

A stylized black graphic of a spark or flame, with several sharp, pointed shapes radiating from a central point, positioned to the left of the word 'SPARK'.

SPARK

Creative **Drum** Machine



Arturia[®]
MUSICAL INSTRUMENTS

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SOUND SAMPLES

MODERNBEATS



 **UltimateSoundBank**

 ueberschall

Thank you for purchasing Spark!

This user manual covers three distinct products:

- *Spark* software, a highly creative beat production center
- *Spark Creative Drum Machine* controller
- *SparkLE* controller

The manual concentrates on two main areas (hardware and software) with occasional “side-chains” to focus on the specific functionality of each controller and its unique approach to controlling the software.

In most cases the information in one chapter will be sufficient to cover both controllers, but occasionally a chapter will be split into two sections: one describing the Spark Creative Drum Machine controller and a second describing the SparkLE controller, with all other sections describing the Spark software they both were designed to control (hereafter referred to as the **Spark Engine**).

This manual also covers special versions of the Spark family which are software-only products. Please note that some features described in this manual are not available for these ‘Special Versions’ and are tagged with this icon:



Package Contents

In this package you will find:

- A DVD-ROM containing Spark Creative drum machine installer for Mac OS X and Windows 7/Vista/XP
- A registration card with the Serial Number and Unlock Code (Spark Creative), or a sticker inside the Quick Start guide with that information (SparkLE).
- The User’s Manual for Spark Creative Drum Machine software and the Spark Controller
- Spark Creative controller or SparkLE controller (depending on the model)
- USB cable

Be sure to store your registration information carefully! It contains the serial number and unlock code that are required to register and authorize the Spark Engine, so these codes are valuable.

It’s important to register, because this identifies you as the legitimate owner and ensures that you’ll receive the latest news and updates for your software and hardware.

See [chapter 3 “Registration & Authorization”](#) for more information about the authorization process.

Special Message Section

The Spark controller uses USB or an external power adapter. Do not connect this product with any other power supply or adapter than the one described in this manual specifically recommended by Arturia. (See section 4.2.4 for more details).

WARNING:

Do not place this product in a place or position where someone could walk on, trip over or roll anything over power or connecting cords.

The use of an extension cord is not recommended! If you must use one, make sure the cord has the ability to handle maximum current needed by this product. Please consult a local electrician for more information on your power requirements.

This product should be used only with the components supplied or recommended by Arturia. And when using this product with any approved components, please observe all safety markings and instructions that accompany the accessory products.

SPECIFICATIONS SUBJECT TO CHANGE:

The information contained in this manual is believed to be correct at the time of printing. However, Arturia reserves the right to change or modify any of the specifications without notice or obligation to update existing units.

IMPORTANT:

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, damages, fire or other risks.

The product used either alone or combined with an amplifier, headphones or speakers, may be able to produce sound levels that could cause permanent hearing loss. DO NOT operate for long periods of time at a high level or at a level that is uncomfortable.

If you encounter any hearing loss or ringing in the ears, you should consult an audiologist.

NOTICE:

Service charges incurred due to a lack of knowledge relating to how a function or feature works (when the unit is operating as designed) are not covered by the manufacturer's warranty, and are therefore the owner's responsibility. Please study this manual carefully and consult your dealer before requesting service.

PRECAUTIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- Read and understand all the instructions.
- Always follow the instructions on the instrument.
- Before cleaning the instrument, always remove the electrical plug from the outlet, as well as the USB cable. When cleaning, use a soft and dry cloth. Do not use gasoline, alcohol, acetone, turpentine or any other organic solutions; do not use a liquid cleaner, spray or cloth that's too wet.
- Do not use the instrument near water or moisture, such as a bathtub, sink, swimming pool or similar place.
- Do not place the instrument in an unstable position where it might accidentally fall over.
- Do not place heavy objects on the instrument. Do not block openings or vents of the instrument; these locations are used for air circulation to prevent the instrument from overheating. Do not place the instrument near a heat vent or any place with poor air circulation.
- Only use the recommended specified AC adaptor (9 Vdc, 800 mA)
- Make sure the line voltage in your location matches the input voltage specified on the AC power adaptor.
- Do not open and insert anything into the instrument that may cause a fire or electrical shock.
- Do not spill any kind of liquid onto the instrument.
- Always take the instrument to a qualified service center. You will invalidate your warranty if you open and remove the cover, and improper assembly may cause electrical shock or other malfunctions.
- Do not use the instrument with thunder and lightning present; otherwise it may cause long distance electrical shock.
- Do not expose the instrument to hot sunlight.
- Do not use the instrument if there is a gas leak nearby.
- Arturia is not responsible for any damage or data loss caused by improper operation of the instrument.

HANDLING CD-ROMS:

Avoid touching or scratching the shiny underside (encoded surface) of the disc. A damaged or dirty CD-ROM disc may not read properly. Keep your CD-ROMs clean using a commercially available CD cleaner.

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1 INTRODUCTION

1.1 WELCOME TO SPARK

BEAT THE FUTURE

Combining the power of analog synthesis, physical modeling and samples through the intuitive workflow of a hardware drum machine, Spark is a highly creative beat production center. Spark will save you time when looking for the right drum kit and will get you hooked by its amazing ease-of-use and sonic possibilities.

Spark embeds vintage analog drum machines, sample based beatboxes and acoustic drum sets. Then Spark lets you break through their sonic boundaries thanks to a highly tweakable controller.

With in-depth control over your sounds, an advanced loop mode and an XY touchpad with 8 real time effects, Spark will allow you to create unique beat experiments and constantly feed your creativity with innovative ideas.

Spark's sonic power is nothing but huge, embedding three distinctive drum engines: analog synthesis, sampling and physical modeling. Thanks to the automations available on all parameters, every kit is very tunable and customizable, bringing a fun and complementary approach to sample browsing while making it more interactive and user-friendly than similar products.

Incorporating a 16-step sequencer and 8 velocity-sensitive touch pads into a sturdy beat station, Spark is your weapon of choice to bring the best groove into your tracks whether you are working in the studio or performing on stage.

1.2 HISTORY

Early in 2001 Arturia began working on advanced algorithms for the digital emulation of analog circuit audio characteristics. They are known as TAE[®], standing for True Analog Emulation. In non-technical terms, this is an unprecedented way of creating the very unique sound one finds in a synthesizer such as the Moog Modular. Nearly a year after they began work on the algorithms, Arturia was ready for feedback. At the 2002 NAMM show in California, Arturia shared an early version of what would later be the Moog Modular V with the renowned maker of the original Moog synthesizer, Doctor Bob Moog.

In seeking insight from sound production experts such as Dr. Moog, as well as avid synthesizer users, Arturia was able to ensure the quality of the instruments they made; so well in fact that Dr. Moog himself endorsed the Moog Modular V. The launch of this sound powerhouse was an instant success, winning awards from several top magazines, and leading to the development of other synth recreations.

Shortly thereafter, Arturia started receiving many requests from musicians, producers and bands. Many of them explained how they were planning to replace their original hardware synthesizers with virtual instruments. Artists around the globe were beginning to see the advantages of a software alternative to hardware-based synthesizers.

The CS-80V emulated the legendary Yamaha CS-80, considered by many as "the ultimate polyphonic" synthesizer, and was launched at the AES 2003 in New York. Imagine some of your favorite music from diverse artists such as Keith Emerson or Stevie Wonder, and you'll get an idea of the capabilities of CS-80V.

ARP 2600V was launched at the Winter NAMM Show 2005 in Anaheim. This is a faithful reproduction of the ARP 2600 and is great for just about any sound one might wish to

create: everything from drum n' bass stabs to Star Wars' R2-D2 sounds have been made with the ARP.

At the Winter NAMM Show 2006, ARTURIA announced the release of its seventh product: the Prophet V. This powerful hybrid gives you two instruments in one: it combines the warmth of the legendary Prophet 5 programmable analog synth with the unique Vector Synthesis textures of the digital Prophet VS.

The next year at the summer 2007 NAMM Show Arturia launched the Jupiter-8V. In terms of sonic possibilities, it complemented its "Arturian siblings" by bringing something different to the table. The Jupiter-8V was capable of creating very versatile sounds: You could easily make 'fat' or 'crystal' sounds with it. In fact, Jupiter-8V sounded the way it looked: 'sleek and polished'.

The electro-pop community quickly became convinced by the qualities of the original Jupiter-8. Artists that have used the Jupiter-8 include: Thomas Dolby, Tangerine Dream, Jean Michel Jarre, Depeche Mode, Prince, Kitaro, Elvis Costello, Duran Duran, Huey Lewis and the News, Journey, Yes, Devo, Billy Idol, Jan Hammer and BT, to name a few!

Recognizing the commitment artists the world over had to the sound of the Jupiter-8, Arturia took great pains with Jupiter-8V to maintain absolute faithfulness to the sonic characteristics of the beloved instrument while also following our penchant to allow users to venture well beyond its original capabilities.

Then in the year 2011 Arturia introduced the SPARK Creative Drum Machine. This powerful hybrid instrument was aimed at the producer and the live beat maker. It proposed a unique workflow mixing the 16-step style of programming with the live approach of pads, filtering, slicing and looping functions. Taking advantage of its expertise in virtual analog, Arturia not only integrated emulations of classic analog drum machines, but also acoustic drums, physical models, and powerful electronic kits all rolled up in one easy-to-use interface. Spark was quickly and widely used by top producers and artists such as Sandy Vee, the Glitch Mob, the Mars Volta, Vitalic, DJ Quick, and Yeasayer.

And finally, in 2013 Arturia continued its innovative streak with the introduction of the SparkLE hardware controller and version 1.6 of the SPARK Creative software. This powerful combination offers all of the acclaimed features of SPARK Creative software while maintaining an intuitive workflow all its own.

We are certain the SPARK Creative Drum Machine will take its place at the heart of your creative endeavors.

2 INSTALLATION

2.1 WINDOWS INSTALLATION (7/XP/VISTA)

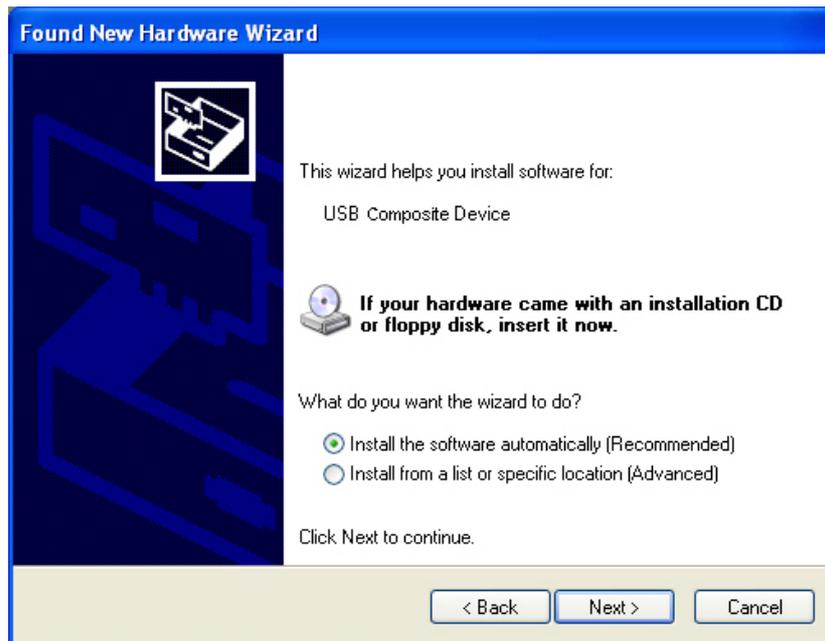
- Place the installation DVD in your computer's DVD-ROM drive.
- Use Windows® Explorer to browse the content of the DVD-ROM.
- Double-click the installer file named **SPARK Setup.exe**.
- Click Next.
- To continue, you need to first accept the license agreement. After you have read the license agreement, check the corresponding checkbox and click Next.
- To perform a complete installation, leave the Complete option checked and click Next. To deselect components or to install the SPARK application and sound library to an alternative location, select Custom. Then click Next. In the next dialog, choose the destination folders for the installation. To use the default path, just click Next. If you wish to select a custom path for a SPARK component, click Change, browse to the folder where you want to install the application or sound library. Then click Next. If you select VST (and/or VST 64 bits) you will have to select your VST (and/or VST 64 bits) folder.
- The Setup Program will lead you through the installation procedure. Follow the onscreen instructions.
- After the installation has been performed successfully, click Finish.



- Next, in order to install the SPARK Controller hardware driver, you need to connect the SPARK Controller to your computer. On Windows® Vista, the driver setup will finish automatically. On Windows® XP, installation is a two-step process, described below. The following screen should appear:
- Installation starts with Composite Device install:



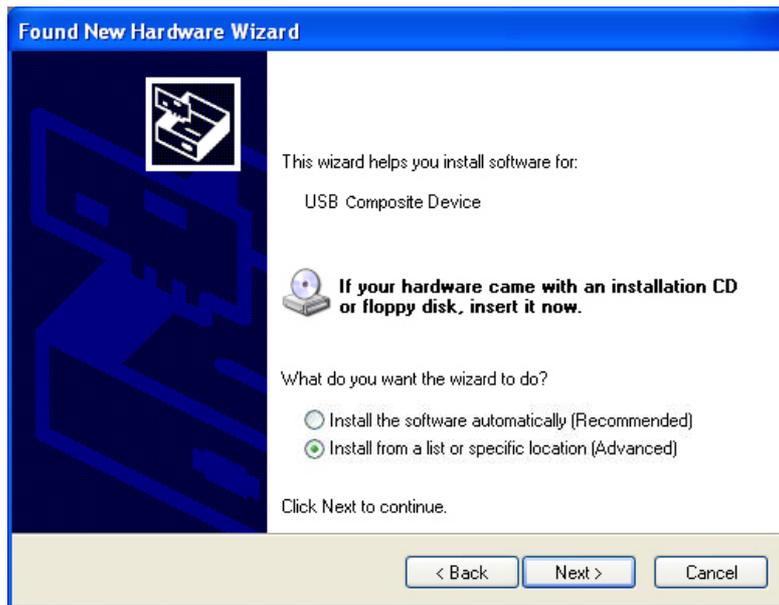
- Choose "Yes, this time only" and click Next



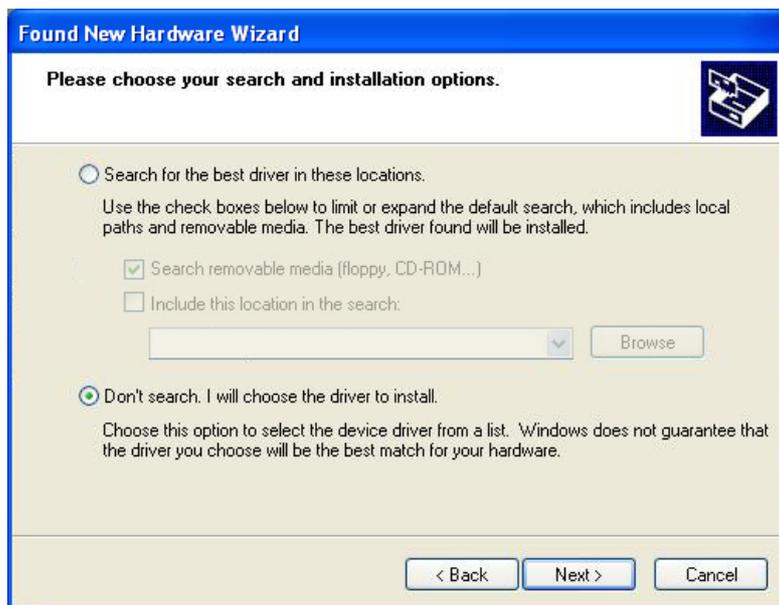
- Click Next
- After processing, Composite Device will be installed correctly.
- Installation should continue with USB Audio Device install.



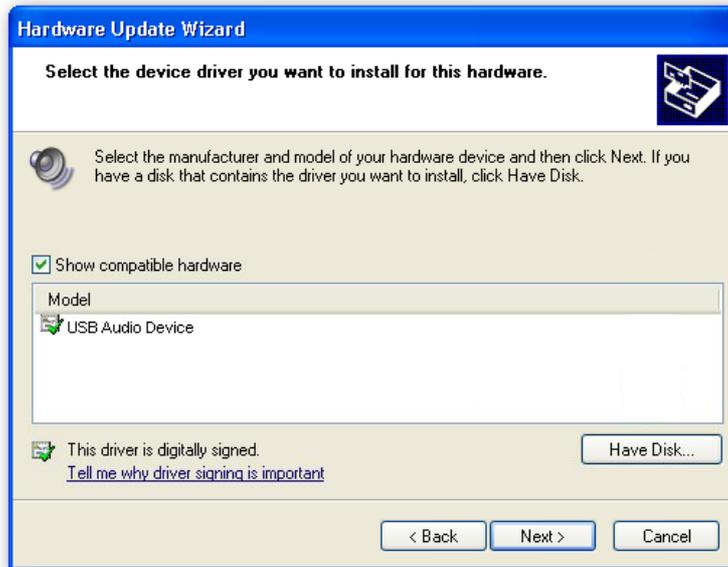
- Choose "No, not this time", and click Next



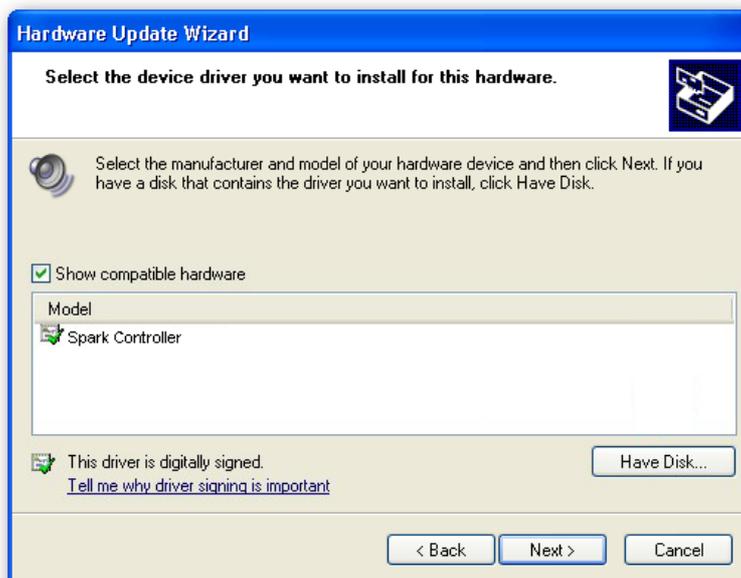
- Choose "Install from a list or specific location" and click Next



- Choose "Don't search, I will choose the driver to install."
- Click Next



- Click "Have Disk"
- Click Browse, and locate Spark_XP.inf on the Spark install DVD:
`[YourDVDdrive] : \Driver\Spark_XP.inf`



- Choose "Spark Controller" and click Next



- Click "Continue Anyway"

Your Spark Controller should now be ready to use.

2.2 MAC OSX INSTALLATION (10.5 and higher)

- Place the installation DVD-ROM in your computer's DVD-ROM drive. Its icon will appear in the Mac OS X Finder®.



- Connect the SPARK Controller using the USB cable. If you want to connect the Controller to a USB-hub instead, make sure the hub has its own power supply. SPARK's Controller will not work on a passive (bus-powered) USB hub.
- Double-click the SPARK DVD icon to display the content of the DVD.
- Double-click the installer file named SPARK.
- Click Continue to proceed.
- To continue, you need to first accept the license agreement. After you have read the license agreement, press Continue and click Agree.
- Select the hard disk onto which you would like to install SPARK.
- Click Continue.
- Select the elements you want to install. (We recommend installing all elements, but if you know you don't need a certain element like one of the plug-in formats, uncheck the checkbox next to it.)
- If you want to install the SPARK Library contents to a custom location, e.g. to an external hard disk, click the folder icon in the Location column to open a dialog in which you can specify a destination for the installation.
- Click Install to continue. The Setup Program will lead you through the installation procedure. Follow the onscreen instructions.

3 REGISTRATION & AUTHORIZATION

3.1 REGISTRATION

Now that the Spark Engine has been installed, the first step is to register the software in order to obtain the activation code that will enable you to use it.

The registration process will require you to enter the Spark serial number and the unlock code. Depending on the Spark controller you own, you will find these on a small plastic card (Spark Creative) or on a sticker at the back of the Quick Start Guide (SparkLE).

