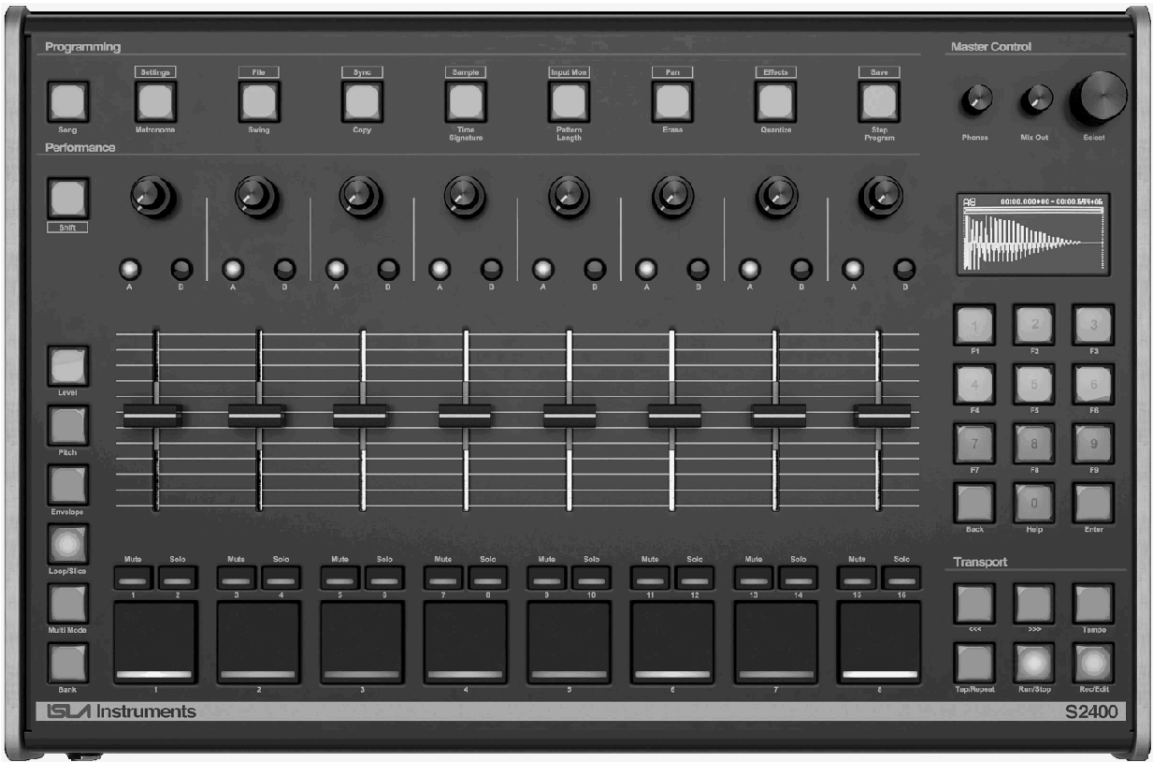
ISLA Instruments

S2400

User Manual



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The most up to date version can be downloaded from
https://islainstruments.com/docs-downloads/

Foreword

First and foremost, if you're reading this user manual then the likelihood is that you have either already purchased an S2400 or are perhaps considering doing so. If you have, then thank you.

I've had a serious drum machine fetish for about 25 years now. The first machine I bought was a broken MXR-185 for cheaps at a local thrift store circa 1996. Broken only in the sense that it had been abused so much that the insides of the switches had a sticky residue on them from a certain plant species, resulting in them not releasing after being pressed. After I got it all running, I was hooked and spent countless evenings making up my own drum patterns.

Not long after that, I got my first sampler; an 8-bit parallel port attachment for my Commodore Amiga 2000. Sequencer One and OctaMED were my music software weapons of choice for this machine. From these formative experiences, my fate was set. Electronics repair, computers, music gear, and music production is pretty much all I've ever done, and have been my lifelong love ever since those early days.

The engineering side of me pretty much took a hiatus for the best part of a decade as I worked as a co-producer and record label manager for the DJ/Producer Ian Carey. Fast forward to 2015, and again, a visit to a thrift store here in the USA (I'd emigrated here from the UK a few years before, via Spain for seven years) resulted in me walking out with a broken Alesis HR-16 drum machine of which I started modifying and hot rodding into being able to do all sorts of things including reading samples from custom burnt EPROMS. I uploaded the results of my modifications onto YouTube (lookup: Rhythm Imposer) and pretty soon after was bombarded with emails from folks wanting me to make them a similar machine.

I guess the universe was trying to tell me something, and that was to culminate my love of electronics, music production, and old-skool hardware workflows into a modern, yet familiar machine with the aesthetic and sonic character that pays tribute to some of the most inspiring and prolific machines of the 80s and 90s. And, Dave Rossum, a true pioneer, and a personal hero of mine, I hope this machine pays tribute to you as well.

Bringing this machine to life has been a labour of love from a very small team of like-minded and dedicated individuals of whom, with the exception of myself, are an absolute crock-pot full of talent and experience, without which, there would be no S2400.

Once again, THANK YOU to our customers and followers, for believing in this project enough to crowd-fund it into existence. I for one can't wait to see what you come up with on your machine.

Now, switch your machine on, take a deep breath, relax… and turn the page.

❤️

Brad Holland
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Introduction

The 1980s and 1990s were a groundbreaking time for electronic music. Samplers like the Emu SP-1200 and Akai MPC60 revolutionized music and shaped new genres like hip hop, house, and jungle. Thanks to their crunchy 12-bit sound and solid workflow, these samplers have become sought-after classics. The S2400 retains the sound and soul of these machines whilst adding current features like built-in USB soundcard, disk streaming, WAV import, and much more.

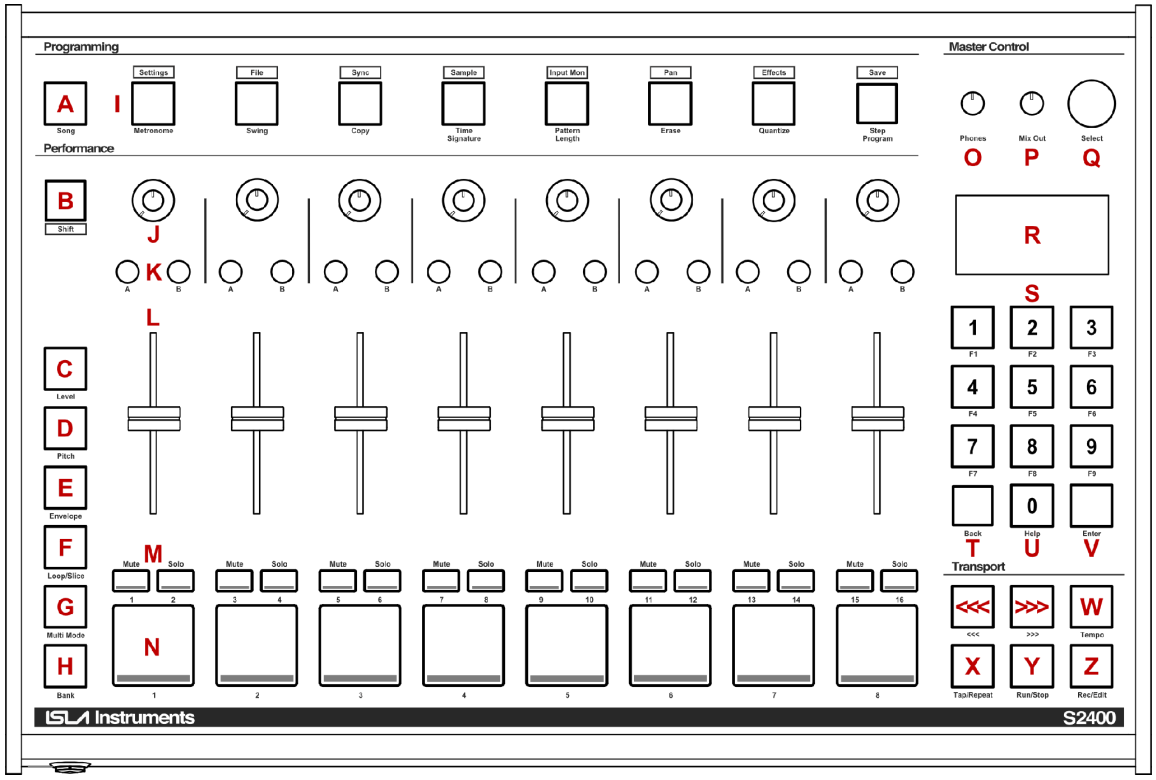
The S2400 is a 16-voice machine, meaning it can play 16 mono or stereo samples simultaneously. Each of these samples can be assigned to a Track, and there are 32 sample Tracks available. Each Track can be sent to one of the eight individual outputs and into your audio interface or mixing desk. There are also 32 MIDI tracks that you can use to sequence external synths, drum machines, and samplers.

As well as loading WAV samples from the SD card, you can record from a turntable (phono) or line input. Then modify each sample with pitching, envelopes, filters, slicing, and sequence using the sophisticated onboard sequencer. Because the S2400 can also stream samples from the SD card, you can even playback very long samples like acapellas (the only limit to sample length is the SD card itself).

Once you've created a set of patterns in the sequencer, you can put them together into a song, bounce them down to WAV files or record them to your DAW using the analog outputs or USB audio interface.

We have designed the S2400 to be the centrepiece in a modern studio. Create songs entirely in the S2400, if that's your jam, or sync it up with your other sequencers, DAW, modular synths, etc., using MIDI or analog clock. How ever you choose to use it, we hope you'll enjoy making music with the S2400 as much as we have enjoyed creating it.

Front Panel



A. Song: Switches between Song and Pattern modes.

B. Shift: Shift is used in conjunction with other controls for additional features.

C. Level: Sets the Level fader mode.

D. Pitch: Sets the Pitch fader mode.

E. Envelope: Sets the Envelope fader mode.

F. Loop/Slice: Sets the Loop/Slice fader mode.

G. Multi Mode: Engages Multi Mode, which spreads eight values of a parameter across the faders/knobs for a single track.

H. Bank: Change the bank. There are four banks of eight sample tracks and up to four banks of MIDI tracks.

I. Top Row Keys: Dedicated keys for the most commonly used Pattern mode functions: Metronome, Swing, Copy, Time Signature, Pattern Length, Erase, Quantize, and Step Program.
Holding Shift and pressing a top row key accesses configuration options: Settings, File, Sync, Sample, Input Monitor, Pan, Effects, and Save.

J. Knobs: Context-specific, multi-purpose dual knobs that control filter cutoff, resonance, loop points, and more depending on the fader mode.

K. A & B: Two Context-specific, multi-purpose illuminated buttons that control various options depending on the fader mode, they also light up to indicate mode-specific information.

L. **Faders:** The focus of the front panel. They control level, pitch, and various parameters depending on the Fader mode.

M. **Mute & Solo:** A pair of illuminated buttons to mute/solo a track. They double as step buttons in TR Mode.

N. **Pad:** Velocity sensitive, RGB illuminated pads for playing and recording sounds.

O. **Phones:** Volume control for the headphones.

P. **Mix Out:** Volume control for the mix out jacks.

Q. **Select:** A rotary encoder with integrated pushbutton. The encoder is used for editing settings, scrolling, and a multitude of other things.

R. **Screen:** White OLED screen that displays menus, waveforms, envelopes, and lots of information.

S. **Keypad:** Used for numeric entry as well as F-keys.

T. **Back:** The Back key exits menus and modes.

U. **Help:** The help key displays context sensitive information about the active mode. Press Help for a reminder of what the F-keys, faders, knobs, and buttons do in the active mode.

V. **Enter:** Confirms data entry. On some screens, Enter is used as a tab key.

W. **Tempo:** Press Tempo to set the tempo. Pretty straight forward.

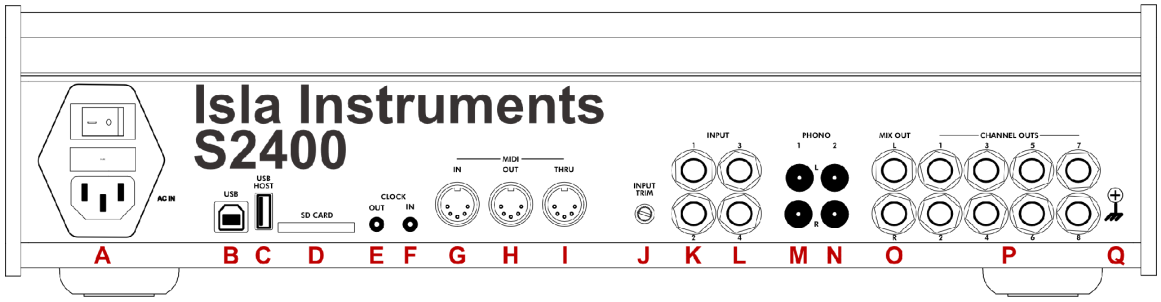
X. **Tap/Repeat:** Works as a tap-tempo key when setting the tempo, or as a pad repeat key when playing or recording the pads.

Y. **Run/Stop:** Starts and stops the sequencer.

Z. **Rec/Edit:** Turns recording of patterns on/off. In Step Program mode, turns editing on/off.

<> **Left & Right Arrows:** Function just like turning the encoder left and right. Long-press the arrow keys to auto-repeat.

Rear Panel



A. Power Inlet: Accepts a C13 style power cord. Input voltage can be 125 or 250. Above the inlet is the main power switch.

B. USB: USB type B jack for connecting the S2400 to a computer.

C. USB Host: USB type A jack for connecting controllers to the S2400.

D. SD-Card: SD-Card slot for saving samples and projects.

E. Clock Out: 3.5mm clock out jack clocking external hardware or modules.

F. Clock In: 3.5mm clock in jack for clocking the S2400 from external hardware or modules.

G. MIDI In: MIDI DIN jack for controlling the S2400 via MIDI.

H. MIDI Out: MIDI DIN jack for controlling other MIDI devices from the S2400.

I. MIDI Thru: MIDI DIN jack which outputs the same data that is on the MIDI In jack.

J. Input Trim: Knob adjusts the hardware amplifier that is internally connected to the sampler. Note that higher is clockwise – when adjusted from the front of the machine, not the rear.

K. Input 1 & 2: Two ¼" mono jacks for sampling input. Connected to a preamp.

L. Input 3 & 4: Two ¼" mono jacks for sampling input. Connected to a preamp. Input 3&4 are normalized to Phono1 so you can connect RCA plugs, but still go through the preamp.

M. Phono 1: A pair of phono jacks for sampling turntables. Connected to RIAA preamps.

N. Phono 2: A pair of phono jacks for sampling turntables. Connected to RIAA preamps.

O. Mix Out: Two ¼" mono jacks output the sum of the eight outputs. If a plug is inserted into only one of the Mix Out jacks, it will include both signals, albeit at a slightly lower volume.

P. Channel Outs: Eight individual output jacks. They are switched jacks, so when a plug is inserted into an individual output, that output is mechanically removed from the mix out. The outputs are pseudo balanced. Which means they are TRS jacks, but the ring does not carry an inverted copy of the signal as with actual balanced jacks. Instead, the ring is connected to ground with an impedance matching that of the signal on the tip. This configuration still gives noise reduction when connected to a balanced input, albeit with a 6dB reduction in level.

Q. Ground: Grounding screw for connecting turntables.

Instant Gratification

You just got your S2400 and you want to make some beats now!

Make Some Sounds

Connect the Mix Out jacks on the back to an amp, mixer, or audio interface.

Or, plug headphones into the headphone jack on the front.

Turn on the S2400 with no SD card inserted.

A default kit will load from the internal memory.

Press the pads. Wee! Sounds!

Shift the Pitch

Press the Pitch key on the left.

The faders now control the pitch of the sounds.

Pads 7 and 8 in the default kit are toms and sound great pitch shifted.

Record a Pattern

Press and hold the Rec/Edit key, then press the Run/Stop key.

The S2400 is now recording.

Press pads to record sounds into the pattern.

The pattern will repeat.

Press more pads to add to the pattern.

Learn More

The S2400 can do a whole lot more!

Read the whole manual to learn all of its secrets.

Watch the S2400 Video User Manual on YouTube.

User Interface Elements

Highlighted Field

When a field on the screen is highlighted (black text on a white background), then that field is currently being edited. Its value will change when the arrow keys are pressed or the encoder is turned, or, in the case of a numeric field, when the number keys are pressed, and in some cases, when a fader is moved.

The Encoder

Turning the encoder always does the same thing as pressing the arrow keys, and pressing the encoder always does the same thing as pressing the Enter key. They are just two different ways of interacting with the machine.

Press and hold the arrow keys to repeat the key. Only the arrow keys repeat when held.

Shift

Shift+Key means hold the Shift key, then press another key. Shifted keys are used all over.

The keys across the top of the S2400 are all dual function, except Song. Press the key to access the function written under the key, and press Shift+ the key to access the function written above it.

Sticky Shift key allows single handed Shift+Key presses. Press and release Shift *without* pressing any other key to "stick" Shift. The Shift key's LED will be illuminated. The next key pressed while Shift is stuck will behave as if Shift was held, and then Shift will be unstuck. Pressing and releasing the Shift key when it is stuck will unstick it.

F-Keys

The F-keys (function keys) are context specific. They do different things depending on what screen is active. They share the same keys as the number keys. If a numeric field is highlighted, pressing the number keys changes that field, so the F-keys are activated by either Shift+ the number key, or by long-pressing the number key. When a non-numeric field is highlighted, then the F-keys can be accessed with or without Shift or long-press.

Help

The help key displays the built-in help. Help is context sensitive and gives information about the active screen or mode. The built-in help is not the entire user manual, but more of a quick reference. It lists the functions of all of the faders, knobs, buttons, and F-keys, which change depending on the active screen or mode. At the top of the help for many screens is an F-key quick reference grid. At the bottom of the help is a QR code which links to this manual.

Help shares a key with the number zero, so the same rules apply to it as to the F-keys.

Tabbing

Several screens use the Enter key to switch between fields to edit (e.g. Sampling, Pan, Waveform Editor, Envelope Editor). On those screens pressing Enter or the Encoder highlights the next field, just like pressing the tab key on a computer keyboard. Pressing Shift+Enter or Shift+Encoder works like back-tab, and highlights the previous field. Holding down Enter or the Encoder while pressing the Arrow keys or turning the Encoder also tabs forward and backward between fields.

Double Clicking

Some of the keys across the top of the S2400 can be double clicked (rapidly pressed twice) to quickly access the most common feature, or toggle the most common setting, for the associated menu, without having to navigate through the menu and click on the option.

Metronome: Toggles play during the current mode (playback, recording, sampling).

Settings: Displays the organize tracks screen.

File: Displays the file browser.

Sync: Toggles the clock source between internal and the last selected external source.

Input Mon: Turns monitoring on or off.

Pan: Performs an auto-pan.

Navigating Menus

Most of the keys across the top of the screen display a menu. Some other keys, like Shift+A display a menu depending on the active mode. Menus contain settings and actions. Most menus have a specific purpose and sub-menus are kept to a bare minimum.

Use the arrow keys or encoder to scroll through the menu and highlight an action or setting. Press the encoder or Enter key to execute the action, or edit the setting. Press Enter or Back to stop editing and return to highlighting. Press Back while highlighting to exit the menu.

Settings have the name on the left, and the value on the right. Action menu items are indicated by an arrow on the far right. Press Enter or encoder on an action item to execute that action.

Some settings have a track as the value. Pressing a pad while the setting is highlighted sets the value to the track whose pad was pressed.

Some menus have settings that are track specific. Pressing a pad will scroll to the first menu item specific to that pad.

A setting can have one of four types of values: on/off, numeric, list, or text.

On/off fields look like a check box. Press the encoder or Enter to toggle the value.

Editing a Numeric Field

Arrows/Encoder: Increments/decrements the number. For settings with a range of 99 or more, arrow key autorepeat or encoder fast turn changes the number by 10 instead of 1.

Shift+Arrows/Encoder: For any field with a decimal point, hold Shift to change the fractional part of the number. Without shift, the whole part of the number is changed.

Enter/Encoder Press: Saves the setting value and exits edit mode.

Back: Exits edit mode. If a multi-digit number is partially typed, Back clears the number without exiting edit mode.

Number Keys: Allows for directly typing the setting value. Leading zeros are optional. Editing ends when all digits have been entered or when Enter is pressed.

F1: Changes the sign of a numeric field, if the range can be negative.

If a numeric field is highlighted, but not yet selected for editing, pressing a number key begins editing it, the same as pressing Enter, then pressing the number.

