		
Clears both the delay and reverb buffers.	Freezes the reverb and the delay effect. Toggles the freeze function on or off.		

Parameter Knobs			**Page 1**
Delay	Time	Reverb	Size
Amount of delay effect applied.	Sets the delay time. Can be set freely or in time intervals. Press + Turn to change mode.	Amount of hall style reverb effect applied	Adjust the reverb room size.
Feedback	Spread	Damp	Decay
Adjusts the amount of audio fed back into the delay line.	Stereo widening of the effect.	Amount of low pass filtering applied to the delay and reverb feedback.	Reverb decay time.

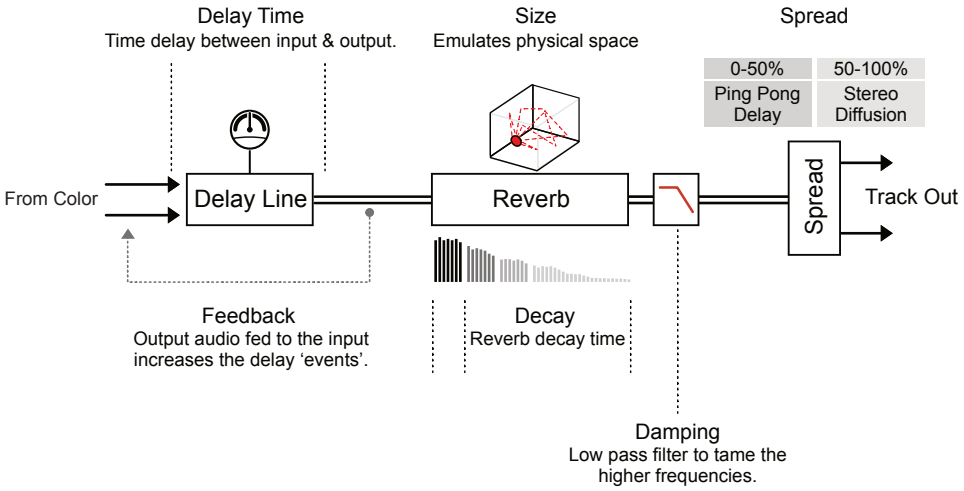
Time
Time Mode
Straight Dotted Triplet Free

Some parameters tagged ⊟ offer a number of 'Mode Select' options from a pop-up list. This can be accessed for some parameters by pressing the knob. Press and turn to select an item from the presented list.

See Appendix for full rate list.

NOTES

Delay and Reverb are classic effects often paired together. A delay will create repeated audio taps and thicken sounds while adding musical rhythms and patterns. A reverb emulates the natural characteristics of how a sound behaves in a room or space, whether large or small.



SETTING UP VAST

1. To adjust the amount of each effect applied to the audio chain, Turn (DELAY) and / or (REVERB).

2. To adjust the delay parameters, Turn (FEEDBACK) to adjust the amount of audio fed into the input. This creates echo and repeat style characteristics.

3. Turn (TIME) to set the timing of the delays, which can be set in note intervals if synchronised. Press & Turn (TIME) to choose the mode in which to set the time parameter. Options are 'Straight' for defined intervals or 'Free' to freely adjust.

4. To adjust the reverb parameters, Turn (SIZE) to adjust the expansiveness and room emulation. Vast is based on Hall style reverb. Turn (DECAY) to extend or shorten the reverb time.

5. Typically high frequencies need to be managed in reverb and delay based applications. To do so Turn (DAMP) to help control and tame the high frequencies using the low pass filter cutoff.

6. There are a number of common spread macros that apply stereo characteristics for delay and reverb. Turn (SPREAD) where the setting value will apply the defined macro. Turn left 0-50% to adjust as a ping-pong delay or right 50-100% to adjust the stereo diffusion.

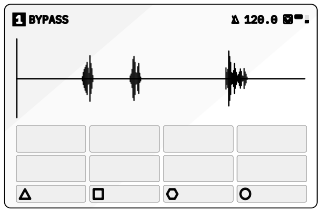
3.7 Bypass Mode

NOTES

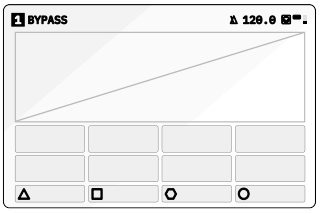
A Bypass mode exists for each device slot in the audio engine. For example when using Bypass mode in the Material slot, the line in / microphone audio will be directly routed into and through the Material device. This enables the track to operate as an effects processor using the raw incoming live audio as the source audio to process. All slots can be set to Bypass. There are no adjustable parameters in Bypass mode.

Press [CTRL] + Press device slot to bypass

Example: Press [CTRL] + Tap [MATERIAL] and select Bypass Device



Material Bypass Page



General Device Bypass Page

SETTING UP TRACK AUDIO INPUTS TO BYPASS

1. Ensure a track is selected and a Bypass mode set as the device loaded into the material slot.
2. Open configuration settings, Press [CONFIG].
3. Select ‘AUDIO’ menu option, Turn (SELECT) then Press [OPEN] △.
4. Highlight ‘INPUT MODE’ menu option, Turn (SELECT) to navigate or use the action button navigation buttons.
5. With ‘INPUT MODE’ highlighted, Tap [OPEN] or Turn any of the 8 parameter knobs to choose the input option to pass through.

   LINE - Audio Line Inputs In 1 / In 2.

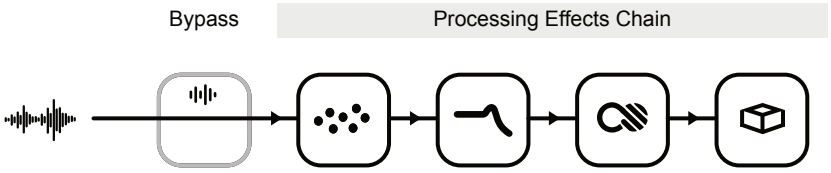
   MIC - Microphone. Internally front panel access to mic.

   HEADSET - Connected USB headset microphone.
6. The microphone audio input gain can also be adjusted also in the settings if necessary with ‘MIC GAIN’ menu option.

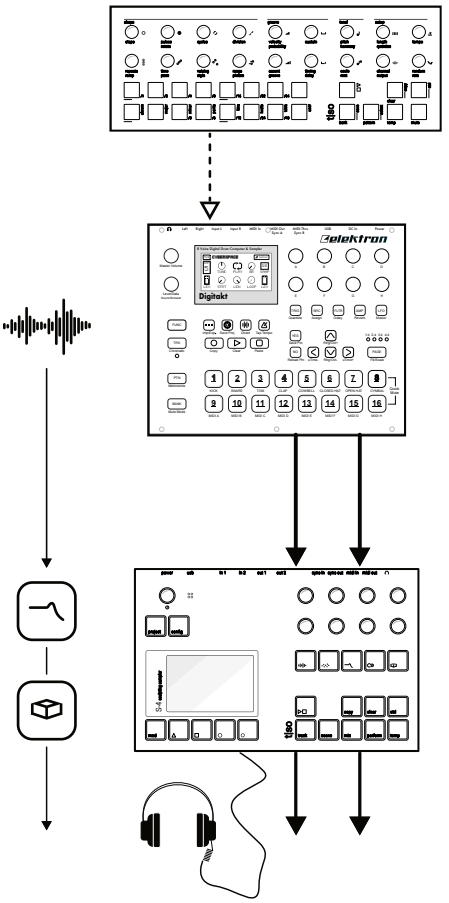
NOTES

Bypass Application: S-4 As an Effects Processor

Bypass is ideal for delivering a live audio stream to the granular, filter, color and space audio chain for processing. The chain then performs as an effect module rather than using its internal audio. On the fly processing can add a new twist to live performances and improvisation sessions and add a new dimension to other audio gear.



Another synth, in this case Elektron Digitakt, sequenced by the Torso Electronics T-1. Audio routed through the S-4 as a filter bank with delay and reverb.



T-1 Sequencer.

T-1 as the main sequencer controlling the Digitakt over a MIDI connection.

Digitakt Drum Computer & Sampler.

All audio is generated within the Digitakt. Sequenced from the T-1 but the main audio is sent out to the S-4 for processing.

S-4 Sculpting Sampler.

S-4 as an audio processor mangling and transforming the audio pattern generated at the input. Audio is channeled using the 'Bypass' device to effect chain.

Master Output.

4

Modulators

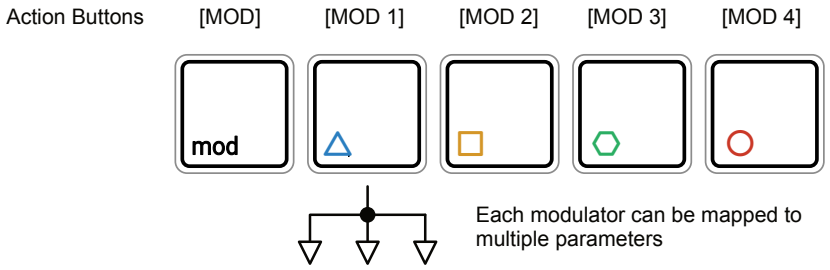
Modulation is a core element for getting the best from the S-4 Sculpting Sampler. Animate and bring life to any parameter using the rich and unique modulation system. Each track has four configurable modulators that can be mapped to any parameter with almost unlimited mapping destinations. Choose between a range of different modulators from complex LFOs, and generative sequencers to envelopes. Modulation is the process of influencing or changing the value of a parameter from another control source. Taking this concept further, automatically modulating a parameter value using another control parameter can expand the creative options enormously. The S4 takes these concepts to advanced stages opening up organic sound designs and evolving creative landscapes and more. Layering modulation to a variety of destinations or using a combination of modulators to a single destination makes the modulation range of options almost endless. The creative journey is an exciting one with experimentation, trials and exploration a fundamental part of the sound design and music making process when working with S-4.

4 Modulators

4.1 Modulation Basics

NOTES

Each track has 4 slots which operate as the modulation sources, accessed via the action buttons. Each modulation slot can be assigned one modulator from the library of options. Each modulation slot can be mapped to one or more destination parameters.



SELECTING A MODULATION MODE AND SLOT

1. Select a track to edit. Press [TRACK], then select a track using the action buttons located under the screen display. These are dynamic buttons which select the function displayed at the bottom of the screen. Track 1 is [TRACK 1] △, Track 2 is [TRACK 2] ☐ etc.

2. Configure modulation destinations:-

    - Press [MOD] to select. The MOD button will be lit.

    - Select a modulation slot to be mapped to the current page parameters using the action buttons. Colors represent each of the modulation slots.

3. To edit the modulator for a slot.

    - Hold [MOD] + Press one of the 4 modulation action buttons which are labelled [MOD 1] … [MOD 4] to select the slot. The current modulator for the slot is displayed.

    - To select or change the modulation source, Press [SELECT], △ Action button.

    - Select a modulator from the pop-up modulator list. Navigate with the arrow action buttons or by turning (SELECT). Press [LOAD], △ Action button to load the modulator to the slot.

    - The modulator parameters are presented, adjustable using the 8 rotary knobs.

NOTES

Each of 4 modulation slots can be configured from a selection of modulators. These are loaded per slot depending on the function required and includes low frequency oscillators, random stepped patterns and envelope devices.

Modulator	Type	Function
Wave	LFO	A complex low frequency oscillator with adjustable shape and structure to generate interesting configurations. The LFO will cycle over time at speeds defined.
Random	Stepped	A stepped random modulation source with adjustable rate and smoothness. Can create fixed random shape or a continuously evolving shape.
ADSR	Envelope	A traditional style envelope with controllable Attack time, Decay time, Sustain level and Release time. Manually triggered with [CTRL] for pop up menu options.

CHANGING A MODULATOR MODEL FOR A SLOT

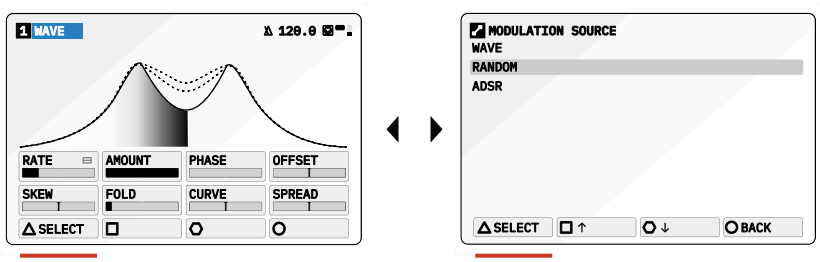
1. Select a track to edit. Press [TRACK], then select a track using the action buttons located under the screen display.

2. Select modulation mode, Press [MOD]. The button will be lit. The [MOD] button toggles modulation mode on or off.

3. Select a slot, Hold [MOD] + Press [MOD 1] △ … [MOD 4] ○ for the slot to select and to configure.

4. The modulator parameters are presented. Each modulator is represented by a defined color. A new modulation source is loaded by Pressing [SELECT], △ Action button.

5. Select a modulator from the pop-up modulator list. Navigate with the arrow action buttons or by turning (SELECT). Press [SELECT], △ Action button to choose a modulator for the slot.



4 Modulators

NOTES

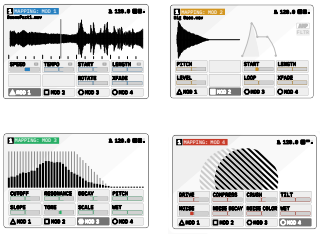
Modulation slot selection and assigning a modulator source to a slot is an intuitive process. The currently selected device is shown in color next to the track number in the audio device display header. The action button color also indicates the represented slot.

Audio or Mixer Page.
Select Modulation Slot



Action buttons represent modulation slots for track

Modulation Options on the device Page

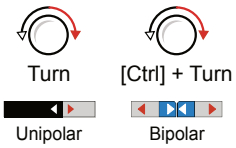


Press [MOD] on the destination page to show the modulation amounts and the selected Mod source 1-4.

Press Action button for modulator source slot to map to a parameter.

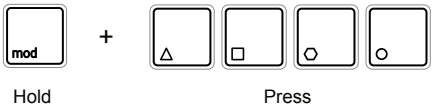
Colors Blue, Yellow, Green and Red represent the modulator slots 1-4.

Map and set amount



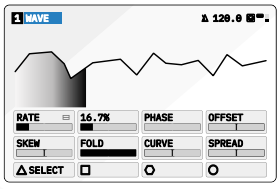
8 parameter knobs adjust the modulation amount. Value range is unipolar or bipolar when using CTRL.

Change or Select a slot Modulator model.



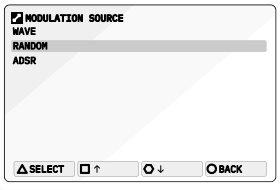
Select modulator to load to the slot *.

Modulator Page



Press [MOD] for Selection of the Mod slot and modulator parameters to edit.

Modulator Selection Pop Up Page



Press [LOAD] to select and change the modulator.

* Double Tap a [MODx] when displaying a destination page to quickly and directly access the modulation page.

NOTES

MODULATING A PARAMETER

1. Select a track to edit. Press [TRACK], then select a track using the action buttons located under the screen display.

2. Choose a destination function. For example [MATERIAL] for the Material device. The page is displayed.

3. Press [MOD] to switch to Modulation mapping view. Mod will illuminate and the selected function page will be titled as ‘Mapping: Mod X’, where ‘X’ is the currently selected modulation slot.

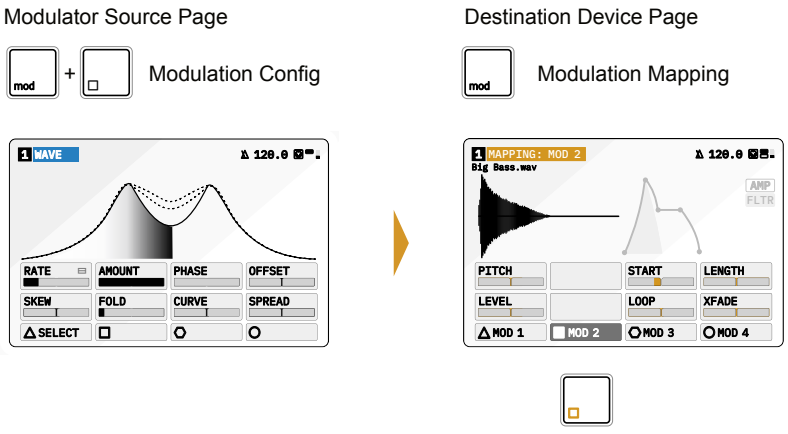
4. Select a modulation source slot, Press [MOD 1] … [MOD 4]. This selects the slot with the modulator device assigned to the selected slot for the track. The color scheme for the headline and action button will reflect the modulation slot.

5. In the modulation view, the 8 parameters now reflect the amount of modulation applied to each parameter.

    - Turn the parameter knob 1-8 to adjust the amount of modulation applied to the selected control parameter from the chosen mod slot. This will affect the destination in a unipolar style.

    - Hold [CTRL] + Turn parameter knob 1-8 to adjust the amount of modulation applied to the selected control parameter from the chosen mod slot. This will affect the destination in a bipolar style.

- Press [MOD] to exit the modulation mapping view.



4.2 Modulators

NOTES

A modulator is the source which generates the parameter changes. A variety of modulators are available to select as the source. The destination will be any device or mixer parameter. Note that modulators are synchronised to the Play/Stop start control and to the global BPM.