Connect your computer to the Internet, and go to this web page:

<http://www.arturia.com/login>

If you don't have an Arturia account yet, please create one. When you do you will see this form:

Create your account here

** Indicates required fields*

Firstname: *

Lastname: *

Email address: *

Confirm email: *

Password: *

Confirm password: *

Address:

City:

State:

Zip/Postal code:

Country: *

I wish to receive the Arturia newsletter:

If you already have an account, simply log in:

Already have an account ?

Email address:

Password:

Remember me:

[Forgot my password?](#)

Want to create an account* ? [Click here](#)

Once you are logged into your account, you can register your Spark unit and request your activation code.

Go to the "My Registered Products" section of your account and click on the "Add" button:

My Registered Products

You don't have any license !

DOWNLOAD STEP BY STEP GUIDE
How to authorize my virtual instrument? 

This guide details the full process to virtual instrument authorization. It consists in 2 major steps:

- 1. Register your synthesizer on your Arturia account
- 2. Download a license on your eLicenser dongle (being virtual or hardware)

In the form that appears, select "SPARK Software" from the drop down menu, type in your software serial number and unlock code (as written on the registration card or sticker), and click Submit:

My licenses

You don't have any license !

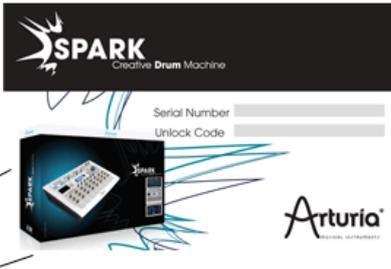
Add a license

Product: *

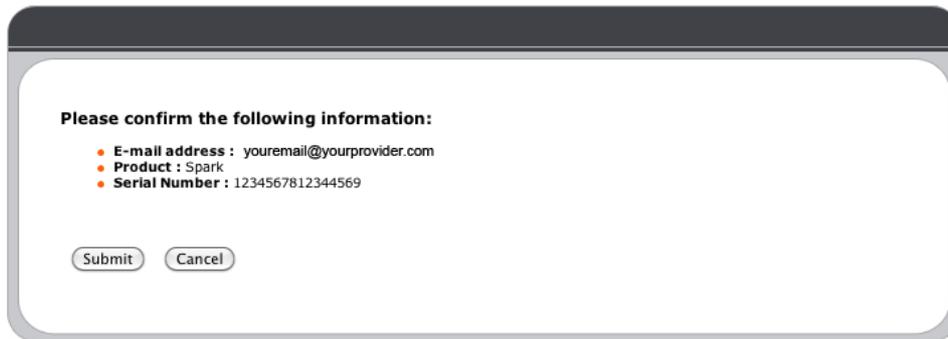
Serial number: * - - -

Please use :
XXXX-XXXX-XXXX-XXXX for Software
XX-XXX-XXX-XXX for Hardware

Unlock Code: XXXXXXXX - **Only if printed on your registration card !**



You should see the following confirmation screen. If the information is correct, click Submit:



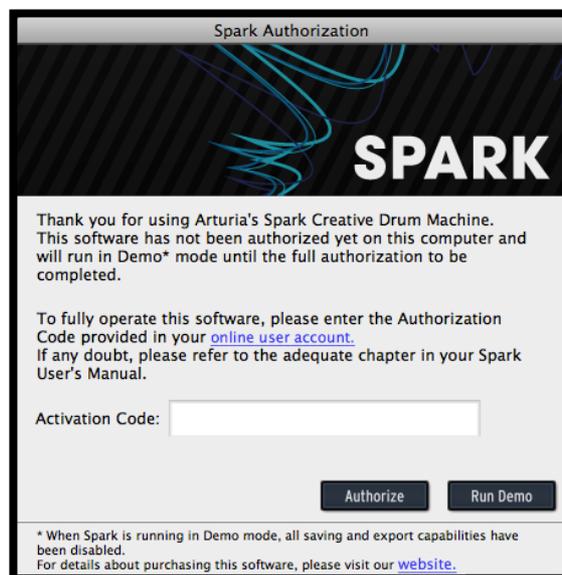
3.2 AUTHORIZATION



Please refer to **Quick Start Guide** for your special version of the Spark product for information regarding registration and authorization.

Finally there is a screen to copy the **activation code**. The very same information is sent to you by email as a backup.

Copy the **activation code** and paste it in the Authorization window that appears when you launch Spark:

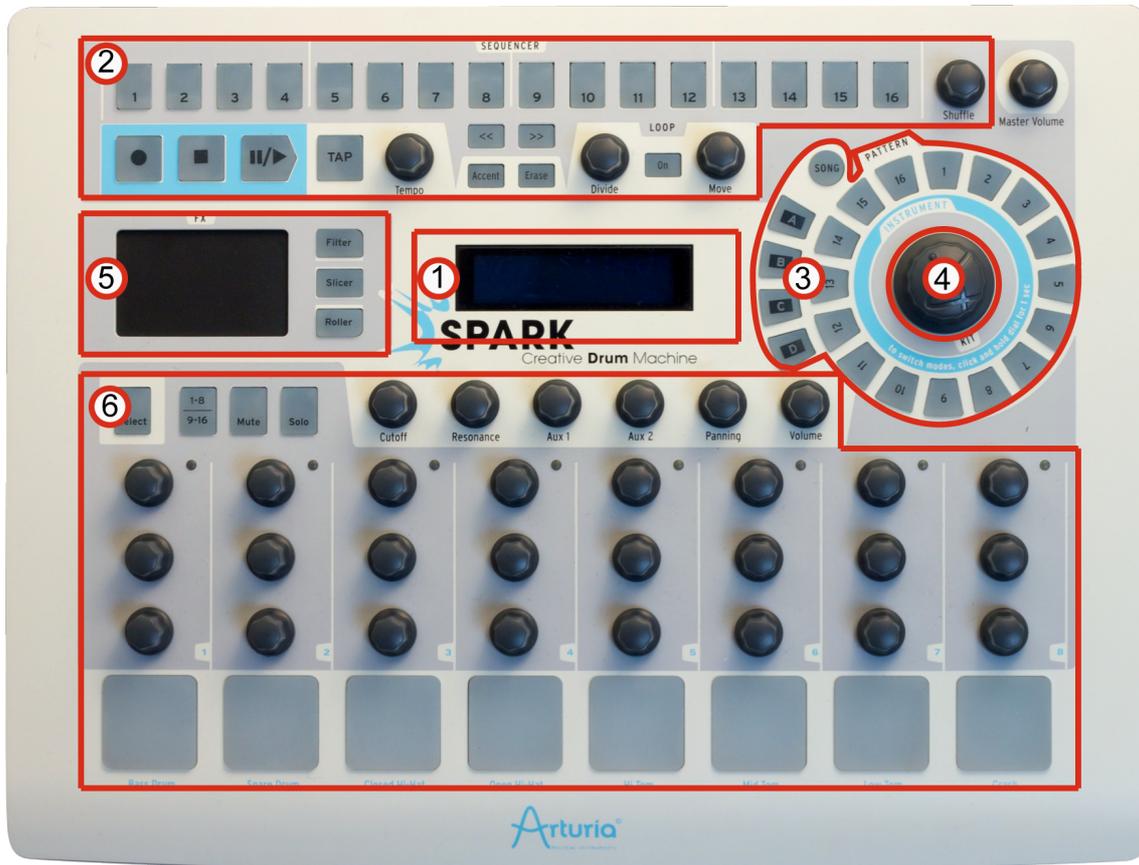


If your activation code has been entered correctly, the software will launch. From that point forward Spark will launch without showing you the Authorization window.

4 THE SPARK CREATIVE CONTROLLER: AN OVERVIEW²

4.1 THE FRONT PANEL

The Spark Creative controller looks the same as its Center panel in the Spark Engine. In this overview we will focus on the features specific to the hardware controller.



1.	Display
2.	Sequencer zone
3.	Song/Pattern zone
4.	Jog Dial
5.	FX Live pad
6.	Instrument control zone



² This chapter is about the Spark Creative hardware controller, so most of the information will not apply to the software-only products. But there are some potential areas for confusion, so remember to look for this icon.

4.1.1 The display

Fittingly placed at the center of the Spark Creative controller, the display is the central source for all information about what the controller is doing.

4.1.2 The Sequencer zone

Used for viewing, assembling and editing patterns and songs, the Sequencer zone also gives you the ability to alter loops in real time.

4.1.3 The Song/Pattern zone

All of Spark Creative's 64 patterns can be accessed quickly from this zone. They are arranged in four banks of 16 patterns each (A-D and 1-16). The buttons also light up to tell you which pattern is currently playing.

4.1.4 The Jog Dial

The Jog Dial allows you to select and load Instruments, Kits and Projects. Used with the Select button you can apply search filters while selecting Instruments.

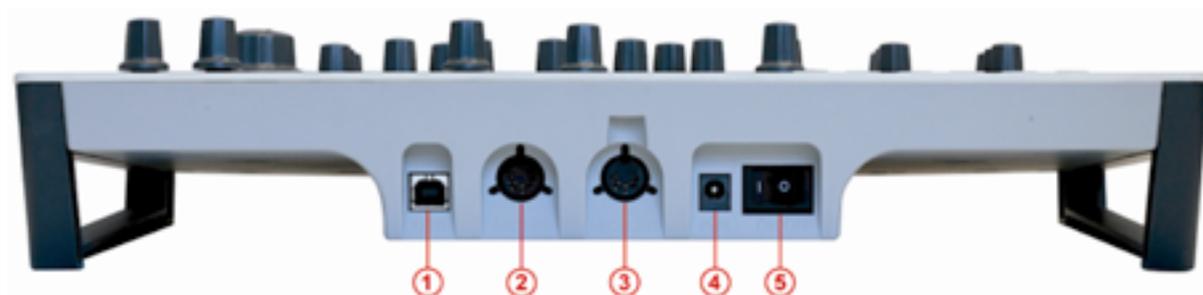
4.1.5 The FX Live pad

Real-time control of a ton of performance effects such as filter and resonance, volume and panning, aux sends, bit reduction, stutter effects, etc. Three buttons in this zone toggle the Filter, Splicer and Roller effects and cycle through their many variations. One effect can be locked in mid-modulation by the Select button while a second effect is performed.

4.1.6 Instrument Control zone

Play the pads and tweak the parameters of one or more instruments at the same time, either while recording a track or while playing back a pattern or song. Select between two banks of instruments and mute or solo them using the buttons in this zone.

4.2 REAR PANEL (OVERVIEW)



1.	USB connector
2.	MIDI IN port
3.	MIDI OUT port
4.	Power supply 9Vdc, 800 mA, center positive
5.	Power on/off switch

4.2.1 USB connector

This connects to your computer's USB 2.0 port for the exchange of data and for electrical power. In addition to allowing you to control the Spark Engine this port can also take MIDI data from the outside world and feed it to your computer, and vice versa.

4.2.2 MIDI In port

Use this port to send MIDI data from an external device into your computer.

4.2.3 MIDI Out port

This port not only sends MIDI data from your computer to external devices, it allows you to use the Spark Creative controller to control those external devices via MIDI.

4.2.4 Power supply (optional)

Connect the Spark controller to a powered USB 2.0 port. That will supply enough power to run the controller.

Note: You should not use the controller with a non-powered USB hub.

If you prefer to power your Spark Creative controller with a separate power supply, plug it in here. Be sure to use one with the right specifications, though: 9 volts DC, 800 mA, and center positive.

4.2.5 Power on/off switch

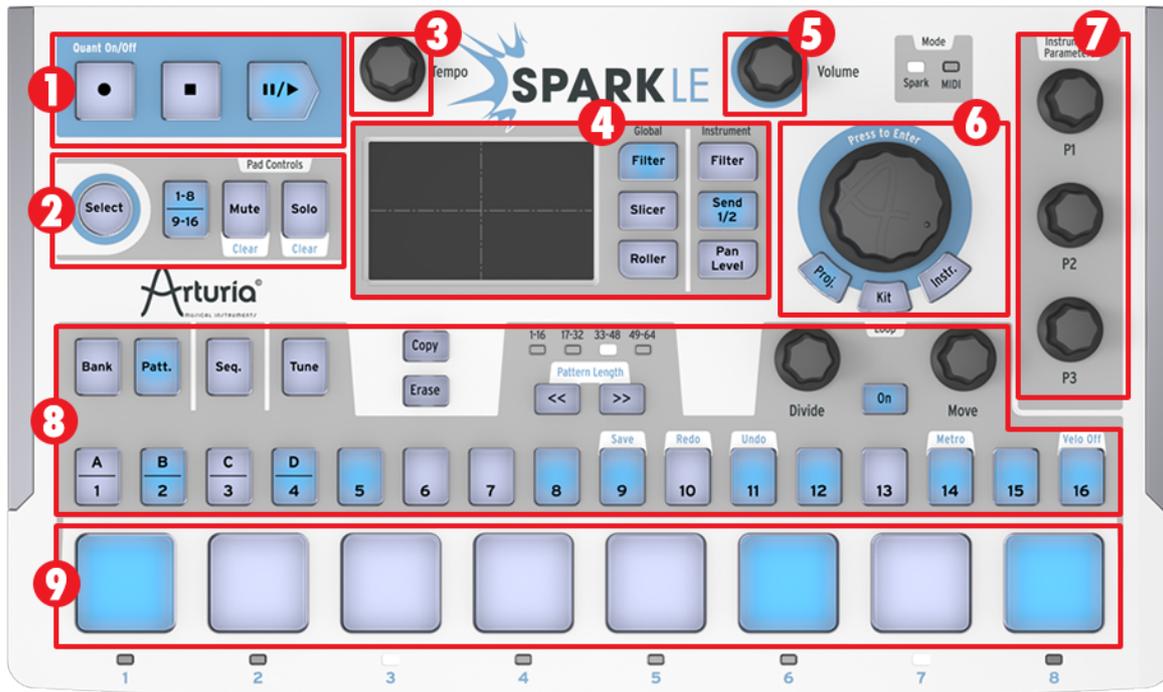
Use this to toggle the Spark Creative controller on or off.

5 THE SPARKLE CONTROLLER: AN OVERVIEW

5.1 THE FRONT PANEL

The SparkLE controller looks the same as its Center panel in the Spark Engine, with two exceptions: There is no Song button and there is no Shuffle knob. These functions are accessed from within the Spark application on your computer.

In this overview we will focus on the features specific to the hardware controller.



1.	Transport zone
2.	Pad controls: Select Instrument / Shortcut, Toggle Instrument page (1-8, 9-16), Mute and Solo buttons
3.	Tempo knob
4.	FX Live pad and FX Selection buttons
5.	Master Volume control knob
6.	Jog Dial and Project / Kit / Instrument mode buttons
7.	Instrument parameter knobs
8.	Sequencer zone
9.	Instrument pads

5.1.1 The Transport zone

Record, play, pause or stop a pattern or song with these buttons.

5.1.2 The Pad controls

The buttons in this zone can select an Instrument, execute a Shortcut, switch between two pages of Instruments in the kit, and Mute and/or Solo instruments on the fly.

5.1.3 The Tempo knob

Use this knob to adjust the tempo of your pattern or song.

5.1.4 The FX Live pad

Real-time control of performance effects on an X/Y axis. Three buttons toggle Global effects (Filter, Splicer, Roller) and three more control effects for the selected Instrument. The Select button can lock one effect's position while a second effect is performed.

5.1.5 The Master Volume knob

This knob controls the overall output level.

5.1.6 The Jog Dial and Mode buttons

The Jog Dial allows you to select and load Instruments, Kits and Projects. Used with the Select button you can apply search filters while selecting Instruments. The Project, Kit and Instrument mode buttons allow quick access to each of those selection modes.

5.1.7 The Instrument parameter knobs

Select three parameters per instrument to tweak during recording or playback.

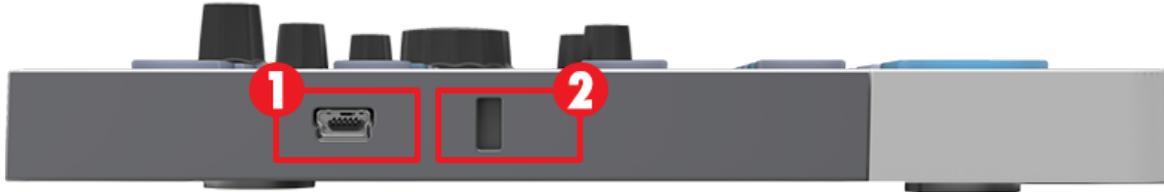
5.1.8 The Sequencer zone

Used for selecting and editing patterns and assembling and editing songs, the Sequencer zone also gives you the ability to alter loops in real time. You can also make quick chromatic tuning adjustments to the selected Instrument.

5.1.9 The Instrument pads

The pads allow you to play multiple instruments at the same time from one set of eight instruments, and the 1-8 / 9-16 page button can toggle between the other set of eight instruments in the current kit. Use the Mute and Solo buttons to silence one or more Instrument tracks or bring others to the forefront of the mix.

5.2 SIDE PANEL (OVERVIEW)



1.	USB Mini-B connector
2.	Kensington lock slot

5.2.1 USB connector

Use the supplied USB cable to connect the SparkLE controller to your computer's USB 2.0 port. SparkLE is bus-powered, so no additional power supply is needed.

5.2.2 Kensington lock slot

SparkLE is highly portable, so this slot will allow an added degree of security.

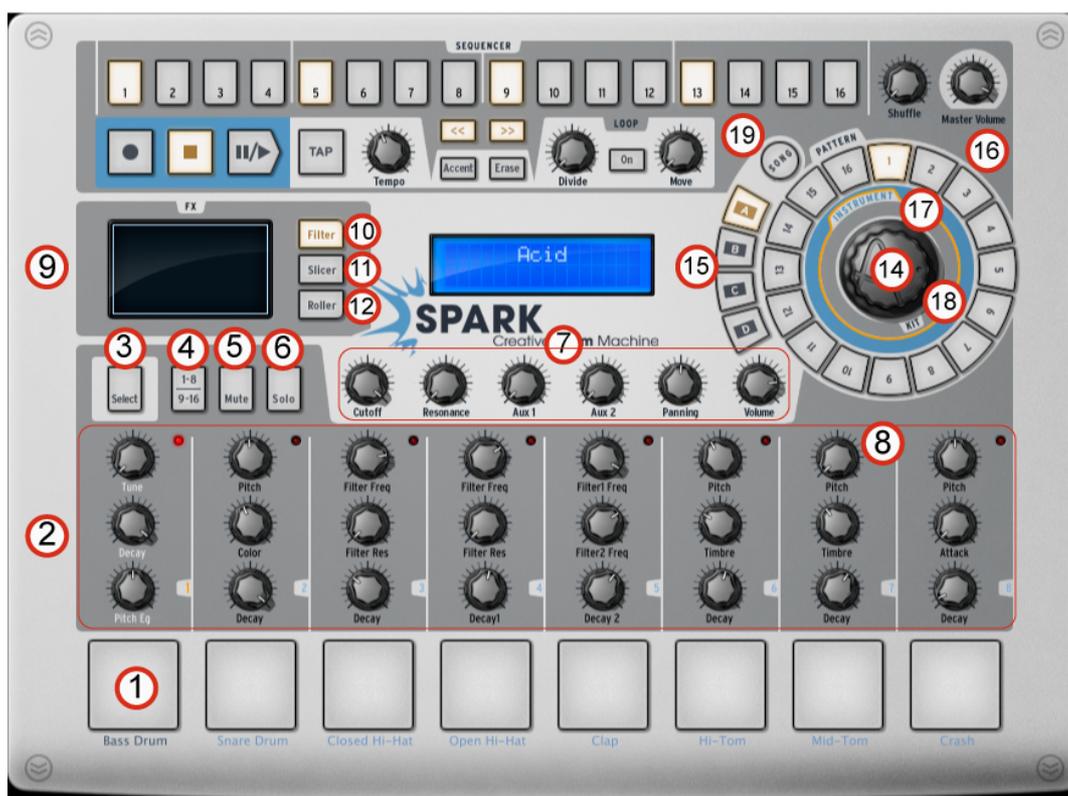
6 USING SPARK: The Controller Interface

6.1 THE TOOLBAR



1.	Load button
2.	Save button
3.	New Project window/Quick Load Menu (Most recently opened projects)
4.	Metronome volume knob
5.	Metronome on/off switch
6.	Tempo indicator. Double click to enter a tempo manually.
7.	Open the "TOP" panel in the main window (or center it)
8.	Open the "CENTER" panel in the main window (or center it)
9.	Open the "BOTTOM" panel in the main window (or center it)
10.	'Connect hardware' switch
11.	CPU meter
12.	Main volume meter
13.	Clipping indicator
14.	Soft clip on/off switch