When typing a field that has decimals, a leading zero is needed when the value has fewer than the maximum allowable digits. For example, to set tempo to 91.2, type 0912.

Editing a List Field

List fields have a list of possible values. The values may be text, numeric, or a mix of both. The values in a list field are not edited, just selected.

Arrows/Encoder: Scrolls to the previous/next value in the list.

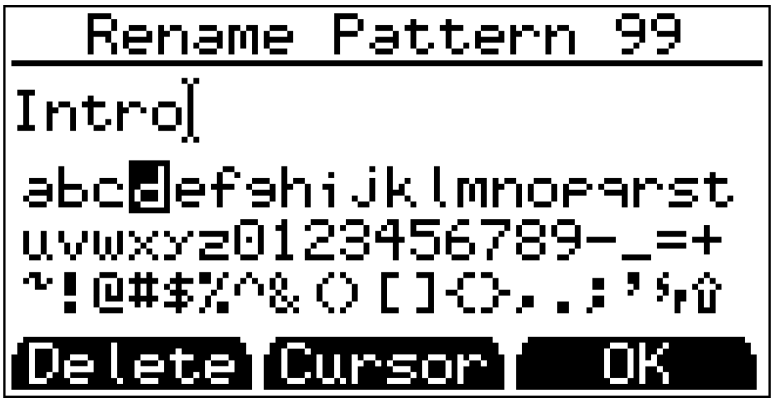
Shift+Arrows/Encoder: Scrolls to first/last list value.

Enter/Encoder Press or Back: Exits edit mode for the setting.

Number Keys: Some list fields have numeric shortcut keys. When editing, pressing a valid shortcut key selects the associated list value. If a list field is highlighted, but not selected, pressing a valid shortcut key is like selecting the field, then pressing the key.

For output lists, pressing 1-8 selects the output.
For time lists, the keys 4, 8, 1, 3, and 6 correspond to 1/4, 1/8, 1/16, 1/32, 1/64.
For track lists, pressing a pad (not a number) selects that track in the current bank.

Editing a Text Field



F1: Delete the character to the right of the cursor. If the cursor is at the end of the text, F1 is backspace.
Shift+F1: Backspace, deletes the character to the left of the cursor.
Long-press F1: Clears the entire text field.

F2: Switch between moving the cursor or selecting characters.

F3: Saves changes made to the text field and exits the text editor. A blank text field cannot be saved.

Back: Cancel editing, discarding any changes.

F4-F9: Cellphone-style alpha keys. Pressing an alpha key highlights the first character in that key's group. Additional presses of the same character select the next character in the group. The number-character assignments are not the same as on a phone. They are rather easy to remember since most of the groups begin with a vowel.
The character groups are:

```
ABCD  EFGH  IJKL
MNOP  QRST  UVWXYZ
      0-9
```

0/Help: The zero key cycles through numbers like F4-F9 cycle through letters. To display the help screen, hold shift and press zero. Sticky-Shift will not work here because Shift changes case.

Shift: During editing, pressing Shift changes the case of the characters. It is not necessary to hold Shift when using F-keys in the text editor, but it is necessary for Help.

In Cursor Mode

Arrows/Encoder: Move the cursor, which is the point where characters are inserted.

Shift+Arrows/Encoder: Move the cursor to the beginning/end of the text.

Enter/Encoder Press: Switch to character select mode (same as F2).

In Character Select Mode

Arrows/Encoder: Highlight the next/previous character

Shift+Arrows/Encoder: Move the highlight up/down one row

Enter/Encoder Press: Insert the highlighted character into the text at the cursor position. The "SP" character inserts a space. The ⇧ character toggles upper/lower case.

With a USB Keyboard

Just type to enter text. Arrows move the cursor. Delete, backspace, home, end keys do what it says on the label. Escape cancels editing. Enter or F3 saves the changes and exits the editor.

Outside of the text editor, USB keyboard keys have the following functions:

Keyboard	S2400
0 - 9	0 – 9
F1 - F9	F1 - F9
F10/Help	Help
Left/Up Arrow	Left Arrow
Right/Down Arrow	Right Arrow
Enter	Enter
Escape	Back
Backspace	Shift+Back
L	Level
P	Pitch
E	Envelope
S	Loop/Slice
M	Multi Mode
B	Bank
Q	Quantize
T	Tempo
CTRL+S	Save
CTRL+C	Copy
CTRL+X	Erase
CTRL+Z	Undo
CTRL+Y	Redo
CTRL+V	Paste
Spacebar	Run/Stop
Alt+Spacebar	Record

Browsing Files and Folders

The S2400 has a file browser that is used for selecting sounds, kits, and projects to load, and for selecting the folder where a new sample will be saved. The SD card and internal samples can also be browsed by selecting Browse Files from the File menu.

The top row of the file browser, above the line, shows the action being performed, e.g. Load Kit, or Select Sample Folder. Below the line is the list of folders and files.

The first row of the list has the name of the current folder, and to the left of that, an up arrow. Highlight the up arrow and press Enter or the Encoder to go up one level in the folder structure. Pressing Shift+Back has the same effect.

When the action is selecting a folder, the current folder name is highlightable and clickable. This is necessary to select a folder that has sub-folders.

Arrows/Encoder: Highlights the next or previous file/folder.

Shift+Arrows/Encoder: Scrolls to the first or last file.

Arrows Autorepeat: Scrolls a file list by a page at a time.

Encoder fast turn: Scrolls a file list by a page at a time.

Back: Exits the file browser.

Shift+Back: Goes up one folder level.

Enter/Encoder Press: When a folder is highlighted, navigates into the folder. When a file is highlighted selects that file and exits the file browser.

File Browser F-Keys: Several common file system functions are available while browsing.
Note: Do not rename files that are inside project or kit folders. Use the rename project, kit, or track functions. See the Files and SD Card section for more details.

F1: File/Folder Info – Shows the file size of any file. For folders, shows the file count and total size. For WAV files, shows the length, channels, sample rate, bit depth, BPM estimation, and note detection. If F1 is pressed when “SD Card” is selected, shows card capacity used space, free space, and free time (how many minutes of samples can be saved). Arrow keys or encoder can be used in the file info screen to scroll to the next/previous file in the current directory.
F2: Make New Folder
F3: Delete File/Folder
F4: Resample a WAV File to 26Khz 12-bit
F5: Preview Sound Settings – When browsing files from “Assign Sound”, the track’s settings override default preview settings
F6: Rename File/Folder
F7: Time Stretch a WAV file
F8: Lock/Unlock the faders for the current fader mode (see discussion of fader lock)
F9: Lock/Unlock the faders for all fader modes

Files and SD Card

SD Card Format

The S2400 uses an SD Card to store samples, kits, projects, and settings. It must be formatted as FAT32, which is standard for most new SD cads. We have tested it with up to 512 GB cards. An inserted SD card can be formatted by the S2400 with the format option in the Settings menu.

File and Folder Names

The S2400 can only read valid FAT32 file and folder names. A square character (□) in a file or folder name indicates an untranslatable Unicode character. It also means that it is an invalid FAT32 name, and the S2400 cannot open that file/folder. MacOS allows invalid folder names (including trailing spaces and embedded slashes) that no other OS can read. Rename invalid folders/files on your computer.

Samples

Samples (.WAV files) can be saved to and loaded from any folder on the SD card. When saving a sample to a project, the project must exist. If no project was loaded or saved before sampling, the new project must be named and saved before the sample is saved. If the project exists, the sample is saved in the project directory, but the project itself is not saved at that time.

Sample Size

There is no limit on the length of a sample that can be played from the SD card. The only size limits are on sampling time, and waveform editing.

Supported Sample Formats

File Format: WAV
Sample Rates: 26KHz, 44.1KHz, and 48KHz
Bit Depth: 16-bit, 24-bit, 32-bit, and 32-bit float

Files other than WAV are not loaded. Sample rates other than those listed play at 48KHz. Bit depths other than those listed do not play.

Optimal Sample Format

The S2400 Audio Engine is 48KHz, 16-bit, so that is the optimal sample format for playback.

44.1KHz files are supported because they are so common, however, they have to be resampled to 48KHz during playback, which can add some aliasing in higher frequencies.

Samples with a bit depth higher than 16-bit are converted during playback. So, there is no benefit to loading files of higher bit depth. They will also take up more memory and CPU resources.

Kits

A kit is a set of sample files and their settings file. When a kit is saved, all of the samples currently assigned to tracks are copied (not moved) to the kit's folder. All of the track settings and output settings are saved in a file with the same name as the folder and a KIT file extension. If a track is not assigned to a sound, the settings for that track are not saved. When a kit is loaded, only those tracks that are in the kit are loaded, and other tracks will not have their settings overwritten.

New kits are each saved in their own folder inside of the KITS folder in the root of the SD card. Kits that are stored in folders other than the KITS folder can be loaded, edited, and saved.

The Load Kit function can load a stand-alone kit, or a project's kit.

Projects

A project folder contains:

1. A project file with the same name as the folder and an S24 extension.
2. A kit file with the same name as the project file and a KIT extension.
3. Optionally, a MIDI map file with the same name as the project file and a MAP extension.
4. All of the samples in the project's kit, and the Live Loops. Samples that are assigned to tracks are copied (not moved) to the project folder when the project is saved.

New projects are each saved in their own folder inside of the PROJECTS folder in the root of the SD card. Projects that are stored in folders other than the PROJECTS folder can be loaded, edited, and saved.

To make a copy of a project, load the project then "save as" a different project name. When a project is "saved as" on the S2400, it will be saved in a new folder inside the PROJECTS folder. The original folder and its contents are not changed.

Global Settings File

Global settings are saved in a file called S2400.SET in the root of the SD card. The file contains all settings found in the Global Settings, Sync, Input Monitor, and Metronome menus, plus the sampling settings. The global settings file is automatically saved whenever a setting is changed, and it is automatically loaded at power-on.

MIDI Maps

MIDI Map files have a MAP file extension. Maps can be loaded from any folder, but are always saved in the MIDI MAPS folder. See the MIDI Mapping section for more details.

DSP Files

DSP configuration files have a DSP file extension. Live FX configuration files have an LFX extension. Preset files have an FXP extension.

Disk Images

Click on a disk image with an .HFE, .IMG or .SP12 file extension to convert it to an S2400 project.

Editing the SD Card

The SD card can be edited on a computer, either by inserting it into an SD card slot on the computer, or with a USB SD card reader, or by leaving the card in the S2400 and enabling MSC mode from the File menu.

In general, the S2400 saves files to specific folders, but can read them from any folder. Samples, kits, projects, and maps can be copied to and from the card. If a more complex directory structure is desired, kits and projects saved by the S2400 in the PROJECTS and KITS folders can be moved to other folders, or into sub-folders. They will still be accessible on the S2400. Likewise, kits and projects downloaded from other users can be placed anywhere. Because the Load Project function starts in the PROJECTS folder, it is helpful to create a sub-folder under that for other people's projects.

If a project folder is renamed, the associated S24 file should be renamed also. If not, it will take an extra click to load it. If the KIT file does not have the same name as the S24 file, the sounds and their settings will not be loaded when the project is loaded. Either rename both files, or use the rename project function on the S2400 File menu.

Do not rename the WAV files inside of a kit or project folder. The KIT file contains the name of each WAV file and if that file name does not exist, the sound will not be loaded when the project or kit is loaded. Use the rename track function on the S2400 Track Settings menu.

Assigning Sounds to Tracks

There are four ways to assign sounds to tracks.

Assign Sound

Press Shift+Pad, or select Track Settings from the Settings menu, then select Assign Sound. The File Browser is displayed. Each track remembers its last-used Assign Sound folder across save, reboot and project load — so the next time you re-open Assign Sound for that track, the browser opens straight in the same folder you used before. Navigate to a folder containing WAV files. As you scroll over files, they are previewed. Repeat the preview by pressing the pad. When pressing the pad, sounds will preview using the track's settings (pitch, envelope, etc.). Press Enter or click the encoder to select a sound and assign it to the track.

If the sound being assigned is in a kit or project folder with a .KIT file that has the same name as the folder, then the track settings will automatically be loaded from the kit file.

Track settings, and therefore the Assign Sound function, can also be accessed from the Organize Tracks screen.

Load Kit

Select Load Kit from the File Menu. In the file browser, highlight a kit folder, and press Enter or click the encoder to load the whole kit of sounds and their settings. As long as the KIT file has the same name as the folder, there is no need to navigate into the folder. If the names do not match, then clicking on a kit folder will open the folder, and highlighting the KIT file and pressing enter or clicking the encoder will load it.

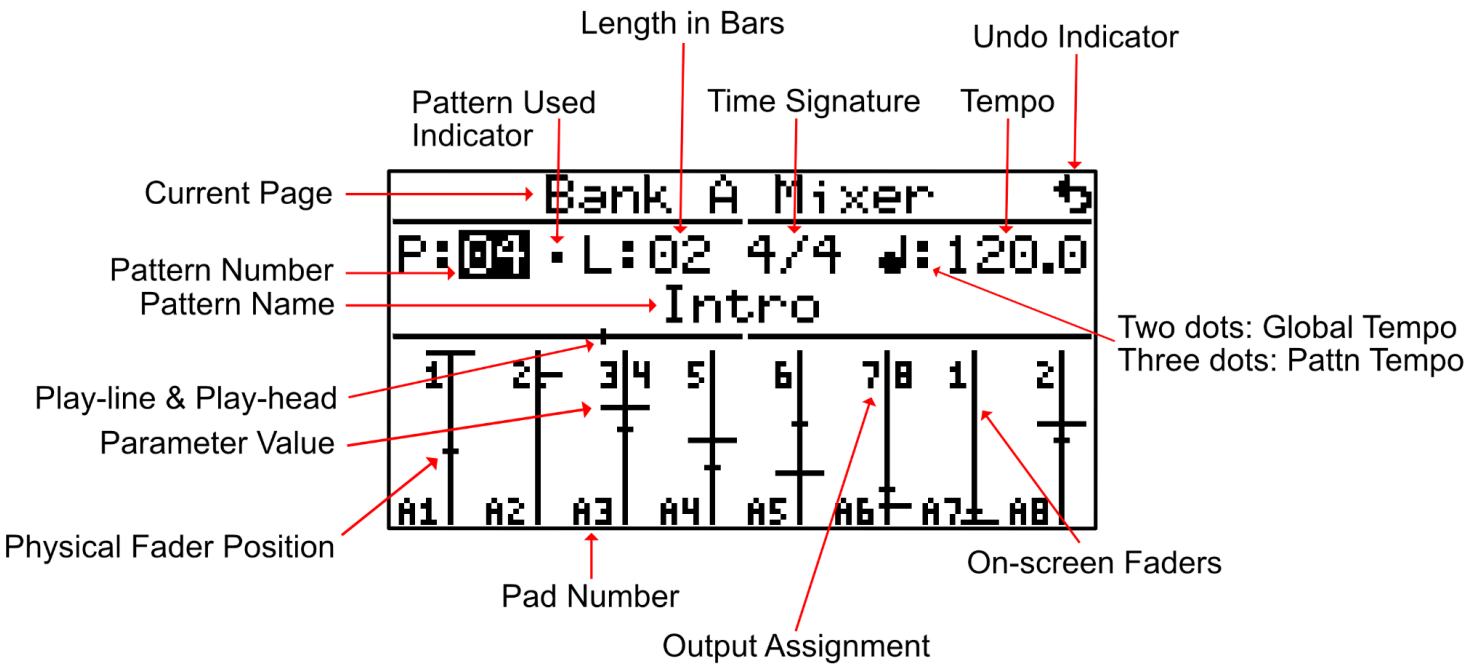
Load Sounds Folder

Select Load Sounds Folder from the File Menu. Navigate to a folder containing sounds. The sounds will preview as you scroll over them. Highlight a WAV file and press Enter or click the encoder. The sounds from the highlighted file down will be loaded. The sounds will load starting at the last track with no sound assigned, and filling as many tracks as are empty. If track D8 has a sound assigned, then the sounds are assigned to tracks starting at A1, overwriting what used to be assigned to those tracks.

Browse Files

Select Browse Files from the File Menu. This mode shows all file types, not just WAVs. Navigate to a folder containing sounds. To preview a sound, press Enter or click the encoder. Press a pad to assign a sound to that track.

Pattern Mode



Pattern mode is the base mode of the machine. It is the mode in which patterns are recorded, modified, and played back. The screen shot above is annotated to point out the various bits of information on the screen in pattern mode.

Banks, Tracks, Pads

The S2400 holds 32 samples at a time, organized into four banks of eight tracks each. The sample banks are referred to by letters A through D. Individual tracks are referred to by their bank letter plus their pad number, e.g. A1, B1, C5, D7, and so on.

There can also be up to four MIDI-only banks which are described in their own section.

There is always an active bank, which is displayed on the third line of the screen after the word Bank. Pressing the Bank key cycles through the banks.

Playing Patterns

The current pattern number (from 0 to 99) is displayed on the second line of the screen after the word Pattern. When the pattern number is highlighted, pressing the arrow keys, or turning the encoder changes the pattern. To go directly to a pattern, use the numeric keys to enter the number. Type a leading zero for patterns 0 to 9.

Run/Stop: Start playing the current pattern. Press it again to stop.

Shift+Run/Stop is a context-specific override.

When stopped, Shift+Run/Stop continues playing from the point at which the pattern was stopped.

When running, Shift+Run/Stop restarts the pattern at the beginning. If the pattern number has been changed, but the current pattern is still playing, Shift+Run/Stop immediately starts the new pattern.

When using an external clock source, Shift+Run/Stop forces the pattern to play even if no external clock is being received. Or, forces the pattern to stop if it is already playing.

Recording Patterns

Rec/Edit+Run/Stop: To begin recording, hold the Rec/Edit key then press the Run/Stop key. Any pads pressed will be recorded into the pattern along with their parameter (pitch, level, etc.) values that are set at the time the pad is pressed. The next section covers all of the parameters in detail.

While recording, press Rec/Edit to disengage and reengage recording without stopping playback. This allows for practicing changes. You can play over top of the pattern without changing it. It is also a good way to audition parameter changes. For example, you can tweak the pitch and press a pad until it sounds just right, then press Rec/Edit again to reengage recording, then press pads to add them to the pattern.

Pattern Tempo

Tempo: Press the tempo key to highlight the tempo field. When highlighted, press the arrow keys, or turn the encoder to change the tempo in increments of one BPM (beats per minute). Shift+Arrows/Encoder changes the tempo in 0.1 BPM increments. The numeric keys can also be used to enter the tempo. Press enter when finished typing the numbers. The fractional portion may be omitted. To enter a fractional tempo that is less than 100BPM, type a leading zero first.

Shift+Tempo: Toggles global tempo or pattern-specific tempo for the current pattern. An equal sign between the tempo symbol and the BPM indicates that the current pattern is using the global tempo. An identical symbol ≡ indicates that the tempo is pattern-specific.

Tap/Repeat: While the tempo is highlighted, press the Tap/Repeat key in time with the beat (quarter notes) to set the tempo. At least two key presses are needed to set the tempo. The number of presses that are averaged when calculating the tempo is set in global settings.

Repeat

Tap/Repeat+Pad: Hold the Tap/Repeat key while pressing a pad to repeat the track. The repeat speed is set by the quantize setting for the track. Tracks can be repeated during recording, playback, or even when a pattern is not running.

Shift+Tap/Repeat: Locks repeat mode. Any pads pressed will be repeated without having to hold the Tap/Repeat key. Press and release Tap/Repeat to unlock repeat.

Pattern Mode Keys

F2: Add pattern to song
F4: Toggle Live Looping on/off. The F4 key will be illuminated when Live Looping is active.
F5: Play only one measure. Press F5 while during playback to make the current measure repeat. The F5 key will be illuminated when this feature is active. Press F5 again to deactivate.
F6: Rename the current pattern
F8: Lock/Unlock the faders for the current fader mode (see discussion of fader lock)
F9: Lock/Unlock the faders for all fader modes

A: During playback, toggles Parameter Playback Override on or off for the current fader mode. During recording it toggles Live Parameter Record Overwrite for the current fader mode.

B: In Mix, Level, or Pitch fader mode: Toggles override/overwrite for the filter.
In Envelope mode: Envelope editor. In Loop/Slice mode: Waveform editor.

Shift+A: Displays the parameter settings for the current fader mode.

Shift+B: In Mix, Level, or Pitch fader mode: Filter settings.
In Envelope mode: Switch envelope. In Loop/Slice mode: Toggle looping.

A+Pad: Shortcut to Modify Pattern.

B+Pad: In Mix, Level, or Pitch fader mode: Shortcut to Modify Pattern for the filter.