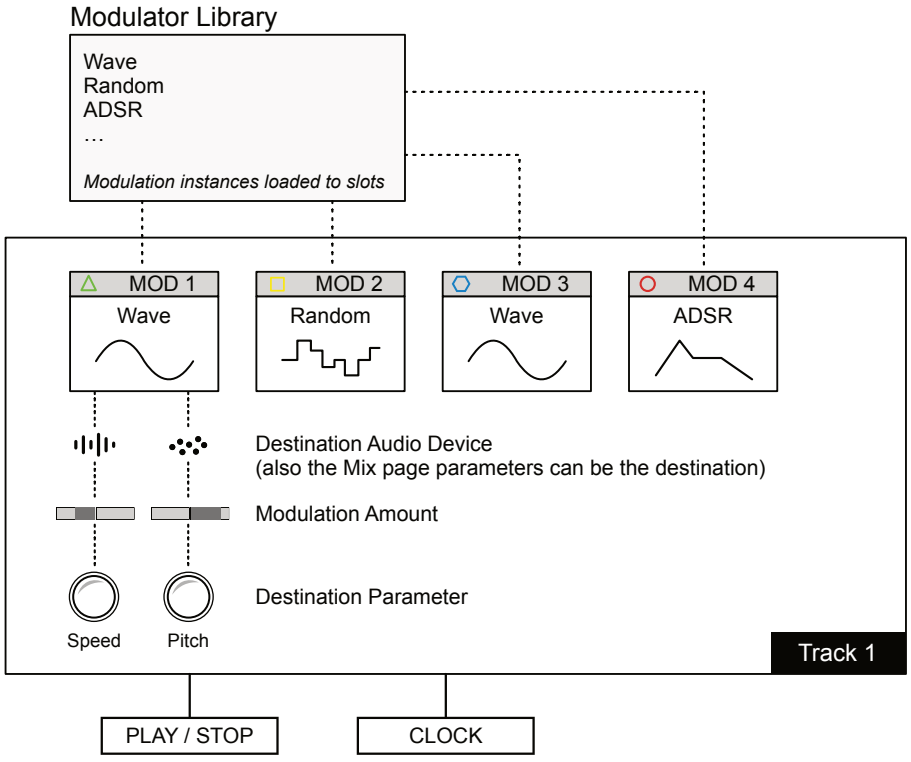
Modulators — Hold [MOD] + Press Action Button to open the modulator page.



Press [SELECT] to open the modulator selection list.

The page displayed will reflect the modulator loaded.

Example of the Modulation Structure

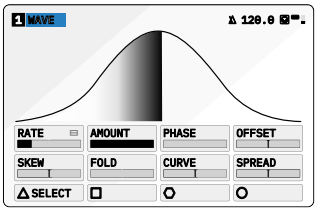


NOTES

4.2.1 Wave - Modulator

An LFO or Low Frequency Oscillator is a wave which cycles continuously at a defined rate. An LFO operates slower than an audio level oscillator and is used for modulation. The Wave modulator is a classic LFO with warping and morphing features to create complex and interesting shapes.

Mod — Hold [MOD] + Press Action Button to select modulator



Page 1/1

Press [MOD] to select modulation mode on or off when on a destination parameter page.

Action Buttons			
Select △	□	⬡	○
Open the modulator selection pop-up list.			

Parameter Knobs			**Page 1**
Rate ▭ ◯	Amount ◯	Phase ◯	Offset ◯
Rate of modulation. Determines speed of the LFO cycles. Press + Turn for mode.	Scale the amplitude of the LFO.	Adjusts the phase of the LFO cycles	Adjust the LFO Base offset.
Skew ◯	Fold ◯	Curve ◯	Spread ◯
Tilts the LFO wave shape at either side.	Adjust the vertical wave folding amount.	Adjusts the incline and the shape of the wave curves.	Increases the 'stereo' modulation spread and phase of the dual curves.

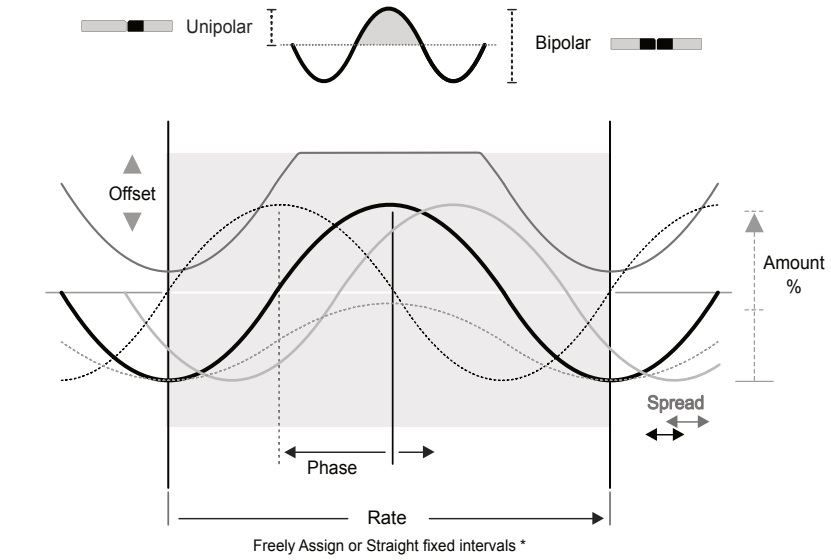
Rate
Rate Mode
Straight Dotted Triplet Free

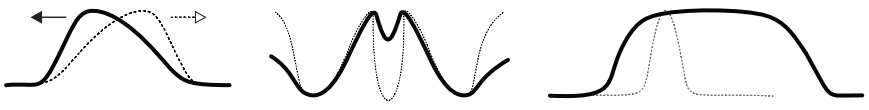
Some parameters tagged ▭ offer a number of 'Mode Select' options from a pop-up list. This can be accessed for some parameters by pressing the knob. Press and turn to select an item from the presented list.

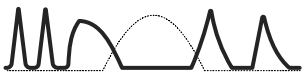
See Appendix for rate list

NOTES

Complex and interesting shapes can be created with the Wave. The shape is affected by Skew, Fold and Curve while Offset, Amount and Phase affect the amplitude and position. Spread duplicates the wave to widen the stereo field of modulation. Rate is linked to time division synchronization and affects the speed of the oscillation cycle.







Create interesting wave shapes by combining the shaping parameters

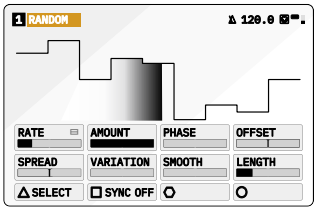
* Rate Interval options: 8/1, 4/1, 2/1, 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128

NOTES

4.2.2 Random - Modulator

The Random function is a polymetric, stepped, random modulation shape with adjustable rate and smoothness. This modulator can be set to a repeatable random shape or to a continuously evolving random shape.

Mod — Hold [MOD] + Press Action Button to select modulator



Page 1/1

Press [MOD] to select modulation mode on or off when on a destination parameter page.

Action Buttons			
Select △	Sync On/Off □	⬡	○
Open the modulator selection pop-up list.	On - Synchronises to global timeline and resets when length and rate is changed.		

Parameter Knobs			**Page 1**
Rate ⊟ ◯	Amount ◯	Phase ◯	Offset ◯
Duration of a step *. Press + Turn for setting mode.	Scale the amplitude of the random modulator	Adjusts the phase of the random cycles	Adjust the random base offset.
Spread ◯	Variation ◯	Smooth ◯	Length ◯
Increases the 'stereo' modulation spread and phase of the dual curves.	How often the randomised shape changes its step values.	Adjusts the smoothness of the steps shape.	Number of steps in the random shape sequence.

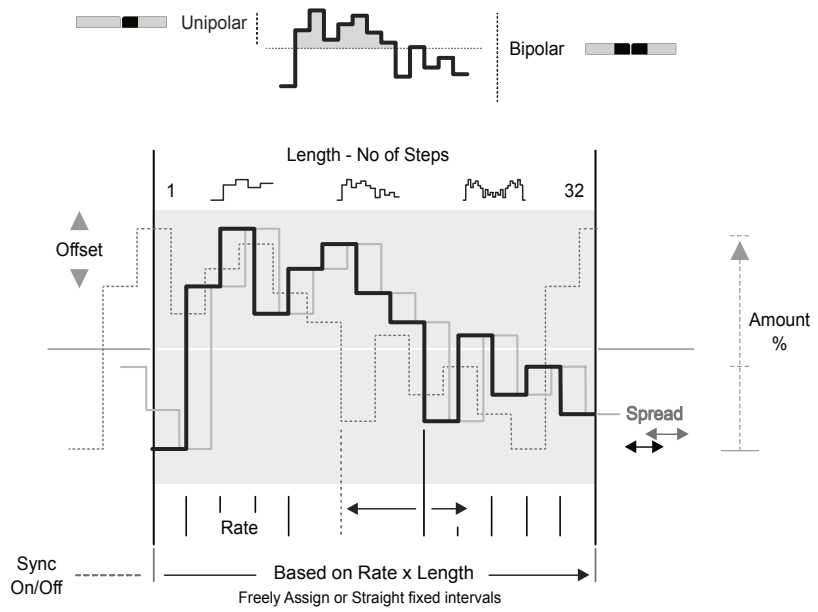
Rate
Rate Mode
Straight Dotted Triplet Free

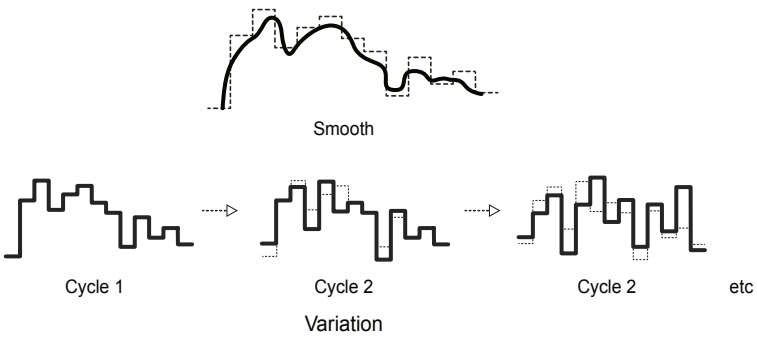
Some parameters tagged ⊟ offer a number of 'Mode Select' options from a pop-up list. This can be accessed for some parameters by pressing the knob. Press and turn to select an item from the presented list.

See Appendix for rate list

NOTES

Random operates either as a randomly generated ‘fixed’ shape or a continuously changing random shape. This is ideal for generative and evolving sounds.





New random shape variations can be generated on each loop cycle or operate on a repeated fixed shape.

A loop cycle can consist of between 1-32 steps in length, each step duration set by rate. If the ‘Sync’ is ON, the modulator automatically resynchronises to the global timeline when length or rate is changed to maintain the quantisation of the 1st beat. If Sync is OFF the sequence runs freely with no reset when changing rate or length.

New random variations can be generated on each loop where each step level is adjusted iteratively. The amount of randomisation set by the variation parameter. Variation at 0% will set a fixed random shape cycle.

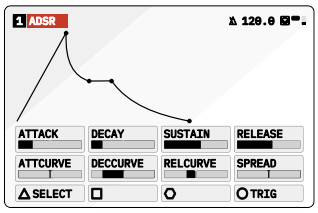
NOTES

4.2.3 ADSR - Modulator

An ADSR envelope has three time based elements, Attack, Decay and Release and one Sustain level. The ADSR also provides control over the time curve shapes.

Mod

Hold [MOD] + Press Action Button to select modulator



Page 1/1

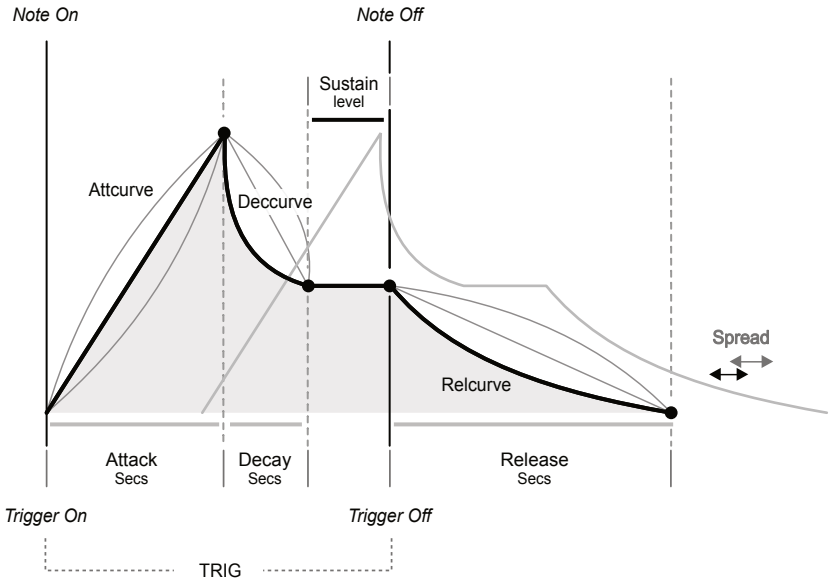
Press [MOD] to select modulation mode on or off when on a destination parameter page.

Action Buttons			
Select △	□	⬡	Trig ○
Open the modulator selection pop-up list.			Manually triggers the envelope. Release stage starts when button is lifted.

Parameter Knobs			**Page 1**
Attack	Decay	Sustain	Release
Attack time phase of the envelope in seconds.	Decay time phase of the envelope in seconds.	Sustain level.	Release time phase of the envelope in seconds.
AttCurve	DecCurve	RelCurve	Spread
Adjusts the attack phase shape.	Adjusts the decay phase shape.	Adjusts the release phase shape.	Increases the 'stereo' modulation spread and phase of the dual curves.

NOTES

An envelope is used for notes or beats to establish its contour over time, often as a one shot for example when pressing a note key. The S-4 ADSR is a traditional envelope but with extra features.



The ADSR modulator also allows the curve of the three Attack, Decay and Release time based elements of the envelope to be adjusted. This adds an extra level of sound shaping control.

Spread duplicates the envelope and creates a stereo-like effect based on the phase difference adjusted between the two envelopes.

Triggering the Envelope

There are two ways to trigger the envelope:

1. By pressing the [TRIG], ○ Action button.

2. From an incoming MIDI Note on the tracks MIDI Channel.

In both cases a trigger will initiate the Attack stage and the ADSR release stage will commence when the trigger is lifted.

NOTES

5

Master Mix

All four tracks of the S-4 are combined at the master output stage which is the final audio stage in a project. The Master output consists of 4 DJ style filters, one for each tracks audio output, then a master mixer to set the final gain levels and pan settings and lastly a master compressor. As with tracks, audio is handled in stereo. The master output functions are found in the mixer pages accessed with the dedicated ‘MIX’ button. The four tracks can be muted and also a master output audio file can be recorded from within the mix function. It is also important to note that the main output level can be controlled using the (SELECT) encoder when the mix page is active and visible.

5 Master Mix

5.1 Master Mix Overview

NOTES

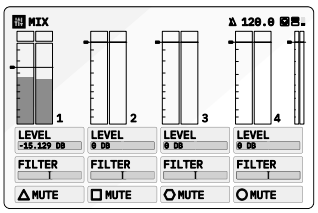
The master output functions can be found in the ‘Mix’ section. This is accessible with the dedicated [MIX] button.

Mix Button

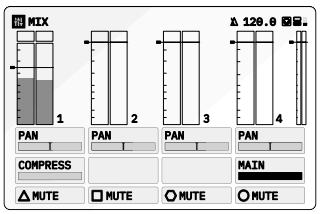


Press [MIX] to open master mixer

Press the button again to cycle through the available mixer pages.



Page 1/2



Page 2/2

Hold [CTRL] to access additional action buttons

Action Buttons			
Mute △	Mute □	Mute ⬡	Mute ○
Mutes and Unmutes track 1 audio.	Mutes and Unmutes track 2 audio.	Mutes and Unmutes track 3 audio.	Mutes and Unmutes track 4 audio.
Hold [CTRL] + Press			
△	□	⬡	Rec Main ○
			Activates recording of the main audio output

NOTES

Parameter Knobs				Page 1
Level	Level	Level	Level	
Adjusts track 1 level.	Adjusts track 2 level.	Adjusts track 3 level.	Adjusts track 4 level.	
Sets the gain level of the incoming audio				
Filter	Filter	Filter	Filter	
Track 1 Filter Cutoff	Track 2 Filter Cutoff	Track 3 Filter Cutoff	Track 4 Filter Cutoff	
Adjusts the DJ style filter for incoming audio				

Parameter Knobs				Page 2
Pan	Pan	Pan	Pan	
Track 1 Pan	Track 2 Pan	Track 3 Pan	Track 4 Pan	
Adjusts the panorama left / right of the track audio in the mix.				
Compress			Main	
Amount of compression applied to the main output.			Adjusts the level of the main output.	

SELECTING THE MASTER MIX

1. Press [MIX] to open the master mixer. Press again to cycle to the next page. Page 1 has the track level mix and LP/HP filter cutoff. Page 2 has the pan for each track as well as the common compressor and master output level control.