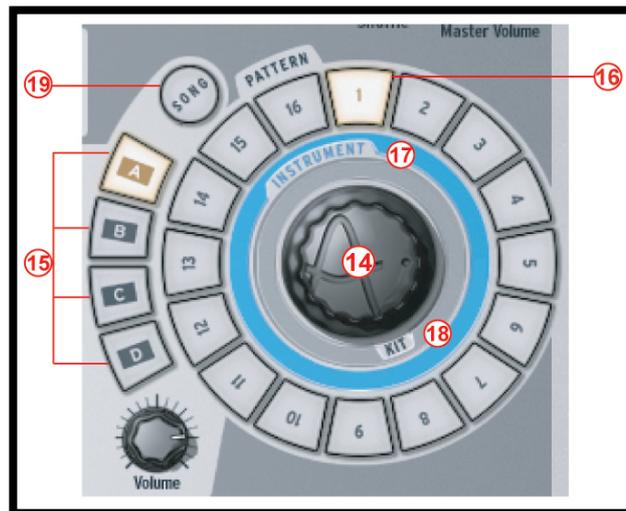
6.2 THE CENTER PANEL (SPARK CREATIVE)



1.	Play instruments with pads (right-click: edit the instrument)
2.	Instrument parameter knobs (right-click: edit motion/disable motion)
3.	Instrument Select / Shortcut Select button (Hold select, then press an instrument pad or sequencer step pad)
4.	Instrument page button (Instruments 1-8 and 9-16)
5.	Mute button (Click Mute, then select one or more instruments)
6.	Solo button (Click Solo, then select one or more instruments)
7.	FX – Aux 1 and 2 – Pan and volume Knobs (right-click: edit motion/disable motion)
8.	Click within a zone to select instrument track



9.	FX display window
10.	Filter button (right-click: Latch or Touch operation)
11.	Slicer button (right-click: Latch or Touch operation)
12.	Roller button (right-click: Latch or Touch operation)



14.	Jog Dial (right-click: switch modes)
15.	Bank select buttons (A-B-C-D)
16.	Pattern select Buttons (1 to 16)
17.	Instrument select button
18.	Kit select button
19.	Song select button

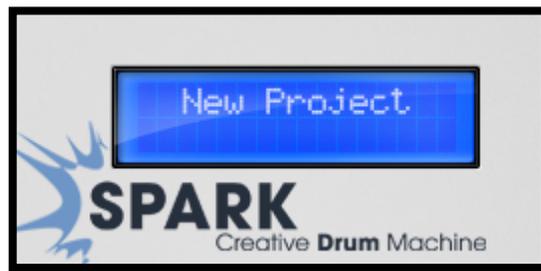


20.	Record button (right-click to select quantized/unquantized recording)
21.	Stop button
22.	Play/Pause button
23.	Tap button (Tap tempo)
24.	Tempo knob (Change tempo)
25.	Display previous/next 16 pattern steps
26.	Set accent mode button (On patterns or steps)
27.	Erase/Cancel Erase button (Use to erase Instruments, tracks or patterns)
28.	Divide loop size knob
29.	Loop On/Off button
30.	Move loop locator knob (right-click: Shift by one step/Shift by one loop size)



31.	Sequencer Steps: ON/OFF pads
32.	Shuffle knob (right-click: Swing range / Velocity emphasis)
33.	Master volume knob

6.2.1 The Display



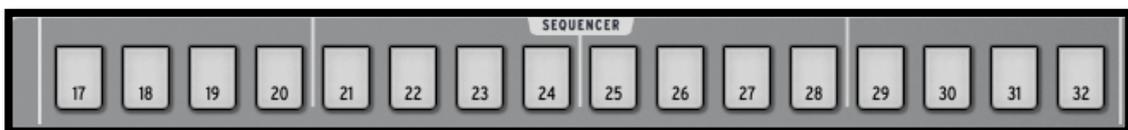
The display is the central hub for all the information needed while using SPARK (i.e. Project name, parameter value changes, etc.).

6.2.2 The Sequencer zone



The Sequencer zone is divided into several zones:

6.2.2.1 The Sequencer Step pads



The 16 Sequencer Step pads are numbered from 1 to 16 or from 17 to 32 depending on the length of the pattern and the timing value assigned to each step.

These pads allow you to edit your pattern by triggering note-on messages on your instrument track. Patterns have a maximum number of 64 steps. If your pattern has more than 16 steps, use the << or >> buttons to navigate to the previous or next page. If you click on the >> next page button, you will see the numbering on the pads switch from 1-16 to 17-32 for the second page, and so on.

You may choose to follow the cursor as it advances on the step pads (the pages will change automatically) by right clicking on the >> button. A contextual menu will appear allowing you to check or uncheck the "follow current step" option. If this option is activated, both << and >> buttons will be lit. If the follow option is deactivated, the buttons will not be lit up.

The step resolution is a sixteenth note by default. You can change the resolution in the pattern panel (see section 6.5.2).

6.2.2.2 The Shuffle Knob



This knob sets the amount of shuffle applied to a pattern. Shuffle is a rhythmic shifting of a Pattern in which the first note in a series of two plays for a longer time than the one that follows.

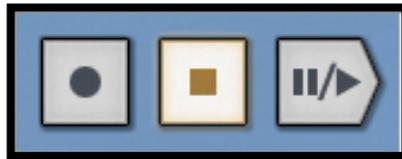
When the Shuffle knob is turned all the way up, the first note in a series will play twice as long as the one that follows.

Right click on the shuffle knob to set the swing range (1/4, 1/16, 1/32 of a note). This will define the value of the note on which the swing will be applied.

The right-click window also shows the Velocity emphasis option, which increases the dynamic range between the shuffled notes and the 'fixed' notes.

Shuffle is a function better heard than described. Try it!

6.2.2.3 The Transport Zone



These buttons, from left to right, are:

- Record
- Stop
- Play/Pause

To record, click on the Record button and then on the Play/Pause button. The Record button will turn to red to indicate recording mode is on.

To stop recording, click on the Stop button.

To disable recording mode, click on the Record button again.

While a pattern plays, clicking on the Play/Pause button will pause the playing. Click again on Play/Pause to resume playing.

Click on Stop to reset current position to the beginning of the pattern.

Right-click on the Record button to choose between quantized or unquantized recording function.



In Quantize mode; the recorded notes will be set exactly to the nearest step position. When quantize mode is disabled, the recorded notes will keep the exact position they were played on. Spark uses the Shift parameter (see section 6.5.5 to remember the exact triggering time relative to a step position.

6.2.2.4 The Tap Button



The Tap button allows you to define the tempo of your pattern by simply tapping this pad at the desired tempo. It is a beat/minute counter, so you have to tap the beats.

6.2.2.5 The Tempo knob



The Tempo knob allows you to set the tempo for your pattern when SPARK is not externally synced to a host. The internal Tempo range is 10BPM to 300BPM.

To temporarily push or pull tempo like a DJ might, hold the SELECT button and turn Tempo knob to temporarily increase or decrease the tempo, as you would push or pull a turntable, in order to synchronize Spark to an external audio source.

6.2.2.6 The Accent Button



The accent button allows you to set accents onto steps. Setting accents is very similar to writing a "forte" on a music score. The accented steps will be played with more strength than the unaccented ones. This allows for a very "natural" feel when listening to a pattern.

Click on the accent button to set the sequencer steps to Edit accent mode. Now the sequencer's steps in the main panel show the accents set on each step (not to be confused with the note-ons in the normal Step mode).

Set an accent by clicking on the step: the step will light up. Remove the accent by clicking on a highlighted step.

To exit accent mode, click on the accent button again.

Accent ON sets velocity to 127, Accent OFF sets velocity to 64.

6.2.2.7 The Erase Button



Click on the erase button to set Erase mode.

You can erase Instrument tracks, Banks, Patterns and Automations.

For example, to erase pattern 1 in Bank A, make sure Bank A is selected then click on Erase and then on 1 in the Pattern section.

To erase Instrument 1 track, make sure Instrument 1 is the current instrument then click on Erase and then on pad 1.

To erase a selection in a track, set Rec on, click on Erase, then press the pad at the time you want to start to delete the selection, and release it when you want to stop erasing.

To delete an automation you created, click on Erase then turn the knob of the parameter whose automation you want to delete.

6.2.2.8 The Loop zone



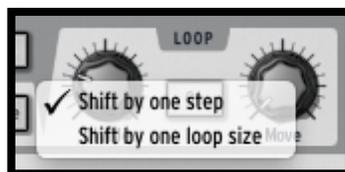
Click on the button "ON" to set Loop mode on.

The Divide knob allows you set the loop size.

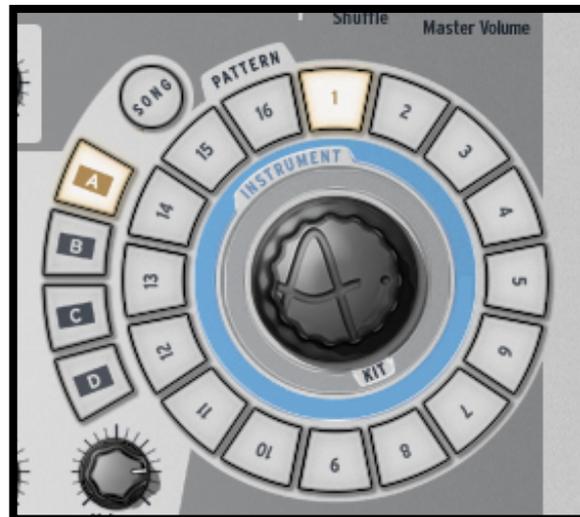
Moving the knob one notch will halve the loop size.

The settings are 1/2, 1/8 and 1/4 of the pattern size, all the way down to the minimum loop size: one step.

The Move knob allows you to move the beginning of the loop in one of two ways. Using "Shift by one step" mode will shift the loop start to any given step of the pattern (stepwise). Alternatively, you can move the loop in increments of the loop size (defined with the divide knob) by using "shift by one loop size" mode. Right click on the Move knob to choose the Move Loop mode: "Shift by one step" or "Shift by one loop size".



6.2.3 The Song/Pattern zone



The Song/Pattern zone is where you can trigger the Song mode, select and play your patterns, load Instruments or load a kit into your project.

6.2.3.1 Song Mode

A Song is made up of a maximum of 64 patterns chained together. Click on the Song button to enter the Song mode. The Song button will flash continuously to let you know that you are now in Song mode. Click on the Play button in the transport zone.

Listen! Your patterns are now chained together and played one after another from pattern to pattern and Bank to Bank.

The Step pads (numbered from 1 to 16 at the top of the Center Panel) light up as each pattern is being played. They show you which pattern is currently being played.

To edit your Song, refer to section 6.5.6 "The Song Panel".

6.2.3.2 *Editing Songs from the Center panel*

As we have just seen, a Song is made up of several patterns chained together. The order in which each pattern is played can be changed from the Center panel.

When in Song mode, each step pad, numbered from 1 to 64 represents the position occupied by a pattern in the chain (to select the next page, click on the next 16 steps page button >>).

When the Song plays, the step pads will light up successively showing you which pattern is currently being played in the chain.

The number under the step pad represents the position of a given pattern in the chain. This number has no relation whatsoever with the pattern number. For example, you can decide that the pattern B-12 will be played first, then pattern A-1, and so forth.

To edit a song, first of all make sure you've selected the Song mode by clicking on the Song Button. The song button should blink.

Then, press the record button in the transport zone. You are now ready to assign a location to your patterns in the chain.

Let's say you want pattern A-2 to be in first position when playing the song. Click on Step pad #1 and then, in the Song/pattern zone, click on Bank A then on pattern 2. That's it. When you play your song, A-2 will be the first pattern.

Repeat this operation to create your song. Remember to click on the next or previous 16 pattern page button [>> or <<] to go to the next or previous page.

6.2.3.3 *Banks and Patterns*

The patterns are organized in 4 banks (labeled from A to D) of 16 patterns each (numbered from 1 to 16).

To select pattern number 6 of Bank B, click on Bank B and then on pattern 6. The selected pattern can now be played when clicking on the Play button in the transport zone.

But you can also use the Song/Pattern zone to copy or swap patterns in the currently selected Bank.

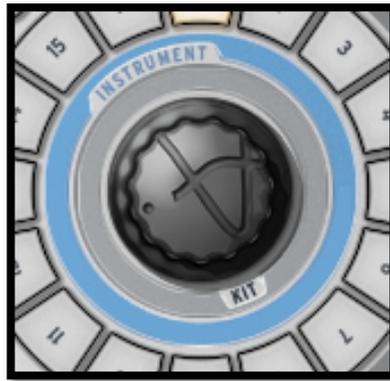
To swap a pattern, drag and Drop a pattern number while holding [Option/Alt] on Mac OSX or [Ctrl] on Windows and drop it on another pattern number. A pop-up menu will ask you to confirm your choice. Click Ok.

To copy patterns, simply drag and Drop a pattern number onto another one. A pop-up menu will ask you to confirm your choice.

The exact same procedure applies to copying or swapping Banks.

To export a pattern to a MIDI file on your system or in your host, drag the pattern outside Spark window and drop it on your system window or host window.

6.2.4 The Jog Dial



6.2.4.1 Loading Kits, Instruments or Projects

The Jog Dial allows you to load Kits, Instruments or Projects when working on an open project. You may choose (via the Preferences tab in the Top panel) to assign the Jog Dial to switch between either Instruments and Kits using the "Switch from Instrument to Kit Mode", or else between Instruments and Projects using the "Switch from Instruments to Projects Mode". By default Spark is set to "Switch from Instrument to Kit Mode".

To load a kit (or Project, depending on preference settings), click on "Kit" under the Jog Dial. Click on the Jog Dial and while maintaining your click, move your mouse up or down to select a kit.

The kit's name will appear in the center display window. Then, click on the Jog Dial again to load a new kit.

To load a new instrument to an instrument pad, first select the instrument pad you want the instrument to be assigned to. Then, click on "Instrument" above the Jog Dial. Next, click on the Jog Dial and while holding, move your mouse up or down to select a different instrument. The list of Instruments will appear in the center display window. Select an Instrument and then click on the Jog Dial once again to confirm your selection.

You may switch between Kit and Instrument modes by either clicking on their names, or else by right clicking on the Jog Dial. A contextual menu will appear and allow you to choose between the two Jog Dial modes.

The new instrument is now assigned to the previously selected Instrument pad; the new instrument's name appears below the pad.

6.2.4.2 Filtering the Instrument selection list

The Jog Dial, while used in instrument select mode, includes the ability to select the instrument type and the generator type.

By default, the jog dial scrolls through a list of instruments without having to select the menu options. The default list is made of all available instruments with the same type of the selected instrument.

By pressing and holding SELECT and then pressing the switch on the Jog Dial, you can select the Instrument type and Generator type.

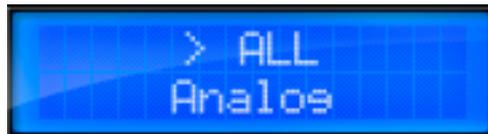
First menu level is for selecting the instrument type or ALL types:

ALL, Bass drum, Snare Drum, Closed Hi-Hat...



Second level is for selecting the generator type or ALL types:

ALL, Analog, Physical Model, or Sample



The result list will then be displayed. If you choose Bass Drum > ALL, all bass drums will be displayed. If you choose Snare Drum > Analog, all analog snare drums will be displayed.

Pressing the Jog Dial again will then take you to the list of instruments with the selection filters applied.

You can choose to switch to infinite or non-infinite mode in the preferences. Default mode is infinite Mode. In non-infinite Mode the Jog Dial will stop scrolling at the end of the instrument, kit, or project list when scrolling forward and at the beginning of the list when scrolling backward.

6.2.5 The FX Live pad



The FX Live pad is an amazing performance tool, especially if you plan on playing live. Its touch sensitive screen will apply live effects in real time to your song or patterns, allowing you to shape your sound with great precision. When your cursor enters the FX pad zone, it turns from an arrow to a cross.

The FX Pad features 3 main effect buttons called Filter, Slicer and Roller. By right-clicking on any of them, you can choose between "Latch" or "Touch" options. "Latch" will hold the effect at its current value when you release the cursor; "Touch" will cut off the effect when the cursor is released (i.e., the effect is only active when you are clicking on the Pad).

You can also enable Latch mode from the hardware by pressing and holding the Select button and then pressing the Filter, Slicer or Roller button.

In Latch mode you can combine the Filter and Slicer effects: To "slice" the filtered sound, set the filter effect to Latch mode. Now you can touch the pad and change your filter to the desired setting. Next enable the Slicer button. You will have the Filter set to your last setting and can play the slicer on the FX Live pad.

Note that the Roller effect is not active when Slicer is set to Latch mode.

6.2.6 The Filter / Slicer / Roller Buttons

6.2.6.1 The Filter Button



The Filter button offers a Low pass, a Band pass and a High pass filter, Oberheim Low, High, Band and Multi-mode filters with cutoff and resonance.

To select your filter click on the FILTER button repeatedly. Your choice will be displayed on the center display window. Alternatively you can use the direct access keeping the Filter button pressed to show the current filter, and moving your cursor or finger on the sub-effect you want to select.

The Cutoff and resonance can be modulated with the mouse on the software version or your finger on the FX Live pad.

The resonance is modulated vertically from the bottom of the pad to the top of the pad.

Cutoff is modulated horizontally, from the right side of the pad to the left side of the pad.

Play a pattern of your choice and click or touch anywhere on the right edge of the FX pad while maintaining your click or touch; draw a straight horizontal line towards the left side of the FX pad. You will hear the cutoff modulating. The amount of modulation applied can be seen on the center display panel.

Now place the cursor close to the bottom right corner of the FX pad and trace a line straight up to the top edge of the pad. You are modulating the resonance.

Of course, both Cutoff and Resonance can be modulated simultaneously by moving your finger or the mouse in any direction and at any speed you wish.

6.2.6.2 The Slicer button

The Slicer will repeat the value of the note selected while applying an effect. You can choose between the following effects:



Repeat mix

Click to choose the value of the note to be repeated with the Repeat mix effect. The effect will be applied for the amount of time your mouse click is maintained. Release your click to cancel and resume normal playing.

Repeat mix will continue playing the pattern while the effect is applied.

Repeat

The Repeat effect is the same as Repeat mix, except the pattern is **not** played while applying the effect.

Tape

The Tape effect simulates the effect of slowing down a tape player.

Reverse

The Reverse effect simulates the effect of playing a tape recording backwards.

Strobe

The Strobe effect will play and shut off the sound alternatively at the rate of the selected note value.

Pan

The Pan effect will move the sound from the left speaker to the right speaker at the rate of the selected note value.

Bit Crush

The Bit Crush effect allows you to reduce the audio bit rate, creating a Bit Reduction or Bit crushing sound effect. Reduce the audio anywhere from 7 down to 2 bits.

6.2.6.3 *The Roller button*

The roller could be described as a "Drum roll" tool.



Choose the note value for the Roller effect. Then, click and maintain your click on the snare drum pad. The snare drum will play a basic drum roll. The roll speed depends on the selected note value.

You can play, of course, any instrument pad using this effect.

The beginning of the roll is quantized by default.

A swing (dotted or triplet) effect can be added by simply clicking on the upper note values for Swing on, or on the bottom values for Swing off. When swing is off, one beat is played per note value.

When Swing dotted effect is on, a dotted beat is added after the first beat.

When Triplet is on, three notes are played per note value.

Roller Swing Mode' preference let you choose between dotted notes or triplet notes.

The ROLLER can be LATCHED on by pressing and holding SELECT + ROLLER button. Now any pad you play will have the roll effect played. This is a great way to enter notes into a pattern.

On the Roller, other functions are available to control the selected instrument main parameters:

- Pressing Roller button once will set the pad to control the Roller.
- Pressing Roller once again will set the pad to control Cutoff and resonance on the selected instrument.
- Pressing Roller once again will set the pad to control Aux1 and Aux2 on the selected instrument.
- Pressing Roller once again will set the pad to control Volume and Pan on the selected instrument.
- Pressing Roller button once again will set the pad to control the Roller again.

6.2.7 The Instrument control zone



The instrument control zone is made up of:

6.2.7.1 The Instrument pads

There are 16 Instrument pads but only 8 of them are shown on SPARK's interface. To navigate to the next set of 8, click on the 1-8/9-16 button.

An instrument is assigned to each pad. The far left pad is by default the Bass Drum, next to it is the Snare drum, and so on; but you can of course personalize this arrangement.

To edit an instrument, right click on the pad, and then Click on edit. This will take you to the "STUDIO" bottom panel where you will be able to edit a full array of instrument parameters. (See section [6.4.2 The Studio](#)).

Tune mode

Alternatively, you can use Pads for the pitch of the current instrument when setting Tune mode to 'on'. Hold Select button and press step sequencer 13 to enter Tune mode.