Bank: Goes to the next bank.
Shift+Bank: Goes to the previous bank.
Bank+Number Key: Goes directly to a bank (Bank+1 for A, Bank+2 for B, etc.). Bank+9 goes to Live FX. Bank+0 goes to DSP Mixer.
Bank+Pad: Goes directly to a bank (Bank+Pad1 for A, Bank+Pad2 for B, etc.).
Bank+Mute/Solo/A/B: Toggles mute, solo, override or overwrite for all tracks in the current bank at the same time.

Shift+Back: Stops all sounds in any mode.
If the current bank is a MIDI bank, Shift+Back does a “MIDI panic” and sends an all notes off CC message, and a note off message for every note, on all of the ports and channels that have MIDI tracks.

Back+Pad: Resets all sound parameters (level, pitch, filters, etc.) to their defaults for that track. In Multi Mode, Back+Pad resets that track’s multi parameters for the current fader mode (pitches, slices, etc.).

Erase+Pad: Quick erase the track from the current pattern, or selectively live-erase events.

Copy+Pad: Select a pad to copy. Continue holding copy, then press the destination pad. In Multi Mode, the same action copies parameters from one multi pad to another.

Back+<<<: Undo
Back+>>>: Redo
Back+0 (zero): Set a manual undo point

Undo

There is one level of undo. When recording or editing starts, an undo point is created. The undo icon will appear in the upper right corner of the screen in Pattern or Step Program modes when an undo point exists.

Press Back+<<< (hold the Back key, then press the left arrow key) to undo all changes made since the undo point was created.

Recording tracks is not the only thing that creates an undo point. Any change to the pattern creates an undo point if one did not already exist. For instance, changing the pattern length, erasing tracks from the pattern, or erasing the whole pattern, all create an undo point.

Redo

When Back+<<< is pressed to undo changes, the undo icon switches to the redo icon , which points the opposite direction and is not as bold. This indicates that the undone changes can be redone by pressing Back+>>>. The changes to the pattern can be undone and redone repeatedly. That is a great way to audition the changes before deciding whether or not to keep them.

Once recording or editing starts again, a new undo point is created using whatever state the pattern is in at the time, either with or without the changes.

Manual Undo Point

An undo point is not created every time a pad is pressed during recording, only when recording is stopped and restarted. However, a manual undo point can be created at any time by pressing BACK+0 (zero).

Note

The older key combos, Copy+Back to undo/redo and Copy+Enter to set a manual undo point, still work.

Fader Modes

The row of keys on the left (Level, Pitch, Envelope, and Loop/Slice) set the fader mode, that is, which parameter the faders control. Changing a parameter value will affect the sound when a pad is pressed and when the track is recorded into a pattern. The key is illuminated to indicate the current mode. When no key is illuminated, the faders are in Mixer mode. The faders, knobs, and A/B buttons have different functions in each of the five modes, as described below.

Common Button Functions

Many buttons or button combinations are common across all fader modes.

Fader Lock

F8: Lock/Unlock the faders for the current fader mode
F9: Lock/Unlock the faders for all fader modes

When locked, moving the faders or knobs has no effect on their associated parameter. Holding Shift while moving a fader acts the opposite of the current lock state. That is, if the faders are locked, holding Shift while moving a fader will modify the parameter, and if the faders are not locked, holding Shift moves the fader without modifying the parameter. This is especially useful for aligning the physical fader with the parameter before modifying it.

Reset Parameters

Back+Pad: Resets all sound parameters (level, pitch, filters, etc.) to their defaults for that track. In Multi Mode, Back+Pad resets that track's multi parameters for the current fader mode (pitches, slices, etc.).

Parameter Settings

Shift+A: Displays the parameter settings for the current fader mode. All of the settings are per-track. In Multi Mode, some settings are per multi. All parameter settings menus have a "*Set for all tracks" function which copies the value of all settings marked with an asterisk to all tracks.

Shift+B: Displays the filter settings when in Mix, Level, or Pitch fader mode.
In Envelope mode: switch envelope. In Loop/Slice mode: toggle looping.

Modify Pattern(s)

The Modify Pattern function is common to all parameter settings menus. This function sets either the selected parameter or all parameters for either the selected track or all tracks to the current fader/knob values throughout the current pattern or all patterns. In Multi Mode there is also the option to modify only the selected track&pad in the pattern(s).

A+Pad is a shortcut to Modify Pattern (or B+Pad for filter). Press and hold the track's A button then press the pad, and the entire pattern will be modified with the current setting of the current parameter (based on the fader mode). In multi-mode, A+Pad modifies the pattern with the multi value only where that multi pad was recorded.

Override and Overwrite

A: In all fader modes except mixer mode, pressing the A button during playback, toggles Parameter Playback Override on or off for the current mode. During recording it toggles Live Parameter Record Overwrite for the current mode.

B: In Mix, Level, or Pitch fader mode the B button toggles override/overwrite for the filter. In Envelope mode: Envelope editor. In Loop/Slice mode: Waveform editor.

Mixer Mode

When no fader mode key is illuminated, then the faders are in Mixer mode. In Mixer mode, the faders set the playback volume of the tracks. The mixer volume is not recorded into the pattern, only the track level is. The levels that were recorded in the pattern are not changed, but are combined with the mixer volume during playback.

In the mixer mode settings, the range of the mixer faders can be set for each track. Since mixer mode is a performance feature, it is sometimes useful to limit the range to what is useful during playback. The upper range can go beyond 0dB. At 0dB, the sounds will play at full volume. Beyond 0dB, the sound will be amplified. At some point, the sound will clip. A tube-like soft clipping algorithm is used which can actually sound great for some samples.

Each track's output assignment (Track Settings / Output) can be shown just above its fader number. This is shown only in Mixer mode on the sample banks A–D. This is useful if you use the DSP Card, or need to see physical output assignment for each Track at a glance. It can be turned off with the “Outputs in Mixer” setting (Settings / Appearance).

Top Knob: Controls the cutoff frequency of the digital filter.
Bottom Knob: Controls the resonance of the digital filter.

Level Fader Mode

The faders set the level of each track. Level is recorded into the pattern. If dynamic pads are turned on, then the pad pressure sets the level, and the level faders are ignored. Note that the dynamic level comes from how hard the pads are pressed, not how fast (velocity).

The knobs and B button control the filter.

Pitch Fader Mode

The faders set the pitch for each track. The on-screen faders show the number of semitones that the pitch is offset from its original pitch. The range of the faders (up to ± octaves) can be set in the Settings menu.

In addition to the common parameter settings, there is a Fine Pitch setting which allows for fine adjustments of the pitch shift to an exact number of semitones and cents. The Fine Pitch setting is available even when the pitch resolution is not set to Fine. When the pitch resolution is set to Classic, the Fine Pitch setting not available. This is just a more precise way of doing the exact same thing the faders do. It is not the same as the track Transpose setting.

The knobs and B button control the filter.

Envelope Fader Mode

Every track has two HiFi envelopes, and, optionally, a Classic volume envelope. The type of volume envelope for a track can be set in track settings (Shift+Pad), or in Track Envelope Settings (Shift+A in envelope fader mode). The descriptions below assume that the machine is in envelope fader mode.

Classic Volume Envelope

A Classic volume envelope has two-stages: a sustain time at maximum volume, followed by a release time. Both values are fixed times for each of the 32 envelope settings. When a Classic envelope is set to maximum, then there is no volume envelope at all. This accurately duplicates the functionality and sound of the Classic machine, including the 8-bit aliased release. The slider selects the classic envelope length, and the knobs do nothing. On the screen, a classic envelope is indicated with the same line and dash style of display used for other fader modes.

HiFi Volume Envelope

When HiFi Volume Envelope is selected, envelope 1 controls the volume of the sample. The slider controls the release and the top knob controls the attack. On the screen, HiFi envelopes are drawn accurately, albeit tiny and tilted to the left. This mode shows eight envelopes at a glance and is sufficient for editing simple A/R envelopes. The HiFi envelope editor is more precise.

Switching Envelopes

Shift+B: Switches between envelope 1 and envelope 2, and the classic envelope if it is enabled for the track. The volume envelope is indicated on-screen by a V over the fader number. Envelope 1 (if it is not the volume envelope) is indicated by a single dot, and envelope 2 by two dots.

HiFi Envelope Editor

B Button: Displays the HiFi Envelope Editor, similar to the way that pressing B in loop/slice display the HiRes slice editor. HiFi envelopes have six parts: attack, attack hold, decay, sustain, sustain hold, and release. Sustain is the volume level that the envelope falls to after the decay. All of the other parameters are time, expressed as a percentage of the total sample length.

Synthesizers have oscillators which are always running. In a synthesizer the envelope parts are actual times. Increase any of them and the whole sound plays for more time. In the S2400, the envelope parts are percentages of the total sample length. For example, if the sustain hold is set to 50.0 and the decay to 50.0, with all other parts being zero, then the sound will begin to decay halfway through.

At the top right of the screen, next to the Σ symbol, is the total length of the envelope, which is also expressed as a percentage. The envelope can be shorter than the full length of the sample. For example, set the total to 75.0 to cut off the last 25% of the sound.

To switch between envelope 1 and 2, select and modify the envelope number at the top of the screen, or press Shift+B for the appropriate track.

HiFi Envelopes as Modulators

Envelopes can modulate pitch and/or filter cutoff. Either parameter can be modulated by either or both HiFi envelopes, even if a Classic volume envelope is used. At the top of the HiFi Envelope Editor screen are pitch modulation amount and filter modulation amount. Pitch modulation amount is specified in semitones and cents. Filter modulation amount is specified in Hertz. Note that modulation amounts can be positive or negative.

HiFi Envelope Editor Controls

Enter/Encoder Press: Tab between fields to edit. Hold Shift to tab backwards. Another way to tab between the fields is to hold Enter or Encoder then press Arrows or turn the Encoder.
Arrows/Encoder: Change the value of the selected field.
Fader 1-6: Change the six envelope parts.
Fader 7: Change the pitch modulation amount. The fader sets whole semitone values only, and the arrows/encoder adjust one cent at a time.
Fader 8: Change the filter modulation amount. The fader is a coarse setting, and the arrows/encoder allow fine adjustments.
Knob 7: Change the pitch (not the modulation amount).
Knob 8: Change the filter cutoff and resonance (not the modulation amount).
F1: Undo changes made to the envelope. Long-press to completely reset the envelope.
F2: Undo changes made to pitch or filter modulation. Long-press to set all modulation to zero.

Loop/Slice Fader Mode

In Loop/Slice mode the sound can be truncated and/or looped. The start or end point of sound can be changed, and a loop point set. This mode shows eight slices/loops at a glance and is sufficient for coarse editing. The waveform editor is more precise.

When looping is on, the sound plays once from the start point to the end point, then plays repeatedly from the loop point to the end point. When assigning a sound to a track, the S2400 reads the loop point data from the WAV file. It reads the "smpl" data chunk, which is different from cue or marker points. If a loop point exists in the file, the S2400 automatically enables looping, sets the loop point, sets the loop time to 2 seconds, and turns on gate mode.

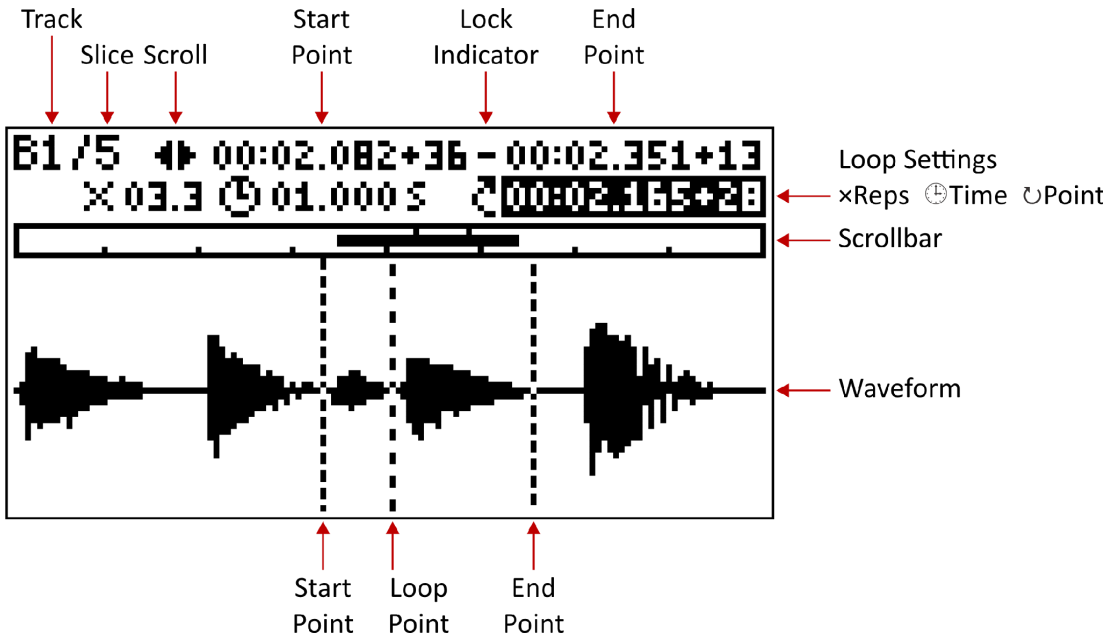
With Classic envelopes, the loop time is determined by the fixed sustain and release time of the Classic envelopes. Setting the Classic envelope to maximum makes the loop continue forever, until it is stopped. It can be stopped by pressing Shift+Back, by being choked by another sound playing on the same choke group, or, if it is in a pattern, when the pattern is stopped.

With HiFi envelopes, the loop time is set explicitly. Press Shift+A for the Loop/Slice settings, and set the loop time in seconds and milliseconds. For an exact number of repetitions, set the loop reps, which will calculate the exact loop time. Setting the loop time to an exact number of repetitions is handy for making flams, slap-back echo, and other effects.

Fader: Change start position.
Top Knob: Change end position.
Bottom Knob: Change loop position.
B Button: Switch to Waveform Editor mode.
Shfit+B: Turn on looping. Looping is indicated by a line connecting the right side of the loop and end points. Only samples that fit in the 2MB playback buffer can be looped. See the Memory Usage section for more details.

Waveform Editor

The waveform editor is for precise editing of slices and loops. It is displayed after recording a new sample, or after pressing the B button for a track when in Loop/Slice fader mode.



The exact start, end, and loop points are shown in minutes:seconds.milliseconds+samples format.

The second row is only shown if looping is enabled. Enable looping for a track or multi slice by pressing Shift+B, or press Shift+A to edit the Loop/Slice Settings.

The screen scrolls automatically to the point being edited. When zooming in and out, the screen is centered around the point being edited.

Scroll Bar

The width of the scroll bar represents the full width of the waveform. The thick horizontal line represents the section of the waveform that is currently displayed. The start and end points are indicated by two hash marks at the top of the scroll bar. In multi mode, the start and end points of all eight slices are indicated by hash marks at the bottom of the scroll bar.

Waveform Editor Keys

Save: Save the whole sample or a slice of it, and optionally assign it to a track.
Level: Normalize (see below for details).
Back+Pad: Reset the points to where they were when the editor was first displayed. This is useful for undoing changes after unintentionally moving a fader.
F1: Zoom out, long-press zooms all the way out.
F2: Zoom extent (the range of the start and end points). Long-press locks zoom extent, the key is illuminated to indicate locked. Press F2 again to unlock.
Shift+F2: In Multi Mode, toggle shared zoom across all eight slices. When shared zoom is on, scrolling or zooming on one slice applies the same window to the others — useful for quickly checking start/end points of all slices at the same zoom level. Press Shift+F2 again to unshare.

F3: Zoom in, long-press zooms all the way in.
F4: Shift slice left. In multi-mode, F4 sets the start to the previous slice's end.
F5: Force selected point to zero crossing, long-press to force all points to zero crossing.
F6: Shift slice right. In multi-mode, F6 sets the end to the next slice's start.
F7: Reverse slice, long-press to undo. (see below for details).
F8: Toggle fader lock on/off specifically for the waveform editor. When faders are locked, moving them does not move the points. Holding Shift and moving a locked fader will move the points. Holding Shift and moving an unlocked fader not move the points.
F9: Toggle Play X on/off, long-press to define X (see below for details).

Shift slice (F4 and F6) does not change the length of the slice. It will not shift if there is no room to do so. For example, if the start is at 5 and the length is 10, the slice cannot be shifted left.

Either the faders or the encoder/arrow keys (or a combination of both) can be used to edit the start and end points.

Slicing Using the Encoder/Arrow Keys

Resolution of the encoder is determined by the zoom level. Each arrow press or encoder turn moves the start or end point one pixel. For finer editing resolution, zoom in. The lowest zoom level gives single sample resolution.

Enter/Encoder Press: Tab between fields to edit. Hold Shift to tab backwards. Another way to tab between the fields is to hold Enter or Encoder then press Arrows or turn the Encoder.
Arrows/Encoder: Move the point (start, end, or loop) being edited. If neither is selected, then arrows scroll the screen.
Shift+Arrows/Encoder: Always scrolls the screen no matter which field is selected.

Slicing Using the Faders

The same precision can be obtained using faders as with the encoder by using multiple faders for each point.

Fader 1: Coarse adjust start. The range and precision depend on the length of the sample.
Fader 2: Adjust start in milliseconds (ms). The range is 500 ms (1/2 second).
Fader 3: Adjust start in samples. The range is 5 ms.

Fader 4: Coarse adjust loop point. The range and precision depend on the length of the sample.
Fader 5: Adjust loop point in milliseconds. The range is 500 ms (1/2 second).

Fader 6: Adjust end in samples. The range is 5 ms.
Fader 7: Adjust end in milliseconds. The range is 500 ms (1/2 second).
Fader 8: Coarse adjust end. The range and precision depend on the length of the sample.

Note that the precision of the faders increases from the outer faders inward. The coarse adjust faders are the first and last fader which makes it easy to find the right fader without having to read the labels.

When a fader is moved, the corresponding value is highlighted on-screen. That makes it easy to move the fader for a coarse adjustment, then use the encoder for more precision.

If you intend to use the faders for editing, it is recommended that you start with the first three faders at the bottom, and the last five at the top.

Normalize

Press the Level key to normalize the sample to a specific dB level. The sample's peak dB is displayed. The normalize setting number is an absolute number that is not relative to the sample's peak.

Normalization is non-destructive, and can be changed multiple times without modifying the sample data. When the sample or slice is saved, the normalization level is permanently applied to the saved file. The sample must be saved to retain the normalization, otherwise it is lost when exiting the waveform editor.

Reverse

Press F7 to reverse the area between the start and end points. Multiple reverses of multiple slices are possible. Long-press F7 to undo all reverses, or optionally, just the last one (even if the start/end points have been moved).

Reversing is destructive, meaning that it changes the actual sample in memory, as opposed to just playing backwards. To make the changes permanent, save the sample.

For short samples, (size < 2MB), the reverse(s) are still in memory after exiting waveform editor, the reversed sound will be saved when the kit/project is saved. If the file was not already in the kit/project directory, it will be copied as usual, but with the reverse(s) applied. If it was already in the kit/project directory when it was reversed, the file will be overwritten with the reversed version. For long samples (2MB < size < 64MB), the reverse(s) will be lost if you exit the waveform editor without saving.

Play X

When Play X is off, pressing the pad plays the slice (between the start and end points). When Play X is turned on, pressing the pad plays "X", which can be defined as the whole sample, before the slice, 1 sec. before the slice, last 1 sec. of the slice, or after the slice. Press F9 to toggle Play X on/off, and long-press F9 to define X.

Lazy Chop

Lazy Chop means setting the slice points by pressing the pad. Hold the Multi Mode key and press the Rec/Edit key. The words Lazy Chop… appear at the top of the screen. Press the pad to start playing the sample. Then, press the pad when you want to end a slice and start the next one. The slice number is shown at the top of the screen. Lazy Chopping ends when all eight slices have been defined, when the sound ends, or when any other key is pressed.

Saving Slices

Press the Save key while using the waveform editor to save the sound, or a slice of it. The saved file will contain the sound between the start and end points with the current normalization and reversing applied. Multiple slices can be saved from the same sound.

The save screen has the following fields:

Save To: The destination for the file. Options are:
Project: The project folder
Folder: Any folder of your choosing
Same File: This option will overwrite the original file, which will truncate the sound at the slice start and end points, both in memory and in the file. This option is only available with files loaded from the SD card, not a loaded from internal flash, or with newly sampled sounds which exist only in memory.

Project: The name of the project where the file will be saved. Project is only shown when Save To is set to Project. If the current project has not been saved, then this field is editable, and there will be an asterisk next to the word Project indicating that a new project will be created.