2. The respective parameter value knob will adjust the displayed value.

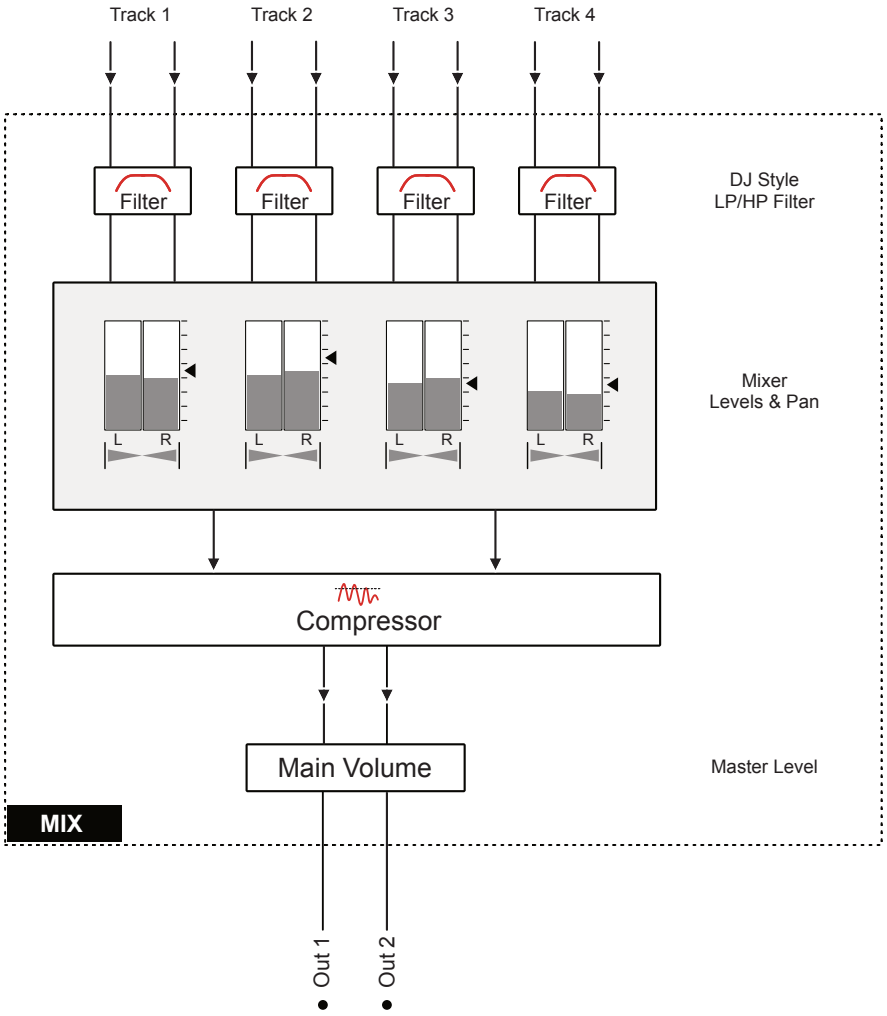
3. To mute a track, Press [MUTE] action button for the desired track to mute. Press the action button again to unmute the track.

4. To adjust the master output volume, Select MIX Page 2, Turn (SELECT) or Parameter Value Knob 6.

5 Master Mix

NOTES

The master output sums all 4 tracks and allows mixing and control of the final audio stage of the project. Note that the USB also allows 10 Audio Inputs and 10 Outputs e.g. for a DAW interface. This will cover 4 stereo tracks and 1 stereo master output.



NOTES

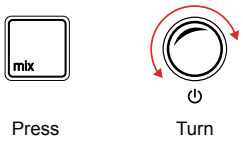
5.2 Master Output Level

The main volume is the master output stage which adjusts the overall output level after all processing and mixing is complete. This is the final audio stage in the S-4.

Quick Volume Adjust

Press [MIX] & Turn (SELECT)

This is the quick volume level adjust method. The main out is also accessible in the Mixer Page 2.



Press

Turn

ADJUSTING THE MAIN OUTPUT LEVEL

1. For quick adjustment of main volume, Press [MIX] then Turn (SELECT).
2. The alternate method for volume adjustment is in the mix pages.
    - Press [MIX] to open the master mixer. Press again to cycle to the next page, Page 2.
    - To adjust the master output volume, Turn (SELECT) or Parameter Value Knob 6 while displaying the Mix Page 2.
    - To quickly reset the master out level, Hold [CLEAR] + Turn or Press the Main Level Parameter Knob 8 when in MIX Page 2.

5.3 Track Muting

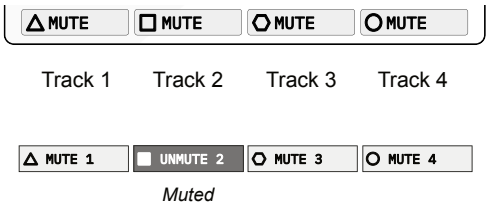
NOTES

The 4 track channels are represented in the main mixer where levels and panning can be adjusted. In addition each track channel can be individually muted or unmuted in the main mix.

Mute Track Channels

Press the respective action button

Tracks are muted or unmuted on each press of the action button. The button screen label is highlighted when muted.



MUTING AUDIO TRACKS IN THE MIXER

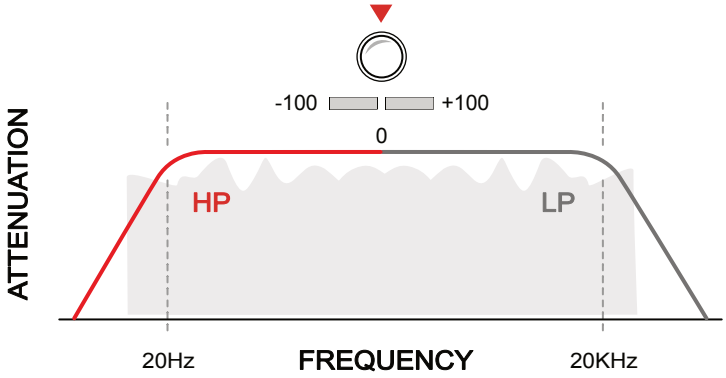
1. Select the main mix page, Press [MIX].
2. Press the appropriate action button to Mute or Unmute the track.
   - Press [MUTE 1] for Track 1 shown by the △ symbol
   - Press [MUTE 2] for Track 2 shown by the □ symbol.
   - Press [MUTE 3] for Track 3 shown by the ⬡ symbol.
   - Press [MUTE 4] for Track 4 shown by the ○ symbol.
   - Press a muted track to unmute.
3. The muted track is displayed with a highlighted action button and labelled suggestion available mute / unmute option. Others will display as normal.

NOTES

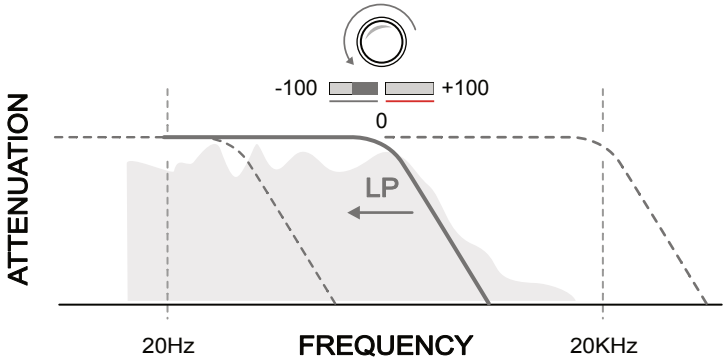
5.4 DJ Style Filters

A DJ Style filter is available for each of the 4 tracks. The filters operate with integrated Low Pass and High Pass Filtering. The filters allow control of the filter cutoff as a performance and mixing feature.

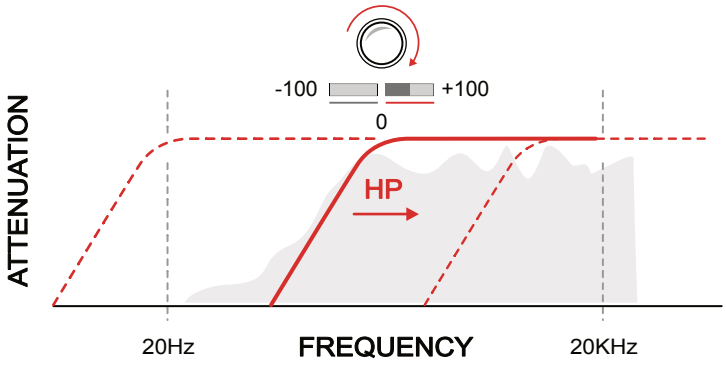
Filter Value at '0' Central. No Filtering, All Audio Passes



Filter Value at '0 to -100%' Applies Low Pass Filtering



Filter Value at '0 to +100%' Applies High Pass Filtering



NOTES

ADJUSTING THE TRACK DJ STYLE FILTERS

1. Press [MIX] to open the master mixer. Each of the 4 track filters are located on Page 1.

2. To adjust a filter cutoff and attenuate either the high or the low frequency bands for each chosen track:-

   - Turn the Parameter knobs 5, 6, 7 and/or 8 to adjust the cutoff frequency point for each track. The control is bi-polar.

   - Turn clockwise to adjust the range 0% to +100%. The bar indicator will adjust to the right. This adjusts the high pass filter cutoff. High pass attenuates frequencies below the cutoff point.

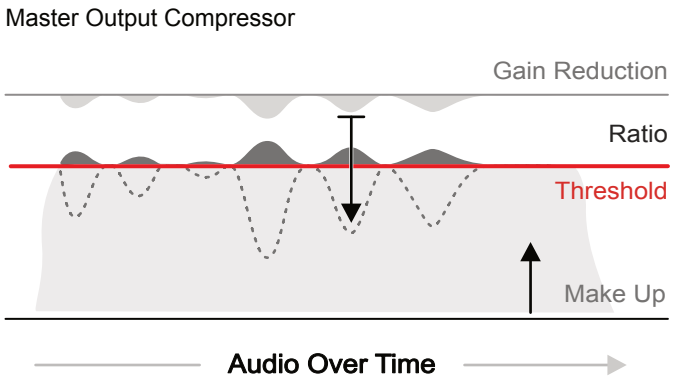
   - Turn clockwise to adjust the range 0% to -100%. The bar indicator will adjust to the left. This adjusts the low pass filter cutoff. Low pass attenuates frequencies above the cutoff point.

3. To quickly restore the cutoff to the default ‘0’ position and allow all audio to pass through, Hold [CLEAR] + Turn or Press the designated track filter value knob 5-8. Alternatively manually adjust the parameter value knobs.

NOTES

5.5 Master Compression

The audio mixed from the 4 tracks is passed to a common master compressor as the final effect stage. Compression is a common function at or near the end of an audio chain used to tame and control audio peaks and help add punch through control of perceived loudness. The S-4 has a single compressor control to adjust the amount of compression applied integrating functions such as make up gain, ratio and threshold.



ADJUSTING THE MASTER COMPRESSOR

1. The compression settings are usually something that would be adjusted at the end of a project, prior to final mix down.
2. Press [MIX] to open the master mixer. The compressor option is located on Page 2. Press [MIX] to change pages.
3. Turn the (COMPRESS) Value Knob 6. Adjust in small increments while monitoring the audio. Take care not to increase too much especially if listening through headphones.
4. If required, Hold [CLEAR] + Turn or Press (COMPRESS) to restore a default ‘0’ setting to the compression value.

5.6 Recording the Main Output

NOTES

The ability to record the main mix as a single audio stem is possible from within the mix page. The recording option is found on page 2 of the action buttons, accessed by holding [CTRL].

Recording the Main Mix Audio

Hold [CTRL] + [REC MAIN]

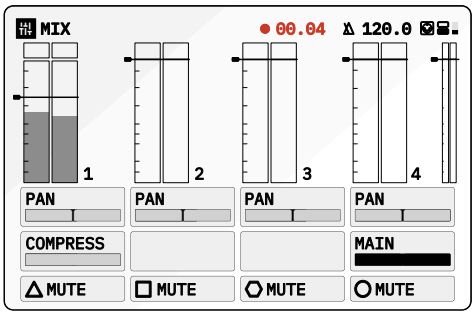
Any audio passed out to the main mix will be recorded as a single audio file.



Files are stored in the S-4 Storage Memory;

Location: /samples/recordings

Filename: S4_MainOut__x.WAV



Record count is shown in the header while recording.

NOTES

RECORDING THE MAIN MIX

1. Select the main mix page, Press [MIX].
2. Play the tracks that are required in the main mix. Mute any tracks if audio is not required in the mix.
3. Hold [CTRL] + Press [REC MAIN], ○ action button to start recording. The button will be highlighted when recording.
4. Recording is performed in real time and the elapsed time duration will be displayed while recording in the screen header.
5. Hold [CTRL] + Press [REC MAIN], ○ action button to stop recording. Maximum recording time based on the available S-4 memory with no defined duration.
6. The recording will be stored automatically when the recording ends. The file will be saved in the on board storage memory within the samples / recordings folder and will be named in the file list with a sequential number ‘x’: S-4_MainOut__x.WAV.

6

Audio In & Out

Managing and capturing audio into the S-4 can be an important option as part of the sound design process, as interfacing with other audio gear expands the creative possibilities. The S-4 offers multiple interface options for audio. One option is to use the ‘In 1’ and ‘In 2’ line inputs by connecting to the rear panel. In addition an internal microphone offers a quick and easy way to capture surrounding audio immediately on the fly. Also an external headset can be used which has integrated headphones and microphone. This would need to have a 4-Pole TRRS 3.5mm Mini Jack and be connected to the Headphone jack. The USB interface also provides audio functionality and connects both as a host or as a device. Interfacing to a PC / Mac Digital Audio Workstation can be performed directly across the USB audio function where 10 Inputs and 10 Outputs are presented. This covers all 4 stereo tracks in the S-4 along with the master out stereo signal. The S-4 operates at 24-bit / 48 kHz stereo audio in and out and will recognise .wav and .flac sample formats. Samples can be stored on board the 4GB memory. In addition the S-4 can also operate with an external USB drive when connected to access user samples.

6 Audio In & Out

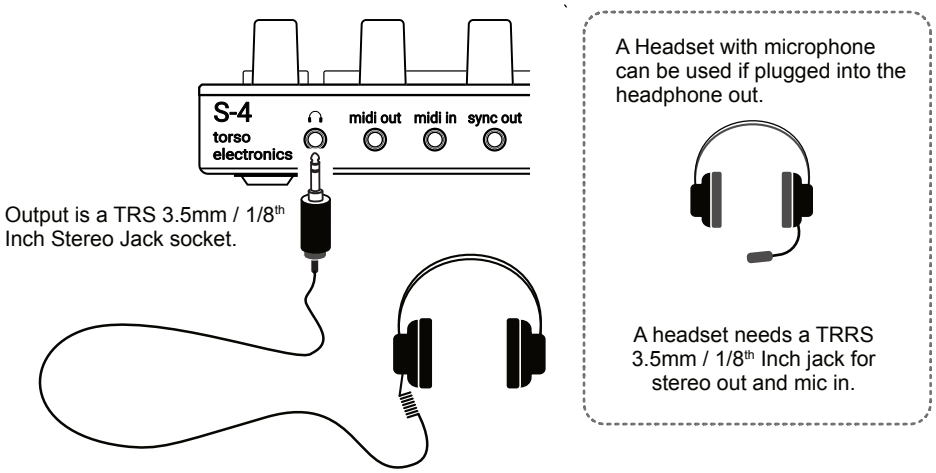
6.1 Audio Connectivity

NOTES

The physical connections for the audio inputs and outputs are located on the rear panel of the S-4 device.

Headphone Output & Headset Input

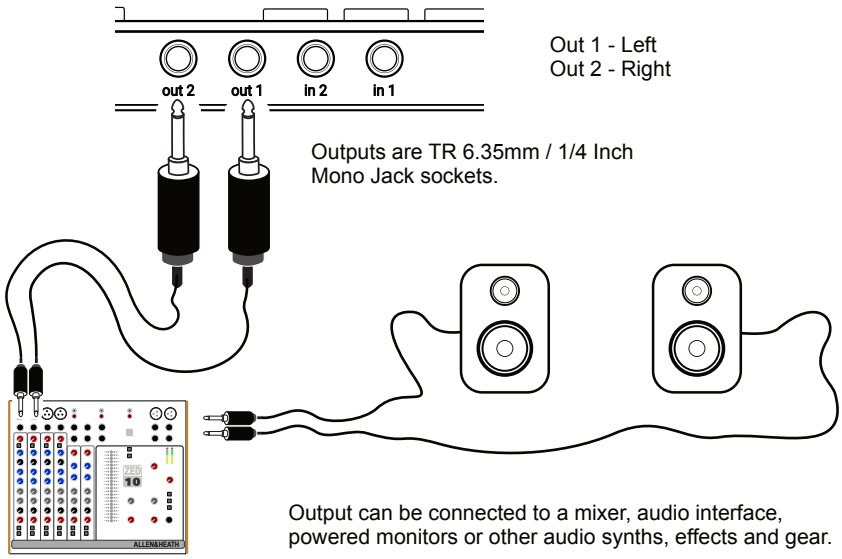
A dedicated, stereo headphone output is located on the S-4 rear panel.



Output volume level for headphones replicates the main output.

Line Outputs

Two dedicated, mono line level outputs are located on the S-4 rear panel.

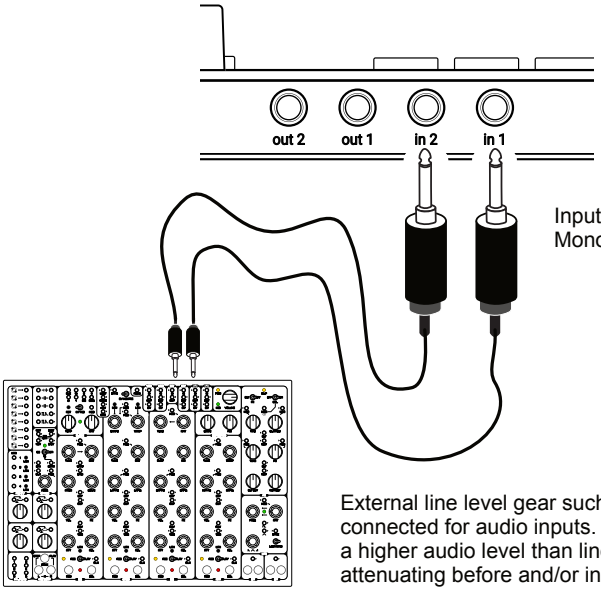


NOTES

Line Input and output options provide analog audio connections for the S-4. USB can be used for digital connectivity when used with compatible gear.