You can now use the pads as a keyboard to play notes on the current instrument. You can play 16 semi-tones using the 1-8 / 9-16 button:

With 1-8 / 9-16 button off you can play notes from current instrument pitch minus 8 semi-tones to current instrument pitch minus 1 semi-tone.

With 1-8 / 9-16 button on you can play notes from current instrument pitch to current instrument pitch plus 7 semi-tones.

You can offset the starting pitch moving the jog dial when you are in Tune mode.

To exit Tune mode, Hold Select button and press step sequencer 13 again.

Alternatively you can choose to use the sequencer steps for playing notes on the current instrument setting the 16 Tune mode preference in the preferences panel.

Step 9 will play the current instrument pitch.

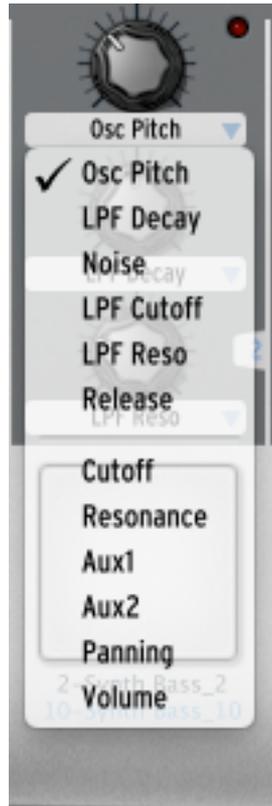
Step one will play the current instrument pitch minus 8 semi-tones and step 16 will play the current instrument pitch plus 7 semi-tones.

6.2.7.2 The Parameter Knobs

Each instrument pad has 3 parameter knobs above it.

These parameters act on the sound generator to modify the sounds in real time so as to give each sound its own color. Each instrument has 6 parameters (3 of which are mapped to the knobs).

You may choose which parameter each knob modifies by clicking on the name underneath the knob. A contextual menu will appear listing the 6 parameters available in addition to the Filter, Mixer and available Fx parameters (if an effect is set as insert on the instrument's mixer track).



Click on a different parameter name to assign the knob to that parameter. To select different parameters via the hardware controller, Press and hold SELECT and turn the knob that you want to change assignment on. You will see the different parameters in the LCD screen and on the software screen.

Common instrument parameters are tuning/pitch, filter cutoff, envelop decay, attack and release, different effect depths and rates (ring, shift, etc).

Filter parameters are Cutoff and Resonance. You can set the filter type for each instrument in the studio panel.

Mixer parameters are Aux1 effect amount, Aux2 effect amount, Panning and Volume.

Fx parameters depend on the chosen insert effect set on the instrument mixer track. Each effect has its own parameters exposed as well (dry/wet, feedback, delay time...)

You do not need to select a specific instrument to change its parameter. Any effect is applied in real time while the pattern is playing.

The parameter motion can be recorded as an automation into the pattern and edited later accurately using the automation editor (see section 6.5.5).

Right click on a parameter knob to edit the corresponding automation. You can also choose to momentarily disable a Motion parameter in this way.

6.2.7.3 Select Button

The Select button allows you to easily select an instrument. Just click or press [Select] and then on the instrument pad of your choice to specifically select the corresponding instrument.

This function was designed to select an instrument quickly when using the Spark controller.

The Select button is also used to access many other secondary functions of buttons and knobs.

6.2.7.4 1-8 / 9-16 Button

The main panel interface shows 8 instrument pads while a kit contains 16 instruments. To navigate to the next set of 8 instruments, click on this button.

6.2.7.5 Mute button

This button allows you to bypass the audio sound of a specific instrument. Click on the Mute button and then choose the instrument you wish to mute. You will no longer hear that instrument when playing your pattern. When in mute mode, you can select multiple instruments to mute them together. Use Select + Mute to clear all mutes.

6.2.7.6 Solo button

The Solo button mutes the other instruments besides the one(s) selected. Click on the Solo button and then choose the instrument you wish to solo. You will only hear that instrument when playing your pattern. When in solo mode, you can select multiple instruments in order to solo them together. Use Select + Solo to clear the solo status.

6.2.7.7 Filter/Mixer parameters

A specific filter is applied to each instrument of a kit. The filter type can be changed in the Studio Edit instrument view. (See next chapter [6.4.2 The Studio](#)).

To change the filter and/or the mixer parameters, first select an instrument and simply click on one of the filter or mixer parameter knobs and while maintaining your click, move your mouse up or down to change the parameter. The Digital display window in the center of the main panel shows you the changes applied to the selected parameter in real time.

These motion parameters can be recorded as automations into the pattern and edited later accurately using the automation editor (see section [6.5.5](#)).

Right-click on a Filter or Mixer knob to edit or disable its Motion.

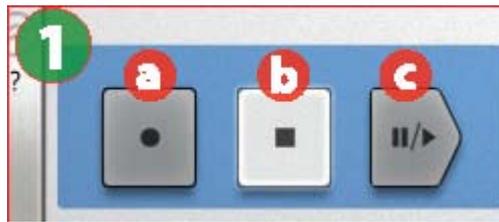
- Cutoff: Set Filter cutoff on current instrument
- Resonance: Set Filter resonance on current instrument.
- Aux1/Aux2: Set Aux1 or Aux2 amount on current instrument.
- Pan: Set amount of Pan on current Instrument
- Volume: Set the volume on current Instrument

6.3 THE CENTER PANEL (SPARKLE)



1.	Transport zone
2.	Pad controls: Select Instrument / Shortcut, Toggle Instrument page (1-8, 9-16), Mute and Solo buttons
3.	Tempo and Shuffle control knobs
4.	FX Live pad and FX Selection buttons
5.	Master Volume control knob
6.	Display
7.	Jog Dial and Project / Kit / Instrument mode buttons, Song mode button
8.	Instrument parameter knobs (right-click: edit motion/disable motion)
9.	Sequencer zone
10.	Instrument pads (right-click to edit the instrument)

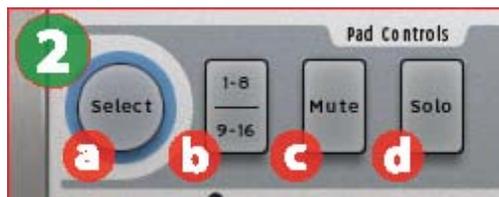
6.3.1 The Transport zone



1.a	Record button (right-click to select quantized/unquantized recording)
1.b	Stop button
1.c	Play / Pause button

Record, Stop, Play & Pause: the functions seem obvious. But this is a Transport with a twist: Right-click the Record button and you can select whether you want the next pass to be recorded with quantization or without.

6.3.2 The Pad Controls zone



2.a	Instrument Select (click Select, then choose an instrument pad)
2.b	Instrument page button (Instruments 1-8 and 9-16)
2.c	Mute button (click Mute, then select one or more instruments)
2.d	Solo button (click Solo, then select one or more instruments)

Select Used to select instruments for editing and to access secondary functions on many buttons

1-8 / 9-16 Called the Instrument page button, this toggles the pads between two sets of eight Instruments each

Mute Click this button and then one or more Instrument pads to mute them. Click Mute again to unmute those pads. Use Select + Mute to clear all mutes.

Solo Click the Solo button and then select one or more pads to silence the other tracks so you can focus on the ones you want to hear. Click Solo again to return the pads to their previous state. Use Select + Solo to clear the solo status.

6.3.3 The Tempo / Shuffle zone



3.a	Tempo control knob
3.b	Shuffle amount knob (right-click: Swing range / Velocity emphasis)

Tempo For slower tempos turn this knob to the left; for faster tempos turn the knob to the right.

Shuffle Sets the amount of shuffle applied to a pattern. Shuffle is a rhythmic effect in which the duration of the first note in a series of two notes is lengthened and the duration of the second note is shortened. This is also known as setting the “swing amount.”

For a higher shuffle amount turn this knob to the right; for less shuffle turn the knob to the left.

Right-click on the Shuffle knob to define the timing value on which the shuffle will be applied (1/8, 1/16, or 1/32 note).

The right-click menu also shows the Velocity emphasis option, which increases the dynamic range between the shuffled notes and ‘fixed’ notes.

6.3.4 The FX Live pad and Effect buttons



4.a	FX Live pad (X/Y axis control surface)
4.b	Global Filter button (right-click: Latch or Touch operation)
4.c	Global Slicer button (right-click: Latch or Touch operation)
4.d	Global Roller button (right-click: Latch or Touch operation)
4.e	Instrument Filter button
4.f	Instrument Aux Send 1 / 2 button
4.g	Instrument Pan / Level button

6.3.4.1 FX Live pad

The FX Live pad is an amazing performance tool that will apply real-time effects to your song or patterns. It features three main effect buttons (Filter, Slicer and Roller) with an amazing variety of options. When your cursor enters the FX Live pad area it becomes a cross; click and hold the cursor and drag it around while a pattern is playing and you'll begin to get an idea of what this zone can do for your music.

By right-clicking any of the Global effect buttons you can choose between "Latch" or "Touch" performance for that effect. "Latch" will hold the effect at its current value when you release the cursor; "Touch" will cut off the effect when the cursor is released (i.e., the effect is only active when you are clicking on the Pad).

You can also enable Latch mode from the hardware controller by pressing and holding the Select button and then pressing the Filter, Slicer or Roller button.

In Latch mode you can combine the Filter and Slicer effects: To "slice" the filtered sound, set the filter effect to Latch mode. Now you can touch the pad and change your filter to the desired setting. Next enable the Slicer button. The Filter will remain at its last value while you play the Slicer on the FX Live pad.

Note that the Roller effect is not active when Slicer is set to Latch mode.

6.3.5 Live effects: Global

6.3.5.1 The Filter Button



The Filter button offers proprietary Low pass, Band pass and High pass filters, plus Oberheim-style Low, High, Band pass and Multi-mode filters, each with cutoff and resonance.

To select a filter type, click on the Filter button repeatedly. You'll see the display cycle through the options; just stop clicking when you reach the one you want. You can also access the one you want directly by keeping the Filter button pressed and moving your cursor or finger to the filter type you want to select.

The cutoff frequency and resonance can be modulated with the mouse in the Spark Engine or with your finger on the FX Live pad of the hardware controller.

The resonance is modulated vertically (up and down, or along the Y axis), and the cutoff frequency is modulated horizontally (from right to left, or along the X axis).

Play a pattern and click or touch anywhere on the right edge of the FX pad while maintaining your click or touch; draw a straight horizontal line towards the left side of the FX pad. You will hear the cutoff frequency sweeping downward. The amount of modulation applied can be seen on the center display panel.

Now place the cursor somewhere on the right half of the FX pad and trace a line straight up to the top edge of the pad. You are modulating the resonance.

Of course, both cutoff and resonance can be modulated simultaneously by moving your finger or the mouse in any direction and at any speed you wish.

6.3.5.2 The Slicer button

The Slicer will grab a portion of the pattern and apply the effect you have chosen repeatedly at the timing value you select with the FX Live pad (except for the Tape effect, which only happens once per press). Multiple presses of the Slicer button will allow you to choose between the following effects:

Repeat



Slicer example 1: Repeat effect options

Click to choose a timing value for the Repeat effect. If you click 1/16, for example, a sixteenth-note-sized chunk of the pattern will be looped until you select another value or let go of the pad. Results will vary based on where you were when you triggered the effect.

Note that the Repeat effect is similar to the Repeat mix effect, except that Repeat does not continue to play the entire pattern underneath the repeated section.

Tape

Click the Slicer button again to select the next effect, which will be the Tape effect:



Slicer example 2: Selecting the Tape FX

The Tape effect simulates the effect of slowing down a tape player. The different values inside the FX Live pad grid represent the amount of time it will take the pattern to slow to a stop.

Reverse

The Reverse effect simulates the effect of playing a tape recording backwards.

Strobe

The Strobe effect will play and shut off the sound alternately at the rate of the selected note value.

Pan

The Pan effect will move the sound from the left speaker to the right speaker at the rate of the selected note value.

Bit Crush

The Bit Crush effect allows you to reduce the audio bit rate, creating a bit-reduction or bit-crushing sound effect. Reduce the audio anywhere from 7 bits down to 2 bits.



Slicer example 3: Bit crusher options

Repeat mix

Click to choose a timing value for the Repeat mix effect. The effect will be applied for the amount of time your mouse click is maintained. Release your click to cancel and resume normal playing.

The Repeat Mix effect is different from the Repeat effect in that it will continue playing the entire pattern underneath the looped section.

6.3.5.3 The Roller button

The roller could be described as a "Drum roll" tool. It allows you to perform perfectly timed drum rolls easily from the pads, while also changing from one timing value to another by clicking on different areas of the FX Live pad.



Roller effect options

Choose the note value for the Roller effect from the choices in the FX Live pad area. Then, click and hold the snare drum pad. The snare drum will play a basic drum roll.

You can play any instrument pad using this effect.

The beginning point of the roll is quantized by default.

A swing effect (dotted or triplet) can be added by selecting one of the upper set of note values, while the bottom set of values will be played 'straight'.

When Swing dotted effect is on, a dotted beat is added after the first beat.

When Triplet is on, three notes are played per note value.

'Roller Swing Mode' preference let you choose between dotted notes or triplet notes.

The Roller effect can be Latched to "On" by right-clicking on the Roller button. Now any pad you play will have the roll effect applied. This is a great way to enter notes into a pattern.

Note: The only way to trigger the Roller effect when the SparkLE controller is not connected is to use the Latch feature.

6.3.6 Live effects: Instrument

6.3.6.1 The Filter button



The Filter type for the kit is determined by the setting for the Global Filter button, but SparkLE allows you to apply this effect to one instrument at a time rather than the entire kit, if you like. To do this, select an instrument such as the snare (press Select + Instrument pad 2), then press the Instrument Filter button (pictured). Now the Live FX pad will alter the filter frequency and resonance for the snare only.

As you can see in the picture above, the X axis controls the filter's cutoff frequency and the Y axis controls the resonance.

6.3.6.2 The Send 1 / 2 button



Similar to the process described above, you can single out one instrument for the live alteration of its Aux 1 and Aux 2 effect sends. If you want Tom 1 to have a sudden burst of reverb and/or delay, use the Select button to choose Instrument pad 5 and then press the Send 1 / 2 button (pictured). Then sweep your finger or cursor around inside the FX Live pad area and boost or cut Send 1 and/or Send 2 until you get the desired results.

The Y axis controls Send 1 and the X axis controls Send 2.

6.3.6.3 The Pan / Level button



The Instrument effect Pan / Level button allows you to control the stereo position and volume of a single Instrument inside a kit. So if you want to sweep the closed hi-hat from the left side of the mix to the right, for example, press Select + Instrument pad 3 and then press the Pan / Level button. Then use the FX Live pad to place the hi-hat where you want it to be in the stereo field.

The X axis controls the instrument level and the Y axis controls the stereo position.

6.3.7 The Jog Dial and Mode buttons



7.a	Jog Dial (right-click to switch modes)
7.b	Project select button
7.c	Kit select button
7.d	Instrument select button
7.e	Song select button

6.3.7.1 Loading Kits, Instruments or Projects

The Jog Dial can be used to change an instrument within a kit, change an entire drum kit at once, or select a whole new project.

To load a kit, for example, click on the Kit button under the Jog Dial. Then click and hold the Jog Dial while moving your mouse up or down. The names of the available kits will appear in the center display window; when you see the one you want, click on the Jog Dial again and it will be loaded into memory.

To change an instrument, first select the original instrument by clicking "Select" and hitting its pad. (If you are doing this all inside the software version, press "Select" again to deselect it for now.)

Next, click the "Instr." button and click and hold the Jog Dial and while you move the cursor up or down. The name of each instrument will be displayed as you scroll through the options. Once you've decided which one you want, click on the Jog Dial again to load the new instrument.

The procedure to change a Project is similar: Just click the "Proj." button and scroll through the list of choices. Click the Jog Dial again to load the new selection.

6.3.7.2 *Filtering the Instrument selection list*

There are filter options available when using the Jog Dial to scroll through choices in Instrument mode. To take advantage of this, click Select once and then click on the Jog Dial. Now as the Jog Dial is turned you will be able to select the Instrument type and Generator type you wish to view.

The first menu level is for selecting a particular instrument type or ALL types:

ALL, Bass drum, Snare Drum, Closed Hi-Hat, etc....



The second menu level is for selecting a particular generator type or ALL types:

ALL, Analog, Physical Model, or Sample



The resulting list of instruments will then be displayed. For example, if you choose Bass Drum > ALL, all bass drums of all Generator types will be displayed. If you choose Snare Drum > Analog, only snare drums with an Analog Generator type will be displayed.

Pressing the Jog Dial again will then take you to the list of instruments with the selection filters applied.

6.3.7.3 *Jog Dial scroll preferences*

If a list of instruments, kits or projects is large it can take a while to scroll from one end of the list to the other. You may want to try switching the Jog Dial preference for "Dial scroll infinitely" in the Top panel's Preferences tab to see which setting you prefer.

For example, the "Yes" setting will allow a list of items to jump "forward" from the end of a list to its beginning, or jump "backward" from the beginning of a list to its end, with only a slight rotation of the Jog Dial required. When the setting for this preference is "No" the Jog Dial will stop scrolling at either end of a list.

6.3.8 Song Mode in the Center panel

6.3.8.1 *The Song button*

When you click the Song button it will flash continuously, indicating that SparkLE is now in Song mode. A song is constructed from as many as 64 patterns chained together, which are then played one after the other.

The patterns in a song can be drawn from any one of the four banks of patterns.

The Sequencer Step pads provide information regarding the song while it is playing, depending on which of the four Sequencer Step Pad function buttons is pressed:

- **Bank** If a pattern from bank B is playing at this point in the song, for example, the B button will light up.
- **Patt.** The Sequencer Step pads will show you which pattern is playing by jumping to the bank / pattern row. For example, if pattern A3 is playing, you'll see row A1-A16 shown with the A3 button lit. Then when the song jumps to pattern D4, you'll see row D1-D16 shown and the D4 button lit.
- **Seq** The Sequencer Step pads will light up as each pattern within a song is being played. However, rather than indicating the actual pattern name, this indicates the current position within the song (the first pattern, the second pattern, etc.). So if you're in the third step of the song the third Sequencer Step pad will be lit, even though the Spark Engine might be playing pattern C12 at that point.

If there are more than 16 steps in the song, you'll see the LEDs in the "Pattern Length" section switch from 1-16 to 17-32, which means the next pattern page in the song has been selected. You can switch manually from one pattern page to the next by pressing the << or >> buttons.

- **Tune** None of the Sequencer Step pads will light while the song is playing.

6.3.8.2 Editing Songs from the Center panel

To edit a song from the Center panel, first of all make sure you're in Song mode (the Song button should blink).

Then press the record button in the transport zone. You are now ready to assign a location to your patterns in the chain. (You may want to refer to the previous section as we learn to do this.)

Let's say you want pattern A-2 to start the song. To do this, click "Seq." and then press Sequencer Step pad #1: this is the first pattern location inside the song. Next click the "Bank" button and select bank "A", then click "Patt." and select button A2. That's it. When you play your song, A2 will be the first pattern.

To place pattern B10 in the second pattern location, click "Seq." and then press Sequencer Step pad #2 to select the second step of the song. Next click the "Bank" button and select bank "B", then click "Patt." and select button B10.

Repeat this operation as needed to create your entire song. Remember to click on the next or previous pattern page button [>> or <<] to move between the pattern pages.

For more information about assembling and editing songs see section 6.5.6 "The Song Panel".

6.3.9 The Instrument Parameter knobs



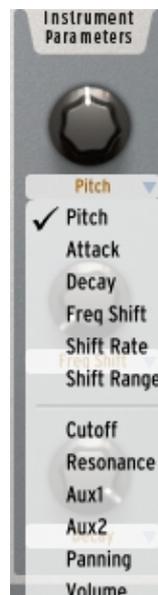
The three knobs on the right side of the Center panel control the selected instrument's parameters. Let's say you want to change the pitch of the bass drum, for example. First click "Select" and then click the bass drum pad. After this the Instrument Parameter knobs will show which three parameters have been selected for the bass drum: in this case, Pitch, Attack and Freq Shift.

With a pattern playing, click and hold the "Pitch" knob and then move your cursor up and down. This will rotate the "Pitch" knob and change the pitch of the bass drum. The display will show the amount of change being applied to the pitch in terms of semitones.