Folder: The destination folder where the file will be saved. If Save To is set to Same File, then this field is not editable. Folder is not shown when Save To is set to Project. Select the folder name to display the file browser and pick a different folder.

Name: The name of the file. Defaults to Sample plus a sequential three-digit number which is automatically set. Select the name to edit the file name.

Save all 8 Slices: All eight multi slices will be saved to files. The file names will have the slice number appended.

Assign to Track/Bank: After saving, the new file can be assigned to a track. Select the desired track from the list, or press a pad to fill in the track.

Assign to Bank: After saving all 8 slices, the eight files can be assigned to the eight pads of a bank.

Waveform Memory

Normally, the 64 MB sample RAM is divided into 32 play buffers. Sounds smaller than 2 MB can be edited in the play buffer. Sounds larger than 2 MB but less than 64 MB can be edited by using the whole sample RAM as the edit buffer. A pattern or song cannot be playing while editing a sound larger than 2 MB. Sounds larger than 64 MB cannot be edited in the waveform editor.

Maximum length of a sound for it to be editable (assuming 16-bit WAV files):

Rate	Channels	2 MB	64 MB
48 KHz	Mono	0:21.835	11:39.040
48 KHz	Stereo	0:10.917	5:49.520
44.1 KHz	Mono	0:23.766	12:40.860
44.1 KHz	Stereo	0:11.883	6:20.430
26 KHz	Mono	0:40.310	21:30.535
26 KHz	Stereo	0:20.155	10:45.268

Multi Mode

With the normal fader modes, the eight pads/faders/knobs control eight tracks (one bank). Multi Mode takes a single track and spreads eight different values of one parameter (level, pitch, envelope, loop/slice) across the pads/faders/knobs. Those eight multi values are in addition to the main, non-multi value.

When the Multi Mode key is pressed, the last track whose pad was pressed becomes the active track. The other seven pads will change to the same color as the active track, but dimmer. To change the active track, hold the Multi Mode key and press a pad. That has the same effect as pressing Multi Mode, pressing another pad, then pressing Multi Mode again.

The filter does not have its own fader mode key, but it also has eight multi values when the machine is in in level or pitch Multi Mode.

When recording a pattern in Multi Mode, the pad that was pressed is also recorded into the pattern. That enables features such as erasing a specific multi from the pattern.

Filter Multi Mode Enable

Access the Filter Settings menu by pressing Shift+B in Mixer, Level, or Pitch fader mode.

On the menu is an option called Multi Enabled. When enabled, the filter has a main value plus eight multi values just like any other parameter. When disabled, the filter the filter only has one value, and in Multi Mode, all knobs change the main value.

Filter Multi can be enabled/disabled per track.

Multi Mode Sync

With normal, non-synced Multi Mode, only one parameter is in Multi Mode at a time. For example, when in level Multi Mode, the eight pads play at eight different levels, but they all play at the same pitch, envelope, and loop/slice parameters (the main parameters).

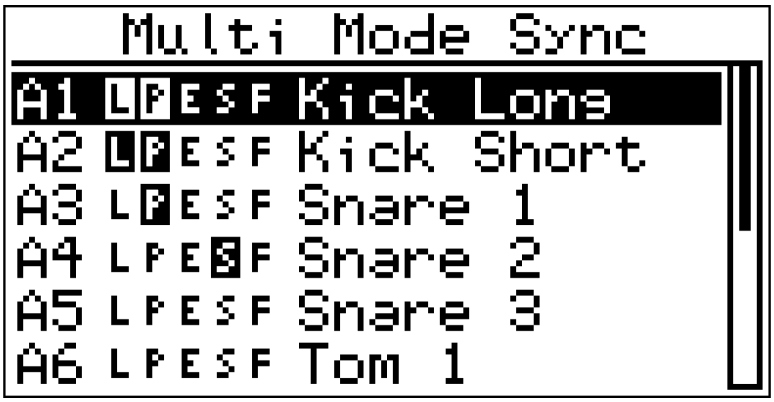
When Multi Mode is turned on for a parameter, then the eight multi-values of that parameter are also used in the other three Multi Modes. For example, if Multi Mode Sync is turned on for pitch, then when in level Multi Mode, the pads are eight different levels, and eight different pitches – but still use the main envelope and main loop/slice parameters.

Each of the four fader modes and the filter has its own Multi Mode Sync setting, which can be turned on in any combination. The Multi Mode Sync settings are per track, so each track can have a different combination.

To turn on Multi Mode Sync, press Shift+A to edit the track / fader mode settings. There is also a “Set for all tracks” option to copy a track’s settings to all tracks.

Multi Mode Sync Settings

Press Shift+MultiMode to display the Multi Mode Sync Settings menu.



The screen displays the Multi Mode Sync settings for every track. This is the same setting that is on each of the individual fader mode setting menus (Shift+A), but conveniently all in one place.

The LPESF indicators refer to track parameters Level, Pitch, Envelope, Slice, and Filter. If a letter is highlighted, then Multi Mode Sync is on for that setting. In addition, the fader mode buttons and the B button will be illuminated to indicate that Multi Mode Sync is on for that setting. To toggle the sync setting, press those buttons or press F1-F5.

Arrows/Encoder/Pad: Highlight Track

Enter/Encoder Press: Display the Track Settings menu for the highlighted track. If no sound is assigned to the highlighted track, the file browser will be displayed to assign a sound.

Fader Mode Buttons: Toggle Multi Mode Sync for that parameter

B: Toggle Multi Mode Sync for Filter

F1-F5: Toggle Multi Mode Sync for Level, Pitch, Envelope, Slice, Filter

F6: Rename Track

F9: Toggle Multi Mode Sync for all parameters

MultiMode or Back: Exit the Multi Mode Sync Settings menu

Pattern Functions and Settings

When in pattern mode, the top row of keys gives quick access to the most common pattern functions and settings.

Metronome

Metronome settings are global, not per project. When the metronome plays, the pitch is higher on the first beat of each measure. Quickly double-clicking the Metronome key toggles the metronome on/off for the current mode.

Play Metro During: There are separate settings to turn on the metronome during playback, recording, count-in, and sampling.

Count-in Bars: The metronome can be set to count in for a number of measures before the pattern. The range is zero (no count-in) to nine (too long).

Count-in Before: The count in can happen before recording, playback, or both. The Rec/Edit key blinks during record count-in. The Run/Stop key blinks during playback count-in.

Scale: The metronome can be set to play on quarter, eighth, sixteenth, or thirty-second notes, or triplets thereof. Faster metronome settings are helpful with slower tempos.

Level: Level is the volume of the metronome.

Output: The metronome can be set to play on any one of the eight outputs, or only in the headphones. Optionally, it can also play USB audio out.

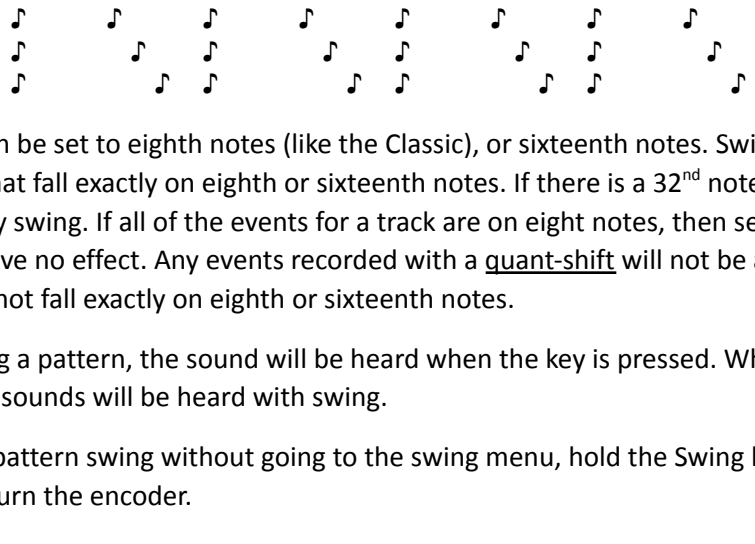
Output to USB Mix: Check this setting to hear the metronome in USB audio.

Swing

Swing, also known as shuffle or groove, adds rhythmic variation to the pattern, giving it a more human feel. Each pattern has its own swing setting. There are also separate swing settings for each track. If a track's swing is set to "pattern", then its swing setting will be the same as the swing setting for the pattern that is playing. Track swing settings can also be changed in the Track Settings menu. The pattern and track swing settings are saved with the project.

Swing delays every other note. A swing amount of 50% means that the swung note happens halfway between the note before it and the note after it. So, 50% is the same as no swing. Swing amount can be set to 50%, 52%, 54%, 56%, 58%, 60%, 63%, 65%, 67%, 69%, 71%, 73%, or 75%.

Below is a visual representation of swing:



Swing notes can be set to eighth notes (like the Classic), or sixteenth notes. Swing only affects those events that fall exactly on eighth or sixteenth notes. If there is a 32nd note in the middle, it is unaffected by swing. If all of the events for a track are on eight notes, then setting swing notes to 16ths will have no effect. Any events recorded with a quant-shift will not be affected by swing, since they will not fall exactly on eighth or sixteenth notes.

When recording a pattern, the sound will be heard when the key is pressed. When the pattern plays back, the sounds will be heard with swing.

To change the pattern swing without going to the swing menu, hold the Swing key and press the arrow keys or turn the encoder.

To change an individual track's swing without going to the swing menu, hold the Swing key, press a pad, then and press the arrow keys or turn the encoder.

Copy

Source: Patterns can be copied from memory, or from a previously saved project on the SD card.

Project: If the source is SD Card, then the source project must be selected. Clicking on this setting displays the file browser.

From Pattern: The pattern to copy from. If the source is memory, the number of bars in the pattern, and (if appropriate) an empty pattern indicator box are displayed next to the pattern number.

To Pattern: The destination pattern for the copy function. The To pattern is always in memory, not on the SD card. The number of bars in the pattern, and (if appropriate) an empty pattern indicator box are displayed next to the pattern number.

Number of Copies: The From pattern can optionally be duplicated multiple times when copied. This option is not available when copying from a pattern on the SD card. However, after copying, the same pattern can then be copied to itself to duplicate it.

Depending on the From and To patterns, one or two actions will be available.
Copy: The To pattern will be an identical copy of the From pattern.

Overwrite: Visible only when the To pattern is not empty. The existing To pattern data will be overwritten. If the To pattern is empty or is overwritten, it inherits the length and time signature of the From pattern.

Append: Visible only when the To pattern is not empty, and the source is Memory. The From pattern will be appended to the end of the existing To pattern.

Append to Self: If From and To are the same, then the only option is to append copies of the pattern to itself, thereby extending the pattern and repeating the existing pattern events. For example, make a one-measure pattern into a four-measure pattern, set the From and To pattern numbers the same, and set the number of copies to three. This functionality is also available from the Pattern Length screen.

Time Signature

The time signature specifies how many beats are contained in each measure, and which note value is equivalent to a beat. For example, 4/4 time (also known as common time) has four quarter notes per measure, and 3/4 time has three quarter notes per measure.

Time signatures are written with one number over another. The beats per measure is the top number and the beat unit is the bottom number.

In written music, time signatures are sometimes used to indicate tempo. For example, 6/8 time would be played faster than 3/4 time. In the S2400, the tempo is a separate setting, so both of those time signatures equate to the same measure length, because 6 eighth notes and 3 quarter notes take the same amount of time to play.

The time signature also affects the metronome because it is higher pitched on the first beat of each measure. For example, in 4/4 time, with the metronome set to quarter notes, plays tick, tock, tock, tock. Whereas in 3/4 time, it would play tick, tock, tock.

Pattern Length

Changing the pattern length will truncate or extend the current pattern. If extending a non-empty pattern, an addition option will appear to duplicate the pattern events, which works the same way as copying a pattern to itself.

Erase

The erase function can erase an entire pattern, or only a single track from the pattern. To erase a pattern, enter the number with the number keys, arrow keys, or encoder, then press Enter.
Or press a pad to erase that track's data from the current pattern. A confirmation will appear and the erase can be canceled if the pad was pressed in error.

The erase key can be used two other ways.

Quick-Erase Track

Erase+Pad (hold Erase, then press a pad) erases the entire track from the current pattern without having to go to the erase menu. In Multi Mode, Erase+Pad erases only pattern events recorded with that multi pad. A brief erase confirmation message will flash on screen.
Quick-erase does not work while recording.

Live-Erase Events

While recording, holding Erase+Pad removes events from the pattern as the track is played in the pattern. As events are erased, the sound will not be heard, but the pad will blink (if Blinkenpads is turned on).

Quantize

Quantization is sometimes called auto-correct. It forces recorded pad hits to be in time.

With quantization turned on, a pad can be pressed slightly before or after the quantize note, and its timing will be rounded to the nearest note. For example, if quantization is set to sixteenth notes, every note recorded will be accurately timed to a sixteenth note.

The finest level of quantization is 256th note triplets. That is the equivalent of non-quantized. There is an asterisk next to 64th note triplets indicating that is the Classic “fine” quantization.

There is a default quantize setting, and a separate quantize setting for every track. If a track’s quantization is set to default, then its quantization will change when the default setting is changed. Changing quantization does not affect anything recorded prior to the change.

The quantize setting also controls the repeat rate when using the Tap/Repeat key.

Default and track quantize settings are saved with the project, not with the kit.

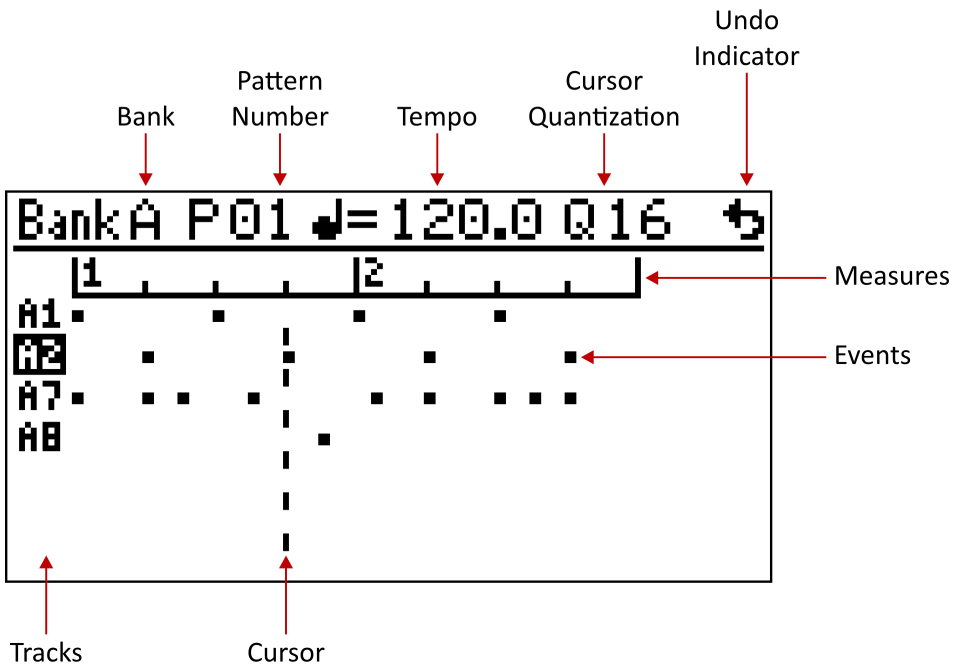
When recording a pattern, the sound will be heard when the key is pressed. When the pattern plays back, the sounds will be heard quantized. It is possible to press a pad faster than the current quantize setting, in which case multiple pad presses will be quantized to the same note and a single pad press will be recorded into the pattern.

To change the default quantization without going to the quantize menu, hold the Quantize key and press the arrow keys or turn the encoder.

To change an individual track’s quantization without going to the swing menu, hold the Quantize key, press a pad, then and press the arrow keys or turn the encoder.

Step Program

The Step Program key is the far-right key on the top row.



Step Program mode is an alternative method of creating and editing patterns. The screen displays a pattern in a DAW-like grid. The tracks are listed down the left side, and time across the top. The measure number is indicated in a time line at the top. Up to eight tracks are visible at a time. If more than eight tracks are present in the pattern, changing the bank will scroll the display vertically to show that bank's tracks.

Step Program mode is particularly useful for precisely placing pattern events in a pattern, such as playing tracks at the exact beginning of the pattern or a measure. Events can also be precisely erased, moved, and edited.

Patterns can be created entirely in Step Program mode, recorded live and then edited in Step Program mode, or vice versa.

Rec/Edit: Toggle editing. When editing is off, pads can be pressed without recording them, for instance to audition parameter changes before inserting an event into the pattern. When editing is off and the pattern is playing, the cursor follows the play position.
Shift+Run/Stop: Play from the current cursor position.
Arrows/Encoder: Move cursor / scroll grid. Arrow key repeat moves cursor by one measure. Fast encoder turn moves cursor by 16th notes, or double the quantization if zoomed out beyond 32nd notes.
Pad Press: Adds an event to the pattern at the cursor position. If there is already an event for that track there, then it is re-added with whatever parameters are currently set (level, pitch, filter, etc), overwriting the old parameters in the pattern.
Tap/Repeat+Pad: Adds event, then moves cursor to next step.
Erase+Pad: Removes events from the pattern at the cursor position or in the selection (if there

are any events for that track).
Erase+Enter/ Erase+Encoder Press: Removes all events from the pattern at the cursor position.

Enter / Encoder Press: Edit the parameters for events at the cursor position. See Edit Step Parameters. If an event exists in the pattern off of the current quantize grid, it will appear as a single dot. Off-grid events cannot be selected with the cursor but can still be edited by pressing Enter as long as the event is less than one grid step from the cursor.
Shift+Enter: Change pattern number. Press Enter to switch back to cursor scrolling.

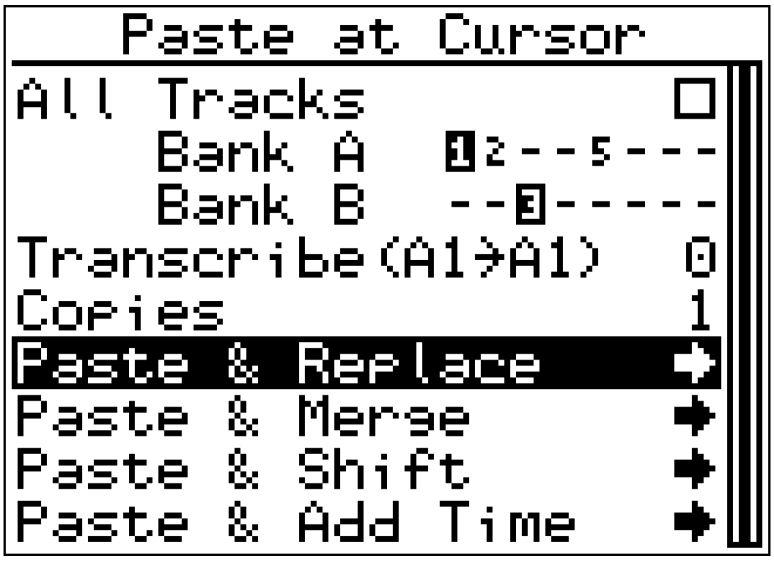
F1: Quantize Higher / Zoom Out
F2: Toggle TR mode. Long-press F2 to switch the TR Mode LED colors.
F3: Quantize Lower / Zoom In
F4: Shift (move) all events under the cursor or in the selection. While shifting, the cursor and the events will blink. Press Arrow keys or turn the Encoder to move the selected events. Press F4 or Enter to stop shifting. Press Back to cancel (undo) shifting. Quantization/zoom level can be changed while shifting.
F4+Pad: Shift one track's events under the cursor or in the selection.
F5: Play only one measure. The measure played follows the cursor. The measure will only change when play reaches the end of the currently playing measure, thereby keeping everything in sync. When this feature is active, the F5 key will be illuminated, and the play area is indicated with a line just below the measures header. Press F5 again to deactivate.
F6: Rename Pattern.
F7: Paste clipboard at the cursor position. Displays the Paste options screen.
F8: Lock/Unlock the faders for the current fader mode.
F9: Lock/Unlock the faders for all fader modes.

Select and Copy

Hold shift while moving the cursor to select an area of the pattern. The selected area will be inverted. When a selection exists, some functions change their behavior and additional functions are available.

Shift+Arrows/Shift+Encoder: Select a section of the pattern.
F5 Long-press: Play the selected area. The play area will not change when the cursor is moved. Press F5 to cancel the play area.
Enter: Display the Selection Actions menu.
Erase: Display the Selection Erase screen.
Erase+Enter/ Erase+Encoder Press: Removes all events from the selection.
Erase+Pad: Erase one track's events from the selection.
Copy: Copy the selection to the clipboard. Note that the whole selection is copied, including any "white space" that does not contain events.
Copy+Pad: Copy one track's events from the selection (or under the cursor) to the clipboard. Continue to hold Copy, move the cursor, then press the same pad to paste the copied events. Or, press a different pad to transcribe the pasted events, that is, paste the events and their parameters but change the track.