Line Inputs

Two dedicated, mono line level inputs are located on the S-4 rear panel.



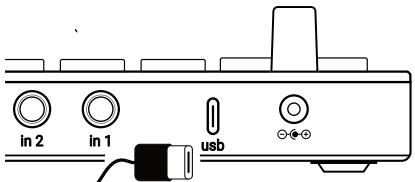
In 1 - Left
In 2 - Right

Inputs are TR 6.35mm / 1/4 Inch Mono Jack sockets.

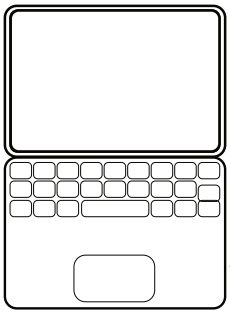
External line level gear such as synths and effects can be connected for audio inputs. Note that Eurorack operates to a higher audio level than line level and may need the gain attenuating before and/or in the S-4 to operate effectively.

USB Audio In/Out

A dedicated, USB-C connection is located on the S-4 rear panel.

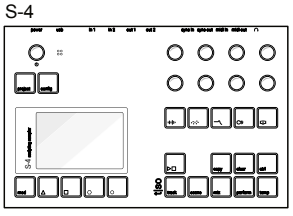


USB Connection type of the cable will depend on the device to connect i.e. USB-C, USB-A etc. Connects as host or device.



The S-4 Can Handle:-
10 USB Audio Outputs
10 USB Audio Inputs

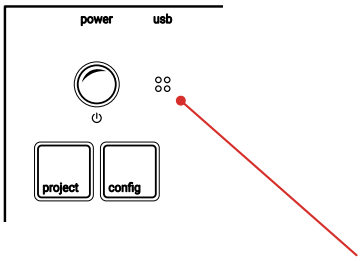
S-4



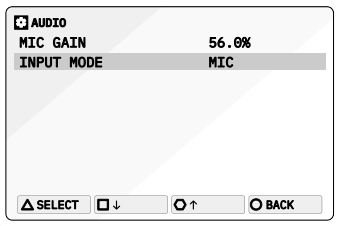
6.2 Internal Microphone

NOTES

The S-4 contains a in-built microphone, located on the top panel near the main select control. This is a quick and simple way to capture raw ambient audio, found sounds, voice or even taps and vibrations on the S-4 case.



Internal Microphone.
Capture external surrounding audio.



Microphone.
[Config] > Audio Settings.

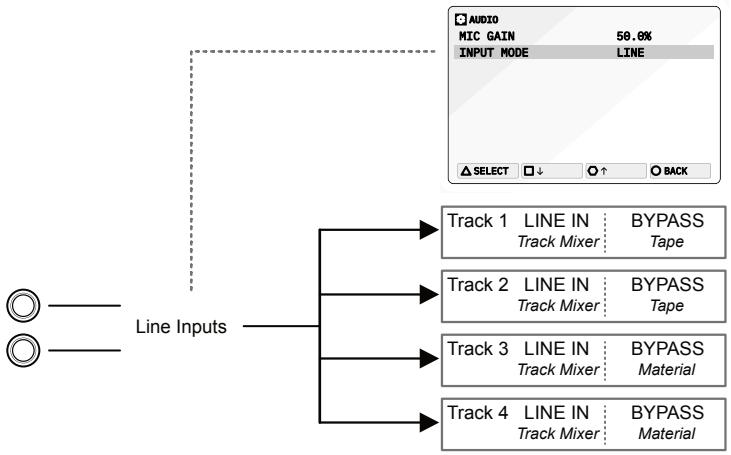
CONFIGURING AND SELECTING THE MIC INPUT

1. Press [CONFIG] to open the configuration settings.
2. Turn (SELECT) to navigate to select the ‘AUDIO’ option. Also press the [DOWN], ☐ or [UP], ⎔ Action buttons to navigate the menu.
3. Press [OPEN], △ or Press (SELECT) to open the audio sub-menu.
4. Navigate to highlight the ‘INPUT MODE’ option.
5. Turn any of the 8 parameter knobs to adjust the setting. Alternatively, Press [OPEN] to cycle the available options.
    - LINE: Audio Line Inputs In 1 / In 2.
    - MIC. Microphone. Front panel access to mic. Select This Option
    - HEADSET. Connected TRRS headset microphone.
6. The microphone audio input gain can also be adjusted. Navigate to highlight the ‘MIC GAIN’ option and Turn any of the 8 parameter knobs to adjust the setting. Also applies to headset mic.
7. The microphone can now be used within the material Tape device. Audio can be recorded from the internal microphone into a tape. It is good practice to keep mic gain turned low when not in use.

NOTES

6.3 Managing the Line Inputs

The line inputs of the S-4 are routed into the material device slot. This means that the incoming audio can be used as the input to the tape device or as a live input signal when the device is set to Bypass. If the track input configuration is set to ‘Sends Only. The line and mic audio are ignored and only audio from sends is used.



SETTING UP THE LINE IN FOR TRACKS

1. Press [CONFIG] to open the configuration settings.
2. Turn (SELECT) to navigate to select the ‘AUDIO’ option. Also press the [DOWN], ☐ or [UP], ⬡ Action buttons to navigate the menu.
3. Press [OPEN], △ or Press (SELECT) to open the audio sub-menu.
4. Navigate to highlight the ‘INPUT MODE’ option.
5. Turn any of the 8 parameter knobs to adjust the setting. Alternatively, Press [OPEN] to cycle the available options.
    - LINE: Audio Line Inputs In 1 / In 2. Select This Option
    - MIC. Microphone. Internally front panel access to mic.
    - HEADSET. Connected headset and integrated microphone.

6.4 Audio over USB

NOTES

The S-4 has a class compliant USB interface with an extended array of 10 Audio Inputs and 10 Audio Outputs. The S-4 can be connected to compatible audio gear as host or device using the USB-C connector and will be identified as 'S-4' in the external devices interface configuration.

Audio Channel Output Assignments.
Routed from each individual track plus the main combined mix output to the USB channels.

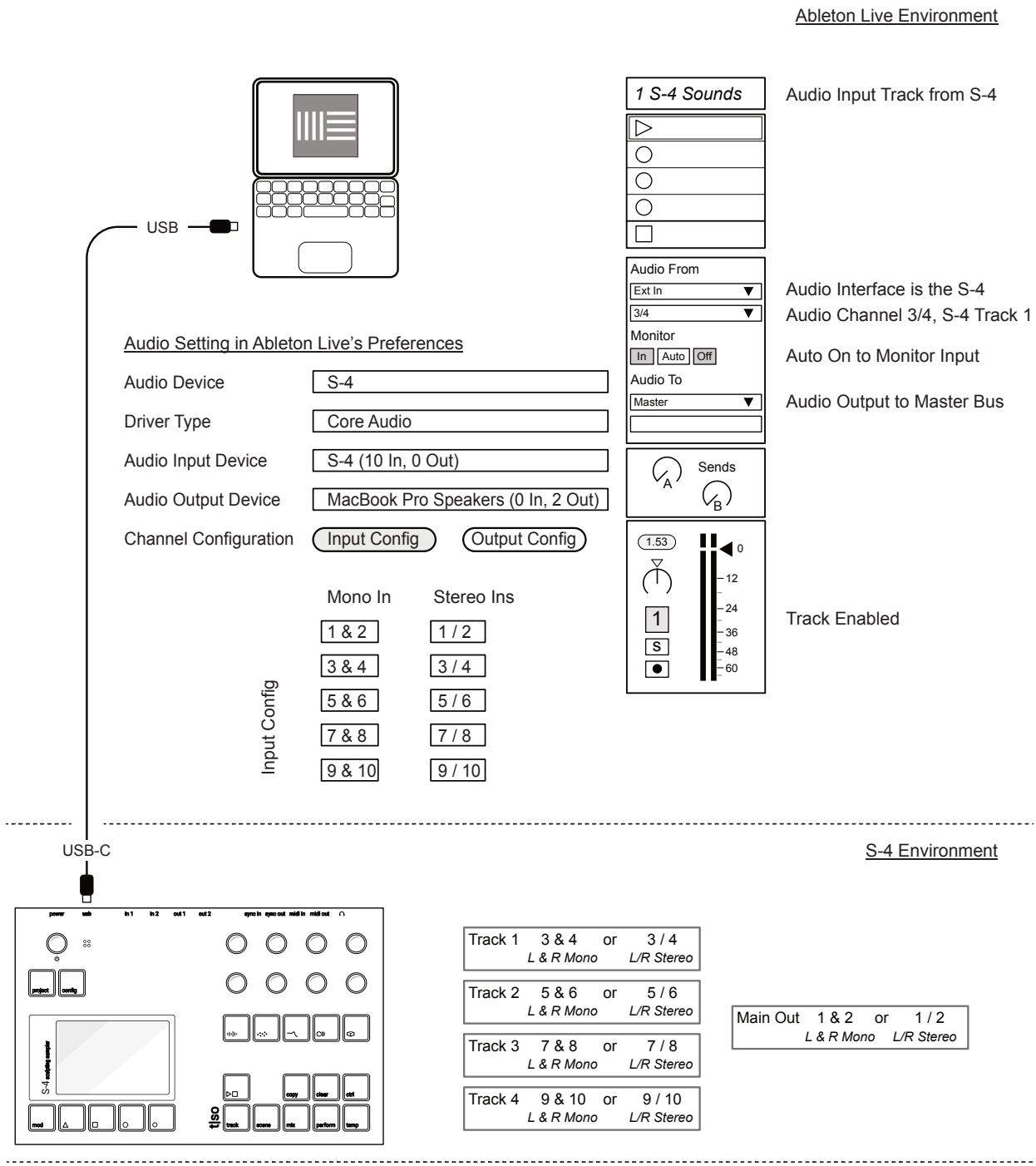
Channel	Audio	Track	Description
1	Mono	All Tracks	Main Audio Output - Left
2	Mono	All Tracks	Main Audio Output - Right
3	Mono	Track 1	Audio Output - Left
4	Mono	Track 1	Audio Output - Right
5	Mono	Track 2	Audio Output - Left
6	Mono	Track 2	Audio Output - Right
7	Mono	Track 3	Audio Output - Left
8	Mono	Track 3	Audio Output - Right
9	Mono	Track 4	Audio Output - Left
10	Mono	Track 4	Audio Output - Right
1 / 2	Stereo	All Tracks	Main Mix Audio Output
3 / 4	Stereo	Track 1	Track Output - Left & Right
5 / 6	Stereo	Track 2	Track Output - Left & Right
7 / 8	Stereo	Track 3	Track Output - Left & Right
9 / 10	Stereo	Track 4	Track Output - Left & Right

Audio Channel Input Assignments.
Routed and mixed into each of the stereo tracks along with existing internal audio including any line input audio.

Channel	Audio	Track	Description
1	Mono	Track 1	Audio Input - Left
2	Mono	Track 1	Audio Input - Right
3	Mono	Track 2	Audio Input - Left
4	Mono	Track 2	Audio Input - Right
5	Mono	Track 3	Audio Input - Left
6	Mono	Track 3	Audio Input - Right
7	Mono	Track 4	Audio Input - Left
8	Mono	Track 4	Audio Input - Right
9	Mono	All Tracks	Main, Pre Master FX Audio Input - Left
10	Mono	All Tracks	Main, Pre Master FX Audio Input - Right
1 / 2	Stereo	Track 1	Audio Input - Left & Right
3 / 4	Stereo	Track 2	Audio Input - Left & Right
5 / 6	Stereo	Track 3	Audio Input - Left & Right
7 / 8	Stereo	Track 4	Audio Input - Left & Right
9 / 10	Stereo	All Tracks	Main, Pre Master FX Input - Left & Right

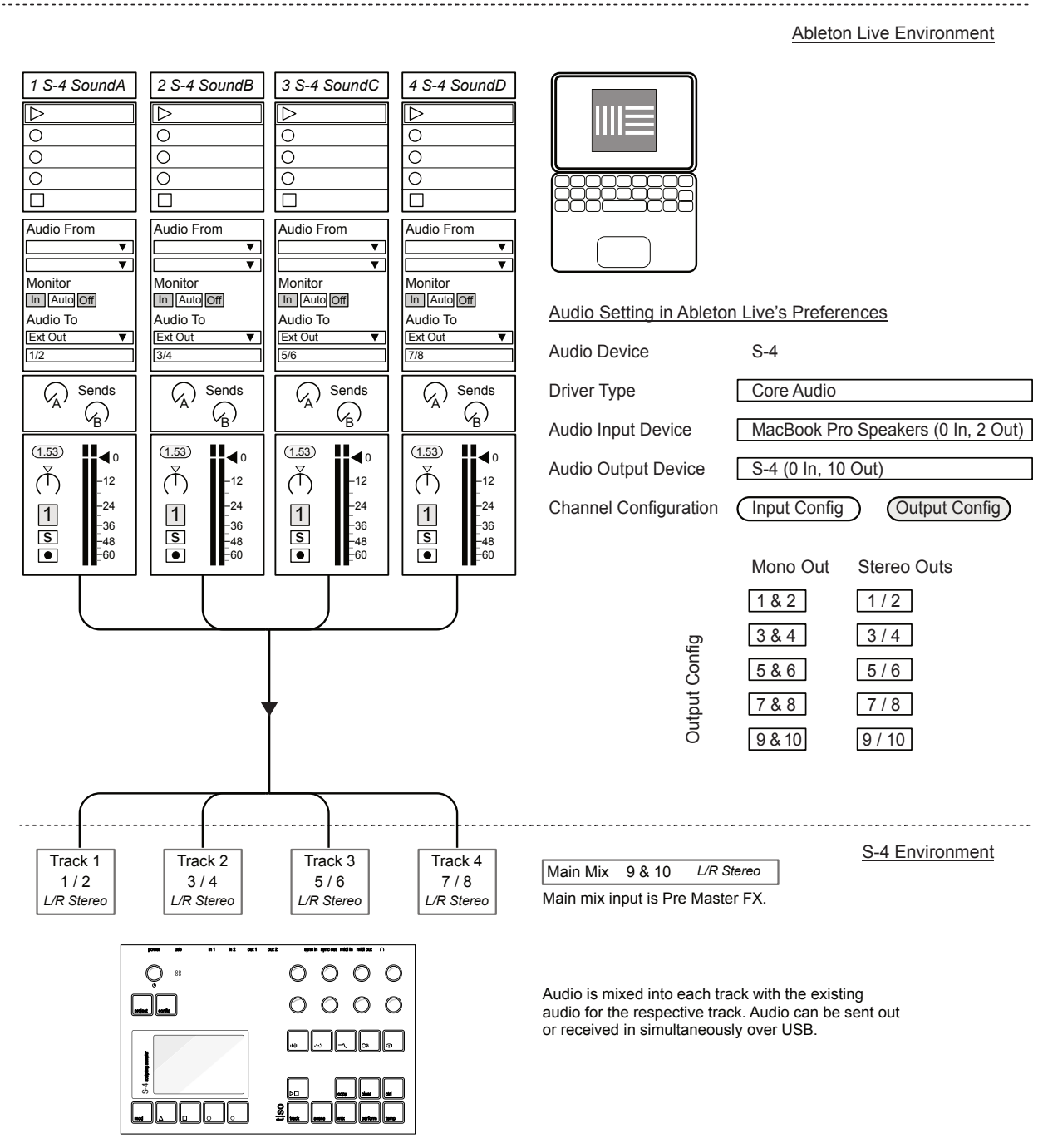
Example: Interfacing USB audio out of S-4 and into Ableton Live

The S-4 is connected to a PC / Mac with the USB cable. The example illustrates Mac settings for Ableton Live. Tracks in Live can be configured to accept audio from the S-4 Tracks or the master out. For example 4 Tracks can be set in Live to match each of the S-4 track outputs



Example: Interfacing USB audio in to the S-4 from Ableton Live

The S-4 is connected to a PC / Mac with the USB cable. The example illustrates Mac settings for Ableton Live. Tracks in Live can be configured to send audio to the S-4 Tracks or the master out. For example 4 Tracks can be set in Live to match transfer audio to each of the S-4 tracks

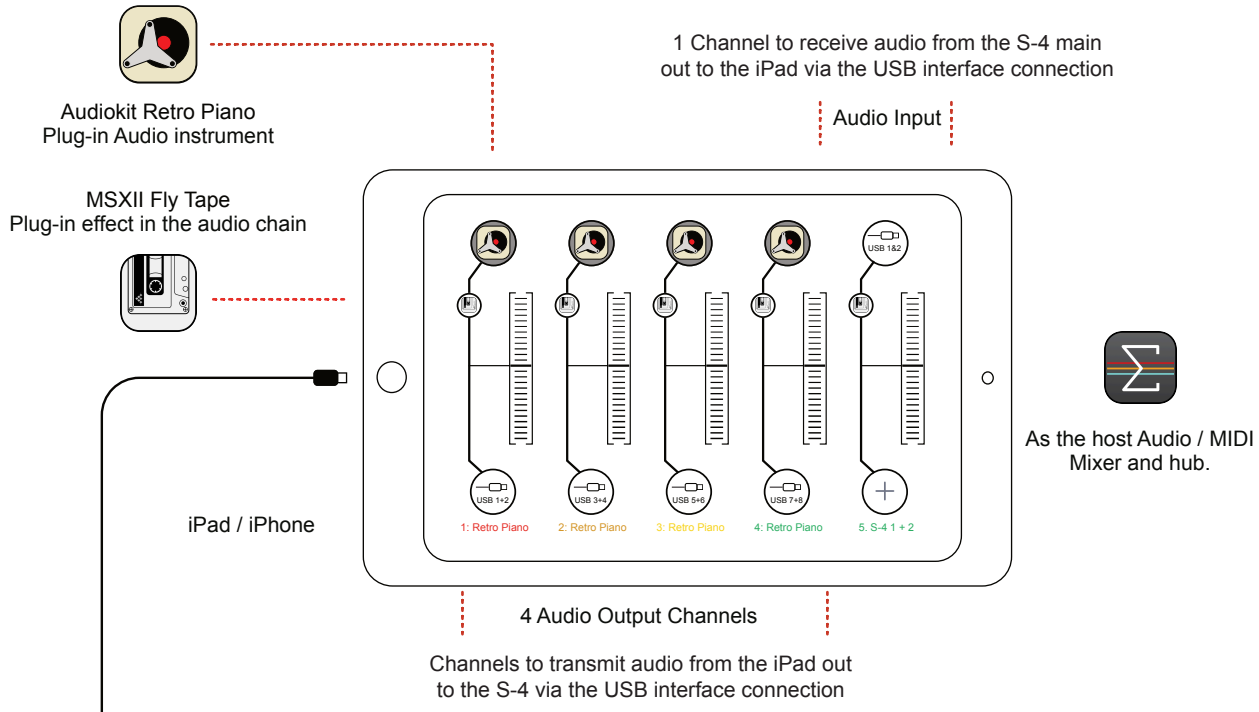


Example: Interfacing USB audio In/out of S-4 and in/out of iPad using AUM

The S-4 is connected to a iPad with the USB cable. The example illustrates iPad settings for the AUM App. AUM is an app which manages integration of iOS audio apps and external audio and MIDI gear. Connect the S-4 and iPad, maybe an interface is needed, then power up the S-4.