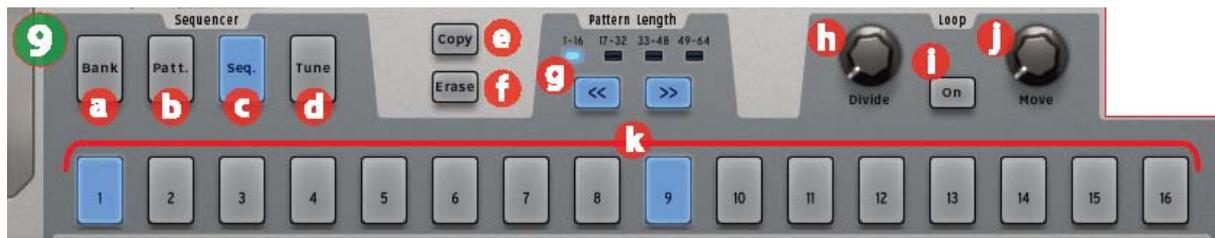
6.3.9.1 Altering the Instrument Parameter assignments

It is possible to assign completely different parameters to the Instrument Parameter knobs. It may be helpful at first to click on the "question mark" icon on the left side so you can see where the drop-down lists are for each knob.

To change the assignment for the first knob, for example, click on the word "Pitch". A drop-down list will appear. Make a selection from the list by clicking on one of the parameters. The list will disappear and the name of the new parameter will be visible under the knob.



6.3.10 The Sequencer zone



The Sequencer zone is divided into several zones:

6.3.10.1 The Step Pad Function Select buttons (9.a-d)

When they are selected, these four buttons change what the Sequencer Step pads do:

- **Bank** The first four Sequencer Step pads will be labeled A-D and the others will have no labels. This allows you to select between four different banks of 16 patterns
- **Patt.** All 16 Sequencer Step pads will be numbered, and each will select one of 16 patterns
- **Seq.** Each Sequencer Step pad will represent the presence or absence of a musical event in the selected instrument track, as well as the current position of the sequencer within the pattern (see section 6.3.10.3).
- **Tune** The Sequencer Step pads will be labeled with numbers from -8 to +7, with each number representing the amount of tuning change that will be applied to the selected instrument after pressing its pad. The '0' pad will return the instrument to its default pitch.

6.3.10.2 The Copy / Erase buttons (9.e, f)

These two buttons have very different functions:

- **Copy** Allows you to copy a pattern from one location to another inside the same bank, or to a different bank to the same pattern number location. First click 'Copy' and select the source bank and pattern, and then select the destination pattern or bank and Spark will do the work. Press the Copy button again to cancel the operation.
- **Erase** When pressed, the display will prompt you to select a pad, a pattern or a bank of patterns to erase.
 - To erase a bank, press Erase and then select one of the banks (A-D)
 - To erase a pattern, make sure you're inside the proper bank before you press the Erase button. Then press Erase and select the pattern
 - When a pad is selected, its entire sequencer track will be erased inside the current pattern
 - For "spot erase" while a pattern is playing, press the Record button, then the Erase button, and then press the instrument pad at the proper time.

6.3.10.3 The Pattern Length buttons (9.g)

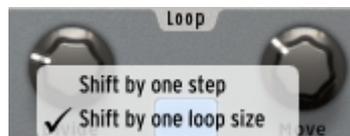
These buttons fulfill two functions: while the pattern is not playing they can toggle between the currently selected set of steps and the next (1-16 or 17-32, etc.). But when used in conjunction with the Select button they allow you to change the pattern length (which can be done while the pattern is running).

When a pattern contains more than 16 steps the Sequencer Step pads can follow the position of the pattern when it crosses over from steps 1-16 to steps 17-32, and then to steps 33-48, etc. This is called "Sequencer Follow mode". To toggle this feature on or off, simply press the << and >> buttons at the same time.

6.3.10.4 The Loop mode controls (9.h-j)

Patterns are always looping, so “Loop mode” means something else: It allows you to set up a “loop within a loop” and experiment with different portions of the pattern, either for editing or performing. Here are its components:

- **On** Will engage or disengage Loop mode.
- **Divide** Allows you set the loop size. Moving it one notch will cut the loop in half or double its size (when possible). The settings are 1/2, 1/4 and 1/8 of the pattern size, all the way down to the minimum loop size: one step.
- **Move** Will move the loop start in one of two ways. Right-click on the Move knob to choose an option:
 - “Shift by one step” will shift the loop start point to any given step of the pattern
 - “Shift by one loop size” will move the loop start point in increments of the loop size (as defined by the Divide knob).



6.3.10.5 The Sequencer Step pads (9.k)

The 16 Sequencer Step pads can be numbered from 1-16, 17-32, 33-48, or 49-64 depending on the length of the pattern and the timing value assigned to each step.

These pads offer a lot of information about the selected pattern. When a pattern is playing you will know the real-time playing position at a glance because it is indicated by a pad that is brighter than the others. When a pad has a constant blue light it means the sequencer will trigger the selected instrument at this position in the pattern. If a pad is not lit, it means no note will be played by that instrument at that point. You can decide to add a note-on event or remove one by toggling the state of these pads.

A simple example is the bass drum track on pattern A1, which is pictured below. The bright blue lights on pads 1 and 9 indicate bass drum events on beats 1 and 3 of the first bar. The gray light on pad 4 is lighter than the others, which indicates the current real-time playing position.



You can edit this track by pressing a pad to add a bass drum event to the pattern. While the pattern plays, click on pads 7 and 15. They will become lit, and you will hear new bass drum events during the first bar of the pattern. Now click on pad 9: the blue light turns to darker gray, and that note has been removed from the pattern.

6.3.10.6 Copying or Swapping Patterns

You can also use the Sequencer Step pads to copy or swap patterns in the currently selected bank.

To copy a pattern to another location, click on a pattern number and then drag it on top of another pattern and drop it. A confirmation window will appear. Remember, this will replace the destination pattern with the source pattern, so if you’re sure it’s okay to lose the second pattern, click OK.

To swap two patterns, click on a pattern number while holding [Option/Alt] in Mac OSX or [Ctrl] in Windows and then drag it on top of another pattern and drop it. A confirmation window will appear. Click Ok.

The exact same procedure applies to copying or swapping entire banks of patterns.

To export a pattern as a MIDI file to your system or to your DAW, drag the pattern outside the Spark window and drop it on a system folder or one of the DAW windows.

6.3.11 The Pads



There are sixteen Instrument pads but only eight of them are accessible at a time on the SparkLE interface. To switch to the next set of eight, click on the 1-8 / 9-16 button.

An instrument is assigned to each pad. The far left pad is by default the Bass Drum; next to it is the Snare drum, and so on; but you can set the pads up in any order you like.

To edit an instrument, right-click on the pad and then click Edit. This will take you to the "Studio" inside the Bottom panel where you will be able to edit the instrument with a full array of parameters. (See section 6.4.2 [The Studio](#)).

One really cool feature is the ability to import your own samples into the Spark Engine by dragging them from a folder on your computer and dropping them onto one of the sixteen pads. From there you can right-click as described above so you can shape the sound of the new sample using the powerful voice architecture of the Spark Engine.

6.3.11.1 Tune Mode

Pressing "Tune" allows you to play the selected instrument at different pitches using the Sequencer Step pads, numbered from -8 to +7. But if you like, you can use the Pads for the same purpose.

To do this, locate the Tune mode preference in the Top panel's Preference section and set it to "Pads" instead of "Sequencer Steps."

You can now use the pads as a keyboard to play notes on the current instrument. The pads offer a range of 16 semi-tones by using the 1-8 / 9-16 button:

- With the 1-8 / 9-16 button unlit you can play notes from the current instrument tuned from -8 semi-tones to -1 semi-tone.
- With the 1-8 / 9-16 button lit you can play notes from current instrument pitch upward to +7 semi-tones.

You can offset the starting pitch by moving the Jog Dial when you are in Tune mode.

6.4 THE BOTTOM PANEL



6.4.1 Overview

The Bottom panel features the Studio, the Mixer and the Library.

To access the Bottom panel from the Main panel, go to the toolbar and click on "Bottom".

Right click on the picture to change the background. A pop-up menu will let you choose between:

- No background
- Classic drums
- Electronic drums
- Physical drums
- Electro box

6.4.2 The Studio



The studio panel displays all your instruments as well as their parameters. From here you can load instruments into slots, apply filters and effects, etc. The picture above shows the 1-8 instrument view. Let's look at the Bass drum window:



1.	<p>Load a new instrument</p> <p>To load a new instrument, click on the down arrow. A drop-down menu will appear listing all the instruments available in Spark. They are organized by type (16) from Bass Drum to Synth, and each type has 3 categories (Analog, Physical Model or Sample). Choose a new instrument in the list and click on its name.</p>
2.	<p>Instrument icon</p> <p>Clicking on this icon will trigger the instrument's sound. You may drag the icon to another instrument icon to make a swap operation or hold Ctrl and drag it to another instrument icon to make a copy.</p>
3.	<p>Set Pan</p> <p>Click and maintain click to set panning.</p> <p>A small window appears next to the knob to let you know the amount and</p>

	direction of pan applied. Right click to edit or disable pan motion.
4.	<p>Set volume</p> <p>Click and maintain click to set volume.</p> <p>A small window appears next to the knob to let you know the amount and direction of volume applied. Right click to edit or disable volume motion.</p>
5.	<p>Mute an instrument</p> <p>The Mute button on the center panel will flash to indicate that a Mute has been set from another panel (studio, mixer or sequencer).</p>
6.	<p>Set solo on an instrument</p> <p>The solo button on the center panel will flash to indicate that a solo has been set from another panel (studio, mixer or sequencer).</p>
7.	<p>Edit mode button</p> <p>Click on the Edit mode button to enter the instrument edit Mode.</p>

6.4.2.1 Instrument Edit Window



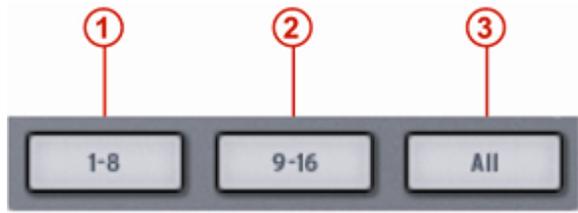
1	<p>Change instrument type. You may also drag and drop an audio file here (and also directly onto an instrument pad).</p> <p><i>When dragging and dropping onto pads: if the current instrument is sample based it will replace the previous sample with the new one. If the current instrument is not sample based, a menu will appear asking if you'd like to change the instrument type.</i></p>
2	Rename instrument.

3	<p>Turn Mute on (M) / Turn solo on (S) / Set choke group.</p> <p><i>A 'Choke Group' lets you specify instruments that will cut each other off when triggered. In the edit instrument view, select the choke group for each instrument. The choke group combo is near the solo button. You can set up 8 choke groups.</i></p>
4	Set pan.
5	Set volume.
6	Change filter type on instrument.
7	Cutoff filter knob.
8	Resonance filter knob.
9 	<p>Sample layer display for each layer - Numbered 1 to 6</p> <p>(For Sample type instruments only)</p>
10 	Load new sample.
11 	Set reverse mode on sample.
12 	Unload a sample.
13 	Layer display window. Drag and drop audio file here to change the layer's sample. Choose the layering mode from Velocity, Stack, Random or Circular.
14 	Layer tool.
15 	Gain knob for sample.
16	Change Center panel knob assignment.

17	Change value for parameter 1 (out of 6 total) of edited instrument.
18	Play edited instrument.
19	Link button: links layers together so that gain, reverse, start and end points are the same on all layers. To edit these parameters individually on each layer, Link should be off.



6.4.2.2 Studio Buttons



1.	Display Instruments 1 to 8
2.	Display Instruments 9 to 16
3.	Display all instruments / Hide Instrument view

Click on the 1-8 button to display the first eight Instruments.
 If you want to see all of your instruments displayed at once, click on "All".

6.4.3 The Mixer

Click on "Mixer" to display the Mixer panel

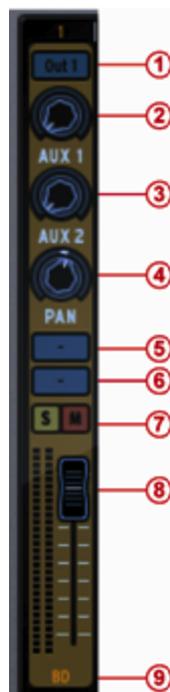


This panel is your 16 channel mixer panel. This is where all your instruments will be mixed together. Here, the modified signals will be summed to produce the combined output signals.

Each track is numbered from 1 to 16 at the top of the window. To the right of the mixer window are Return1 – Return 2 and finally the Master track.

Let's take a close look at the Mixer.

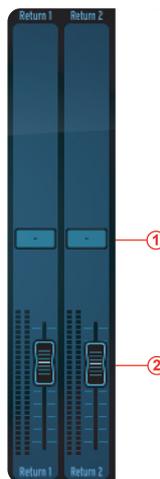
6.4.3.1 The Instrument tracks



1	Assign an output for instrument 1 (available when Spark is inserted into a host sequencer with Multi-output Mode. See section 7.2 "Plug-in mode" for more details).
2	Set Aux1 amount for instrument/Channel 1
3	Set Aux1 amount for instrument/Channel 1
4	Set Pan for instrument/Channel 1
5	Open FX1 window for instrument/Channel 1
6	Open FX2 window for instrument/Channel 1
7	Set Solo/Mute for instrument/Channel 1
8	Change volume for instrument/Channel 1
9	Instrument name

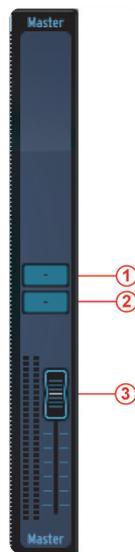
To select a track click on the bottom of the track, on the instrument's name.

6.4.3.2 The Return 1 and 2 tracks



1	Open AUX FX window
2	Set volume for AUX return

6.4.3.3 The Master track



1	Open Master insert 1 FX window
2	Open Master insert 2 FX window
3	Set Master volume

6.4.3.4 The Effects

When you click on one of the Aux FX buttons, a scroll up window will appear: this is the AUX FX window.

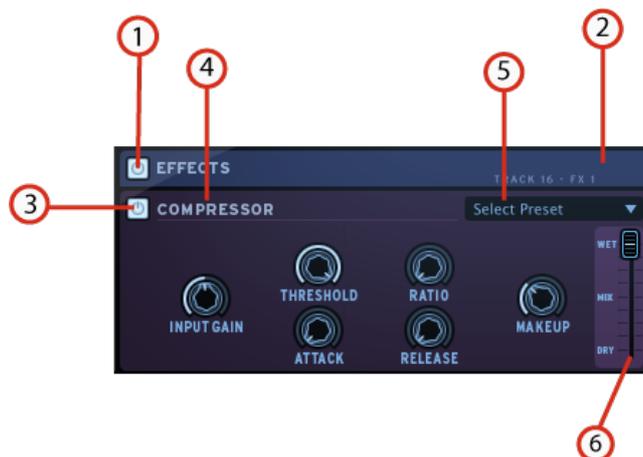


To select an effect, click on [SELECT EFFECT].

Choose one from the list, for example Compressor. The compressor window appears.

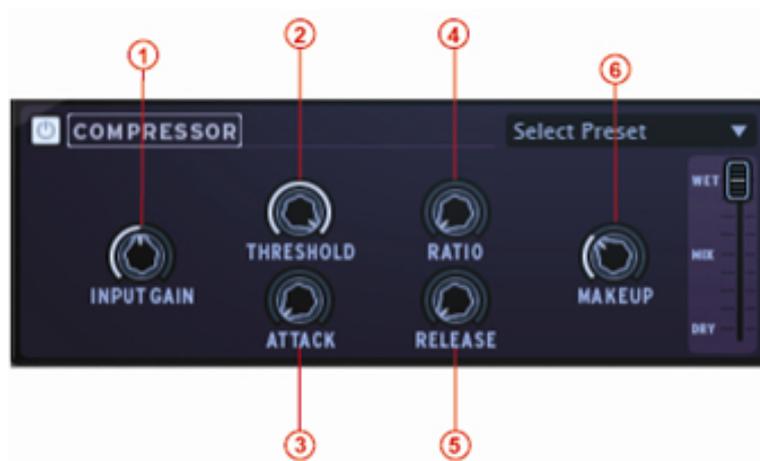
You can now set the parameters for the Compressor FX.

FX parameters



1	Bypass all effects
2	Close FX window
3	Bypass FX1/FX2 for one instrument /channel-Aux-Master insert
4	Change/Remove FX (Inst./Channel, Aux or Master insert)
5	Load a factory FX preset
6	Set Dry/Wet mix (Inst./Channel, Aux or Master insert)

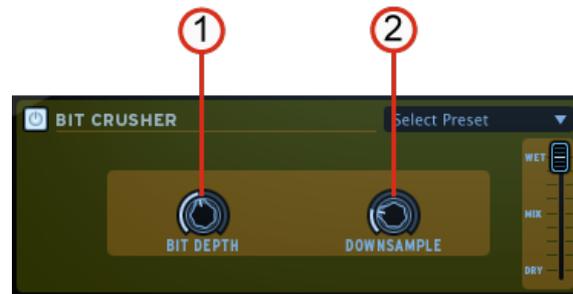
Compressor parameters



1	Change Input gain
2	Change Threshold
3	Change Attack
4	Change Ratio
5	Change Release
6	Change Makeup

A compressor evens out differences in gain by reducing dynamics (difference in volume between quiet sounds and loud sounds). This effect is often used to 'fatten' a sound by making every individual element of the sound closer to the same volume. Every time a sound goes over a certain volume (Threshold), it is reduced by a specified amount (Ratio). Attack and Release determine how quickly the reduction is added and how quickly it disappears. Makeup boosts the compressed signal's level.

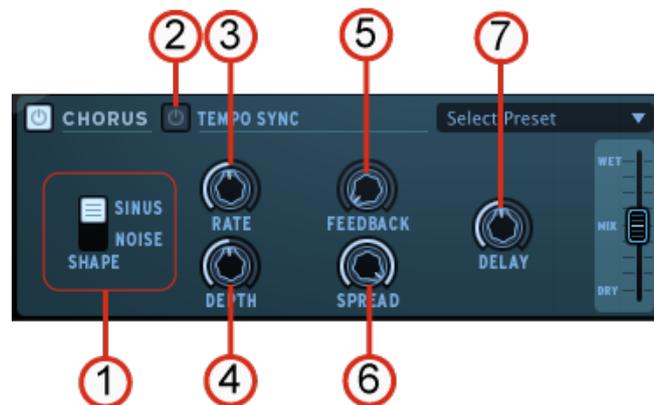
Bit Crusher parameters



1	Change Bit depth
2	Change Downsample

A bit crusher reduces the bit depth and sample rate of the audio signal. The result is a very digital sounding distortion.

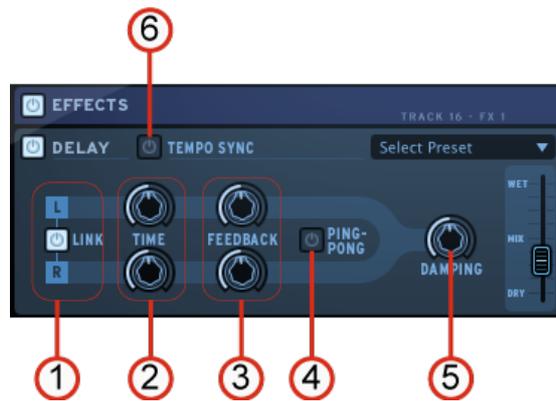
Chorus parameters



1	Change Shape
2	Set Tempo sync on/off
3	Change Rate
4	Change Depth
5	Change Feedback
6	Change Spread
7	Change Delay

Chorus is a classic effect that uses small delay times (that are modulated by an LFO) to double a sound, making it seem fatter and thicker. Shape, rate and depth refer to the LFO. Delay is the delay time and feedback is the amount of delayed signal added back to the dry signal. Both of these parameters emphasize the effect when increased. Spread refers to the width of the sound in the stereo field.

Delay parameters



1	Delay output (Link/Unlink). Apply (Disable) same values for right and left
2	Set time for left and/or right channel
3	Set Feedback for left/right channel
4	Set ping-pong mode on/off (Can be turned on only if "Link" is off.)
5	Set Damping value
6	Set tempo sync on/off

A delay repeats a sound, giving it more space and depth. Linking channels applies the left channel's delay time and feedback to the right channel. For separate parameters on both channels Link should be deactivated. Ping Pong alternates the delayed signal between the left and right channel (for an increased stereo effect), and dampening reduces high frequencies by adding a Lowpass filter to the feedback chain.

Distortion parameters



1	Change Distortion type
2	Change Drive amount
3	Change Output gain

A distortion saturates and distorts a sound by increasing the volume of a signal then clipping the excess. This effect can add strength, high-end and volume to a sound.