Paste



Press F7 to paste the clipboard into the current pattern at the current cursor position. Events can be pasted into the same pattern they were copied from, a different pattern(s), or even a different project because the clipboard is retained when a different project is loaded.

Only chosen tracks will be pasted. In the screenshot above, there are events for four tracks in the clipboard, but only A1 and B3 are chosen to be pasted. Tracks A2 and A5 are not chosen. While a bank is highlighted or being edited, pressing number keys will toggle a track. Pressing a Pad will toggle that track any time, no matter what field is highlighted.

Checking All Tracks will choose all tracks. Unchecking All Tracks will clear all chosen tracks. All Tracks is checked by default. A quick way to select only one track is to uncheck All, then press the pad for the track you want to paste.

The same method of choosing tracks is also used on the Erase screen and the Modify, Transpose, and Transcribe Selection screens.

If there is a selection when pasting, the pasted data will only affect the selection. Shift and Add Time options are not available when pasting into a selection.

Transcribe: Changes the track of events when they are pasted. All chosen tracks are transcribed by the same amount. For example, if transcribe is 1, then A1 becomes A2, B3 becomes B4, etc.
Copies: Pastes multiple copies of the clipboard into the pattern, one after another.
Paste & Replace: Any existing events are replaced by whatever is in the clipboard. This is like erasing an area the size of the clipboard before pasting.
Paste & Merge: Pasted events are merged with existing events. Whatever is already in the pattern stays, and the clipboard events are added.
Paste & Shift: The clipboard is inserted into the pattern, and any existing events are shifted to the right. Events shifted past the end of the pattern are erased.
Paste & Add Time: Like paste and shift but, also extends the length of the pattern by the size of the pasted area. Added time is always rounded up to the nearest whole measure.
F7: The same as clicking Paste & Replace. This allows a double-click of F7 to quickly paste.

Erase

The erase screen uses the same method of choosing tracks as the paste screen described above. Only chosen tracks will be erased.

Cut to Clipboard: Erases the events and also copies them to the clipboard. Otherwise, the clipboard is unaffected by the erase function.
Erase Events: Removes events from the pattern.
Erase & Shift Chosen: After erasing, any events to the right of the chosen tracks are shifted left.
Erase & Shift All: After erasing, all events to the right of the selection are shifted left.

Selection Actions

When an area of the pattern is selected in the Step Program grid view, press Enter to display the selection actions menu. From this menu, several options are available for changing the selected events.

Modify

Change parameters of selected events. Choose tracks whose parameters will be modified. Check parameters to be modified, then fill in the value. Unchecked parameters are not modified. All events in the selection for the chosen tracks will have the parameters set to the same value.

Transpose

All events in the selection for the chosen tracks will have their parameters transposed up or down by the entered amount. A transpose amount of zero has no effect on the parameter.

Transcribe

Transcribing changes the chosen tracks to a different track while keeping the parm values the same. All chosen tracks will be transcribed by the same amount.

Shift

Move selected events of chosen tracks. A Shift screen is displayed where specific tracks in the selection can be chosen for shifting. The Shift screen is intended for shifting more than one track, but fewer than all tracks. To shift all tracks in the selection or under the cursor press F4 instead of using the Shift screen. To shift a single selected track, hold F4 and press the pad instead of using the Shift screen.

When Begin Shifting is clicked, the screen returns to the grid view with the cursor and selected events blinking. Press Arrow keys or turn the Encoder to move the selected events. Press F4 or Enter to stop shifting. Press Back to cancel (undo) shifting. Quantization/zoom level can be changed while shifting.

Cut: Copy all selected events to the clipboard and erase them from the pattern.

Copy: Copy all selected events to the clipboard. Same as pressing the Copy key.

Erase: Displays the erase screen. Same as pressing the Erase key.

TR Mode

TR mode allows editing a pattern in style of a TR-x0x step sequencer. The 16 mute and solo buttons become step buttons. The step numbers are printed below the buttons. The buttons light up to show that there is an event for that track on that step. In TR mode, only sixteenth notes can be inserted or removed. If there are events in the pattern between the sixteenth notes, they are unaffected.

Arrows/Encoder: Scroll the cursor to a different measure. The measure being edited and displayed on the mute/solo buttons follows the on-screen cursor.
Pad: Select the track to edit. Future presses of the same pad play the sound, so parameter values can be auditioned before a step is added.
Mute/Solo: Add or remove a step from the pattern. When a step is added, the current parameters (level, pitch, etc.) are recorded into the pattern for that step.
Tap/Repeat+ Mute/Solo: Adds or removes a step in all measures.
Shift+Mute/Solo: Display Edit Step Parameters for that step, if there is an event there.
Rec/Edit: No effect because TR mode is, by definition, editing.

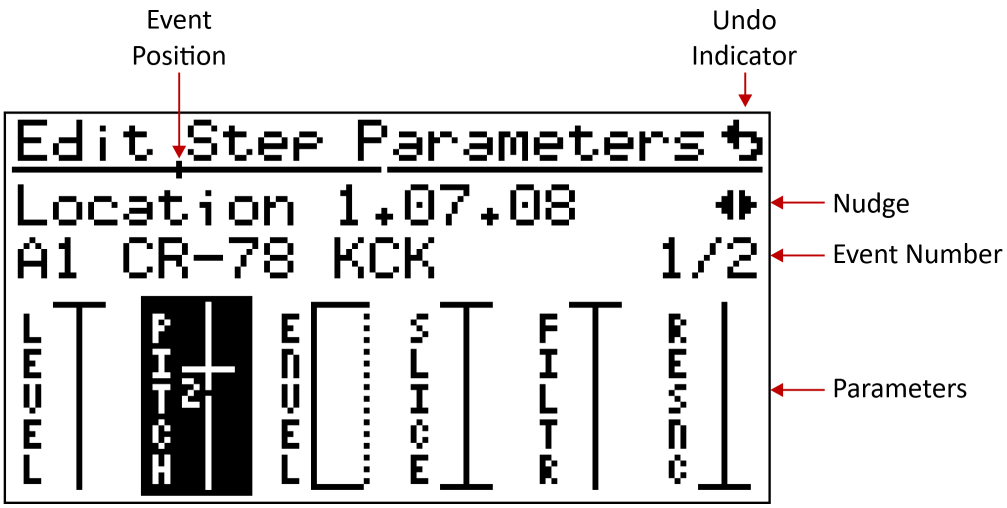
Edit Step Parameters

In this mode the recorded parameters can be changed for any pattern event. The changed parameters can be previewed by pressing the pad. If the pattern is running, the changed parameters will be played when that event is played in the pattern.

Scroll the cursor to the step to edit and press Enter. The parameters can be edited in either a graphical or numeric view. Press F2 to switch between views.

Graphical View

The step parameters are presented graphically and can be edited using the faders or encoder.



The exact location of the step is shown in bars . sixteenths . ticks. There are 24 ticks per sixteenth note. Location is also indicated on the horizontal bar. When playing, the play position is also shown on the bar.

There can be more than one event on a step. That is, multiple tracks played at the same time. The event number field shows the number, a slash, and the total count. One event is displayed as 1/1 (one of one), two events as 1/2 or 2/2, and so on. Select the event number and press the arrows or turn the encoder to scroll through all events for the step.

Enter/Encoder Press: Tab between fields to edit. Shift+Enter tabs backwards. Another way to tab between the fields is to hold Enter or Encoder then press Arrows or turn the Encoder.
Arrows/Encoder: Change the value of the highlighted field. When editing slice, Shift+Arrows/Encoder changes to the next/previous multi slice.
F2: Toggle between graphical view and numeric view.
Fader Mode Keys: Set the fader/knob mode, and highlight the field being edited
Fader: Adjust the parameter, just as it does in pattern mode
Knobs: Adjust parameters, just as they do in pattern mode
B Button: Display the hi-res editor in Envelope or Loop/Slice mode
Multi Mode: Toggle multi parameter editing. All parameters can be adjusted using the faders. In order, the faders adjust: Level, Pitch, Release (Knob 3 adjusts attack and sustain), Slice Start, Slice End, Loop Point, Filter Cutoff, and Filter Resonance.

Numeric View

The step parameters are presented numerically for precise editing. MIDI tracks parameters are always presented numerically. Some parameters can only be edited numerically, such as gate length.

Edit Step Parameters Keys

These keys are common to Edit Step Parameters graphical and numeric views.

F1/F3: Go to the previous/next event in the pattern.
F4/F6: Go to the previous/next event in the pattern for the current track.
The go to F-keys perform the same function as exiting step edit, scrolling forward or backward, then pressing Enter to edit the newly selected step.
Pad: Go to the next event for that pad, which could be on the same step, or a different one.
Bank: Go to the next event for that bank, after which pads for that bank may be pressed.
Mute/Solo: In TR mode, go to the parameters for the step, if there is an event there.
Back: Exit the edit step parms screen, saving any changes.
Back+<<<: Undo parameter changes.
Back+0: Save parameter changes to the pattern (in memory, not on the SD card). Changes are saved automatically on exit or a go to function.

Nudge

An event can be nudged forward or backward in the pattern. Nudged events retain all of their parameter values. Select the nudge icon to display the nudge screen. The nudge amount expressed in bars + sixteenths + ticks. There are 24 ticks per sixteenth note.

Nudges are saved in the pattern immediately. To undo a nudge, set the nudge amount back to zero, and re-nudge.

F4/F6: Go to the previous/next event in the pattern for the current track, while staying on the nudge screen.
Back: Exit the nudge screen back to the edit step parameters screen.

Playback Features

Mute/Solo

In modes other than Step Program TR mode, the rectangular buttons above the pads control mute and solo. Solo and mute only affect pattern playback. The tracks can still be played by pressing the pads.

Solo overrides muting, essentially muting all non-soloed tracks. Multiple tracks can be soloed at once. Muted tracks are silenced immediately, when unmuted, the track will not be heard again until it is re-triggered in the pattern.

Mute/Solo Bank

Bank+Mute mutes or unmutes all eight tracks in the current bank, depending on the state of the mute button pressed. Bank+Solo works the same way.

Mute/Solo Undo/Redo

If any tracks are muted, Shift+any mute button un-mutes all tracks in all banks.
If no tracks are muted, Shift+any mute button re-mutes what was previously un-muted.
If any tracks are soloed, Shift+any solo button un-solos all tracks in all banks.
If no tracks are soloed, Shift+any solo button re-solos what was previously un-soloed.

Parameter Playback Override

During playback, the filter, level, pitch, envelope, and loop/slice controls can override what is recorded in the pattern. The pattern is not changed in any way. This is a playback-only performance feature. It can also be used to audition a potential parameter change that will be written to the pattern later.

Press the A button to toggle override for the current mode (except mix).
Press the B button to toggle filter override when in level, pitch, or mix fader mode.
Press Bank+A or Bank+B to toggle override for all eight tracks in the current bank.

Pitch and filter can have special over override methods, which can be different for each track, and for each parameter. All other parameters are “override all”.

The override methods are:

Override All: The fader/knob controls the parameter, overriding whatever parameter values were recorded in the pattern.

Default Only: Only sounds that do not have an adjusted value for the parameter will be overridden, preserving the parameter values that were recorded in the pattern. For pitch override, only events that were not pitch shifted will have their pitch changed. For filter override, only events that do not have the default (maximum) filter setting will have their filter cutoff changed.

Transpose: The parameter values in the pattern are combined with the fader/knob, modifying that parameter while retaining the relative parameter values that were recorded.

Record Features

Live Parameter Record Overwrite

The filter, level, pitch, envelope, and loop/slice parameter values that are recorded into the pattern can be selectively changed on the fly. The pattern is changed, and the new parameter values are be saved with the pattern.

While recording (not in playback), go to the appropriate fader mode and press A to enable overwrite, or press B to enable filter overwrite (in mix, level, or pitch mode). This setting is separate from the Playback Parameter override setting. The button will be illuminated to indicate that overwrite is active.

Live Parameter Record Overwrite operates similarly to the selectively live-erase events function. While overwrite is enabled, pressing the pad will change the parameter values to the current fader or knob values as the track is played in the pattern. In Multi Mode, each of the eight multi parameters can be overwritten separately.

To change all events to the same parameter value, use the Modify Pattern function from the parameter settings menu, or the Modify Pattern shortcut A+Pad (B+Pad for filter).

Live Looping

The S2400 can operate like an 8-track looper pedal, while still playing and recording patterns. Press F4 in Pattern mode to enable Live Looping. The tracks in Bank D become Live Loops. Any sounds previously assigned to those tracks will not play, but the machine will remember all of the track data. If Live Looping is disabled (by pressing F4 again), Bank D goes back to its usual behavior.

A pattern must be running or recording in order to record Live Loops, although it can be an empty pattern. Recording happens in a temporary memory buffer. The buffer can be cleared, or merged into the active Live Loop. After it is merged, the record buffer is cleared and ready for more recording. The record buffer is automatically merged into the active Live Loop and cleared when active Live Loop changes.

The A button is illuminated to show that the Live Loop has sound in it.
The B button is illuminated to show that the record buffer has sound in it.

Live Loop Controls

Pad: Set the active Live Loop and starts/stops recording. If the active Live Loop is recording, and another pad is pressed, recording continues on the newly selected active Live Loop.
Shift+Pad: Live Loop settings and functions.
Erase+Pad: Erase one of the Live Loops. The erase menu can also be used.
A Button: Merge the record buffer into the active Live Loop;
B Button: Clear the record buffer (undo).
Mute/Solo: Turn the Live Loops on and off. Solo overrides muting, essentially muting any non-soloed Live Loops. Multiple Live Loops can be soloed at once.
Shift+Mute/Solo: Turn the Live Loops on and off using the opposite of the immediacy setting for that Live Loop.
Faders: Set the level of the Live Loop.
Top Knob: Change the filter cutoff.
Bottom Knob: Change the filter resonance.
Level: Toggles view between: Live Loop levels, Input Monitor scope, and Live Loop waveform

Pad LEDs
Green: Active Live Loop.
Red: Live Loop is recording.
Yellow: Live Loop is armed. Recording will start when the pattern starts playing.
White: Live Loop can be recorded on this pad.
Black: Unused pad.

Live Loop Settings

Press Shift+Pad to display the Live Loop settings and functions for each Live Loop. Pressing a pad switches to that Live Loop's settings.

Input Jacks

Set the jacks that this Live Loop will record from. Each Live Loop can have its own input.

Input Mix
If the Live Loops are configured as Stereo, then the mix is always stereo. For mono Live Loops, select Left or Right to record from only one input channel, or select L+R Mixed to mix the left and right channels into one mono recording.

Monitor Input
Check this option to hear the input signal while not recording. Note that if Input Monitor is turned on, it will override input monitoring of Live Loop inputs.

Monitor Recording
Check this option to hear the input signal while recording. This is not affected by the Input Monitor settings.

Output
The output that the Live Loop will play through. Stereo Loops play through output pairs. A Loop set to either output 1 or output 2 will play through outputs 1 and 2.

Divisions
A Live Loop can be the full length of the pattern (one division), or it can be a fraction of the pattern length. For example, if divisions is set to two, then the Live Loop will be half the length of the pattern, and will play twice each time the pattern plays through.

Rec. Mode
Record mode can be:
Latched: Press and release a pad to record, press and release it again to stop recording.
Momentary: Press and hold a pad to record, release it to stop recording.
Fixed Length: The Live Loop will be the length of the pattern. After pressing the pad, it will start recording at the beginning of the pattern, and stop recording at the end. It can also be stopped short by pressing the pad before the end has been reached.

Mute/Solo
Mute and solo buttons can take effect immediately, or at the beginning of the pattern. Pending mute/solo actions are indicated by a blinking mute/solo button.

Gain
Sets the base gain for the Live Loop. The gain setting is combined with the level fader when the loop is played.

Filter Mode
Each Live Loop has its own filter, and each one can be either low pass, band pass, or high pass.

Save as Sample
If the selected Live Loop has sound recorded in it, the sound can be saved to a WAV file.
The save screen has the following fields:

Save To: The destination for the file. Options are project folder, or any selected folder.

Project: The name of the project where the file will be saved. Project is only shown when Save To is set to Project. If the current project has not been saved, then this field is editable, and there will be an asterisk next to the word Project indicating that a new project will be created.

Folder: The destination folder where the file will be saved. If Save To is set to Same File, then this field is not editable. Folder is not shown when Save To is set to Project. Select the folder name to display the file browser and pick a different folder.

Name: The name of the file. Defaults to Sample plus a sequential three-digit number which is automatically set. Select the name to edit the file name.

Assign to Track: After saving, the new file can be assigned to a track. Select the desired track from the list, or press a pad to fill in the track.

Clear & Add to Pattern: If checked, and the saved sound is assigned to a track, the Live Loop will be cleared, and an event added to the beginning of the pattern for the assigned track. So, the pattern will play the same as it did when the sample was a Live Loop.

Live Loops Config.

There is a finite amount of memory available for Live Loops which can be configured in various ways using the three settings below.

Type

Live Loops can be all mono or all stereo. Stereo Live Loops require twice as much memory as mono Live Loops.

Banks

One or two banks of memory can be devoted to Live Loops: bank D or banks C and D. When the bank memory is used for Live Loops, it cannot be used for sample tracks. Live Loops are always accessed on bank D even when two banks worth of memory are used.

Loops

The number of Live Loops can be set from one to eight. Dividing the memory into fewer Loops means that each Loop is longer. Like cutting a pie into six larger slices instead of eight smaller ones.

Info (Loop Length)

As the parameter values are changed, the length of an individual Live Loop is displayed in seconds and bars. The number of bars varies based on the tempo. For example, 19.4s is 8.1 bars at 100 BPM or 9.7 bars at 120 BPM. The pattern tempo can be changed from the Live Loop settings by pressing the tempo key.

Reconfigure

Click this action to change the Live Loop memory configuration. This is a potentially destructive action (Loops can be dropped, stereo Loops can be converted to mono, etc.). Therefore, it does not happen automatically.

Song Mode

A song is a list of events. Most events will be patterns, but a song can also include changes in tempo, swing, and mute/solo states.

The song mode key is illuminated while in song mode. The key blinks if a pattern is playing while the machine is in song mode, or if a song is playing while in pattern mode.

The top of the song mode screen shows the song number. Switch to a different song by entering a number or using the arrows/encoder. If the song is playing, a playing symbol will appear next to the song number. If a different song is playing, then the playing song number and the playing symbol will be shown in parenthesis. The top line also shows the song's tempo. Each song has its own tempo setting.

Below the line is the list of events. The first entry in the list is always the song name, and it cannot be erased. Press Enter or F6 when the song name is highlighted to rename the song. The song can also be renamed by pressing F6 when the song number is highlighted. The last event is always the end of song event, and it cannot be erased.

Controls

Song editing works like most screens on the S2400. Highlight a row with the arrow keys, or by turning the encoder. Press Enter or encoder to edit it. The editable part is highlighted. Arrows/Encoder change the value. Enter or encoder click saves the change. Back cancels the change. F-keys can be pressed while editing.

Rec/Edit: Edit the current song (the one displayed on the screen).
Run/Stop: Play the current song, or stop the playing song (even if not current).
Shift+Run/Stop: When no song is playing: start the song from the selected step.
When viewing the currently playing song: restart the song from the beginning.
When viewing a different song than the one playing: play the current song from the beginning.
Enter: Edit the highlighted event.
Erase: Erase the highlighted event or the song.
Copy: Copy the current song to another song, or to a pattern.
F1: Insert a new event before the highlighted event. Pressing F1 or F2 while editing an event saves the current event and adds a new one, without having to press enter/encoder first.
F2: Insert a pattern event after the selected event. F2 is just a shortcut for adding the most common event type. A song can be created quickly using just F2 and the arrows or encoder.
F3: On a row below a repeat, F3 extends that repeat down to include the row (and everything in between). On a row inside a repeat, F3 shrinks the repeat up to that row. On the "Repeat" header row, F3 deletes the whole repeat (the patterns stay); if there's no repeat above the row, F3 creates one. To remove a repeat, select the repeat header and F3 or Erase.
F4 / F7: Move the highlighted event or repeat group back / forward in the event order.
F6: Rename the song or the highlighted pattern.

Event Types

Pattern
Plays a pattern.