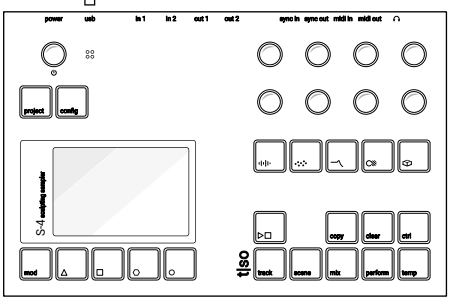
AUM Environment

Various iPad iOS apps as Audio Unit extensions or interfaced devices on the iPad through AUM can be used as audio sources on the iPad. The example shows Retro Piano with an inline FlyTape effect. The Audio is processed in the S-4 and the main out returned to the iPad for recording or other audio capture or processing within AUM.



USB-C

S-4 Environment



S-4 Inputs

Track 1	1 & 2	or	1 / 2	
	L & R Mono		*L/R Stereo*	
Track 2	3 & 4	or	3 / 4	
	L & R Mono		*L/R Stereo*	
Track 3	5 & 6	or	5 / 6	
	L & R Mono		*L/R Stereo*	
Track 4	7 & 8	or	7 / 8	
	L & R Mono		*L/R Stereo*	

S-4 Output

Main Out	1 & 2	or	1 / 2	
	L & R Mono		*L/R Stereo*	

7

MIDI & Sync

MIDI or Musical Instrument Digital Interface is a standard protocol for communicating between audio devices. The S-4 can communicate MIDI across the dedicated MIDI in and out ports and also using the USB-C connection. Each of the 4 tracks can be controlled on individually dedicated MIDI Channels. The MIDI In and Out uses a TRS Type A, 3.5mm Jack to MIDI DIN adapter. An adapter is supplied with the S-4. MIDI allows the S-4 to be played by notes from an external MIDI Keyboard or from an external sequencer. In addition to the digital interface of MIDI, two analog connections also exist. The Sync In and Out will be available in a future update for connecting to analog gear and to / from Eurorack modules.

7 MIDI & Sync

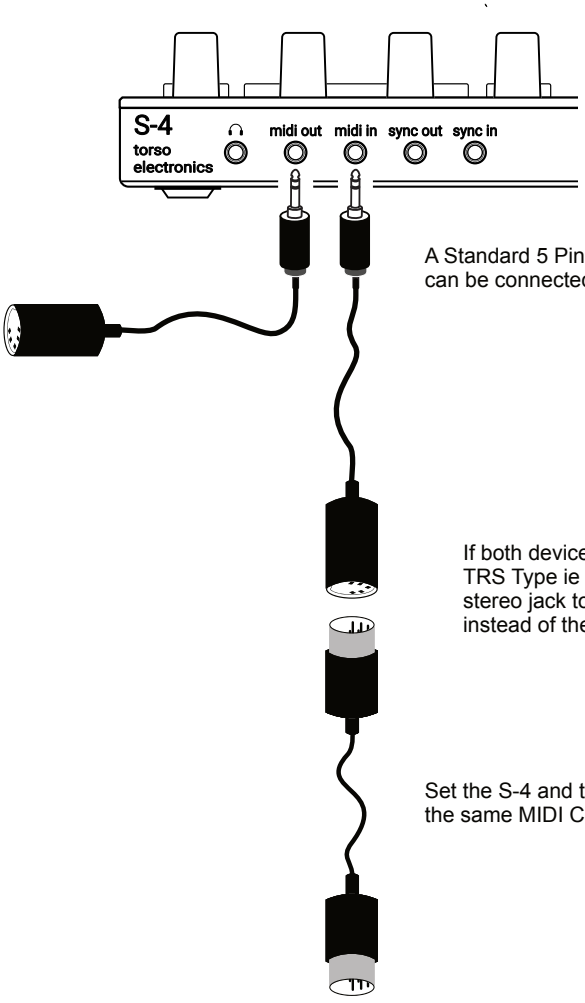
7.1 MIDI Connectivity

NOTES

The physical connections for the MIDI inputs and outputs are located on the rear panel of the S-4 device.

5 Pin DIN MIDI In / Out

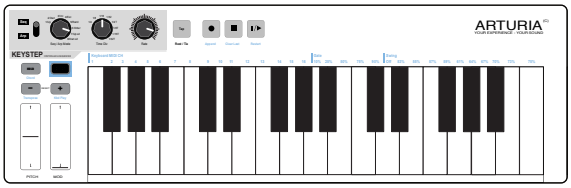
Two dedicated MIDI connections are located on the S-4 rear panel for connecting 3.5mm to 5 Pin Type A Adapters.



A Standard 5 Pin DIN MIDI cable can be connected via the adapter.

If both devices handle the same MIDI TRS Type ie Type 'A', a standard stereo jack to jack cable can be used instead of the adapters both ends.

Set the S-4 and the external device to the same MIDI Channel i.e. Channel 1.



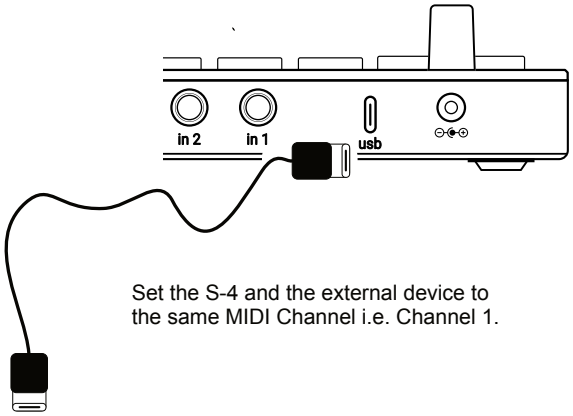
A MIDI Controller for example a keyboard or sequencer can be connected to the S-4 by the MIDI Input.

NOTES

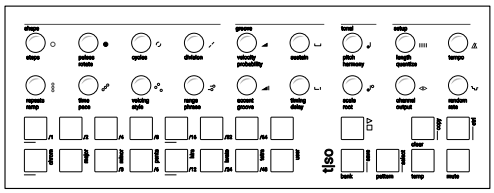
USB also offers a MIDI interface to connect other gear. Ensure the USB cable is specified for data communication.

USB MIDI In / Out

The USB-C Connection also allows interfacing to other gear, PC/Mac DAW's and controllers.



Set the S-4 and the external device to the same MIDI Channel i.e. Channel 1.



The T-1 Sequencer is a perfect companion for the S-4. The USB-C S-4 Connection will also supply power to the T-1.

MIDI In Indicator

Any MIDI data received into the S-4 is indicated by the MIDI Symbol located in the top right of the page. This icon will flash when MIDI data is received.



MIDI Incoming Indicator

Solid - MIDI Data being received

Empty - No MIDI Data being received

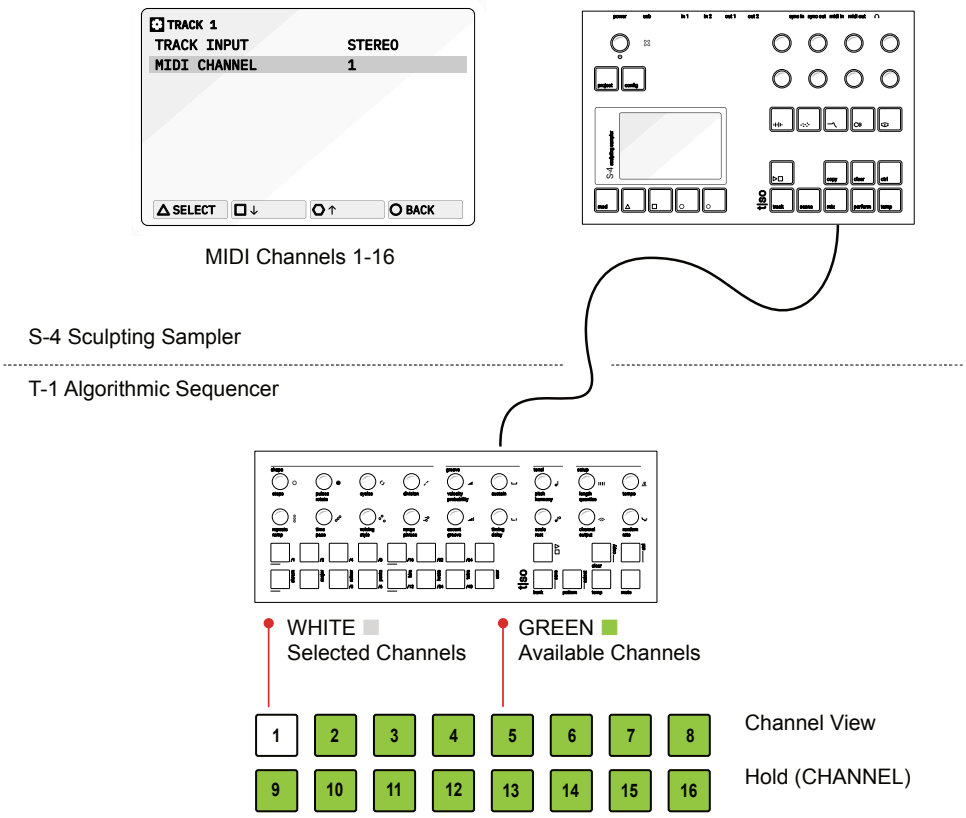
7.2 MIDI Channel

NOTES

To communicate between the two connected devices the MIDI channel must be set to the same channel on each. Check with the manufacturers documentation for any external device MIDI configuration. Each track of the S-4 can be configured to receive MIDI on its own individual channel.

ADJUSTING THE S-4 MIDI CHANNEL

1. Connect devices using the USB or MIDI ports.
2. Press [CONFIG] to open the configuration settings.
3. Turn (SELECT) to navigate to select the track to edit. Also press the [DOWN], ☐ or [UP], ⎔ Action buttons to navigate the menu.
4. Press [OPEN], △ or Press (SELECT) to open the track sub-menu.
5. Navigate to highlight the ‘MIDI CHANNEL’ option.
6. Turn any of the 8 parameter knobs to set the MIDI channel or tap [OPEN] to cycle channels. Set to the same channel as the external device, example Channel 1.

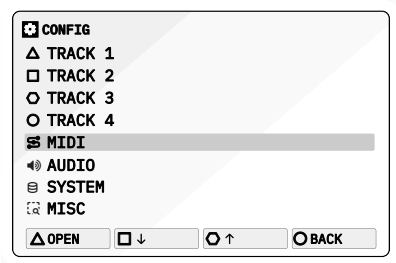


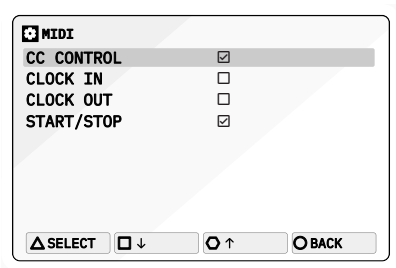
NOTES

7.3 MIDI Synchronisation

The S-4 can be synchronised to an external MIDI Clock. This will then take over the global tempo BPM of the S-4 device. A clock can also be sent from the S-4 to synchronise other gear to the S-4. Also the S-4 can respond to external transport controls to start and stop playback of the tracks.

MIDI Config Settings [CONFIG] > MIDI





Menu	Setting Option	Description
MIDI	CC Control	Sets the S-4 to receive MIDI CC - Continuous Control Change messages.
MIDI	Clock In	MIDI synchronization of clock. Clock In is ON for S-4 clock control from an external device.
MIDI	Clock Out	MIDI synchronization of clock. Clock Out is ON for external clock control from the S-4 device.
MIDI	Start / Stop	MIDI synchronization of transport. Start / Stop is ON to control the playback of the S-4 from an external device.

NOTES

SETTING UP MIDI SYNC FOR EXTERNAL GEAR

1. Ensure S-4 is connected to another MIDI device and the MIDI channels are aligned to the same.

2. Decide on which device will be the primary lead and which will be a secondary follower.

3. Use the action button navigation or the (SELECT) Knob to scroll to the desired option to change. To toggle the option On / Checked or Off / Unchecked turn any of the 8 parameter knobs or tap [SELECT].

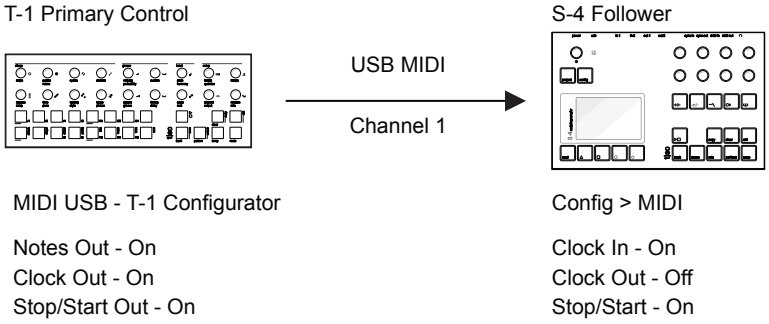
    - CC CONTROL : On / Off. When On the S-4 will receive external CC messages in order to control defined parameters.

    - CLOCK IN : On / Off. When On an external device can be used to control the clock. The S-4 and its global tempo will respond to the timing of the external clock. Manual tempo adjustments using the (SELECT) knob will be ignored when Clock In is On and will be available when Clock In is Off.

    - CLOCK OUT : On / Off. When On an external device will respond to the S-4 clock. The S-4 global tempo will be used by the external device. Manual tempo adjustments using the (SELECT) knob will be available when Clock In is Off and and external clock is used when Clock In is On.

    - START / STOP : On - The S-4 recognises and acts upon the incoming start / stop commands from the connected MIDI Device sending transport. This will control the Play/Stop tracks button. When off the S-4 Transport will be independently controlled by the Play/Stop button.

Primary / Secondary Sync Example



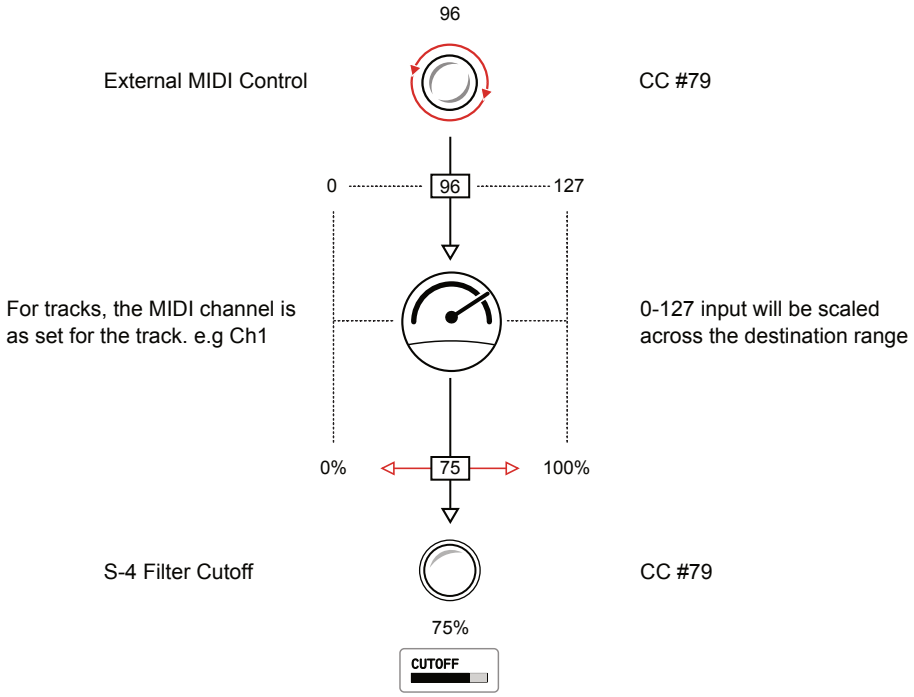
T-1 will control the S-4 Playback. For example the sequencer will trigger the Poly. Tracks will play/stop from T-1 Transport control.