Parametric EQ parameters



1	Change Low gain
2	Change Low frequency
3	Change Middle frequency
4	Change Middle gain
5	Change Middle band frequency width
6	Change High frequency
7	Change High gain

Parametric EQ allows one to boost or reduce the volume of frequency bands. FREQ selects the frequency and GAIN allows one to remove or add volume to that band. Width (MID only) determines the width of the middle band around the specified FREQ.

Phaser parameters



1	Change Tempo sync on/off
2	Change Rate on stage 1 and/or stage 2

3	Change Feedback on stage 1 and/or stage 2
4	Change Depth on stage 1 and/or stage 2
5	Change Shape on stage 1 and/or stage 2
6	Set Dual mode on/off

A phaser is similar to a chorus effect, in that it uses small delay times to affect a signal, the result is a sweeping comb-filter sound.

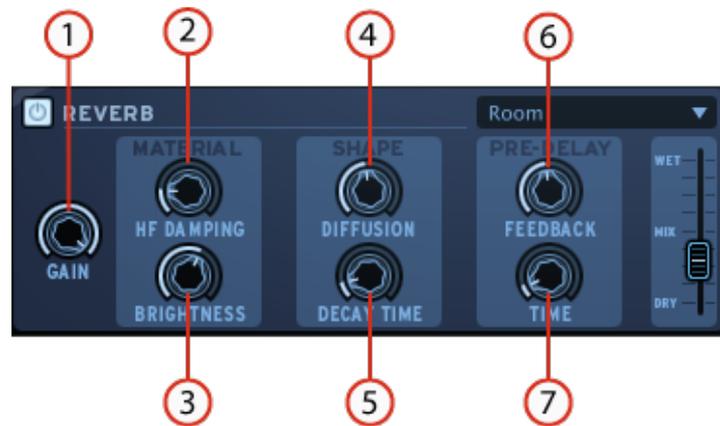
Plate Reverb parameters



1	Change Reverb size
2	Change Pre-delay size
3	Change Stereo value
4	Change Reverb filter damping
5	Change Low cut frequency filter
6	Change High cut frequency filter

A reverb emulates the reflections of a sound in a different space (room, hall, etc). Reverb adds depth and richness to a sound by 'placing' it in a separate physical space. The size knob changes the size of the space. Predelay adds a small amount of delay to the sound to imitate early reflections. Stereo refers to the width of the stereo field of the reverb. Dampening sets how much the reverb should be filtered using the Lo and Hi Cut filter settings.

Reverb parameters



1	Change gain
2	Change High frequency damping
3	Change Brightness
4	Change Diffusion
5	Change Decay time
6	Change Pre-delay Feedback
7	Change Pre-delay Time

A reverb emulates the reflections of a sound in a different space (room, hall, etc). The material section (HF Dampening and brightness) sets the timber for the reverb (dark or bright sounding). The shape section (Diffusion and Decay time) sets the size and duration of the reverb. The pre-delay section (Feedback and Delay) adds a small delay to the reverb to emulate early reflections.

Destroyer parameters

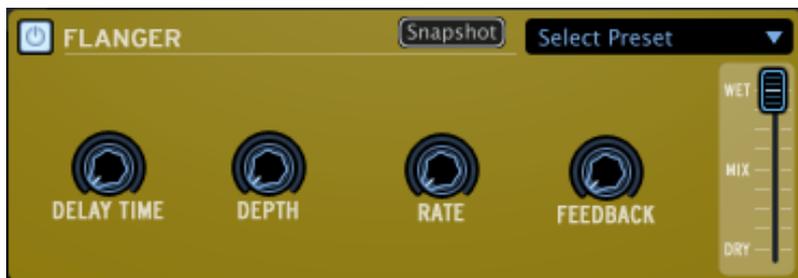


1	Clipping
2	Harmonic Distortion
3	Bit Reducer

4	Resampler
5	Tone
6	Gain

A Destroyer is a digitizer effect which produces a distortion by the reduction of the resolution or bandwidth of digital audio data. The resulting bit reduction may produce a “warmer” sound impression, or a harsh one, depending on the amount of bit reducer and resampler. Harmonic distortion adds overtones that are whole number multiples of a sound wave's frequencies.

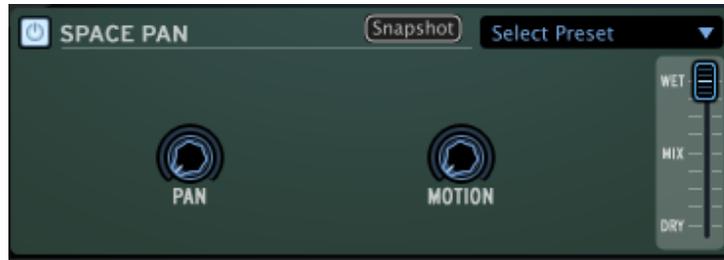
Flanger parameters



1	Delay Time
2	Depth
3	Rate
4	Feedback

Flanging effect by mixing two identical signals together, with one signal delayed by a small and gradually changing period. Varying the time delay causes these to sweep up and down the frequency spectrum. The delay time between signals is modulated: Flanging can create both subtle and extreme effects, depending on the rate and depth of the modulation. High values for Feedback will create repeated echoes.

Space Pan parameters



1	Pan
2	Motion

Space panning is the spread of a sound signal into a new 3D sound field. The sound will be set at a position or automatically (Pan set to 0) and the position will be modulated with the motion parameter. Space pan must be used on stereo sounds.

Sub Generator parameters



1	Type
2	Release
3	Threshold
4	Tune

Sub Generator adds low frequency to your signal. Sub Oscillator adds a decaying boom. Subgrunge and Subgrunge -1 Oct have a similar effect to compress low frequencies. Subgrunge -1 Oct works at an octave below like an octave pedal guitar. Vintage Sub-Harm adds a smooth sub-octave using the release time parameter. Tune is the maximum boosted frequency, at low value it helps reduce distortion. Threshold is used to gate the low frequency effect and stop unwanted background rumbling.

Limiter parameters



1	Threshold
2	Knee
3	Attack
4	Release
5	Gain

A Limiter is a compressor with a high ratio and a fast attack time. A limiter reduces the level of an audio signal if its amplitude exceeds a certain threshold. Attack and Release determine how quickly the reduction is added and how quickly it disappears. Hard or Soft Knee controls whether the bend in the response curve is a sharp angle or has a rounded edge. A soft knee reduces the audible change from uncompressed to compressed.

6.4.4 The Library

Click on "Library" to display the Library panel.

The library is divided into 2 main windows: the library window and the current project window.

6.4.4.1 The Library Window



1	Display Factory project only (Click to select)
2	Display User project only (Click to select)
3	Import a project to the Library
4	Make a new project
5	Delete a project from the Library (Only user projects can be deleted)
6	Display Kit/Instruments information for one project in Library. Double click on kit to Load it.
7	Load a Bank (A,B,C or D) from the Library to the corresponding one in the Current project
8	Load a Pattern (1 to 16) from the Library to the corresponding pattern in the Current project
9	Load a kit from the Library to the current project
10	Load an instrument from the Library to the corresponding selected instrument in the Current project
11	Enter "Edit current project" mode
12	Select a project in the coverflow.

6.4.4.2 The Current Project window



1	Import a MIDI file or a REX file in current pattern
2	Export current project as .spk file (SPARK) or export current pattern as MIDI or AUDIO file. Set Export mode to MIDI or Audio.
3	Save current project
4	Save current project to new project
5	Exit current project edit mode (takes you back to the "Coverflow" dynamic Project menu).
6	Change image for current project
7	Change the style of the current project
8	Change author name
9	Bank list of the current project
10	Pattern list of the current project
11	Loaded instruments of the current project

6.4.4.3 Creating a new project

To create a new project, click on the "New Project" button in the library window.

6.4.4.4 How to load Kits and Instruments

To load a Factory or user project in your current project, double click on an instrument kit in the Library/Project window. This will load the entire kit to your current project.

To load one or several instruments from a kit, go to the Library/Instruments window.

Double click on an instrument to load it to your project. When double clicking on an instrument, it is placed in the selected instrument slot in the Loaded Instruments window in the current project window. To select a slot, click on the instrument number in the Loaded Instruments window.

An easier way is to "Drag and Drop" an instrument from the "Instruments" window to any slot in the Loaded Instruments window.

You do not need to select an instrument slot when doing it this way.

6.4.4.5 How to load Banks and Patterns

In the same way, you can load a bank or a pattern from the library to the same bank or same pattern number in your current project by double clicking on it.

If you want to load Bank A from the Library to Bank D of your current project, drag and drop Bank A on to Bank D.

To load pattern A1 to pattern C3 of your current project, simply drag and drop A1 to C3. Pattern C3 will light up to confirm your selection.

6.4.4.6 Importing and Exporting a project

To import a project click on the "Import" button in the current project window. A menu lets you choose between MIDI file and REX file formats.

To export a project click on the "Export" button in the current project window. A menu lets you choose between:

- Exporting as a SPARK project (.spk)
- Exporting selected pattern as a MIDI file (.mid)
- Exporting selected pattern as an AUDIO file (.wav)
- Set the drag export mode preference to MIDI
- Set the drag export mode preference to audio

It is also possible to export a bank or pattern as a MIDI or WAV file (option to be set clicking on the export button or in the Preferences Panel) by simply dragging and dropping. To do this click on the bank or pattern you wish to export. Hold your click and drag the element to the place of your choice on your computer (desktop or host sequencer for example). If you dragged a Pattern, a single MIDI or WAV file will appear. If you dragged a bank, 16 separate MIDI files or one WAV file (corresponding to the 16 patterns of the Bank) will be created. In case of a pattern Audio export you need to hold your click until rendering is completed, otherwise your render will be cancelled. Alternatively you can right-click on the pattern and select `render` option. An icon will be added at the end of pattern name to show that the pattern has been rendered. In case of a bank Audio export you need to right click on the bank and select `Render Audio` option. The drag option is disabled for a bank as the rendering takes a long time.

You can personalize the cover image of your project:

Click on "Change image" next to the current cover image. Choose a picture in your own picture library and click on "Open" to replace it.

6.4.4.7 Saving a project

To save your project, click on the "Save as" button.

A drop down menu will appear. Chose "Save as..." in the current project window. Give a name to your project and choose a style from the drop down menu. Click "OK". Your project is now saved.

If you make changes to a project you already saved just click on the button "Save".

6.4.4.8 Changing kit name

To change the name of your kit, double-click on the kit name in the upper left part of the current project window and rename it. Don't forget to save your project.

6.5 THE TOP PANEL

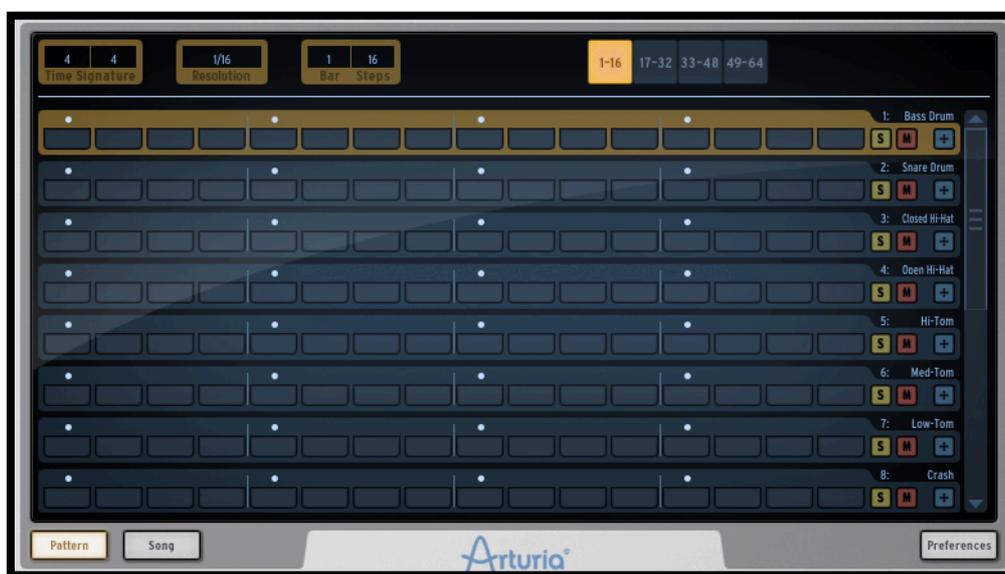
6.5.1 Overview

The top panel features the Pattern panel and the Song panel as well as SPARK preferences menu.

When you click on the "TOP" button in the toolbar the pattern window opens by default.

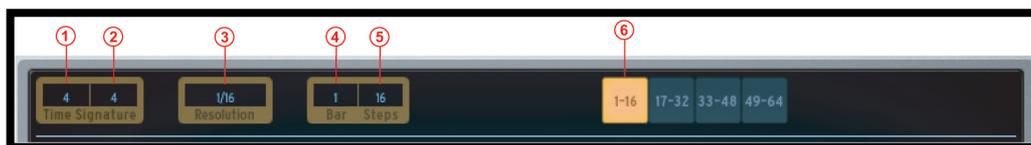
At the bottom of the panel you will find the Pattern Panel button, the Song panel button as well as the Preferences button.

6.5.2 The Pattern Panel



The Pattern panel features SPARK's sequencer. It is both a composing tool as well as a powerful editing tool.

6.5.3 The Toolbar



1	Change upper part
2	Change lower part
3	Change step resolution
4	Change number of bars

5	Change number of steps
6	Click to display patterns 1 to 16

The time signature is a notational convention used in musical notation to specify how many beats are in each measure and which note value constitutes one beat.

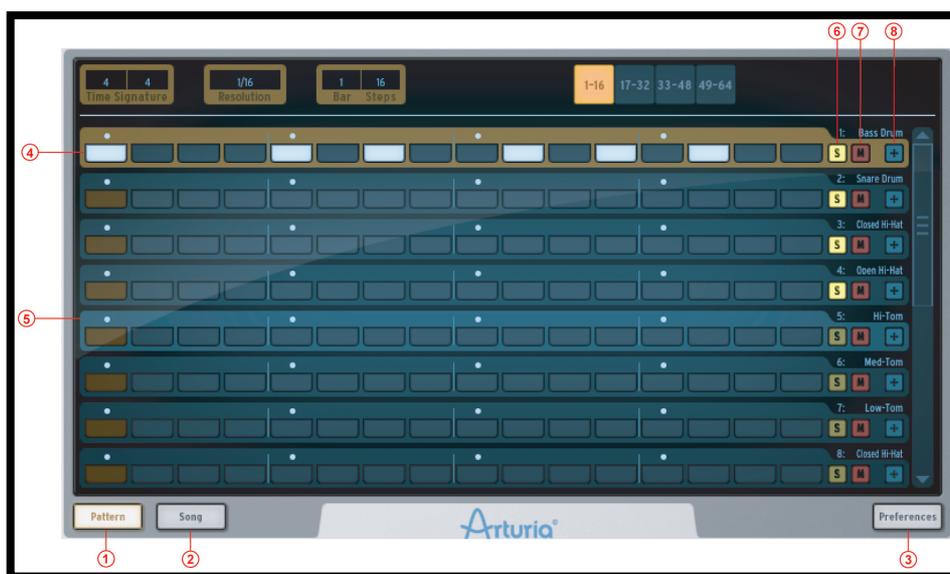
Time signatures consist of two numerals, one stacked above the other: the lower numeral indicates the note value that represents one beat (the "beat unit").

The upper numeral indicates how many such beats there are in a bar.

For instance, 4/4 means four quarter-note (quarter note) beats; 3/8 means three eighth-note (quaver) beats, etc.

1. Click to change the upper part of the time signature of the current pattern. This defines the number of notes (units) in one bar: Setting the signature to 4/4 means that there are 4 quarter notes in a bar, if signature is 3/4 (waltz) it means there are 3 quarter notes in a bar.
2. Click to change the lower part of the time signature of the current pattern. This defines the note value (unit): 1=whole - 2=half note - 4=quarter note - 8=eighth note.
3. Click to change the Step resolution. The step resolution is the value of one step: 1/16=sixteenth note - 1/8=eighth note - 1/4=a quarter note, etc. A pattern has from 1 to a maximum of 64 steps.
4. Click to change the number of bars in the current pattern.
5. Click to change the total number of steps in the current pattern. The number of steps is automatically calculated by Spark using the step resolution, the number of bars in the pattern, and the time signature. But you can adjust it if you want to work with your own bar calculation.
6. Click to display Step 1 to 16 in the current pattern.

6.5.4 The Sequencer



The Pattern panel shows 8 instrument tracks out of the 16 available. To see the next 8 tracks, use the scroll bar.

The picture above shows the pattern panel with a time signature of 4/4, hence 1 bar of 4 quarter notes (each quarter note subdivided into 4 1/16 note steps)- which adds up to 16 1/16 note steps.

1	Click to display the Pattern panel
2	Click to display the Song panel
3	Click to display the preferences panel
4	Set Step on/off on one track in the current pattern
5	Select a track in the current pattern. (Hover above the track until it lights up, then click).
6	Set Solo on/off on one sequencer track in the current pattern. (The solo button in the center panel will flash to indicate that a solo has been set from another panel (studio, mixer or sequencer)).
7	Set Mute on/off on one sequencer track in the current pattern. (The Mute button in the center panel will flash to indicate that a mute has been set from another panel (studio, mixer or sequencer)).
8	Click to open or close the Automation editor for one track in the current pattern.

6.5.4.1 How to select a track

To select a track, move your cursor over the track. When the track lights up, click to select.

6.5.4.2 How to copy or swap tracks

To copy a track, move your cursor over the track. When the track lights up, click [Option/alt] on Mac / [Ctrl] on Windows, then click and drag the track onto another one.

To swap tracks, just drag a track onto another one.

6.5.4.3 How to copy or swap Step parts

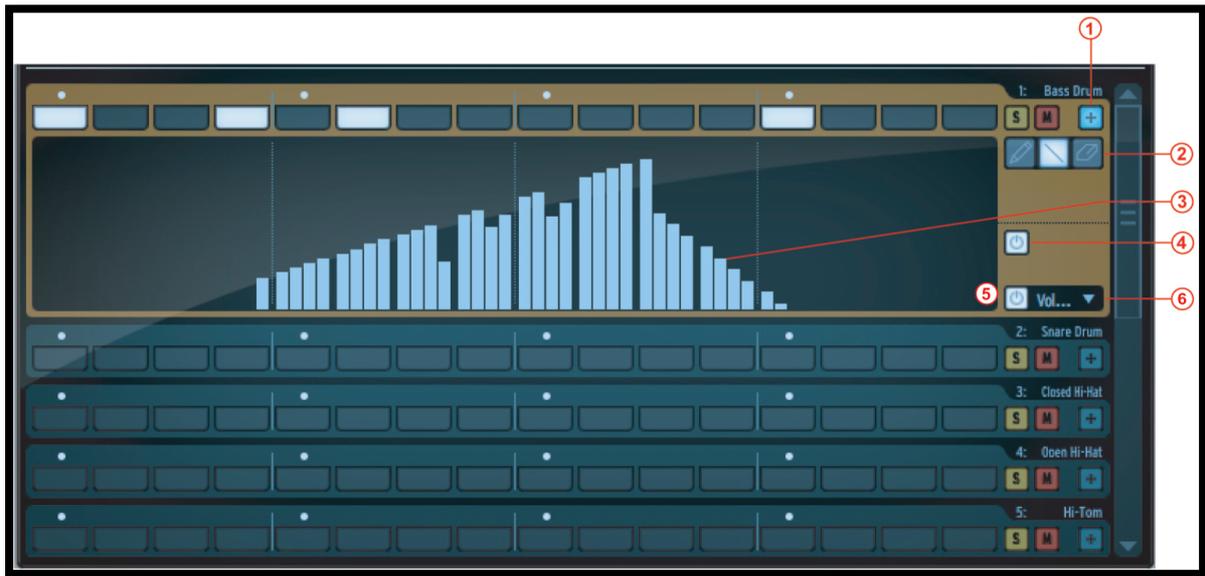
To copy step parts click on a step part button while holding [Option/Alt] on Mac / [Ctrl] on Windows and drag it onto another one.

To swap step parts, click on a step part and drag it onto another one.

6.5.4.4 How to export a track to a MIDI file

To export a track as a MIDI file, drag the track outside Spark window to a system explorer window or to your host window.