Tempo
The song starts at its base tempo, which is set at the top of the screen. Tempo changes can be inserted into a song. Any change in tempo stays in effect until another change or the song restarts. Tempo changes can be either absolute (e.g. tempo=120) or relative (e.g. tempo+5). Absolute tempo changes override the song's tempo. Relative tempo changes are relative to the song's base tempo, which is set at the top of the screen. If a song contains only relative tempo changes, then changing the song's tempo, changes the speed of the whole song.

Swing
All songs assume 50% swing (i.e. off). Inserting a swing event changes the swing for all patterns that follow it. While editing the swing event, press 8 to set the swing notes to eighths. Press 1 or 6 for sixteenths.

Mute
All songs start with no tracks muted. Mute events affect everything that happens after them in the song. If a track is muted, then it remains so until changed by another mute event, or the song restarts. Each mute event affects tracks in a single bank. Muting tracks in multiple banks requires multiple events. When editing a mute event, the bank is changed with the arrow keys or encoder, or by pressing press the bank key. The mute state of each track is changed either by pressing the numbers 1 through 8, or by pressing the actual mute buttons.

Solo
Works exactly like mute.

Repeat
A single event or group of events can be repeated. For example, a song plays these pattern numbers: 1, 2, 3, 2, 3, 2, 3, 4. That could be represented as 1, repeat 3x [2, 3], 4. Repeat groups save memory, they make the organization of the song easier to visualize, and repeat groups can be moved as a group when rearranging a song. Any event can be inside of a repeat group, not just patterns. Repeat groups cannot be nested, that is, a repeat group cannot be inside of another repeat group.

Sub-Song
Plays another song once, then continues with the current song. The end action of the sub-song is ignored, so the sub-song will not replay forever, or go to a different song. Sub-songs inside a sub-song are ignored.

End of Song
When the song ends, it can stop, replay forever, or go to another song and play it. A replaying song is stopped by pressing Run/Stop, by playing another song, or by exiting Song mode and playing a pattern. The end of song event is always last, and it cannot be erased.

Build a Song in Pattern Mode

Press F2 in pattern mode to append the current pattern to the end of the current song. The pattern event and any pattern specific tempo, swing, and mute/solo changes are automatically appended to the end of the current song.

Copy Song

Press the Copy key while in Song Mode to copy the current song to another song, or to a pattern.

Copy To: Select song or pattern.

Song: If Copy To is set to song, then enter the destination song number.

A song can be copied to an empty song. That creates an identical copy.

A song can be copied to an existing song. In this case, a message will appear saying “song not empty”, and two actions will be available: overwrite and append. If overwrite is selected, the destination song will be overwritten and become an identical copy of the current song. If append is selected, the current song will be appended to the end of the destination song.

If the destination song is the same as the current song, then the only option is to append. The current song will then have all of the song events repeated. The result is like having a repeat X2 group around the whole song, but the more useful purpose of this feature comes from editing the song after it has been appended to itself.

Pattern: If Copy To is set to pattern, then enter the destination pattern number.

When copying a song to a pattern, the individual events in each of the patterns that make up the song will be copied to the destination pattern. For example, a song that contains four one-measure patterns will result in a four-measure pattern.

Any mute or solo song events will be reflected in the resultant pattern. For example: a song plays pattern 1, then mutes track B1, then plays pattern 1 again. The resultant pattern will not contain any events for B1 in the second half. Tempo and swing changes within a song cannot be copied to a single pattern, so they will be ignored.

As song can be copied to an empty pattern or an existing pattern. If the destination pattern is not empty, a message will appear saying “pattern not empty”, and both overwrite and append actions will be available.

If the destination pattern is itself contained in the current song, then a message will appear saying “pattern is in song”, and no copy actions will be allowed.

Track Settings

To edit a track's settings, press Shift+Pad, or select Track Settings from the Settings menu. Press a different pad to see and edit another track's settings without exiting or pressing shift. Press Back to exit track settings.

Assign Sound

Assign sound is discussed in the section on Assigning Sounds to Tracks.

Rename

Selecting rename track will display the text editor. Press F3 in the editor to save the new name. The corresponding WAV file is not renamed until the kit or project is saved.

Track Info

Shows the length of the sound, and whether it is stereo or mono. Expanding the accordion shows the file size, the sample rate, the bit depth, beats and BPM estimate, and the detected pitch. Note that pitch detection takes about ½ second the first time it is run for a track. That can cause a hiccough in sample playback. So, it is inadvisable to expand the track info accordion during a performance.

Output Mix

If the file is stereo, there are four choices for how it plays. Select Left or Right to play only one channel of a stereo file, or for stereo files that actually contain the same sound on both left and right, which is quite common. Select L+R Mixed to mix the left and right into one mono channel. Select stereo to play left and right in separate channels. Stereo samples play through output pairs. A stereo sample set to either output 1 or output 2 will play through outputs 1 and 2.

Audio Engine

The options are HiFi or Classic. The Classic audio engine recreates the old school drop sample method of pitch shifting. Classic also sets the playback bit depth to 12-bits, regardless of the actual bit depth of the sample.

Bit Depth

Sets the playback bit depth for the sample. This is a classic bit-crush sound.

Output

Sets which output the sound will play through.

Choke Group

Sounds in the same choke group will choke (cut off or interrupt) other sounds in the group when played. A common example is putting open and closed hihat sounds in the same choke group. A sound can also be in no choke group and will not be choked by any other sounds. The number in brackets next to the choke group is the number of tracks in that group (including the one being edited).

Trigger Group
When a track is played, all other tracks in the same trigger group are played at the same time. All of the triggered tracks inherit the level of the track played. The number in brackets next to the trigger group is the number of tracks in that group (including the one being edited).

Sync Pitch
If the track is in a trigger group and sync pitch is checked, then when this track is triggered by another track, it will use the same pitch. If it is triggered by a multi-pitch, then it will use it's own multipitch value for the same pad as the triggering track.

Sync Slice
If the track is in a trigger group and sync slice is checked, then when this track is triggered by another track, it will play the same slice number.

Gain
Sets the base gain for a track. The gain setting is combined with the mix and level settings when the track is played. Only level is saved in a pattern.

Transpose
Sets the base pitch of a sample. When the track is played, the transpose amount is added to the pitch set with the faders, in a pattern, or via a MIDI message. When pitch resolution is set to Classic16/32, transpose can only be set in Classic steps, and is equivalent to the Classic machine's initial pitch setting. For other resolutions it is specified in semitones and cents.

Keep in mind that transpose does not change the maximum amount the pitch can be shifted. If, for example, a track is transposed up one semitone, then in pitch fader mode, +35 and +36 will be the same pitch (because there is no +37). The selected pitch shift is still stored in the pattern, so if, in our example the transpose amount is later changed back to zero, the +35 and +36 pitch shifts in the pattern will be two different pitches.

Pitch Resolution
Classic pitch resolutions faithfully recreate the pitch scaling of the Classic, which were approximately, but not precisely, one semitone apart. Chromatic and other scales (ionian (major), aeolian (natural minor), etc.) are ± 36 true semitones. Fine resolution is in cents.

Volume Envelope
Choices are the Classic two-stage sustain and release envelope, or HiFi AHDSHR envelope. See the Envelope Fader Mode section for more details.

Gated
When the track is in gated mode, pressing the pad starts playing the sound, and releasing the pad stops playing it. Gated mode is not available with Classic volume envelopes. Non-gated mode is usually referred to as one-shot mode. Gated mode works especially well with looped sounds. Remember that the envelopes are still based on a percentage of the total time, so set the loop time long enough.

Stop on Mute
If stop on mute is enabled, then the sound will be silenced when the track is muted. Turn this setting off to allow short sounds to finish their decay when muted.

Color
The color of the pad can be set to one of nine predefined colors in the list, or can be set to any color using the fader. The pad color can be set to black, however the S2400 uses pad color and brightness to clarify what is going on, and that help is lost if the pads are not lit.

Round-Robin
Use this setting to rotate through the multi-slices (or notes for MIDI tracks) when the track is triggered, either live or while playing back a pattern. While recording, the actual slice is heard and recorded. When the pattern comes around again and plays that event, it will be round-robined. The round robin settings are stored with the project, not the kit (same as the track specific swing and quantize settings).

Forward plays each slice in order.
Reverse plays each slice in reverse order.
PingPong plays each slice from 1-8, then back down to 1.
Shuffle slices like a deck of cards, then plays all eight with no repeats, then shuffles again.
Brownian plays the last slice ±1 for a random walk through the slices.
Random is completely random and can include repeats.

Trigger by
If Round-Robin is enabled, then the trigger by setting determines what causes a different slice to play. **Main** plays a slice when the main pad (not a multi-slice) is triggered. **Multi** plays a slice when one of the multi-slices is triggered, and **Both** is either condition.

Slices/Notes
The number of slices or notes included in the round robin can be set from 2 to 8.

Swing Amount and Swing Notes
Set the track-specific swing settings, which can also be set in the swing menu.

Quantize
Set the track-specific quantization, which can also be set in the quantize menu.

Quant. Shift
The track-specific quantization shift setting can be set to a specific number of 96 PPQN clock ticks. Using this setting, a track can be quantized, but actually be recorded a few ticks before or after the true note position. The range of the shift is ± half of the quantization. For example, if the track is quantized to eighth notes, the range is ± one sixteenth note. Shift is not on the quantize menu.

MIDI Mode, Note, and Channel
These settings are also on the Sync screen and are described in that section.

Track Actions

Organize Tracks
Displays the same screen as the Settings menu Organize Tracks option.

Pitch Stretch
This option calculates the pitch shift needed to stretch or shrink the assigned sound to a specific length or BPM, and sets the transpose setting for the track. See the Pitch Stretch section for more details.

Time Stretch
This option stretches or shrinks the assigned sound without changing the pitch, and assigns the stretched file to the track. See the Time Stretch section for more details.

Resample
This option resamples the assigned sound to 26KHz 12-bit, and assigns the resampled file to the track. See the Resample section for more details.

Bounce Sound
This option saves the sound as a new WAV file with all of the parameters (level, pitch, filter, etc) applied.

Clear Sound
Clear the sound from a track. This action does not delete the previously assigned WAV file from the SD card.

Pitch Stretching

This option calculates the pitch shift needed to stretch or shrink the assigned sound to a specific length or BPM, and sets the transpose setting for the track. Pitch Stretch is in the actions section of the Track Settings menu.

The Pitch Stretch screen has the following fields:

File
The file name of the original file being stretched.

Beat Count
Fill in the number of beats (quarter notes) in the original sample. The S2400 guesses the Beat Count based on the sample length, assuming 4/4 time. Changing or correcting this number will change the From BPM field.

From BPM
When stretching beats, fill in the tempo of the original sample. The S2400 will fill in the From BPM based on the sample length and Beat Count, but it can be changed.

To BPM
Fill in the tempo of the resulting stretched sample. This field defaults to the current pattern tempo.

From Time
The From Time is automatically filled in with the length of the original sample, and cannot be changed. It is expressed in seconds.

To Time
The To Time is the length of the stretched sample. This field is used when stretching a sample to a specific length, not a specific BPM. It is recalculated when the From BPM, To BPM, or Stretch Percent are changed, and those fields are recalculated when the To Time is changed.

Pitch Change
The pitch change is transposition amount, in semitones and cents, needed to stretch the sample to the above BPM and time.

Transpose Track
Sets the transpose setting of the track to the above pitch change.

Time Stretching

Time stretching a sound stretches or shrinks the length without changing its pitch. Select Time Stretch from the Track Settings menu, or press F7 when a WAV file is selected in the file browser. The time stretch function is not real-time and no pattern or song can be running while stretching.

File
The file name of the original file being stretched.

Sound Type
Select Beats when stretching one or more measures of music. Select Note when stretching a single note or sound. The sound type affects the stretch algorithm.

Note
When stretching a note, the S2400 will attempt to detect the pitch of the sound and fill in the closest note. If it cannot detect the pitch, the note field will default to C-2. If you know the actual pitch of the sound, you can edit the note field.

Beat Count
When stretching beats, fill in the number of beats (quarter notes) in the original sample. The S2400 guesses the Beat Count based on the sample length, assuming 4/4 time. Changing or correcting this number will change the From BPM field.

From BPM
When stretching beats, fill in the tempo of the original sample. The S2400 will fill in the From BPM based on the sample length and Beat Count, but it can be changed.

To BPM
When stretching beats, fill in the tempo of the resulting stretched sample. This field defaults to the current pattern tempo.

From Time
The From Time is automatically filled in with the length of the original sample, and cannot be changed. It is expressed in seconds.

To Time
The To Time is the length of the stretched sample. This field is typically used when the type is note, however it can be used for beats as well. It is recalculated when the From BPM, To BPM, or Stretch Percent are changed, and those fields are recalculated when the To Time is changed.

Stretch Pct.
Stretch Percent is the actual number that is used by the time stretch algorithm, however it is easier for a human to express the stretch in terms of BPM or time. It is recalculated when the From BPM, To BPM, or Stretch Percent are changed, and those fields are recalculated when the percent is changed.

The maximum stretch is 400%. This is a limitation of the algorithm. However, an already stretched and saved file can be re-stretched.

Granulation

The granulation is a relative number from 1 to 100. This number along with the sample rate and BPM or note are used by the stretch algorithm. Different values can result in vastly different sounds. Experiment.

Preview

Select Preview to stretch the sample and play it. If none of the above parameters have been changed since the last preview, the sound will be re-played and not re-stretched.

Pressing the Run/Stop key is a shortcut to preview. If Time Stretch was displayed from Track Settings, pressing the pad is also a shortcut to preview. That allows the sound to be stretched and heard while editing field, such as granulation.

Press Shift+Back to stop the sound playing.

Save To

The destination for the stretched file. Options are:

Project: The project folder
Same Folder: The same folder as the original file
Other Folder: Any folder of your choosing

Project

The name of the project where the stretched file will be saved. Project is only shown when Save To is set to Project. If the current project has not been saved, then this field is editable, and there will be an asterisk next to the word Project indicating that a new project will be created.

Folder

The destination folder where the stretched file will be saved. If Save To is set to Other Folder, then this field is editable. Folder is not shown when Save To is set to Project. Select the folder name to display the file browser and pick a different folder.

Name

The name of the stretched file. Defaults to the original file name plus _stretched.

Assign to Track

Fill in the track, or set it to none to not assign the stretched sound. If time stretch was displayed from track settings, this field will default to the original track. If this field is selected, pressing a pad will automatically fill in the track.

Save

Select this action to complete the saving of the stretched sample.

Resampling

Resampling plays a wave file through the Classic anti-aliasing input filter and rerecords it at 26KHz and 12-bits. Select Resample from the Track Settings menu, or press F4 when a WAV file is selected in the file browser.

Make sure the gain knob on the back is turned all the way up. That is, to the right as you look at the front of the machine, or said another way, toward the screen.

Press Rec/Edit during resampling to cancel the process. The partially resampled file is still saved.

The Resample screen has the following fields:

Save To

The destination for the resampled file. Options are:

Project: The project folder
Same Folder: The same folder as the original file
Other Folder: Any folder of your choosing

Project

The name of the project where the resampled file will be saved. Project is only shown when Save To is set to Project. If the current project has not been saved, then this field is editable, and there will be an asterisk next to the word Project indicating that a new project will be created.

Folder

The destination folder where the resampled file will be saved. If Save To is set to Other Folder, then this field is editable. Folder is not shown when Save To is set to Project. Select the folder name to display the file browser and pick a different folder.

Name

The name of the resampled file. Defaults to the original file name plus _resample.

Pitch Shift

When the original file is played, the pitch can be shifted up or down. The resulting resampled sound will retain that pitch shift.

Pitch like 33@45

Sets the pitch shift to +5.37 semitones, which is the equivalent of playing a 33 RPM record at 45 RPM. The sample can then be pitched down 5 or 6 semitones for that Classic sound.

Bouncing

A pattern, song, or sound can be bounced to a single WAV file. The bounced file will sound just like it does when the original pattern or song is played. When bouncing a single sound, all of the parameters (level, pitch, filter, envelope, etc) will be applied, so it will sound just as it does then the pad is pressed. During the bounce process, any parameter changes made (e.g. filter sweeps) will be baked into the bounced file.

The bounce sound option is on the Track Settings menu under Track Actions. The bounce pattern or bounce song option is on the File menu.

The Bounce screen has the following fields:

Save To
The bounced file can be saved to the project folder, or any other folder of your choosing

Project
The name of the project where the bounced file will be saved. Project is only shown when Save To is set to Project. If the current project has not been saved, then this field is editable, and there will be an asterisk next to the word Project indicating that a new project will be created.

Folder
The destination folder where the bounced file will be saved. Folder is not shown when Save To is set to Project. Select the folder name to display the file browser and pick a folder.

Name
The name of the bounced file. When bouncing a sound, the name defaults to the original file name plus _B. When bouncing a pattern or song, the name defaults to the pattern or song name.

Mix
The bounced file can be mono or stereo.

Assign to Track
Fill in the track, or set it to none to not assign the bounced file. Pressing a pad will automatically fill in the track.

Settings

Display the Settings menu by pressing Shift+Settings (the 2nd key from the left in the top row).

Global Settings

Load@Start
When the S2400 is powered on, it can load the last used kit, the last project, or nothing.

MIDI-Only Banks
There are always four sample track banks. The number of MIDI-only banks can be set from zero to four. Lowering the number of MID banks after editing the settings for a MIDI track, or recording MIDI tracks into patterns, does not clear the settings, or remove the tracks from patterns.

USB Mix Order
The USB Audio output consists of ten channels: eight channels corresponding to the eight S2400 outputs, and two mix out channels. The mix out channels can be ordered first or last.

Pad Threshold
The pad threshold is amount of pressure needed to play a sound. The setting goes from zero to 99. Set it to whatever level feels comfortable.

Dynamic Pads
When dynamic pads is turned on, the level that a sound is played or recorded is set by the amount of pressure on the pad, not the level faders.

Dynamic Minimum %
The dynamic pads minimum level percent is the quietest a sound will be when using dynamic pads.

Pitch Min/Max Octave
Sets the range for the pitch faders for samples. Some people find six octaves to be too much or the extreme pitch shifts to be not musically useful, so the range can be customized. Values can be from -3 to -1 and from 1 to 3. This does not change the actual range of pitch shifting, or any pitch shifts stored in patterns, only what is allowable via the faders.

MIDI Min/Max Octave
Sets the range for the pitch faders for MIDI tracks. The values can be from -3 to -1 and from 1 to 3. This does not change the range of available pitches, only what is allowable via the faders.

Pattern Change @
When a new pattern is selected, the current pattern will switch over at end of pattern (EOP) or end of measure (EOM).

Swap Filter Knobs
Normally, the top (smaller) knob controls cutoff and the lower (larger) knob controls resonance, check this option to swap the function of the two knobs.

Fader Catchup
When catchup is enabled, faders and knobs must be moved to the position of the current parameter value before they have an effect on that value. When catchup is disabled, parameter values will jump to the fader or knob position as soon as the control is moved.

Fader Lock @Start
When the S2400 is powered on, faders are either all locked or all unlocked. See the fader lock section for more details on how locking works.

Tap Tempo Avg
The number of taps of the Tap/Repeat key to average when setting the tempo.

MultiOrder
When a sound is assigned to a track, the multi values are set to defaults. The defaults can either go from lowest on pad 1 to highest on pad 8, or Classic (high to low).

More Popups
Popup messages are displayed on the screen to confirm various actions. Examples are: erase track from pattern (Erase+Pad), modify pattern (A+Pad), reset parameters (Back+Pad), all sounds off (Shift+Back). Those actions have no visual feedback other than the popup.

Other functions do have visual feedback, such as a clear change on the screen, or a button LED turning on or off. For example, pressing F9 to enable fader lock illuminates the F9 key. For that type of function, the popup message is optional, and can be turned off by unchecking the More Popups setting.

Appearance

Blinkenpads
When a track is played, either manually or in a pattern, the corresponding pad can either blink white, blink off, or not blink at all.

Tempo Blink
The tempo key blinks in time with the tempo. It is a sort of visual metronome. Blinking can be turned off.

OLED Bright
Enable for brighter OLED screen.

Outputs In Mixer
Shows the currently selected output(s) for each track in the Mixer page, at the top of each fader. Useful if you use separate outputs, or the DSP Card.

Sleep Time 0=off
Sleep time is the number of minutes of inactivity before the S2400 goes into sleep mode. Sleep mode turns off the screen and all key LEDs, and displays an animation on the pad LEDs. When sleep time is set to zero, the S2400 never sleeps. The S2400 will not enter sleep mode if a pattern or song is playing.

Sleep Color
Sleep color sets the color of the sleep mode pad LED animation.