NOTES

7.4 MIDI CC

MIDI Continuous Control Change Messages, also shortened to CC, are used in the S-4 to control parameters from external gear. CC Messages are mapped using a specific CC number. Parameter changes are then communicated over a value range of 0-127 which then affects the destination parameter value based on its own designated range. Typically an external MIDI controller knob or fader will control the S-4 parameter.

Examples



Input from CC is 0-127
Example = 96

Example 0-100%
Ranged parameter.

CUTOFF

75%

Example -50/+50%
Ranged parameter.

RELCURVE
- +

+32%.

Example Selection
ranged parameter.

RATE

Range divided by # options.

Set the CC Control to ON in the MIDI Config parameters in order to use external control

CC Mapping Reference - Tracks

S4 Function	MIDI Channel	CC No	Parameter
Track	Track MIDI Channel	10	Track Send 1 *
Track	Track MIDI Channel	11	Track Send 2 *
Track	Track MIDI Channel	12	Track Send 3 *
Track	Track MIDI Channel	13	Track Send 4 *

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 1	Track MIDI Channel	14	Encoder 1	Rate	Rate	Attack
Mod 1	Track MIDI Channel	15	Encoder 2	Amount	Amount	Decay
Mod 1	Track MIDI Channel	16	Encoder 3	Phase	Phase	Sustain
Mod 1	Track MIDI Channel	17	Encoder 4	Offset	Offset	Release
Mod 1	Track MIDI Channel	18	Encoder 5	Skew	Length	Attack Curve
Mod 1	Track MIDI Channel	19	Encoder 6	Fold	Variation	Decay Curve
Mod 1	Track MIDI Channel	20	Encoder 7	Curve	Smooth	Release Curve
Mod 1	Track MIDI Channel	21	Encoder 8	Spread	Spread	Spread

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 2	Track MIDI Channel	22	Encoder 1	Rate	Rate	Attack
Mod 2	Track MIDI Channel	23	Encoder 2	Amount	Amount	Decay
Mod 2	Track MIDI Channel	24	Encoder 3	Phase	Phase	Sustain
Mod 2	Track MIDI Channel	25	Encoder 4	Offset	Offset	Release
Mod 2	Track MIDI Channel	26	Encoder 5	Skew	Length	Attack Curve
Mod 2	Track MIDI Channel	27	Encoder 6	Fold	Variation	Decay Curve
Mod 2	Track MIDI Channel	28	Encoder 7	Curve	Smooth	Release Curve
Mod 2	Track MIDI Channel	29	Encoder 8	Spread	Spread	Spread

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 3	Track MIDI Channel	30	Encoder 1	Rate	Rate	Attack
Mod 3	Track MIDI Channel	31	Encoder 2	Amount	Amount	Decay
Mod 3	Track MIDI Channel	32	Encoder 3	Phase	Phase	Sustain
Mod 3	Track MIDI Channel	33	Encoder 4	Offset	Offset	Release
Mod 3	Track MIDI Channel	34	Encoder 5	Skew	Length	Attack Curve
Mod 3	Track MIDI Channel	35	Encoder 6	Fold	Variation	Decay Curve
Mod 3	Track MIDI Channel	36	Encoder 7	Curve	Smooth	Release Curve
Mod 3	Track MIDI Channel	37	Encoder 8	Spread	Spread	Spread

* CC Feature not currently active

CC Mapping Reference - Tracks (Continued)

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 4	Track MIDI Channel	38	Encoder 1	Rate	Rate	Attack
Mod 4	Track MIDI Channel	39	Encoder 2	Amount	Amount	Decay
Mod 4	Track MIDI Channel	40	Encoder 3	Phase	Phase	Sustain
Mod 4	Track MIDI Channel	41	Encoder 4	Offset	Offset	Release
Mod 4	Track MIDI Channel	42	Encoder 5	Skew	Length	Attack Curve
Mod 4	Track MIDI Channel	43	Encoder 6	Fold	Variation	Decay Curve
Mod 4	Track MIDI Channel	44	Encoder 7	Curve	Smooth	Release Curve
Mod 4	Track MIDI Channel	45	Encoder 8	Spread	Spread	Spread

S4 Function	MIDI Channel	CC No	Parameter	Tape	Poly	
Material	Track MIDI Channel	47	Encoder 1 (P1)	Speed	Pitch	
Material	Track MIDI Channel	48	Encoder 2 (P1)	Tempo		
Material	Track MIDI Channel	49	Encoder 3 (P1)	Start	Start	
Material	Track MIDI Channel	50	Encoder 4 (P1)	Length	Length	
Material	Track MIDI Channel	51	Encoder 5 (P1)		Level	
Material	Track MIDI Channel	52	Encoder 6 (P1)			
Material	Track MIDI Channel	53	Encoder 7 (P1)	Rotate	Loop	
Material	Track MIDI Channel	54	Encoder 8 (P1)	XFade	XFade	
Material	Track MIDI Channel	55	Encoder 1 (P2)	Glide *	Attack	
Material	Track MIDI Channel	56	Encoder 2 (P2)		Decay	
Material	Track MIDI Channel	57	Encoder 3 (P2)	Level	Sustain	
Material	Track MIDI Channel	58	Encoder 4 (P2)	SOS	Curve	
Material	Track MIDI Channel	59	Encoder 5 (P2)		Velocity	
Material	Track MIDI Channel	60	Encoder 6 (P2)			
Material	Track MIDI Channel	61	Encoder 7 (P2)		Filter Amount	
Material	Track MIDI Channel	62	Encoder 8 (P2)		Filter Shape	

* CC Feature not currently active

CC Mapping Reference - Tracks (Continued)

S4 Function	MIDI Channel	CC No	Parameter	Mosaic
Granular	Track MIDI Channel	63	Encoder 1 (P1)	Pitch
Granular	Track MIDI Channel	64	Encoder 2 (P1)	Rate
Granular	Track MIDI Channel	65	Encoder 3 (P1)	Size
Granular	Track MIDI Channel	66	Encoder 4 (P1)	Contour
Granular	Track MIDI Channel	67	Encoder 5 (P1)	Warp
Granular	Track MIDI Channel	68	Encoder 6 (P1)	Spray
Granular	Track MIDI Channel	69	Encoder 7 (P1)	Pattern
Granular	Track MIDI Channel	70	Encoder 8 (P1)	Wet
Granular	Track MIDI Channel	71	Encoder 1 (P2)	Detune
Granular	Track MIDI Channel	72	Encoder 2 (P2)	Random Rate
Granular	Track MIDI Channel	73	Encoder 3 (P2)	Random Size
Granular	Track MIDI Channel	74	Encoder 4 (P2)	SOS
Granular	Track MIDI Channel	75	Encoder 5 (P2)	
Granular	Track MIDI Channel	76	Encoder 6 (P2)	
Granular	Track MIDI Channel	77	Encoder 7 (P2)	
Granular	Track MIDI Channel	78	Encoder 8 (P2)	

S4 Function	MIDI Channel	CC No	Parameter	Ring
Filter	Track MIDI Channel	79	Encoder 1 (P1)	Cutoff
Filter	Track MIDI Channel	80	Encoder 2 (P1)	Resonance
Filter	Track MIDI Channel	81	Encoder 3 (P1)	Decay
Filter	Track MIDI Channel	82	Encoder 4 (P1)	Pitch
Filter	Track MIDI Channel	83	Encoder 5 (P1)	Slope
Filter	Track MIDI Channel	84	Encoder 6 (P1)	Tone
Filter	Track MIDI Channel	85	Encoder 7 (P1)	Scale
Filter	Track MIDI Channel	86	Encoder 8 (P1)	Wet
Filter	Track MIDI Channel	87	Encoder 1 (P2)	Waves
Filter	Track MIDI Channel	88	Encoder 2 (P2)	Noise
Filter	Track MIDI Channel	89	Encoder 3 (P2)	Tilt
Filter	Track MIDI Channel	90	Encoder 4 (P2)	Detune
Filter	Track MIDI Channel	91	Encoder 5 (P2)	Waves Rate
Filter	Track MIDI Channel	92	Encoder 6 (P2)	Noise Rate
Filter	Track MIDI Channel	93	Encoder 7 (P2)	
Filter	Track MIDI Channel	94	Encoder 8 (P2)	

CC Mapping Reference - Tracks (Continued)

S4 Function	MIDI Channel	CC No	Parameter	Deform		
Color	Track MIDI Channel	95	Encoder 1 (P1)	Drive		
Color	Track MIDI Channel	96	Encoder 2 (P1)	Compress		
Color	Track MIDI Channel	97	Encoder 3 (P1)	Crush		
Color	Track MIDI Channel	98	Encoder 4 (P1)	Tilt		
Color	Track MIDI Channel	99	Encoder 5 (P1)	Noise		
Color	Track MIDI Channel	100	Encoder 6 (P1)	Noise Decay		
Color	Track MIDI Channel	101	Encoder 7 (P1)	Noise Color		
Color	Track MIDI Channel	102	Encoder 8 (P1)	Wet		
Color	Track MIDI Channel	103	Encoder 1 (P2)	Not Used		
Color	Track MIDI Channel	104	Encoder 2 (P2)	Not Used		
Color	Track MIDI Channel	105	Encoder 3 (P2)	Not Used		
Color	Track MIDI Channel	106	Encoder 4 (P2)	Not Used		
Color	Track MIDI Channel	107	Encoder 5 (P2)	Not Used		
Color	Track MIDI Channel	108	Encoder 6 (P2)	Not Used		
Color	Track MIDI Channel	109	Encoder 7 (P2)	Not Used		
Color	Track MIDI Channel	110	Encoder 8 (P2)	Not Used		

S4 Function	MIDI Channel	CC No	Parameter	Vast		
Space	Track MIDI Channel	111	Encoder 1 (P1)	Delay Amount		
Space	Track MIDI Channel	112	Encoder 2 (P1)	Delay Time		
Space	Track MIDI Channel	113	Encoder 3 (P1)	Reverb Amount		
Space	Track MIDI Channel	114	Encoder 4 (P1)	Reverb Size		
Space	Track MIDI Channel	115	Encoder 5 (P1)	Delay Feedback		
Space	Track MIDI Channel	116	Encoder 6 (P1)	Delay Spread		
Space	Track MIDI Channel	117	Encoder 7 (P1)	Reverb Damp		
Space	Track MIDI Channel	118	Encoder 8 (P1)	Reverb Decay		
Space	Track MIDI Channel	119	Encoder 1 (P2)			
Space	Track MIDI Channel	120	Encoder 2 (P2)			
Space	Track MIDI Channel	121	Encoder 3 (P2)			
Space	Track MIDI Channel	122	Encoder 4 (P2)			
Space	Track MIDI Channel	123	Encoder 5 (P2)			
Space	Track MIDI Channel	124	Encoder 6 (P2)			
Space	Track MIDI Channel	125	Encoder 7 (P2)			
Space	Track MIDI Channel	126	Encoder 8 (P2)			

CC Mapping Reference - Mix

S4 Function	MIDI Channel	CC No	Parameter	Function		
Mix	16	47	Encoder 1 (P1)	Track Level 1		
Mix	16	48	Encoder 2 (P1)	Track Level 2		
Mix	16	49	Encoder 3 (P1)	Track Level 3		
Mix	16	50	Encoder 4 (P1)	Track Level 4		
Mix	16	51	Encoder 5 (P1)	Filter 1		
Mix	16	52	Encoder 6 (P1)	Filter 2		
Mix	16	53	Encoder 7 (P1)	Filter 3		
Mix	16	54	Encoder 8 (P1)	Filter 4		
Mix	16	55	Encoder 1 (P2)	Pan 1		
Mix	16	56	Encoder 2 (P2)	Pan 2		
Mix	16	57	Encoder 3 (P2)	Pan 3		
Mix	16	58	Encoder 4 (P2)	Pan 4		
Mix	16	59	Encoder 5 (P2)	Compress		
Mix	16	60	Encoder 6 (P2)			
Mix	16	61	Encoder 7 (P2)			
Mix	16	62	Encoder 8 (P2)	Main Level		

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 1	16 *	14	Encoder 1	Rate	Rate	Attack
Mod 1	16 *	15	Encoder 2	Amount	Amount	Decay
Mod 1	16 *	16	Encoder 3	Phase	Phase	Sustain
Mod 1	16 *	17	Encoder 4	Offset	Offset	Release
Mod 1	16 *	18	Encoder 5	Skew	Length	Attack Curve
Mod 1	16 *	19	Encoder 6	Fold	Variation	Decay Curve
Mod 1	16 *	20	Encoder 7	Curve	Smooth	Release Curve
Mod 1	16 *	21	Encoder 8	Spread	Spread	Spread

* CC Feature not currently active

CC Mapping Reference - Mix (Continued)

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 2	16 *	22	Encoder 1	Rate	Rate	Attack
Mod 2	16 *	23	Encoder 2	Amount	Amount	Decay
Mod 2	16 *	24	Encoder 3	Phase	Phase	Sustain
Mod 2	16 *	25	Encoder 4	Offset	Offset	Release
Mod 2	16 *	26	Encoder 5	Skew	Length	Attack Curve
Mod 2	16 *	27	Encoder 6	Fold	Variation	Decay Curve
Mod 2	16 *	28	Encoder 7	Curve	Smooth	Release Curve
Mod 2	16 *	29	Encoder 8	Spread	Spread	Spread

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 3	16 *	30	Encoder 1	Rate	Rate	Attack
Mod 3	16 *	31	Encoder 2	Amount	Amount	Decay
Mod 3	16 *	32	Encoder 3	Phase	Phase	Sustain
Mod 3	16 *	33	Encoder 4	Offset	Offset	Release
Mod 3	16 *	34	Encoder 5	Skew	Length	Attack Curve
Mod 3	16 *	35	Encoder 6	Fold	Variation	Decay Curve
Mod 3	16 *	36	Encoder 7	Curve	Smooth	Release Curve
Mod 3	16 *	37	Encoder 8	Spread	Spread	Spread

S4 Function	MIDI Channel	CC No	Parameter	Wave	Random	ADSR
Mod 4	16 *	38	Encoder 1	Rate	Rate	Attack
Mod 4	16 *	39	Encoder 2	Amount	Amount	Decay
Mod 4	16 *	40	Encoder 3	Phase	Phase	Sustain
Mod 4	16 *	41	Encoder 4	Offset	Offset	Release
Mod 4	16 *	42	Encoder 5	Skew	Length	Attack Curve
Mod 4	16 *	43	Encoder 6	Fold	Variation	Decay Curve
Mod 4	16 *	44	Encoder 7	Curve	Smooth	Release Curve
Mod 4	16 *	45	Encoder 8	Spread	Spread	Spread

* CC Feature not currently active

CC Mapping Reference - Notes

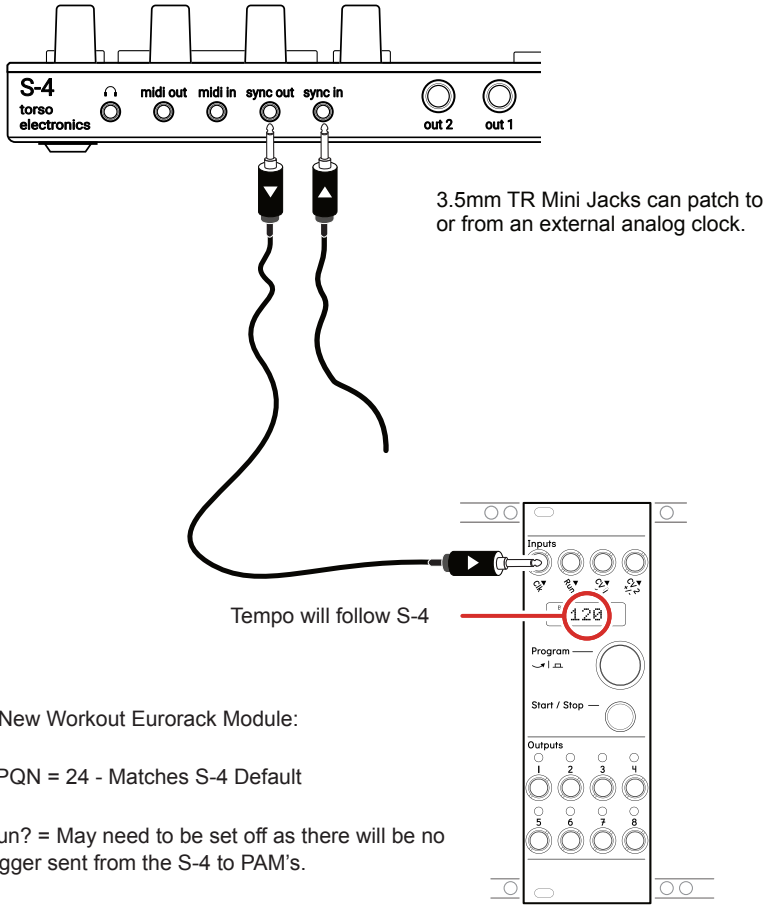
S4 Function	MIDI Channel	Note	Control Parameter
Mix	16	C0 (24)	Start / Stop
Mix	16	C#0 (25)	Track 1 Mute
Mix	16	D0 (26)	Track 2 Mute
Mix	16	D#0 (27)	Track 3 Mute
Mix	16	E0 (28)	Track 4 Mute
Mix	16	C1 (36)	Main Mix Record
Mix	16	C#1 (37)	Track 1 Tape Record
Mix	16	D1 (38)	Track 2 Tape Record
Mix	16	D#1 (39)	Track 3 Tape Record
Mix	16	E1 (40)	Track 4 Tape Record
Mix	16	C#2 (49)	Track 1 Tape Overdub
Mix	16	D2 (50)	Track 2 Tape Overdub
Mix	16	D#2 (51)	Track 3 Tape Overdub
Mix	16	E2 (52)	Track 4 Tape Overdub

NOTES

7.5 Sync In / Out

The S-4 can be synchronised with an external analog clock. The S-4 can send or receive an analog clock at 24 PPQN using the rear Sync In and Sync Out connections. If multiple clocks are connected to S-4 the hierarchy dictates the primary lead clock used where the Sync In Analog clock is the highest in the order.