6.5.5 The Automation editor



1	Click to display the automation value of a single parameter in the current pattern.
2	Pen tool – Line tool – Eraser tool
3	Click and drag to draw automation on a single parameter using the pen or line tool or erase drawing. Except for velocity, repeat and shift parameters, you can use up to 4 sub-values per single step. Use Cmd on mac and Ctrl on windows to erase or move the four automation sub-values of a single step note together
4	Disable/Enable all automations in the current pattern.
5	Disable/Enable a single automation in the current pattern.
6	Click to trigger drop down menu of parameters on to which automations may be applied.

6.5.6 The Song Panel



The song panel allows you to chain all your patterns together to create a Song.

As we have seen before, a song is an editable ordered sequence of several patterns that defines the structure of your song.

SPARK allows songs made of 64 patterns maximum.

The Song panel will allow you to organize your patterns in sequences to make your song.

1	Click and drag a pattern from one bank into a song slot.
2	Select song slot and click "copy" button [C] to copy into SPARK clipboard.
3	Click on destination slot then click on paste [P]. If you have copied 3 slots, the 3 slots located at your paste location will be replaced.
4	If bars are copied into clipboard, click on a slot where you want to insert your selection and click [Insert]
5	Once slots are selected you can click on [Delete] to delete them. This will shift back all the slots that were located after the last deleted bar.
6	Song slots are numbered from 1 to 64. Click to select.

6.5.7 The Song slots

The Song plays chained patterns from the first one to the 64th.

The song is organized in 64 slots; each slot can receive a pattern. But your song can be any number of patterns with a maximum of 64.

6.5.7.1 How to copy patterns to song slots.

To copy a pattern to a song slot, click on a pattern in the pattern wheel and drag it to a song slot.

6.5.7.2 How to move and paste/insert slots

You can select a slot or a group of slots and paste or insert them in another location.

To do so, once the slot (or group of slots) has been selected, drag the selection and drop it onto another slot: If your mouse pointer is on the first half of a bar this will insert the dragged pattern at the location. If your mouse pointer is in the last half of a bar, it will be pasted and will replace bars at your location

6.5.7.3 How to set song playing position

Double click on a slot to set the song playing position.

6.5.7.4 How to select several slots

To select several song slots, just click on a slot and drag your cursor over the neighboring slots.

6.5.8 Preferences Button



The preferences are divided into:

- Sequencer
- Interface
- File
- Jog Dial
- MIDI Import/Export
- Controller

6.5.8.1 Sequencer and interface preferences

Tune mode: Choose Step sequencer pads or Instrument Pads to trigger notes on the current instrument when Tune mode is active.

Switch pattern instantaneously: If set to "Yes", a new pattern will play instantaneously when it is selected. If set to "No", it will be played when the current pattern is finished playing.

Follow current step: When set to "Yes", and when on Sequencer panel, the step pads on the center panel will automatically display the step part that contains the current played step.

Quantize record: When set to "Yes", all pads playing as well as any recordings will be quantized.

Auto-start song: When on, clicking on the Song button in the center panel will open the song panel and start playing the song automatically.

Click Output: Selects output for metronome click.

Roller Swing Mode: Lets you choose between swing notes or triplet notes when using Roller first raw note values.

Next Bank/Pattern switch mode: When set to immediately, clicking a different bank will directly play the same pattern number in the new bank. Otherwise, one must first select the new bank, then specify the pattern of this new bank, even if it's the same pattern number as the currently played pattern.

Automation Loop free: When on, the loop will be applied only on notes in the pattern, not on automations.



Choose your skin: switch Spark backgrounds from default to vintage.

6.5.8.2 File preferences

Save a copy of Audio samples in Library: When importing .wav/.aiff files to Spark, the source file will be copied in the library. You have the choice between:

- Always: always copy files in the library
- Ask: ask the user
- Never: never copy files in the library

Library path: Changes the path to SPARK's library.

6.5.8.3 MIDI Import/Export preferences:

Pattern Drag&Drop export mode in library: When dragging a pattern in the library panel, the pattern will be exported as MIDI file or bounced to .wav file.

Wave export size: When saving a pattern as a .wav file, you can choose between exporting the pattern in its initial size, or doubling the size of the pattern. Doubling the size will avoid losing an effect playing beyond the end of the pattern (i.e. a reverb or a delay).

Choose Drum map model for MIDI pattern import: When importing a MIDI pattern, you have the choice to import it as a SPARK, General MIDI or ADDICTIVE Drum map.

Choose MIDI map model for Pads: You can choose an existing mapping for the pads being controlled by an external MIDI controller. Spark Option is the mapping used by Spark controller, General Midi is a standard MIDI mapping, and you can define your own mapping using "Custom" Option and assigning MIDI notes on pads using Cmd-Click on OSX or Ctrl on Windows on pads. This mapping is used for the MIDI bank and pattern export. A default CC assignment for the instrument automations is set. By default the 6 instrument parameters, Pan and Volume are assigned. You can then customize those assignments depending on the automations you've used. Automations are then exported in the MIDI file.

"Enable default Pad velocity" preference is used to trigger pads with a constant velocity defined with the "Default Pad Velocity" preference. Hit intensity is ignored when this preference is set to "Yes".

Use the Send Midi preferences to select which kind of MIDI data has to be sent from Spark to your host or from Spark to the selected Output Midi port:

Choose "Send Midi From Pads" for sending MIDI data from Spark pads, and pattern changes to your host.

Choose "Send Midi From Sequencer" for sending MIDI data coming from Spark's sequencer to your host.

Choose "Send Midi Clock out" for sending Spark Midi Clock to a Midi output and synchronize another device or application capable of receiving Midi Clock.



6.5.8.4 *Controller Preferences*

Knobs speed sets the reactivity of the knobs in Spark, and can vary between slow, normal and fast.

Set 'Controller Detection' to off, if you want to disable the automatic detection of the hardware at startup, or on if you want to enable it.

7 MODES OF OPERATION

7.1 STANDALONE MODE

Spark can be used as an independent application on your computer even if you don't own any sequencer software. This is known as "Standalone mode".

When Spark is operating in Standalone mode you have access to additional parameters for setting up your audio and MIDI connections. To access these:

7.1.1 Launch the application

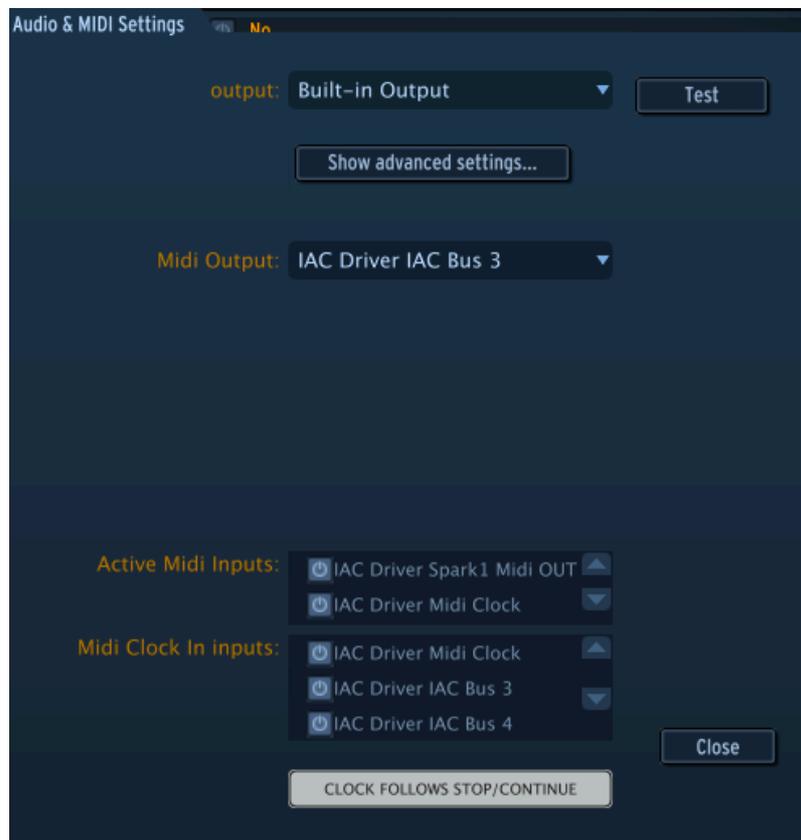
To launch the Spark application:

- Windows: Start menu > Programs > Arturia > Spark... and choose Spark.
- OS X: Finder > Applications > Arturia > Spark... and double-click on the Spark application icon.

7.1.2 Configuration of Audio & MIDI settings

7.1.2.1 Windows

To access the Audio & MIDI preferences navigate to the Spark menu > Setup > Audio & MIDI Settings. Here you are able to configure the global preferences of Spark. These settings are saved automatically.



7.1.2.2 Mac OS X

To access the Audio & MIDI preferences navigate to the Spark menu > Preferences. The Audio & MIDI settings window will appear. Here you are able to configure the global preferences of SPARK. These settings are saved automatically.



(Windows) AUDIO DEVICE TYPE	Selects the appropriate driver for your audio device.
(Mac OS X) OUTPUT (Windows) DEVICE	Chooses which audio output SPARK will send sound out of. Default is "Built-in Output" on the Mac; for Windows we highly suggest to use an adequate ASIO driver for your sound card.
Test	Send out a short sine wave tone to help make sure sound is being sent out the correct device.
Sample Rate	Choose the sample rate: default is 44,100 Hz. Increasing the sample rate increases the quality of sound, but adds a bigger load to CPU.
Audio Buffer size	Chooses the audio buffer size, displayed in samples and milliseconds. Default is 512 samples. Decreasing this number lowers latency, but adds more load to CPU. Increasing lessens load on CPU but increases latency (latency is the delay between a note played and actual sonic output).
MIDI Output	Displays the available MIDI outputs that can be used to send Midi data out or Midi Clock out from Spark Sequencer and Pads in Standalone Mode.
MIDI Clock sample offset	Set an offset on internal Spark Midi Clock to compensate audio driver latency errors.
Active MIDI inputs	Displays the available MIDI inputs that can be used to control SPARK.

MIDI Clock inputs	Displays the available MIDI Inputs for receiving Midi Clock to control Spark Sequencer. When a port is used as a Midi clock receiver, it can't be used as Midi Inputs for controlling Spark.
CLOCK FOLLOWS STOP/CONTINUE	Sequencer will start and stop playing according to the Start and stop Command received with the Midi clock signal when the preference is on.

7.1.3 Updating the Spark Controller

To access the Update Spark Controller menu item navigate to SPARK menu > Update Spark Controller.

When you update the Spark Engine your controller firmware may need to be updated as well. Spark will alert you to this when you start the application with the controller connected. Be sure to update your controller when you see this message so you can take advantage of the latest features.

7.2 PLUG-IN MODE

For specific use in VST, Audio Unit and RTAS please refer to sections 7.3, 7.4 and 7.5.

In order for the Spark controller to work correctly with Spark used in plug-in mode, it is necessary to turn off some MIDI connections in your sequencer software. Go to your sequencer's MIDI settings and turn off 'Spark Private In' and 'Spark Private Out'. Without this configuration:

- Spark controller will not connect to Spark on Windows.
- Spark controller will not behave correctly on OS X.

You can use Spark as plugin in stereo or Multi Output Mode. The host will show one stereo output from Spark when used in Stereo Mode. When used in Multi output mode the host will show 16 stereo channels available. You can modify the track output routing in Spark in the mixer panel. Default routing sends all tracks to the master stereo output, the first output. You can assign a track output to another stereo output of the 16 available outputs (see section 6.4.3.1).

7.2.1 Toolbar Extra Buttons



When using the Spark Engine as a plug-in within a DAW the tool bar will show two additional buttons:

1.	Host button When on, the current Spark pattern will start and stop along with the host sequencer transport.
2.	Tempo button When on, the current Spark tempo will match the host tempo.

7.2.2 Saving a project

When the project is saved the Spark Engine is saved in its last mode of operation, with all modifications intact. For instance, if you are working on a project in which you have modified parameters (without saving this as a separate preset in the plug-in itself), the next time you open the project the Spark Engine will load the project and the modifications as well.

You can use the drop-down "Save" menu of the VST sequencer with Spark, of course. However, it is highly advisable to use SPARK LE's internal menu: Projects saved in this way are usable in any other mode (standalone or with another sequencer), and can be exported and exchanged more easily. Most importantly, doing this also will maintain compatibility with future versions of SPARK.

7.2.3 Configuring the Spark Sequencer or Pads to Send MIDI to a host

MIDI information generated by Spark can be recorded into the host software, both from the pads and from the patterns. This includes all parameter automation activity.

Use the preferences to select which kind of MIDI data is to be sent:

- The "Send Midi from Pads" setting will send MIDI data from the controller's pads and also transmit pattern changes to your host (see Chapter 1.1).
- The "Send Midi from Sequencer" setting will send Midi note data generated by the Spark sequencer to your host.



For more precise timing, we recommended not using both options at the same time: First record Midi from the pads by setting the "Send Midi from Pads" option to Yes and setting "Send Midi from Sequencer" to No, and then record Midi from the sequencer by setting "Send Midi from Pads" to No and "Send Midi from Sequencer" to Yes.

7.3 VST

7.3.1 Installation

7.3.1.1 Windows

During installation, select the box "VST" among the proposed format choices of plug-ins. The installer will automatically detect the VST folder of the instruments shared by Cubase or any another compatible VST sequencer.

7.3.1.2 Mac OS X

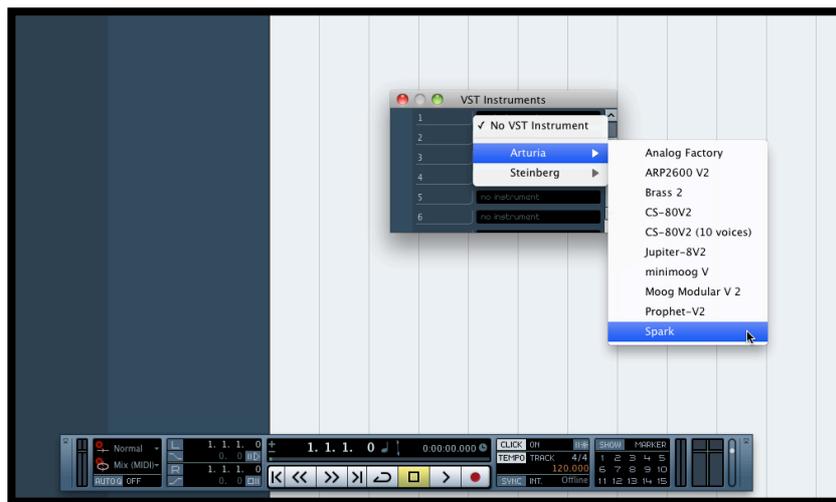
The VST plug-in is automatically installed in the folder of the system corresponding to the VST instruments: `/Library/Audio/Plug-Ins/VST/`

The VST plug-in will be usable by all your VST host applications.

7.3.2 Instrument use in VST mode

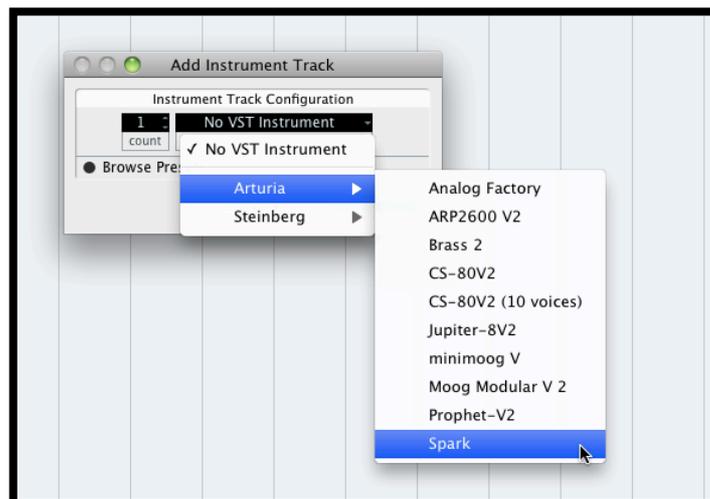
Opening the Spark VST plug-in is the same as opening all other VST plug-ins. Please consult the instruction manual of your favorite host sequencer for more specific information.

For instance, under Cubase, open the menu "VST Instruments", and choose Spark in the rack.



7.3.3 Connection to an instrument track

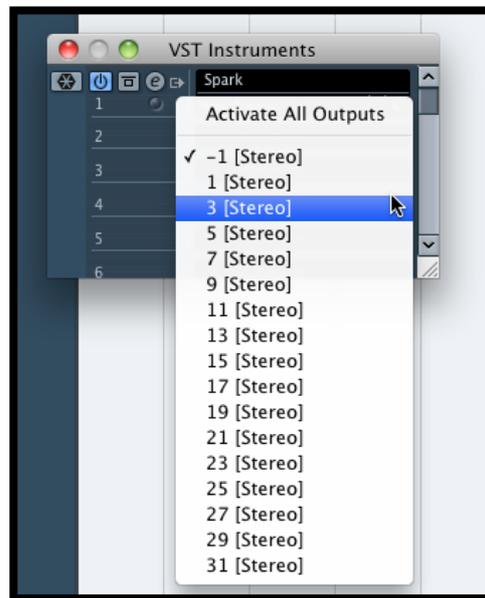
In order for SPARK to play information coming from an Instrument track, you have to choose an Instrument track and select Spark as the output of this track. See the picture below for more detail on how this is accomplished.



The events played on a MIDI keyboard are recorded by your host sequencer, and you can now use the MIDI editing possibilities of the sequencer to control any parameter in SPARK.

7.3.4 Multi Output Mode

Create an instrument using the VST Instrument Menu then click on Spark; then select the output you want to enable by clicking on the button just on the left of the instrument name in this menu.



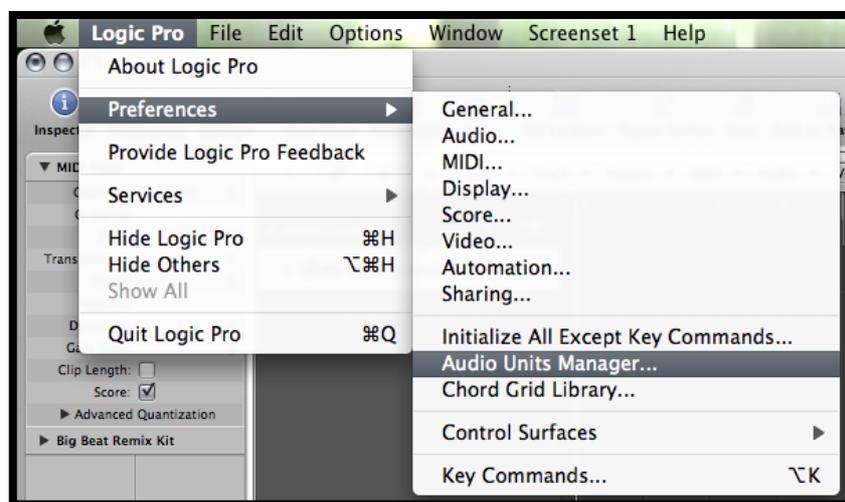
7.4 AUDIO UNIT (MAC OS X ONLY)

7.4.1 Installation

The Audio Unit plug-in is automatically installed and by default in the following folder:
`/Library/Audio/Plug-Ins/Components/`

7.4.2 Use in Logic Pro

From version 7 and on, Logic Pro features an Audio Unit plug-in manager. To launch the Audio Unit plug-in manager, click on the menu Preferences > Audio Units Manager.

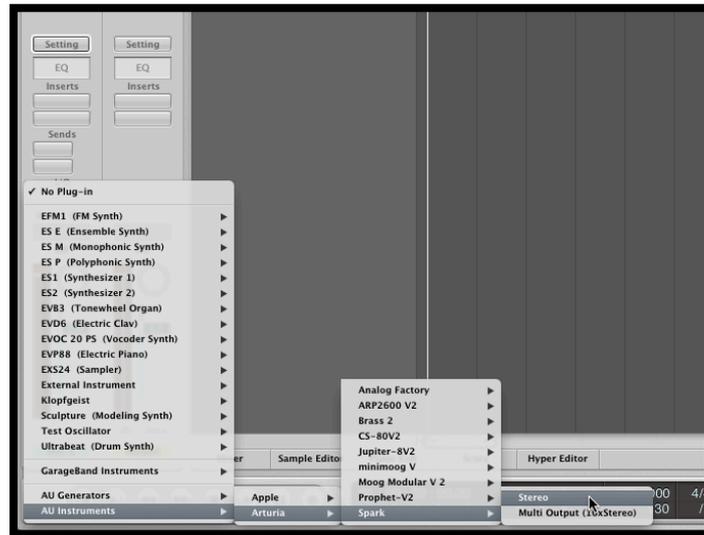


This Manager will show you the list of available plug-ins, test their compatibility with Logic, and then allow you to activate or de-activate them.