Sleep Speed
Sleep speed sets the speed of the sleep mode animation.

Default Settings

Tempo
The default tempo for new projects or when the machine is started without loading an existing project.

Measures
The default number of measures in a pattern. Setting default measures changes the length of *empty* patterns in the current project, new projects, and projects loaded from the SD card.

Swing Notes
The default swing note can be eighths or sixteenths. Setting default swing notes changes the pattern swing setting of *empty* patterns in the current project, new projects, and projects loaded from the SD card.

Other Settings and Actions

Organize Tracks

The organize tracks screen lists the 32 sample tracks and allows them to be moved, copied, deleted, and renamed. Quickly double-clicking the Settings key closes the settings menu and displays the organize screen.

If no sounds are assigned to any tracks, then the organize tracks screen will look pretty empty and most of the function keys will have no effect.

Arrows/Encoder/Pad: Highlight Track

Enter/Encoder Press: Display the Track Settings menu for the highlighted track. If no sound is assigned to the highlighted track, the file browser will be displayed to assign a sound.

F1: Toggle Fix Track In Patterns. The F1 key is illuminated to indicate Fix is on. When Fix is on, the pattern is exactly the same before and after the move(s). When a track is moved, sometimes you want to change the pattern, and sometimes you do not.
For example, a snare is assigned to A2 but I would rather it be on A3. So, I want Fix on, so that any snare hits that were recorded as A2 are changed to A3 in the pattern, and the pattern still sounds the same.
In another example, there are two snares on A2 and A3, and I want to swap them without changing the patterns. In that case, I want Fix off, so that the patterns now use the same track, but a different sound.

F2: Duplicate Track. A copy of the highlighted track is made and inserted after the highlighted track. The copied track can then be moved to another position.

F3: Delete track. This is the same as selecting the clear sound function from the track settings menu. If the highlighted track does not have a sound assigned, then F3 removes the track and shifts the rest of the tracks down.

F4: Move Track Up. Moves the highlighted track one position up in the list, swapping its position with the track above it.

F5: Shift Tracks Up. Shifts the highlighted track, and the tracks above it, up one position. If there is a gap (a track with no sound assigned) then the gap will be filled and no tracks above that will be moved. A confirmation is displayed if shifting up will result in track A1 being deleted.

F6: Rename Track. Displays the text editor to rename the track. The sound file is not renamed until the project or kit is saved.

F7: Move Track Down. Moves the highlighted track one position down in the list, swapping its position with the track below it.

F8: Shift Tracks Down. Shifts the highlighted track, and the tracks below it, down one position. If there is a gap (a track with no sound assigned) then the gap will be filled and no tracks below that will be moved. A confirmation is displayed if shifting down will result in track D8 being deleted.

Track Settings
This is one way to display the Track Settings menu. The other ways are through the Organize Tracks screen, or by pressing Shift+Pad.

Clear all Patterns
Clears all pattern data from memory.

Clear all Songs
Clears all song data from memory.

Clear all Samples
All tracks are unassigned, but no other memory is cleared.

Clear Everything
Clears all patterns, songs, and tracks from memory. This option also resets the project name, and ensures that if the save key is pressed, the previous project will not get overwritten.

Format SD Card
If an SD card is not the correct format, or if you just want to delete everything from an old card, then it can be formatted by the S2400.

Most new SD cards come preformatted as FAT32, and will work fine in the S2400. Cards reformatted on a computer may not have the right format. We have even seen some cards that appeared to work, and the S2400 could even read files from them, but it could not save files to the card. Reformatting those cards in the S2400 made them fully functional.

Pat'n Memory
Shows the percentage of memory remaining for patterns and songs.

Samples
Shows the total length in seconds of all loaded samples.

Firmware Version
Displays the date of the UI (user interface) and AE (audio engine) firmware.

S2400 Credits
Displays the names of the team members, and a message from the company founder.

File

Display the File menu by pressing Shift+File (the third key from the left in the top row).

Please read the Files and SD Card section before this section.

Rename Project
Prompts for the new name, then renames the existing project folder and the S24, KIT, and MAP files. The project must have already been saved for this option to be visible.

New Project
Prompts for a project name, then clears all data from memory, creates the project folder and creates default S24 and KIT files.

Load Project
Loads a project from the SD card. All data in memory is erased when before the selected project is loaded.

Save Project
Saves any changes to a previously loaded or saved project. If the project has not yet been saved, you will be prompted to name the new project. This option does the same thing as pressing the Save key.

Save Project As
Saves the current project in a new folder with a new name. Loading a project, then selecting Save Project As will make a copy of the project.

Delete Unused WAVs
Deletes WAV files from the project folder that are not assigned to tracks. The project must have already been saved for this option to be visible.

Save Kit
If a kit was loaded or saved, and a project was not loaded or saved after that, then the Save Kit menu option is available to save edits made to kit parameters. This option also copies any WAV files to the folder that were assigned to tracks since the kit was last loaded or saved.

Save Kit As
The Save Kit As option creates a new folder, copies all WAV files that are assigned to tracks to the new kit folder, and creates the KIT file of track settings in the new folder.

Load Kit
Load kit is discussed in the section on Assigning Sounds to Tracks.

Load Sounds Folder
Load sounds folder is discussed in the section on Assigning Sounds to Tracks.

Bounce Pattern / Bounce Song

Bounce saves a pattern or song to a single WAV file. Any playback overrides and mute/solo states will affect the bounced file. Must be in song mode to bounce a song and pattern mode to bounce a pattern. See Bouncing topic.

Browse Files

Displays the File Browser. This view shows all files in the internal flash and on the SD card regardless of file type. Folders can be created, deleted, or renamed, and files can be renamed or deleted. Quickly double-clicking the File key closes the file menu and displays the file browser.

USB MSC Mode

Puts the S2400 into USB Mass Storage Class mode. The S2400 will appear to a computer as a mass storage device like a USB drive. The SD card in the S2400 can then be viewed and edited on the computer.

Sync

Display the Sync menu by pressing Shift+Sync (the fourth key from the left in the top row). Quickly double-clicking the Sync key toggles the clock source between internal and the last selected external source, and closes the menu.

Sync settings control how the S2400 interacts other devices and computer software. The sync settings, including track mapping, are saved in the global settings file (S2400.SET).

Clock Source

There can only be one clock source. The choices are Internal (meaning the S2400 controls its own clock), MIDI DIN, USB B, USB Host, or Clock In (3.5 mm jack).

External sync is forgiving when the master is intermittent or absent:

- If no clock is present, the S2400 will revert to its internal clock.
- You can stop the transport even when the external clock is still running. If you start transport again, the S2400 will wait until the start of the next bar (MIDI Clock only) to start, indicated by flashing Run/Stop button. This is useful if performing live to a master clock and means you can stop and start the S2400 and still stay in sync with other equipment.
- Pressing Shift+Run/Stop+Rec/Edit still forces the S2400 into record mode regardless of external clock state.

When externally clocked, the tempo display shows the calculated BPM with an approximately-equal sign (≈). The calculated tempo is an average of 24 clock messages, updated every quarter note; the number will fluctuate even under a rock steady clock. This is normal. The S2400 stays in sync with the actual clock messages and does not use the calculated tempo — it is shown for reference only.

Control Settings

These are the settings that determine how the S2400 is controlled over MIDI.

Control Port and Channel

This is the port and MIDI channel on which the S2400 will listen for control messages. Control messages are machine-wide, and not track specific. They include pattern change messages (discussed below), MIDI CC messages to set channel volume and panning, and NRPN messages to change the parameters of any track. For details of supported CC and NRPN, see the MIDI Control of Parameters section.

The control channel is not necessarily the same channel that the individual sample tracks listen on. Each track has its own channel and other settings described below.

Device ID

This sets the device ID for MMC and SysEx messages.

MMC Input
Enable this option to accept MIDI Machine Control messages. MMC messages will be accepted from any source that has transport in enabled (see below). The supported MMC messages are: 1 (Stop), 9 (Pause), 2 (Play), 3 (Deferred Play), 6 (Record Start), 7 (Record Exit), 8 (Record Pause).

Echo
Turn Echo off to prevent the S2400 from sending MIDI note on/off messages back to the port that they were received from.

Pattern Chg
The S2400 can accept a MIDI message to change the current pattern. If ProgChg is selected, then MIDI program change messages will set the pattern number. If CC 32 is selected, then MIDI CC (Continuous Controller) number 32 messages will set the pattern number. If none is selected, then no MIDI message will change the pattern number. A value of 127 selects the next pattern, a value of 126 selects the previous pattern.

MIDI Jack Settings
Each jack has its own settings to control which messages are sent and received on that jack. The MIDI DIN, USB B, and USB Host jacks all have the same settings.

Notes Out
Send MIDI note on/off messages when tracks are played.

Clock Out
Send clock and transport (start, stop, continue) messages. If an external clock source is selected, clock out will not be sent to that jack even if this option is checked.

MMC Out
Send MIDI Machine Control start and stop messages. This option is independent of the Clock Out setting. If this option is checked, then the MMC Device ID parameter is visible and must be filled in with the Device ID of the machine that will receive the messages, or to 127 for all devices.

Pattern Chg Out
Send a MIDI message when the pattern changes. If this option is checked, then the MIDI channel and MIDI message fields are visible. The message can be either program change or CC 32.

Transport In
Accept start, stop, continue, and song position pointer messages. If an external clock source is selected, then only transport messages from that source are accepted, even if this option is checked.

Notes In
Accept MIDI note on/off messages to play tracks.

Velocity In

If accepting MIDI notes in, also accept the velocity from the note on message. If this option is off, then the level faders on the S2400 control the level. This works much the same way as the dynamic pads option.

Clock In Jack

The 3.5mm clock in and out jacks can be configured for a variety of functions.

Function

Ignored, clock, reset, or it can play any one of the 32 tracks

Clock Speed

If the function is clock, the S2400 needs to know the incoming clock resolution: 96, 48, 24, or 12 PPQN, or 16th notes. For resolutions lower than the S2400's native clock speed of 96 PPQN, the S2400 will interpolate the in-between clock ticks.

MissedTicks=Stop

When the clock in jack is selected as the clock source, the S2400 will interpret a number of expected but not received clock pulses as a stop. Set this to zero to disable the function.

Clock Out Jack

Function

Options are Clock (at 96, 48, 24, or 12 PPQN, or 16th or 8th notes), Run/Stop (on when running, off when stopped), Reset (to beginning of pattern), or a pulse can be sent when any one of the 32 tracks is played.

Note Swing

When sending clock out, swing can be any of the available swing settings, or to the default swing setting of the S2400. A setting of 50% is no swing.

Pulse Length

The length of the output pulse in milliseconds. If the function is set to clock, then the output is a square wave.

Sample Tracks Map

MIDI Mapping refers to the mapping of S2400 sample tracks to output MIDI notes when tracks are played, and will play tracks when received. All mapping options can be edited on the S2400 Sync screen, or loaded from a MAP file. The current mapping is saved in the global settings file and reloaded when the machine restarts.

Load Map File

Loads a MIDI map file from disk. The file format is described in an appendix.

Save Map File
Prompts for a file name, then saves the current track map settings to a MAP file in the MIDI MAPS folder on the SD card.

Save to project
This menu option is only visible if there is a project loaded. Saves the current sample track map settings to a MAP file in the in the project folder. The file will have the same name as the project and a MAP extension. When the project is loaded in the future, the MAP file will automatically be loaded at the same time. To disassociate the map from the project, delete the file using a computer or the Browse Files function on the File menu.

Clear Map
This function sets all of the tracks' modes to none, channels to 10, and note numbers to 36-67.

Sample Track MIDI Settings
These settings determine what MIDI messages will be sent when a sample track is played, and what incoming MIDI messages will play the track. They can also be edited in the track settings menu. Settings for MIDI-only tracks are only editable in their track settings menu.

Pressing a pad will scroll the menu to that track's settings. While editing one of the settings, a received MIDI note on message will automatically fill in the channel and note number. This makes it quick and easy to map a controller to tracks.

Mode
None: No MIDI message will be sent for the track, and no MIDI message will play it.
Percussion: MIDI note on and off messages will be sent and received with a fixed note number, like a typical drum machine.
Slice/Note: MIDI note on and off messages will be sent with a fixed note number. Received MIDI notes are interpreted as a slice number.
Pitched: The received note number is interpreted as pitch, and the sent note number corresponds to the pitch at which the S2400 is playing the track.

Note
For Percussion tracks, this is the note number that will be sent when the track is played, and the incoming note number that will play the track.

For Slice per Note tracks, this is the note number that will be sent when the track is played, and the incoming note number that will play the main slice for the track. The eight notes above this note will play one of the eight multi slices.

For Pitched tracks, the note corresponds to the un-shifted sample. Pitch shifted notes output note numbers above and below that base note, and received note numbers are translated into the appropriate amount of shifting. For example, if the sound assigned to the track is an $F^{\#}$, the unpitched note number should be set to an $F^{\#}$ so that it plays in tune. The octave of the note can be set to whatever is convenient, such as note number 78 ($F^{\#}$ above middle C).

Channel

This is the channel that MIDI notes will be sent on, and the channel that will play the track.

Typically, percussion notes are sent and received on channel 10, but any channel can be used. Pitched tracks are usually each assigned to a unique channel, otherwise multiple sounds will be played by the same note on message.

MIDI Monitor

The MIDI monitor shows a scrolling list of all incoming MIDI messages from all three jacks. The first column is the source (D = DIN, U = USB B, H = USB Host). The other columns are a description of the message, the channel, and the parameter values. MIDI clock and transport messages are not displayed.

F1: Pause the display of incoming messages, for when the screen is scrolling too fast to read.
F2: Toggle between showing note name or note number for note on/off messages. There is not enough space on the screen to display both.

MIDI Control of Parameters

In addition to the MIDI functionality described in the Sync section, MIDI can be used to change the parameters of sample tracks.

CCs

Sample tracks that have a unique channel (i.e. not channel 10) can have their parameters controlled by MIDI CC (continuous controller) messages. See the complete MIDI CC list at the end of this manual.

NRPNs

Any sample track on any channel (including 10) can have their parameters controlled by NRPNs (non-registered parameter numbers). An NRPN is a series of three or four CC messages.

CC Number	MIDI definition	S2400 Usage
99 (63 hex)	Parameter Number MSB	Track Number
98 (62 hex)	Parameter Number LSB	CC Number
6 (06 hex)	Parameter Value MSB	Parameter Value
38 (26 hex)	Parameter Value LSB	Ignored

MSB/LSB stand for most/least significant bits. Typically, a parameter number is 14 bits spread across two CC messages. The S2400 uses the two messages separately. If your DAW or controller needs the full 14-bit number, multiply the track number by 128 and add the CC number.

NRPN messages sent to the S2400 must be sent on the control port and channel specified in the Sync menu.

For example, to change track B1's filter cutoff to maximum, send the following CC messages: CC 99 = 8, CC 98 = 74, CC 6 = 127

The S2400 remembers the last received NRPN parameter number MSB and LSB values. So, they only need to be resent to select a different track or parameter.

SysEx

SysEx (system exclusive) messages are a series of bytes of raw data that are unique to a particular machine. There are also universal SysEx messages that have a predefined format, such as MMC (MIDI Machine Control) messages.

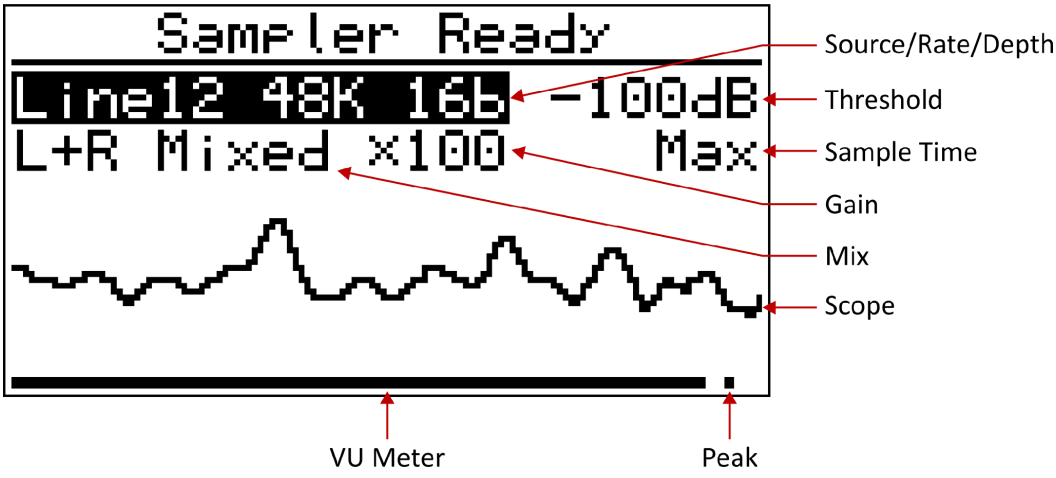
S2400-specific SysEx messages must begin with a SysEx Begin message, Isla's 3-byte MIDI manufacturer number, the Device ID, and a command number. That is followed by the data bytes, and terminated with a SysEx End byte. For example: F0 00 02 39 01 01 … F7

The command numbers are: 1 rename song, 2 rename pattern, 3 rename track.

Sample Mode

Enter Sample Mode by pressing Shift+Sample (the fourth key from the left in the top row).

Sample mode is where the S2400 records sounds and saves them to the SD card.



Sample Mode Keys

Enter/Encoder Press: Tab between setting to edit. Shift+Enter/Encoder will tab backwards. Or tab by holding Enter or Encoder then pressing Arrows or turning the Encoder.
Arrows/Encoder: Change the value of the highlighted setting.
Rec/Edit: Start and stop recording. While recording is in progress the eight pads are lit red. After recording ends, the unit enters the Sample Review state (see below).
Back: Exits sample mode.
Input Mon or Metronome: Displays the appropriate setting screen.

Sampling Settings

Source/Rate/Depth

This sets the input that will be sampled, as well as the sample rate and bit depth.

Line 1&2 and Phono 1 inputs can be routed through the Classic anti-aliasing filter that is required for sampling at 26KHz, so those inputs have the option of sampling at either 26KHz or 48KHz. Line 3&4 and Phono 2 inputs can only be sampled at 48KHz. USB audio is purely digital, and can only be sampled at 48KHz.

Samples recorded at 26KHz are 12-bits. Samples recorded at 48KHz are 16-bits.

Threshold

Threshold sets the minimum input level to begin sampling. After the Rec/Edit key is pressed, sampling does not start until the sound must reaches threshold level. After the threshold level is reached, sampling starts at next zero crossing.

Mix

The input mix can be set to Left or Right to sample from only the one jack to a mono sound, L+R Mixed to sample both jacks to a mono sound, or Stereo.

Gain

Gain is used to amplify a quiet signal before sampling it.

Line 1&2 and Phono 1 inputs have a hardware gain multiplier which is applied before the gain amplifier knob on the back of the S2400. Gain can be set to ×1 (no extra gain), ×10, or ×100. Line inputs 3&4 and phono 2 have an optional ×10 software gain multiplier.

Sample Time

The sample time can be set to a specific length. Sampling will stop when the selected time has been reached. Sampling can also still be stopped by pressing the Rec/Edit key.

When sample time is set to a note value, the actual time is based on the current tempo. When sample time is set to a number of bars, the actual time is based on both the current tempo and the current pattern's time signature.

The available sample time options are: 1/32, 1/16, 1/8, 1/4, 1 bar, 2 bars, 4 bars, 100ms, 200ms, 500ms, 1 sec, 2 sec, 2.5 sec, or Max.

Max Sample Time

The S2400 has 64 MB of sample RAM. New samples can be up to 64 MB long. Maximum sample time depends on the bit rate and number of channels.

Rate	Channels	Max Time
26 KHz	Mono	21:30.535
26 KHz	Stereo	10:45.268
48 KHz	Mono	11:39.040
48 KHz	Stereo	5:49.520

Sample Review Mode

After sampling, the screen changes to the Waveform Editor and the pads will be lit green. An analysis of the sample will pop up saying "Sample is good" or some other adjective.

From here use the following keys:

Run/Stop: Start/stop playback of the sample.

Back or Rec/Edit: Returns to sample recording mode.

Level: Normalize or change the gain.

Save: To save the sample and optionally assign it to a Pad.

Input Monitor

Display the Input Monitor menu by pressing Shift+InputMon (the sixth key from the left in the top row). The S2400 can monitor any pair of input jacks and send the signal to a pair of outputs or to the headphones only. It can also monitor USB audio input at the same time.

Analog Input

Turns monitoring of analog input jacks on or off. Quickly double-clicking the Input Mon key toggles this setting and closes the menu.