Example: Synchronising Eurorack with PAM's from S-4.



Pam's New Workout Eurorack Module:

- PPQN = 24 - Matches S-4 Default
- Run? = May need to be set off as there will be no trigger sent from the S-4 to PAM's.

Pam's New Workout synchronised as the secondary follower to S-4 which is the primary clock. Any subsequent connected devices to PNW will be synchronised. An output from PAM's could be used to synchronise the S-4 using it's Sync In as an option if the Eurorack is to operate as the primary clock.

Clock Sync Hierarchy
S-4 System

1 Analog Clock
Sync In

2 MIDI Clock
MIDI In

8

System

This section covers all the elements of a non-creative nature and things that don't fit a sound design workflow. System based functions such as firmware updates and configuration settings are contained here along with housekeeping guidance. Some elements in the configuration settings are also covered in the appropriate section along with the relevant topic earlier in this manual. You could consider this the area for all the boring bits, but nevertheless there is is still useful and in fact important information contained within. As such it is worth at least familiarising with this section and its contents.

8 System

8.1 Config Menu Options

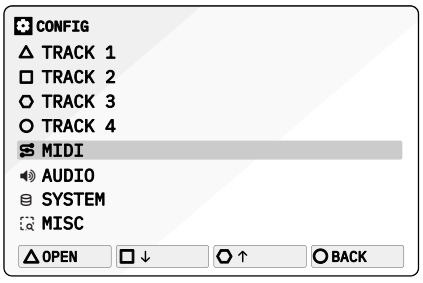
Menu	Setting Option	Description
Track 1	Track Input	Sets the external line in audio mode for track 1. Select from Stereo, Mono L or Mono R and Sends Only options. Sends only excludes line and mic audio and only considers the send audio.
Track 1	MIDI Channel	Sets the MIDI communication channel for Track 1 when communicating from externally connected devices. Select Channel 1-16.
Track 2	Track Input	Sets the external line in audio mode for track 1. Select from Stereo, Mono L or Mono R and Sends Only options. Sends only excludes line and mic audio and only considers the send audio.
Track 2	MIDI Channel	Sets the MIDI communication channel for Track 2 when communicating from externally connected devices. Select Channel 1-16.
Track 3	Track Input	Sets the external line in audio mode for track 1. Select from Stereo, Mono L or Mono R and Sends Only options. Sends only excludes line and mic audio and only considers the send audio.
Track 3	MIDI Channel	Sets the MIDI communication channel for Track 3 when communicating from externally connected devices. Select Channel 1-16.
Track 4	Track Input	Sets the external line in audio mode for track 1. Select from Stereo, Mono L or Mono R and Sends Only options. Sends only excludes line and mic audio and only considers the send audio.
Track 4	MIDI Channel	Sets the MIDI communication channel for Track 4 when communicating from externally connected devices. Select Channel 1-16.
MIDI	CC Control	Allows external MIDI control over the S-4 parameters when ON. This allows external CC Messages to affect parameter values.
MIDI	Clock In	MIDI synchronization of clock. Clock In is ON for S-4 clock control from an external device.
MIDI	Clock Out	MIDI synchronization of clock. Clock Out is ON for external clock control from the S-4 device.
MIDI	Start / Stop	MIDI synchronization of transport. Start / Stop is ON to control the playback of the S-4 from an external device.
Audio	Mic Gain	Adjust the gain applied to the microphone and headset mic input.
Audio	Input Mode	Select between the input to use between the rear line inputs, on board microphone or a connected headset microphone.
System	Firmware Version *	Displays the currently installed firmware version.
System	Storage *	Indicates the on board memory. The base memory is 4GB.
System	USB Mass Storage	Sets the S-4 into mass storage mode to allow access from a PC/Mac. The S-4 will be recognised as an external hard drive device.
System	Install Update	Initiate a firmware update. The firmware update file will be installed.
System	Install Factory Samples	Install a factory sample pack in the format applicable to S-4
Misc	Display Brightness	Adjusts the brightness of the screen display.

* The function is an Indication only and cannot be edited directly in the menu.

NOTES

ACCESSING THE CONFIG MENU

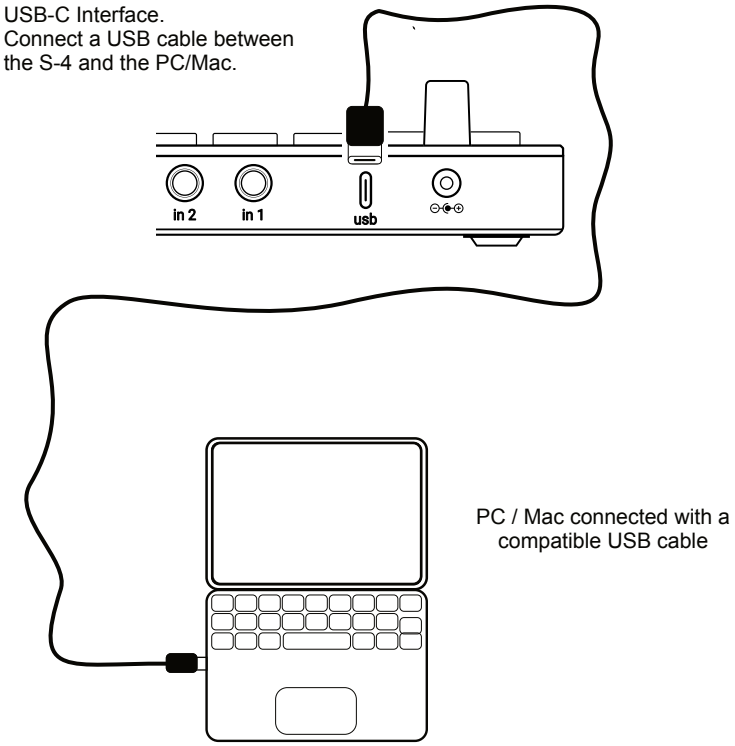
1. Press [CONFIG] to open the configuration settings.
2. Turn (SELECT) to navigate to highlight the desired sub-menu. Also press the [DOWN], ☐ or [UP], ⬡ Action buttons to navigate the menu.
3. With a target sub menu highlighted, Press [OPEN], △ or Press (SELECT) to open the options. Press [BACK], ○ Action button to exit and backup the config menu structure.
4. To change a setting:-
   - Turn any of the 8 Parameter knobs to change a selected option.
   - Tap [OPEN], △ Action button to cycle through the available options.
5. Note some listings are only for information and display purposes and cannot be changed manually. For example, firmware version.



8.2 Connecting the S-4 to a PC / Mac for Data Transfer

NOTES

It is possible to connect and communicate with the S-4 from a PC/Mac using the USB-C connection. This is useful for a variety of reasons but one specific function is to transfer data to the S-4 as a remote storage device. Transferring samples and firmware updates can be performed in this mode.



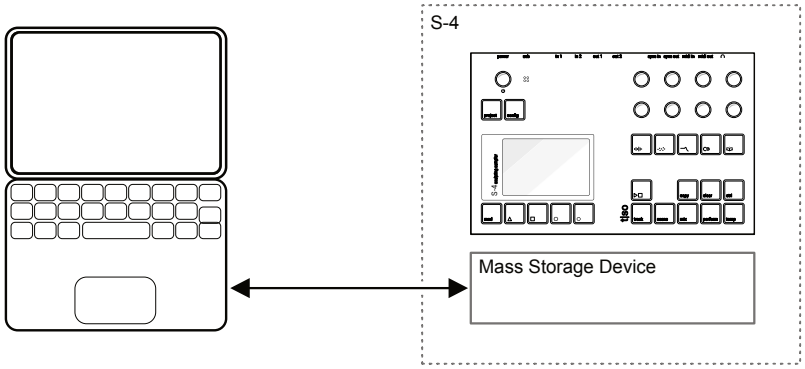
CONNECTING A PC/MAC

1. Ensure the S-4 is powered off.
2. Connect a compatible USB cable between the PC / Mac and the S-4 USB-C connector. The cable will depend on the PC/Mac connections i.e. Type C or A etc. Ensure this is a fully functional USB data compatible cable and not designed only for use as a power cable.
3. Power ON the S-4 using the supplied PSU. This will need the dedicated PSU connected as the USB port does not power the S-4 device.

NOTES

8.3 S-4 as a Mass Storage Device

The S-4 can operate as a MSD or Mass Storage Device when connected to a PC or Mac. This presents the S-4 similar to a remote hard drive connected to the PC/Mac. This allows transfer of files by simply dragging from the PC/Mac to the S-4 MSD.

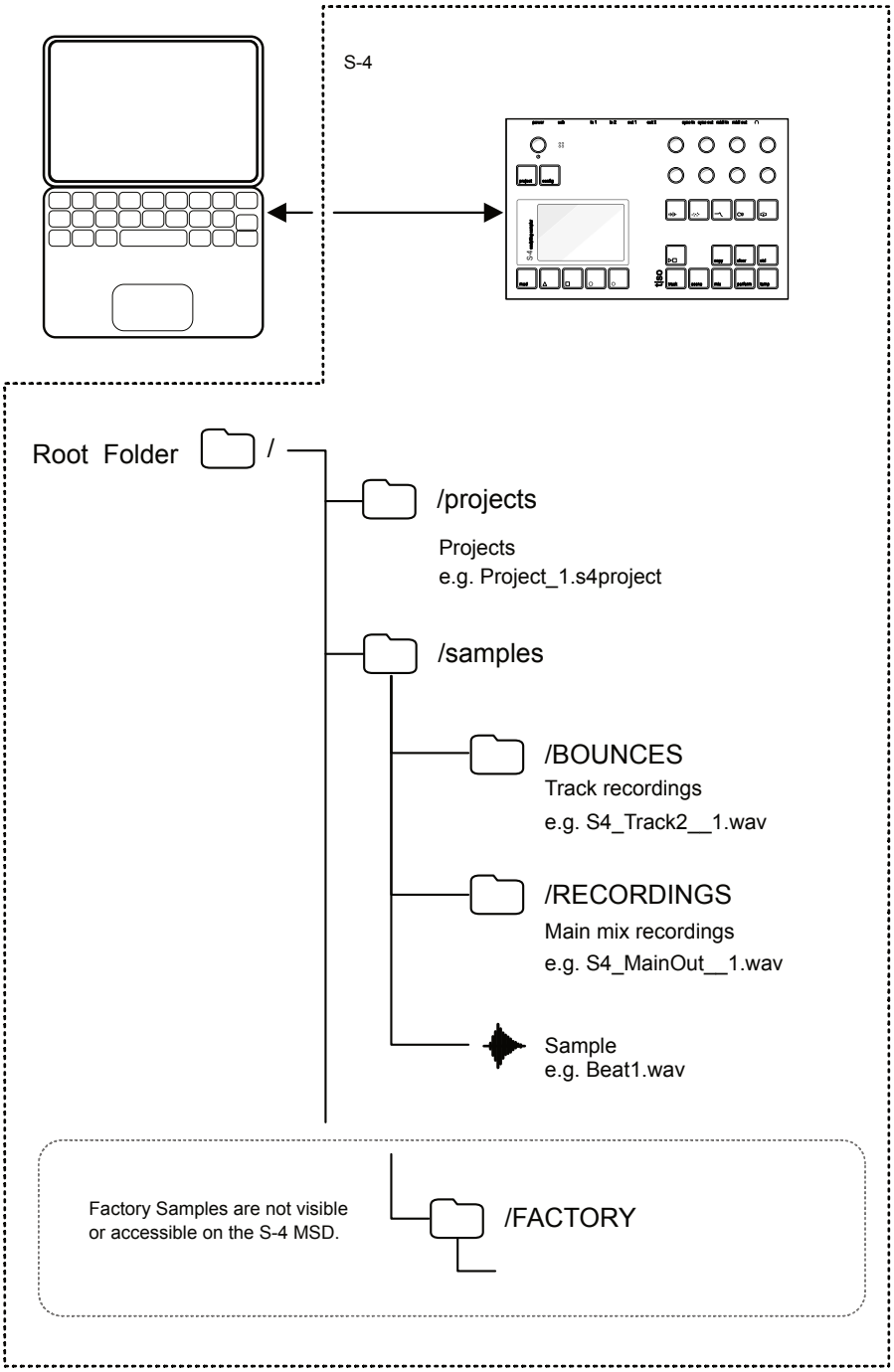


SETTING S-4 AS A MASS STORAGE DEVICE

1. Connect the PC/Mac to the S-4 as previously described. Ensure any projects are saved on the S-4.
2. Press [CONFIG] to open the configuration settings.
3. Turn (SELECT) to navigate to highlight the ‘SYSTEM’ sub-menu. Also press the [DOWN], ☐ or [UP], ⬡ Action buttons to navigate the menu.
4. Press [OPEN], △ or Press (SELECT) to open the sub-menu options.
5. Navigate to highlight the ‘USB MASS STORAGE’ option.
6. Press [OPEN], △ Action button or Press (SELECT) Knob to set the S-4 to a Mass Storage Device. This means the S-4 will be presented on the PC/Mac like a removable hard drive and named ‘S-4’. An error will be displayed if a USB connection is not present or is not recognised.
7. Files can be copied from the PC/Mac to / from the S-4 MSD. For example to copy a firmware file or a sample to the S-4 or use this mode to backup files from the S-4 to the PC/Mac.
8. When complete, eject the S-4 from the within the PC/Mac file browser.
9. The S-4 will be disconnected and will restart.

NOTES

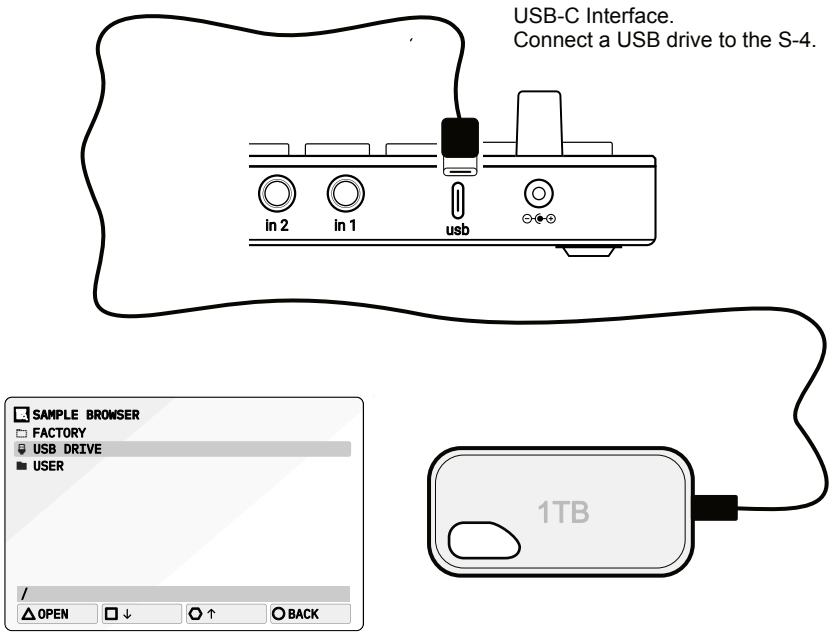
The S-4 can be backed up by copying the folders and files from the S-4 when in mass storage device mode. User samples can also be transferred to the S-4 for use in the audio engines. The folder structure follows a defined convention.



NOTES

8.4 Connecting an External USB Drive

It is possible to connect and access samples from an external drive connected to the USB Port. Drive must be formatted to either exFAT or FAT32 in order for it to be used with the S-4. The drive will be visible in the sample browser and will allow samples to be loaded to the relevant device. Samples cannot be copied from the flash drive to the S-4.



Hold [CTRL] + Press [EJECT]
to eject the drive from S-4

CONNECTING AN EXTERNAL USB DRIVE

1. Ensure the S-4 is powered off.
2. Connect a USB Drive directly to the USB-C Connection. It is not recommended to connect via a hub.
3. Power ON the S-4.
4. Press [LOAD], △ Action button from to access the sample loader, for example from the Tape Device main page.
5. The External Drive will appear in the browser along with the user and factory sample folder. This can be navigated in the same manner as other folders. Use (SELECT) or navigation buttons.
6. To eject the drive navigate to highlight the ‘USB Drive’, then Hold [CTRL] + [EJECT], △ Action button. The drive can now be physically disconnected from the S-4.

8.5 Firmware Update of the S-4

NOTES

From time to time Torso Electronics will release firmware updates. This may be to kill any bug issues or to add or enhance the S-4 features. The defined process for updates should follow the specific instructions supplied with the firmware, otherwise this acts as a generic guide. Update can also be installed from an external USB drive.

FIRMWARE UPDATE

1. Download the firmware version from the Torso Electronics website.
2. Connect the PC/Mac to the S-4 with the USB Cable and set as a MSD-Mass Storage Device as described previously. The S-4 should appear on the PC/Mac as a disk.
3. Copy the downloaded firmware .ZIP image from your PC/Mac to the S-4 mass storage device. Ensure this is an intact .ZIP file and has not been unzipped automatically in the browser.
4. Eject the "S-4" disk on your computer
5. On the S-4, Press [CONFIG] to open the settings menu.
6. Turn (SELECT) to navigate to highlight the ‘SYSTEM’ sub-menu. Also press the [DOWN], ☐ or [UP], ⎔ Action buttons to navigate the menu.
7. Press [OPEN], △ or Press (SELECT) to open the system sub-menu.
8. Navigate to highlight the ‘INSTALL UPDATE’ option.
9. Press [OPEN], △ Action button or Press (SELECT) Knob to install the firmware previously located on the mass storage device
10. The update will commence and the display screen will illustrate the progress as the file transfers and installs.
11. Once complete the S-4 will restart with the new operating system firmware installed. The current firmware version will be displayed in the start up splash screen. The update file is automatically deleted from the S-4 mass storage device.



NOTES

8.6 Installing Factory Samples

Adding user samples is a case of dragging and dropping the correct sample format from a PC/Mac to the Samples/USER directory when the S-4 is set as a mass storage device. Sub folders can be created. The S-4 will come loaded with a set of factory samples. If there is a need to reinstall these or any updated factory samples, a system utility will help install into the correct categories. Update can also be installed from an external USB drive.

FACTORY SAMPLES UPDATE

1. Download the factory samples latest version from the Torso Electronics website.
2. Connect the PC/Mac to the S-4 with the USB Cable and set as a MSD-Mass Storage Device as described previously. The S-4 should appear on the PC/Mac as a disk.
3. Copy the downloaded zip file on your PC/Mac to the S-4 mass storage device. Ensure this is an intact .ZIP file and has not been automatically unzipped in the browser.
4. Eject the "S-4" disk on your computer
5. On the S-4, Press [CONFIG] to open the settings menu.
6. Turn (SELECT) to navigate to highlight the ‘SYSTEM’ sub-menu. Also press the [DOWN], ☐ or [UP], ⬡ Action buttons to navigate the menu.
7. Press [OPEN], △ or Press (SELECT) to open the system sub-menu.
8. Navigate to highlight the ‘INSTALL FACTORY SAMPLES’ option.
9. Press [OPEN], △ Action button or Press (SELECT) Knob to install the samples previously located on the mass storage device.
10. The installation will commence and the display screen will illustrate the progress as the file transfers and installs.
11. Once complete the S-4 will restart with the new factory samples installed. These will be found when loading a sample in the ‘Factory’ folder ordered by theme.

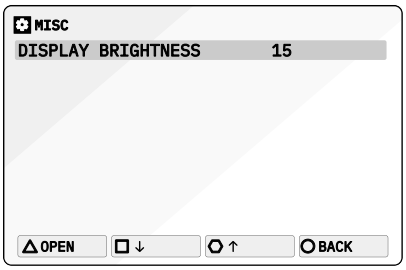
8.7 Display Brightness

NOTES

The display brightness can be adjusted within the ‘MISC’ configuration.

ADJUSTING THE DEVICE DISPLAY BRIGHTNESS

1. Press [CONFIG] to open the configuration settings.
2. Turn (SELECT) to navigate to highlight the ‘MISC’ sub-menu. Also press the [DOWN], ☐ or [UP], ⎔ Action buttons to navigate the menu.
3. Press [OPEN], △ or Press (SELECT) to open the sub-menu options.
4. Navigate to highlight the ‘DISPLAY BRIGHTNESS’ option.
5. Press [OPEN], △ Action button to toggle the setting value or turn any of the 8 parameter knobs. The display will adjust real time while the changes are being made.

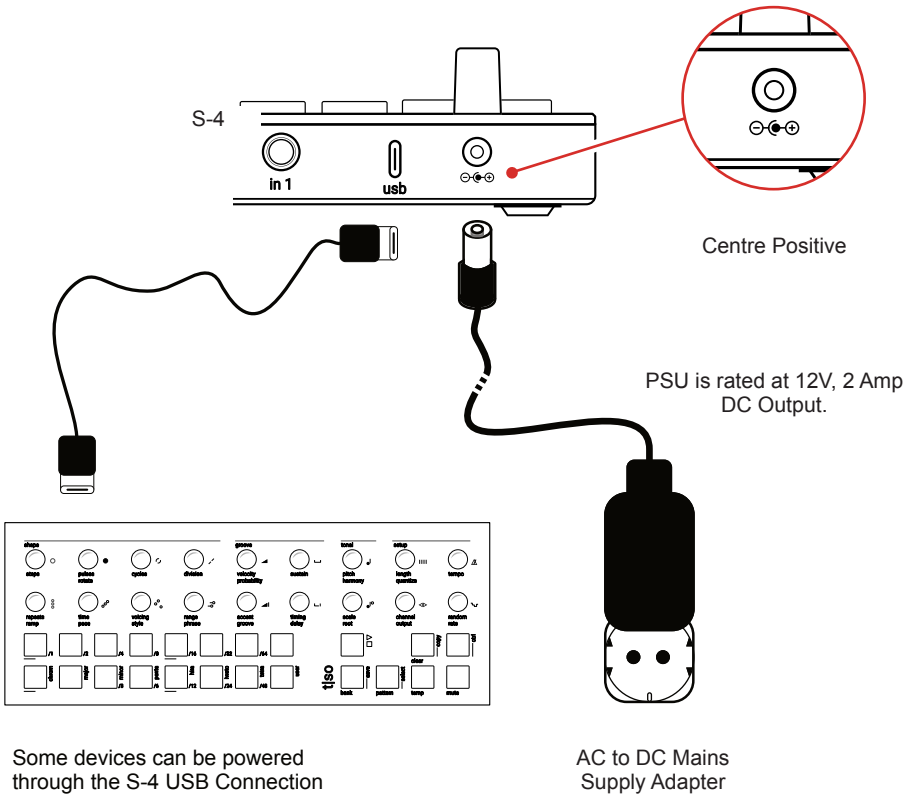


NOTES

8.8 Power Considerations

The S-4 is powered from a dedicated power supply and is not in itself powered by the USB port. Portable power chargers can be used and also the S-4 can power other devices from its USB port. It is impossible to give details for each connected device but there are some generic elements to consider.

- S4 stand alone power and general consumption: 1A, 12V (12 Watt)
- S4 powering a connected Torso Electronics T-1: 1.2A, 12V (14.4 Watt)
- S4 + max current draw from USB port: 1.5A, 12V (18 Watt)
- The current limit for powering external devices via S-4's USB is 1A, 5V.



9

Appendix

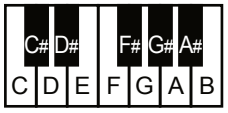
9 Appendix

9.1 Scales

NOTES

Some scales are applied to various functions in the S-4 typically to quantize the pitch to a note in the scale. A selectable ‘Free’ option is not quantized to any scale. The scales covered in various functions are illustrated below.

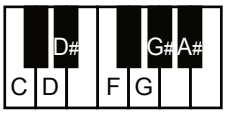
Chromatic



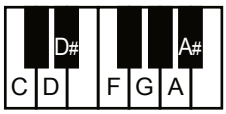
Major



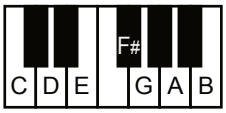
Minor



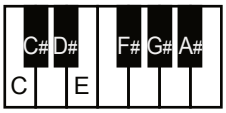
Dorian



Lydian



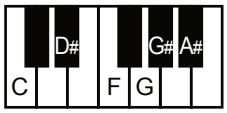
Super Locrian



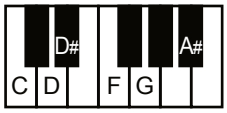
Mixolydian



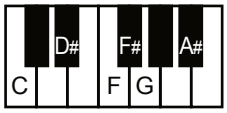
Hex Aeolian



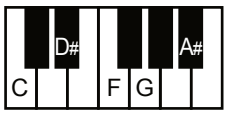
Hex Dorian



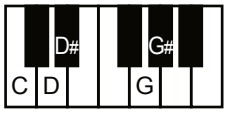
Blues



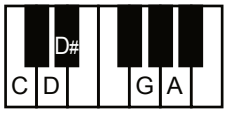
Pentatonic



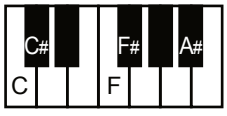
Hirajoshi



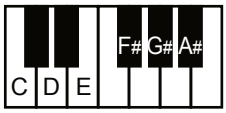
Kumoi



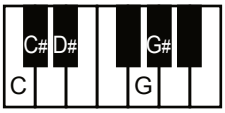
Iwato



Whole Tone



Pelog



Tetratonic



Fifths



Octaves



Overtone



Ring Only - No root

NOTES

9.2 Modulator Destination Summary

A summary of all destination parameters which can be modulated is provided below. The modulation sources can be any modulator assigned to Mod 1, Mod 2, Mod 3 or Mod 4 slot.

Device Model	Destination
Tape	Speed
Tape	Tempo
Tape	Start
Tape	Length
Tape	Rotate
Tape	XFade
Tape	Glide
Tape	Level
Tape	SOS
Poly	Pitch
Poly	Start
Poly	Length
Poly	Level
Poly	Loop
Poly	XFade
Poly	Attack
Poly	Decay
Poly	Sustain
Poly	Curve
Poly	Velocity
Poly	Spread
Poly	Filter Amount
Poly	Filter Shape
Mosaic	Pitch
Mosaic	Rate
Mosaic	Size
Mosaic	Contour

Device Model	Destination
Mosaic	Warp
Mosaic	Spray
Mosaic	Pattern
Mosaic	Wet
Mosaic	Detune
Mosaic	Random Rate
Mosaic	Random Size
Mosaic	SOS
Ring	Cutoff
Ring	Resonance
Ring	Decay
Ring	Pitch
Ring	Slope
Ring	Tone
Ring	Scale
Ring	Wet
Ring	Waves
Ring	Noise
Ring	Tilt
Ring	Detune
Ring	Waves Rate
Ring	Noise Rate
Deform	Drive
Deform	Compress
Deform	Crush
Deform	Tilt
Deform	Noise

9 Appendix

NOTES

Currently the S-4 can modulate all of the adjustable parameters found in the audio devices, tracks and the main mix page. Note that the amount of modulation can be applied unipolar or bipolar. in [MOD] mode change mode adjustment using [CTRL] + Parameter.

Device Model	Destination
Deform	Noise Decay
Deform	Noise Color
Deform	Wet
Vast	Delay
Vast	Time
Vast	Reverb
Vast	Size
Vast	Feedback
Vast	Spread
Vast	Damp
Vast	Decay
Track	Send 1
Track	Send 2
Track	Send 3
Track	Send 4

Device Model	Destination
Mix	Level 1
Mix	Level 2
Mix	Level 3
Mix	Level 4
Mix	Filter 1
Mix	Filter 2
Mix	Filter 3
Mix	Filter 4
Mix	Pan 1
Mix	Pan 2
Mix	Pan 3
Mix	Pan 4
Mix	Compress
Mix	Main

NOTES

9.3 Timing Rate Options

Some functions operate on a timing scale i.e. all rates and delay time. These note divisions are shown generally below. The rates available include triplet and dotted values.

Mode	Rate Division Options	Comments
Straight	32/1, 16/1, 8/1, 4/1, 2/1, 1/1, 1/2, 1/4, 1/8, 1/16, 1/32, 1/64	Division Values
Triplet	32/1 T, 16/1 T, 8/1 T, 4/1 T, 2/1 T, 1/1 T, ½ T, ¼ T, 1/8 T, 1/16 T, 1/32 T, 1/64 T	Division Values
Dotted	32/1 D, 16/1 D, 8/1 D, 8/1 D, 4/1 D, 2/1 D, 1/1 D, 1/2 D, 1/4 D, 1/8 D, 1/16 D, 1/32 D, 1/64 D	Division Values
Free	0.20Hz - 50Hz, Vast: 10000ms - 2.7ms	Adjust Freely

Vast: Starts at 4/1 up to 1/64 for Straight, Triplet and Dotted. Free is 10000ms - 2.7ms

Ring: Starts at 32/1 up to 1/64 for Straight, Triplet and Dotted. Free is 0.20Hz - 50Hz

Random: Starts at 8/1 up to 1/64 for Straight, Triplet and Dotted. Free is 0.20Hz - 50Hz

Wave: Starts at 32/1 up to 1/64 for Straight, Triplet and Dotted. Free is 0.20Hz - 50Hz

9 Appendix

9.4 Manual Change Log

The main cover and inner rear cover pages will change with every release to show the latest OS version and manual version.

OS Version	Manual	Date	Updates
1.0.0	a-g	7th May 2024	Original Release. All version a-g are only typo corrections.
1.0.2	a	5th June 2024	Page 145 - Updated timing table in appendix
1.0.3		13th June 2024	No Manual update - Firmware Hot fixes only
1.0.4	a	23rd June 2024	Page 136 - Removal of zip file and ability to update from USB external drive. Page 136 - Ability to install factory samples from USB drive
1.0.5	a		Page 146 - Added Manual change log
1.1.0	a	6th Sept 2024	Page 15: On/Off added to the Select rotary Page 36: Added info on sample buffers saved with project Page 46-47. Tape Tempo Sync & Free options and comments added. Page 58-59. Loop mode symbols added and diagram updated for loop modes. Also comment on Poly Voice release added. Pages 61, 62, 72, 73. Minor Improvements in clarity, intro text with grain explanation, vast diagram added stereo lines, some text changes on damping, delay, warp and spray. Page 113. Removed banner for MIDI Sync 'coming soon' Page 117-118, 130. Changed menu terms to Clock In/Out from Sync In/Out Pages 123. Fixed deform CC number errors.
1.2.0	a	30th Oct 2024	Page 35: Tape image updated Page 45-46: Tape Diagram and Tables edited and reorganised parameters in the 'CTRL' Page options. Trim, Density, Length updated. Page 47: Tempo Mode updated to add Stretch mode. Page 52-54: Tempo mode updated as well as adding the trim edit and length enhancements. Page 55: Comments in the tape grid with respect to length indicator Page 57: Reference to density affecting Freeze behaviour added. Index: Keylock removed and stretch added

9.5 Contacts & Acknowledgements

Product Design & Development

Mathias Bredholt

Mathias Kirkegaard

Lars Buchholtz

Jonas Kenton

Factory Sample Bank

Petra Skibsted / peachlyfe

Nikolaj Manuel Vonsild

When Saints Go Machine

Christian Balvig

Patrick Alexander Bech-Madsen / Sekuoia

Ctrls / Troels B-Kundsen

Jacob Hvid Amstrup / Oedeland

Jacob Løhde

Bogdan Raczynski

Contact

contact@torsoelectronics.com

Terms & Conditions

https://torsoelectronics.com/terms-and-conditions/

9 Appendix

Appendix 9

10

Index

10 Index

A

Ableton Live 109–111

Acknowledgments 147

Action Button 15, 18

ADSR 79, 82, 87

Architecture 16

Audio 103, 108, 130

Audio Source 40

B

Brightness 138

Bypass 41, 74–75

C

CC 120

Clear 32, 34–35

Clock 16, 127

Color 40, 68

Compressor 16, 99

Config 130–131

Contacts 146–147

D

Deform 41, 69–70

Delay 72–73

Device 42–43

Dimensions 13

Display 138

E

Envelope 79, 87

F

Factory Samples 37, 137

Filter 40, 63, 93, 97

Firmware 12, 130, 132, 136

Free Mode 47

Freeze 56

G

Granular 40, 60

Grid 55

H

Headphones 104

Headset 31, 104, 106–107

I

Inputs 31, 105–106

L

LFO 79, 83

Line In 48, 107

M

Mass Storage 130, 133

Master Out 32, 95

Material 40, 45

Microphone 15, 48, 74, 106–107

MIDI 113–114
MIDI adapter 13
MIDI CC 119
MIDI Channel 116, 130
MIDI In 115
MIDI Synchronisation 117
Mix 91–92
Mode Select 46
Modulation 15, 19, 77–78, 80, 82, 143
Modulator Destination 16, 143
Mosaic 41, 62
Mute 92, 96

N

Naming Editor 20
Noise 70

O

Outputs 91, 93, 104
Overdub 45, 48, 50

P

Pan 93
Performance Buttons 15
Play 28
Poly 41, 58
Power 10, 12, 139
Project 21, 24, 26

Q

Quantization 55

R

Random 79, 85
Record 45, 48, 50, 92, 100
Reverb 72–73
Reverse 56
Ring 41, 65

S

Sample Browser 36–37
Samples 134
Scales 142
Select 15, 18
Sends 16, 32
Sends Only 33, 130
SOS 48
Sound On Sound 50
Space 40, 71
Stop 28
Stretch 47
Sync 47

Sync In 127

Sync Out 127

T

Tape 41, 45, 47, 55

Tape Markers 68

Tempo 19, 46, 49

Track 19, 27, 32, 130

Track View 29, 33

U

Update 130, 136

USB 105, 108, 115, 132, 135

USB Drive 135

User Samples 37, 137

V

Vast 41, 72

Volume 94–95

W

Wave 79, 82–83

t|so

Copyright © 2024 by Synthdawg & Torso Electronics

All rights reserved. This book or any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of the publisher except for the use of brief quotations in a book review. All text and images are designed and created from scratch for this book by Synthdawg.

Manual Produced in the United Kingdom

October 2024 - S-4 OS 1.2.0 a



www.synthdawg.com

Synthdawg


tlso