Input Jacks: The jacks to monitor. The options are Input 1&2, Input 3&4, Phono 1, or Phono 2.

Input Gain: Sets the hardware gain amplification. The gain knob on the back of the S2400 also affects input monitoring.

Input Mix: The input mix can be set to Left or Right to monitor from only one jack as mono, L+R Mixed to monitor both jacks as mono, or Stereo.

Output Level: This setting attenuates the input signal. A setting of 99 is maximum volume.

Output Jack: The options are 1&2, 3&4, 5&6, 7&8, or HP (headphones).

Output to USB Mix: Check this setting to pass the analog input monitor signal to USB audio.

USB Audio Input

Turns monitoring of USB audio input on or off.

Input Mix: The options are Left (mono), Right (mono), Left+Right Mixed (mono), or Stereo.

Output Level: This setting attenuates the input signal. A setting of 99 is maximum volume.

Output Jack: The options are 1&2, 3&4, 5&6, 7&8, or HP (headphones).

Echo Back to USB: When monitoring USB input, that input signal is mixed into what the S2400 sends to USB output.

Only USB to Jacks: When monitoring USB input, only the incoming USB signal is sent to the S2400 output jacks, not any track audio. This is useful when applying effects to the S2400 with a computer or iPad. Use the S2400 USB digital outputs to send your audio to the computer and return the effected signal via USB Input Monitor. With "Only USB to Jacks" enabled, you will only hear the wet signal returning to the S2400 at the analog Mix outputs.

Mon While Sampling

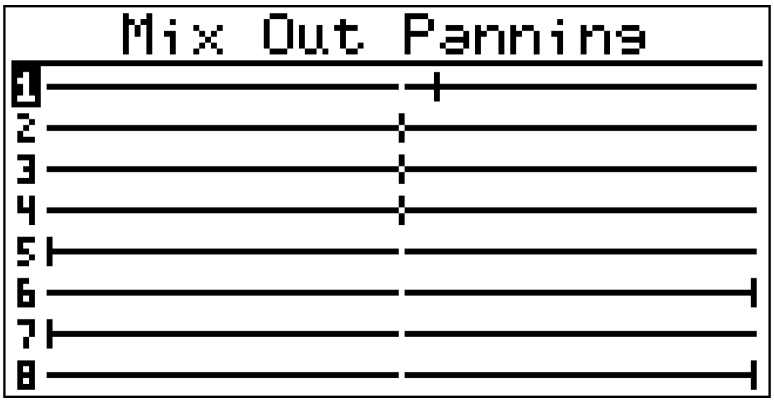
Turns input monitoring while sampling on or off.

Output Level: This setting attenuates the input signal. A setting of 99 is maximum volume.

Output Jack: The options are 1&2, 3&4, 5&6, 7&8, or HP (headphones).

Pan

Display the Pan screen by pressing Shift+Pan (the seventh key from the left in the top row).



The pan screen controls how the outputs are mixed into the Mix Out jacks. Some planning is necessary when using stereo samples to ensure that the track's channels are properly panned, and that no mono samples play on those outputs.

Faders: Correspond to the eight outputs. When a fader is moved, the output is highlighted.
Enter/Encoder Press: Tab between output to edit. Hold Shift to tab backwards. Another way to tab between the outputs is to hold Enter or Encoder then press Arrows or turn the Encoder.
F1: Pan highlighted output hard left
F2: Set highlighted output to center
F3: Pan highlighted output hard right
F4: Pan all output hard left
F5: Set all output to center
F6: Pan all output hard right
F7: Hard pan highlighted pair of output left and right (pairs are 1&2, 3&4, 5&6, and 7&8)
F8: Hard pan all pairs of output left and right
F9: Auto-pan hard pans output pairs left and right if there are only stereo tracks on the pair, and pans all mono-only output to center. Quickly double-clicking the Pan key executes an auto-pan and closes the screen.

Effects

Display the Effects screen by pressing Shift+Effects (the eighth key from the left in the top row).

DSP Card

If an Isla DSP Card is installed in the S2400, this section contains DSP settings and actions. See the separate DSP Card manual for details.

Classic Filters

The S2400 has the same analog filter circuitry as the Classic machine. The only difference is that in the S2400 the filters can be switched on and off. Highlight the row and press Enter/Encoder to toggle a filter on/off. Press Shift+Enter/Encoder to toggle all of the filters at once.

Dynamic Filters

Output 1 and output 2 have optional dynamic low pass filters. They use the SSI2144 filter chip, the modern version of the SSM2044 chip used in the Classic. They are dynamic in that there is a simple decay envelope that modulates the cutoff frequency. The maximum cutoff frequency is 13KHz, just like the Classic.

Fixed Filters

Outputs 3, 4, 5, and 6 can optionally go through the Classic fixed low pass filters. Each output has a slightly higher cutoff frequency than the previous one.

Note:
The analog filters are not heard in headphones or in USB Audio output, because those outputs are fully digital. The digital filters will be heard because they are digital.

Save

Saves the current project. If the project was not previously saved, it will prompt for a new project name first. See the Files and SD Card section for more information on how projects are stored. The save key is also used in the Waveform Editor to save a sample or slice.

If a pattern or song is running when Save is pressed, a “Cannot Save while running” prompt will be displayed. Press Back to cancel the save operation. Press Enter to stop and save. Press Run/Stop to stop and save and then start playing again (only works for existing projects).

MIDI-Only Tracks

The S2400 can have up to four banks of MIDI-only tracks in addition to the 32 sample tracks. The pad, buttons, knobs, and fader of a MIDI track can be configured to send out notes and MIDI CC messages just like a stand-alone MIDI controller. MIDI tracks can also be recorded into patterns.

The number of MIDI banks is set in the Global Settings section of the Settings menu. It can be set to zero if you choose not to use this feature. The MIDI banks are accessed the same way as the sample banks. That is, by pressing the Bank key or Shift+Bank to cycle forward or backward through the banks, or by holding the Bank key and pressing a number key.

MIDI Track Settings

MIDI track settings are accessed by pressing Shift+Pad, or selecting Track Settings from the Settings menu. Please read through the descriptions of all of the settings to gain an understanding of how MIDI tracks are configured and how they behave.

Rename: Each track can have a name to remind you of its purpose. The names default to the bank letter plus pad number (E1-H8).

MIDI Ports: Every MIDI track can be configured separately to send and receive messages on different ports. This is in contrast to the sample tracks which have shared port settings.

All Tracks Same: Check the All Tracks Same option to set all MIDI tracks' port settings to be the same as the track you are editing. If unchecked, each track can have its own port settings.

In from DIN/USB B/USB Host: Incoming MIDI messages from the configured ports will affect this track in the same way as the controls on the S2400.
Examples: If the pad mode is set to pitched, notes played on an external keyboard will be treated the same way as setting the pitch and level and pressing a pad. If the fader mode is set to CC messages, then incoming CC messages with the same number will be treated the same way as moving the fader.

Out to DIN/USB B/USB Host: Sets the ports to which this track will send messages.

Track Channel: The default channel for this track. Each individual control's channel can be set to the track channel (this setting), or a specific channel. When editing the track channel or any control-specific channel, an exclamation point next to a channel number in the list indicates a channel conflict, meaning that some other track is already using that channel. That might not be an issue if the tracks are using the channel on different ports.

Pad Color: Sets the color of the pad LED. Note that regardless of the color specified, the pad LED will be off if none of that track's controls are active, like a Sample track with no sample assigned.

Pad Mode: The options are:
Off: Pressing the pad has no effect.
Pitched: The pad sends out MIDI note on/off messages. The pitch and velocity of the messages is set in level and pitch fader mode, just like sample tracks.

Note Gated: A note on message will be sent with a specified note number and a velocity of 127 when the pad is pressed, and a note off message will be sent when the pad is released.
Note Toggle: A note on message will be sent with a specified note number and a velocity of 127 when the pad is pressed and released. A note off message will be sent when the pad is pressed and released again.
CC Gated: A CC number and value will be sent when the pad is pressed, and a different value will be sent when the pad is released.
CC Toggle: A CC number and value will be sent when the pad is pressed and released. A different value will be sent when the pad is pressed and released again.
CC Single: A CC number and value will be sent when the pad is pressed and nothing will be sent when the pad is released.

Channel: Can be either the track channel, or a specific channel.

Note: The note that will be sent if the mode is Note Gated or Note Toggle.

CC Number: The CC number to be sent if the mode is set to a CC mode.

Off Value: The CC value that will be sent when the pad is pressed, if the mode is set to CC Gated or Toggle.

On Value: The CC value that will be sent when the pad is released, if the mode is set to CC Gated or Toggle.

Dynamic: Check this option to send pad pressure as velocity, if the mode is Pitched.

Root Note: Sets the root note which works in conjunction with the scale.

Scale: Set the scale to constrain what pitches can be selected with the faders, if the mode is Pitched. Chromatic scale includes all notes, and so does not constrain the faders.

Round-Robin: Use this setting to rotate through the multi-pitches when the track is triggered, either live or while playing back a pattern. While recording, the actual slice is heard and recorded. When the pattern comes around again and plays that event, it will be round-robined.
Forward plays each pitch in order.
Reverse plays each pitch in reverse order.
PingPong plays each pitch from 1-8, then back down to 1.
Shuffle pitches like a deck of cards, then plays all eight with no repeats, then shuffles again.
Brownian plays the last pitch ±1 for a random walk through the pitches.
Random is completely random and can include repeats.

Trigger by: If Round-Robin is enabled, then the trigger by setting determines what causes a different slice to play. **Main** plays a slice when the main pad (not a multi-slice) is triggered. **Multi** plays a slice when one of the multi-slices is triggered, and **Both** is either condition.

A Button, B Button, Mute Btn, Solo Btn: Sets the mode for the button. The options Off, Note Gated, Note Toggle, CC Gated, CC Toggle, CC Single all work the same as described above for the pad. The mute and solo buttons also have the option of acting like mute and solo.

Channel, Note, CC Number, Off Value, On Value: These settings are the same as described above for the pad.

Fader, Top Knob, Bottom Knob: Sets the message sent for the fader or knob. The options are; Off, CC, RPN, or NRPN.

Channel: Can be either the track channel, or a specific channel.

CC Number: The CC number to be sent if the mode is set to CC.

Min Value: The minimum value for the CC value.

Max Value: The maximum value for the CC value.

Parm LSB/MSB: The least/most significant bits of the RPN or NRPN parameter number. To calculate two 7-bit numbers given a 14-bit number, divide the 14-bit number by 128. The non-fractional portion is the MSB. Then multiply the MSB by 128 and subtract that from the 14-bit number to get the LSB.

Record Fader&Knobs: Check this option to record the fader and knob positions into a pattern at the same time as the pad or other buttons. This works the same way that the sample track parameters (level, pitch, filter, etc) are recorded into the pattern.

RecGroups: Record groups allow the fader and knob values from multiple tracks to be recorded at the same time. For example, if you are controlling a synthesizer you may want to record CC values for many parameters with each note.

When editing record groups, press the fist then the last pad in the group. Pressing number keys has the same effect. Press a pad or number twice to remove it from a group. There can be multiple groups per bank.

Swing Amount, Swing Notes, Quantize, Quant.Shift: See the Sample Track Settings for an explanation of these settings. They work the same for MIDI tracks as they do for sample tracks.

Clear Track Parms: This option sets the function of all controls for the track to off.

Clear This Bank, Clear All Tracks: Same as above, but for the whole bank, or all MIDI tracks.

Load Map File: A map file contains all of the MIDI track settings above saved in a text file, the format of which is described in an appendix. The load map file command will load the settings from anywhere on the SD card.

Save Map File: A map file with the name “MIDItracks.map” is saved in every project folder when the project is saved. Maps can also be saved to the MAPS folder with any file name you choose. This is handy for keeping several different sets of settings and quickly switching between them without having to dig into the project folders to find the right one.

Default MIDI Track Settings

In the default, tracks E1-F1 are configured for channels 1-9, and F3-F8 for channels 11-16. F2 is not configured for channel 10 because that is used for percussion. The faders are all set to CC 7 (channel volume), and the knobs are set to CC 74 and 71 (typically filter cutoff and resonance).

The default settings are just a suggestion. The configuration is very flexible, so feel free to reconfigure it to meet your particular workflow.

MIDI Tracks Input Focus

An external keyboard, MIDI controller, or computer can be connected to a port, and without changing the MIDI channel, it can control any S2400 MIDI track on any channel.

Configure the control port and channel (in the Control Settings section of the Sync menu) to match the controlling device.

Press the A button for a MIDI track and that track will have focus. The track with focus will respond to any MIDI messages coming from the control port and channel, regardless of that track's configured ports and channels. Press the A button again to turn focus off.

Press Shift+A to set the focus to more than one track at a time. MIDI message will go to all tracks with focus.

Note that if a MIDI track has the A button configured for some MDI function (not off), then that track cannot receive focus.

Appendices

The following sections have been placed at the end of this manual for easy reference.

MIDI Tracks MAP File Format

The MIDI tracks map file is slightly different from the sample tracks map file format.

The MAP file format is similar to the common INI file format. Each line is either a [section] or a key=value pair. Nothing is case sensitive. All blank lines, spaces, and tabs are ignored. Any text after a semicolon is a comment. MIDI channel numbers are 1 to 16, all other number are 0 to 127. There are a lot of keys, and a lot of possible values for them. If you would like to edit a map file by hand, the best way is to start by setting some of the parameters on the S2400 then save and edit the map file.

Below is an excerpt of a MIDI tracks map file with comments added to show other valid values:

```
[E1]
name=E1
channel=1
color=RED
pad-mode=PITCHED  ; or NOTE-GATED, NOTE-TOGGLE, CC-GATED, CC-TOGGLE, CC-SINGLE
pad-channel=TRACK ; or 1-16
pad-dynamic=0     ; or 1
a-mode=OFF
b-mode=OFF
mute-mode=MUTE
solo-mode=SOLO
fader-mode=CC
fader-channel=TRACK
fader-number=7
fader-min=0
fader-max=127
top-mode=CC
top-channel=TRACK
top-number=74
top-min=0
top-max=127
bottom-mode=NRPN
bottom-channel=TRACK
bottom-lsb=1
bottom-msb=2
record=0
rec-group=1
swing-note=PATTERN
swing-amount=PATTERN
quant-time=DEFAULT
quant-shift=0
```

Sample Tracks MAP File Format

S2400 MIDI track maps are text files with a MAP file extension (e.g. MyCntrlr.MAP). They can be created by the S2400 or created/edited on a computer. If you create a map for a particular controller or software, you can share it with other users in the S2400 file sharing section of the Isla forum. Likewise, you can search the forum for a map before going to the effort of mapping it yourself.

The MAP file format is similar to the common INI file format. Each line is a key=value pair. Nothing is case sensitive. All blank lines, spaces, and tabs are ignored. Lines beginning with a semicolon are comments. MIDI channel numbers are 1 to 16. MIDI note numbers are 0 to 127.

Consider the sample map below.

```
; S2400 SAMPLE TRACKS MIDI MAP
Channel=10
A1=36
A2=37
A3=38
A3=slice/note
Channel=1
A8=60
A8=pitched
```

The MIDI channel is specified with a CHANNEL=# line. The channel affects all notes that come after it in the file. In the above example, tracks A1 through A3 will send and receive MIDI note on messages on channel 10 (typically used for percussion instruments). Track A8 will send and receive MIDI note on/off messages on channel 1. If not specified in the file, the channel is 10.

To specify the note number for a track, type the track designator, equal sign, note number, as shown in the example above.

To specify that a track should use the slice per note mode, type the track designator, equal sign, and the words “slice/note”, as on track A3 above.

To specify that a track should be pitched, not percussion, type the track designator, equal sign, and the word “pitched”, as on track A8 above.

Any track not mentioned in the map file will have its mode set to none, not output a note, and not be played by incoming messages.

Sample Track MIDI CC Numbers

These messages affect the sample track whose MIDI channel is set to the same channel as the incoming message.

7	07H	Track Mix Volume
10	0AH	Pan Track's Channel (64 = center)
11	0BH	Track Level
15	0FH	Slice Number (0-8, zero is the main slice)
16	10H	Slice Start
17	11H	Slice End
18	12H	Loop Start
20	14H	Loop Time
21	15H	Loop Reps
32	20H	Optional, for pattern change
70	46H	Filter Type (0=LP, 1=BP, 2=HP)
71	47H	Filter Resonance
72	48H	Envelope 1 Release
73	49H	Envelope 1 Attack
74	4AH	Filter Cutoff
75	4BH	Envelope 1 Decay
76	4CH	Envelope 1 Attack Hold
77	4DH	Envelope 1 Sustain
78	4EH	Envelope 1 Sustain Hold
79	4FH	Envelope 1 Total Time
80	50H	Envelope 1 Pitch Mod Amount in semitones (64=no modulation)
81	51H	Envelope 1 Filter Mod Amount
82	52H	Envelope 1 Filter Mod Direction (64-127 = plus)
83	53H	Envelope 2 Release
84	54H	Envelope 2 Attack
85	55H	Envelope 2 Decay
86	56H	Envelope 2 Attack Hold
87	57H	Envelope 2 Sustain
88	58H	Envelope 2 Sustain Hold
89	59H	Envelope 2 Total Time
90	5AH	Envelope 2 Pitch Mod Amount in semitones (64=no modulation)
91	5BH	Envelope 2 Filter Mod Amount
92	5CH	Envelope 2 Filter Mod Direction (64-127 = plus)
120	78H	All Sound Off
121	79H	Reset All Controllers - Handled the same as all sound off
123	7BH	All Notes Off - Handled the same as all sound off

Global MIDI CC Numbers

These messages must be received on the configured S2400 control port and channel.

102 66H Live Loop Pad Press (1-8 = Press, 0 = Release)
103 67H Live Loop Merge Record Buffer (if value is 64-127)
104 68H Live Loop Clear Record Buffer (if value is 64-127)
105 69H Live Loop Erase (1-8 = Loop Num, 127 = Active Loop)
106 6AH Active Live Loop Level
107 6BH Active Live Loop Filter Cutoff
108 6CH Special Mute/Solo
0 = Reset (all tracks unmuted and unsoloed)
20 = Mute active Live Loop
21 = Unmute active Live Loop
22 = Toggle mute for active Live Loop
23 = Solo active Live Loop
24 = Unsolo active Live Loop
25 = Toggle solo for active Live Loop
127 = Mute all tracks
109 6DH Mute (0-63 = mute track, 64-127 = unmute track) A1 is 0/64, A2 is 1/65, etc.
110 6EH Solo (0-63 = solo track, 64-127 = unsolo track)
111 6FH Pan Channel 1 (64 = center)
112 70H Pan Channel 2
113 71H Pan Channel 3
114 72H Pan Channel 4
115 73H Pan Channel 5
116 74H Pan Channel 6
117 75H Pan Channel 7
118 76H Pan Channel 8

F-Key Quick Reference

Pattern

	Add to Song	
Live Loops on/off	Play only one bar	Rename Pattern
	Lock Mode Faders	Lock All Faders

Step Program

Zoom Out	TR Mode LP: Toggle Color	Zoom In
Shift Events	Play only one bar LP: Play Selection	Rename Pattern
Paste Clipboard	Lock Mode Faders	Lock All Faders

Step Parm Edit

Go to Previous Event	Toggle View	Go to Next Event
Prev. Event this Track	Play only one bar	Next Event this Track
		Lock All Faders

Envelope Editor

Undo Env Changes LP: Reset Env	Undo Mod Changes LP: Zero Mod	
		Rename Pattern
	Lock Mode Faders	Lock All Faders

Waveform Editor

Zoom Out LP: All the way	Zoom Extent LP: Lock	Zoom In LP: All the way
<- Shift Points MM: Align to prev.	Zero Cross Snap LP: Snap all points	Shift Points ->\ MM: Align to next
Reverse Slice LP: Undo	Lock Faders for wave screen	Toggle Play X LP: Define X

Organize

Toggle Pattern Fixup	Duplicate	Delete
Move Up	Shift Up	Rename
Move Down	Shift Down	Choose Fields

Song

Insert Event	Insert Pattern	Change Repeat
Move Up		Rename
Move Down		

Pan

Hard Left	Center	Hard Right
All Hard Left	All Center	All Hard Right
Pair Hard L/R	All Pairs Hard L/R	Auto-Pan

File Browser

File Info	Make Folder	Delete
Resample	Move File/Folder	Rename
Time Stretch	Lock Mode Faders	Lock All Faders

Text Editor

Delete	Cursor/Characters	OK
ABCD	EFGH	IJKL
MNOP	QRST	UVWXYZ