If an Arturia plug-in poses problem in Logic, start by checking that this plug-in has passed the compatibility test, and that it is actually selected.

7.4.2.1 Stereo Mode

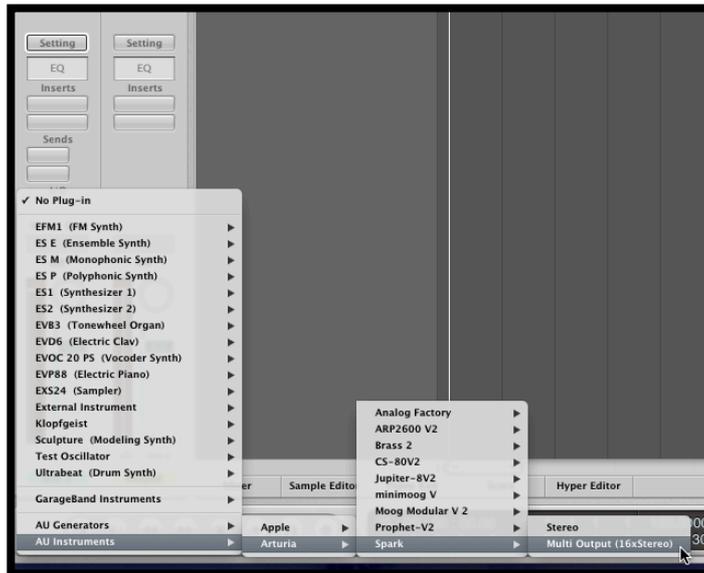
Select an Instrument track. On the mixer portion of the corresponding track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > Spark > Stereo.



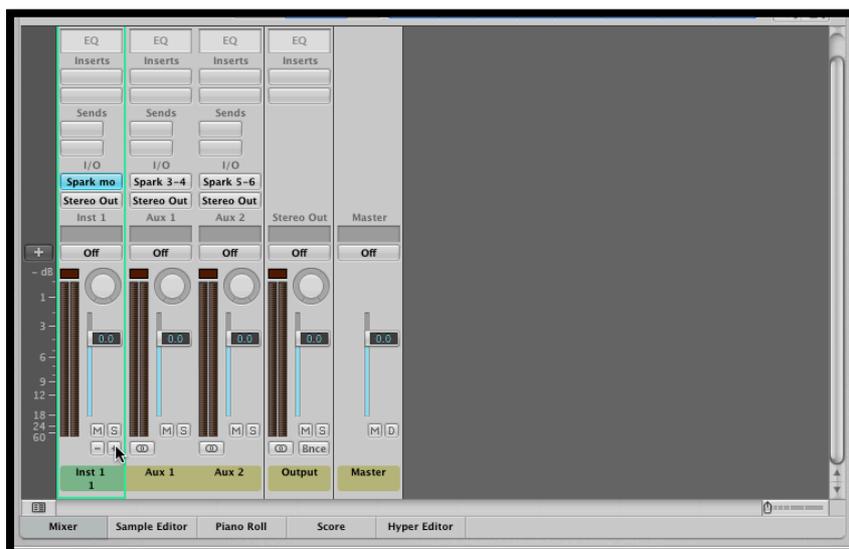
7.4.2.2 Multi Output Mode

To use the separate outputs:

Select an Instrument track. On the portion of the mixer corresponding to the selected track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > Spark > Multi Output (16xStereo).



Then go to the mixer view and click on the "+" button at the bottom of the instrument track to add Aux tracks.

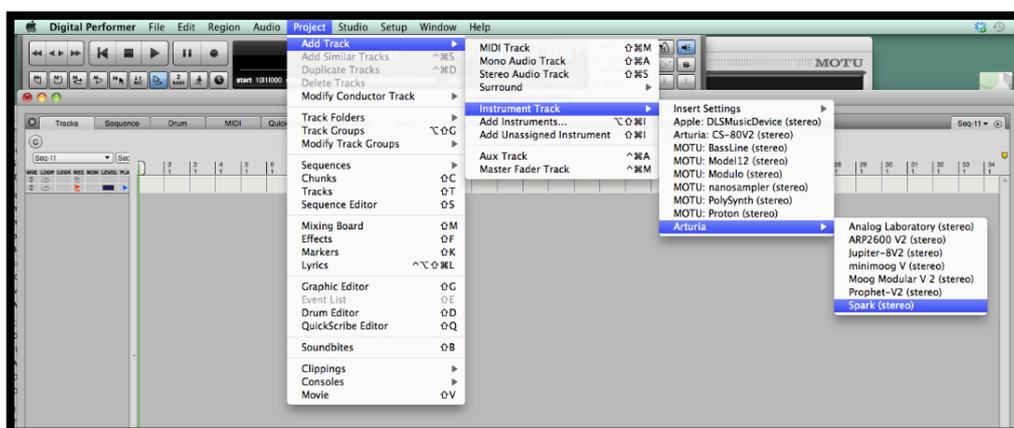


You can choose the output number of each Spark instrument in the Mixer view (see section 6.4.3).

7.4.3 Use in Digital Performer

7.4.3.1 Stereo Mode

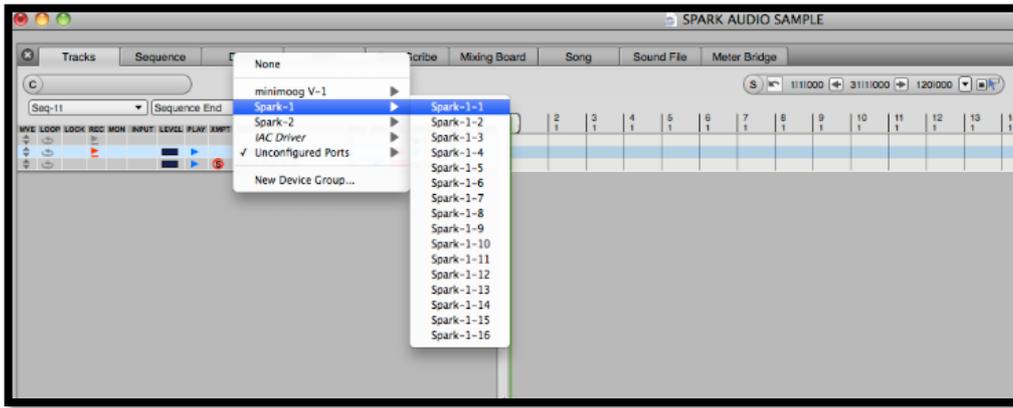
To add an instrument, choose the menu Project > Add Track > Instrument Track > Arturia > Spark (stereo)



Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure you activate the track before starting to play or record.

7.4.3.2 Multi Output Mode

To use the separate outputs, create the number of new Audio tracks you want, and then choose the correct OUT of the Spark plugin.



7.4.3.3 Assign Midi Track

Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure you activate the track before starting to play or record.

7.4.4 Stereo Mode and Multi Output Mode

7.4.4.1 Stereo Mode

To add an instrument, choose the menu Project > Add Track > Instrument Track > Arturia > SPARK.

Once you have added this instrument, it's possible to assign a MIDI track to it. In the connection menu of the MIDI track, select the instrument and the MIDI channel that you want to use. Make sure you activate the track before starting to play or record.

7.4.4.2 Multi Output Mode

To use separate outputs: select an Instrument track. Then on the portion of the mixer corresponding to the selected track, click on the button "I/O" to obtain the list of plug-ins, then select AU Instruments > Arturia > SPARK > Multi Output (16xStereo).

7.5 PRO TOOLS

7.5.1 Installation

In Mac OS X, the plug-in is directly installed in the folder reserved for the ProTools plug-ins in:

`/Library/Application Support/Digidesign/Plug-Ins`

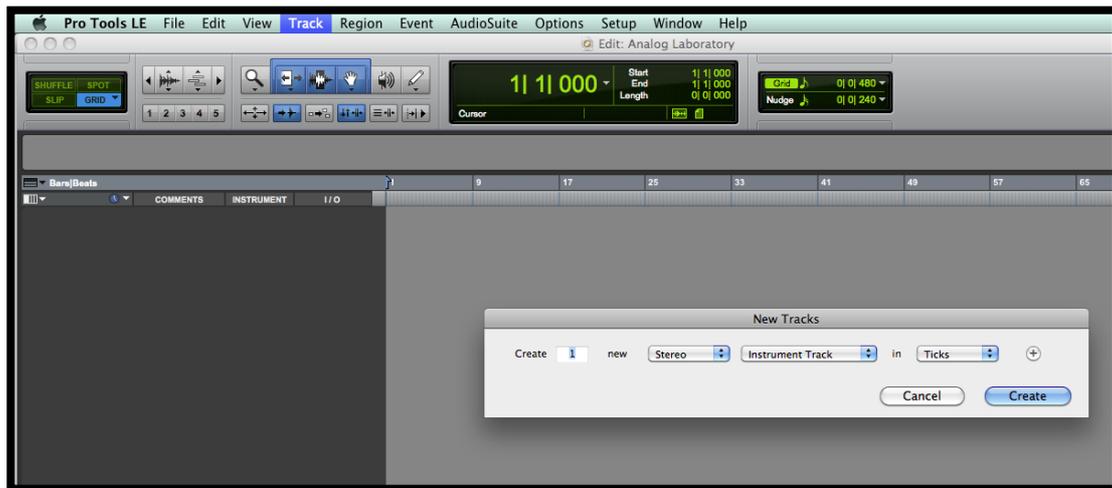
In Windows, at the time of the installation procedure, select the RTAS plug-in among the proposed choices of plug-ins. Then, when the system asks, indicate the folder in which the other RTAS plug-ins are located.

Usually, this path is:

`C:\Program Files\CommonFiles\Digidesign\DAE\Plug-Ins\`

7.5.2 Utilization and opening of the Plug-in

Access to the SPARK plug-in is like all other plug-ins; simply create a stereo Instrument track:



In order for SPARK to play the information coming from the Instrument track, you have to associate it to an Insert channel via the appropriate menu.

More information on plug-in connections can be found in the *Pro Tools* User's Manual.

7.5.3 Saving the project

When the session is saved, the status of SPARK is saved as it is, even if its programming does not correspond to the preset. For example, you are working on a project in which you have modified the parameters (without saving them in the plug-in itself), the next time you open the session SPARK will load the project plus the modifications.

The Librarian Menu of Pro Tools can be used with SPARK as with any other plug-in. Nevertheless, it is highly recommended to use the internal SPARK menu: with the presets saved this way, they are usable no matter which mode is used (standalone or other sequencer), and they can be exported and exchanged more easily. They will stay compatible with the future versions of SPARK.

7.5.4 Automations under Pro Tools

The automation in SPARK works as with all RTAS/HTDM plug-ins.

Please refer to the Pro Tools documentation for more details on automation plug-ins.

7.6 RECORDING MIDI OUT FROM SPARK INTO A HOST DAW

7.6.1 Recording MIDI out to a VST or RTAS host

Here's an example of a VST Host configuration for recording Midi out from Spark using LIVE.

Note: Configuration for Pro Tools (RTAS) will be handled in a similar manner:

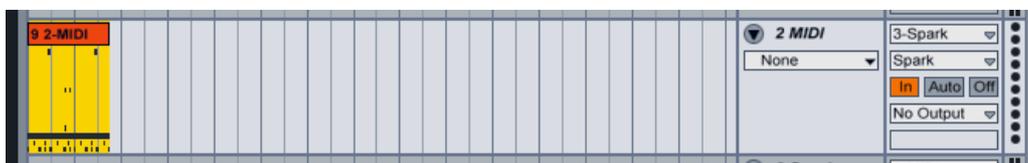
- Add the Spark VST plug-in on a Live track.
- Add a Midi track for recording Midi from Spark LE
- Configure the new Midi track (the left track in the image below)
 - . Set 'Midi From' to 'Spark' and change 'Pre FX' to 'Spark' in the drop-down menu
 - . Set Monitor to 'Auto'
 - . Arm the session recording

- Configure the Spark track (the right track in the image below):
- . Set 'Midi From' to the new Midi track (2 MIDI in this example)
- . Set Monitor to 'Auto'



Press the Record button in Live. Note that the Host and Tempo buttons must be activated in the Spark LE plug-in window.

Display the Arrangement view in Live (press Tab) to confirm that you've recorded some Midi notes.



Set Monitor to 'In' on the Spark track

Set the Spark LE Host button to off (this means that pressing the Play button in Live will not start the Spark sequencer anymore)

Press Play in Live from the beginning of your arrangement. You should hear Spark playing notes previously recorded from Spark and now sent by Live.

Note: For Cubase users: use Menu > Devices > VST Instrument to load Spark LE in order to be able to select Spark as a Midi source. Creating a VST instrument track will not display Spark as a Midi source.

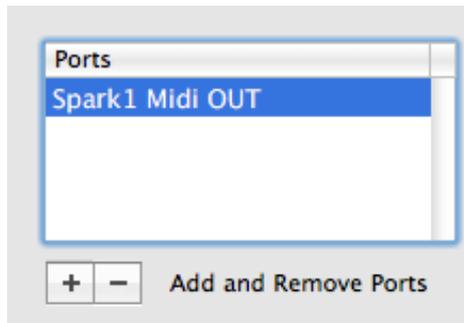
7.6.2 Recording MIDI out to an audio units host (AU)

For more precise timing, we recommended not using both of the "Send Midi" Preference options at the same time: First record Midi from the pads by setting the "Send Midi from Pads" option to Yes and setting "Send Midi from Sequencer" to No, and then record Midi from the sequencer by setting "Send Midi from Pads" to No and "Send Midi from Sequencer" to Yes.

- Launch 'Audio MIDI Setup' to configure the IAC Driver that will be used for sending Midi data to the AU host. Double-click on the IAC Driver Icon in the MIDI Studio view



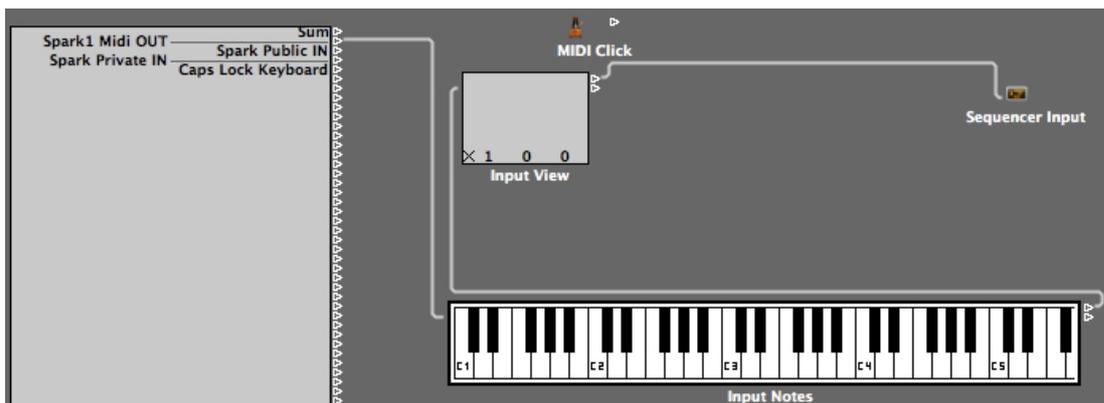
- Check the 'Device is online' box
- Rename the first port to '**Spark1 Midi OUT**'. This is case-sensitive, so be sure to type it exactly like that or it won't work.



- Launch Logic and create a software instrument track
- Add the Spark LE plug-in by navigating to I/O > AU Instruments > Arturia > Spark
- Activate the Host and Tempo buttons in the Spark LE plug-in's Tool bar window
- Open Window > Environment
- Select 'Click & Ports' in the upper left menu



- In the Physical Input box, draw a cable from 'Spark1 MIDI OUT' to 'Sequencer Input'



- Select the Spark track
- Set 'Record' OFF on the Spark track in Logic  (to prevent a MIDI echo)
- Deactivate the Host button the Spark LE plug-in window
- Press Record in Logic (hit the 'R' key)
- Play the Spark pattern

7.7 CONTROLLING SPARK WITH AN EXTERNAL MIDI CONTROLLER

7.7.1 Assign a MIDI note to pads

Click holding [Cmd] on Mac / [Ctrl] on Windows on [Pads] #115 to #122 and press a button or key on your MIDI controller.

7.7.2 Assign a MIDI note to bank buttons

Same as previous on corresponding button/pad.

7.7.3 Assign a MIDI note to pattern buttons

Same as previous on corresponding button/pad.

7.7.4 Assign a MIDI note to loop on button

Same as previous on corresponding button/pad.

7.7.5 Assign a MIDI CC to Loop divide knob

Click holding [Cmd] on Mac / [Ctrl] Win on [Loop] #49 and move knob or fader on your MIDI controller.

7.7.6 Assign a MIDI CC to Loop Move knob

Same as previous on corresponding knob.

7.7.7 Assign a MIDI CC to shuffle knob

Same as previous on corresponding knob.

7.7.8 Assign a MIDI CC to master Volume knob

Same as previous on corresponding knob.

7.7.9 Assign a MIDI CC to cutoff/res/Pan/Aux1/Aux2/Volume knobs

Same as previous on corresponding knob.

7.7.10 Assign a MIDI CC to instrument parameters knobs

Same as previous on corresponding knob.

7.7.11 Assign a MIDI CC to tempo knob

Same as previous on corresponding knob.

7.7.12 Assign a MIDI CC to stop and play functions using Cmd+Click

Same as previous on play and stop buttons.

8 THE SPARK CONTROLLERS



8.1 USING THE CONTROLLER WITH THE SPARK ENGINE

8.1.1 Switching from Kit/Project mode to Instrument mode *(Spark Creative only)*

When you want to toggle the Spark Creative controller between Instrument mode and Kit mode / Project mode (or vice versa), press and hold the Jog Dial for one second.

Remember: There is a Preference setting for Spark Creative which determines whether this action will switch from Instrument mode into Kit mode or Project mode; see the Top panel Preferences section for more information.

8.1.2 Set Move Knob Mode

Right-click the Move knob and turn it to switch from "Shift by one step" mode to "Shift by one loop size" mode.

8.1.3 Set Sequencer Follow Mode On / Off *(Spark Creative)*

When you have a pattern containing 32 steps the Sequencer Step pads have the option to follow the position of the pattern when it crosses over from steps 1-16 to steps 17-32. This is called "Sequencer Follow mode". To toggle this feature on or off, simply press the << and >> buttons at the same time.

8.1.4 Roller Fx

When using the Roller effect in the Spark software the Roll effect can be applied only to one instrument at a time, for the obvious reason that you are using your mouse to play the instrument.

When using the hardware controller, you are free to apply the Roll effect to any number of instruments simultaneously. You can also start a roll on one instrument and press another instrument pad while maintaining your initial roll. Enjoy!

The Roll velocity is triggered on the software version by clicking on a pad, holding it, and moving the cursor up and down on the pad. However, the instrument pads on the hardware controller are pressure-sensitive, so you can change the velocity output of the Roll effect in real time.

8.1.5 Controller Shortcuts

SPARK 1.5 SHORTCUTS BOARD

PANELS

- Select + 1 Center Main Panel
- Select + 2 Show Pattern Panel
- Select + 3 Show Song Panel
- Select + 4 Show Preferences Panel
- Select + 5 Show Studio Panel
- Select + 6 Show Mixer Panel
- Select + 7 Show Library Panel

SEQUENCER

- TAP Display Tempo on screen
- Select + TAP Set Metronome on/off
- Select + >> Increase Pattern Length by one mesure
- Select + << Decrease Pattern Length by one mesure
- Select + Tempo Temporarily increase or decrease the Tempo (DJ Mode)

INSTRUMENTS

- Select + PAD Select Instrument
- Select + Mute Clears the current Mutes recall
- Select + Solo Clears the current Solos recall
- Select + Erase Enter Copy Mode:
-Copy Bank, press A then B to copy Bank A to B
-Copy Pattern, press A then 1, press B then 2 to copy pattern A1 to B2
- Select + *Param* Change instrument Parameter Knob assignment

EDITION

- Select + 9 Save current project
- Select + 10 Redo
- Select + 11 Undo

MODES

- Select + 13 Tune Mode
- Select + 16 Full Velocity
- Select + ● Switch between Quantize and Unquantize Rec Mode

8.1.6 Using Spark hardware to control the Spark Engine

To use your Spark controller to control the Spark Engine, first launch the Spark application and then press the Connect button on its toolbar if needed.



If you were in MIDI Controller mode press the [Filter] + [Slicer] + [Roller] buttons to return the controller to Spark mode.

8.2 USING THE CONTROLLER WITH HOST APPLICATIONS OR MIDI DEVICES

8.2.1 Device ports (*Spark Creative only*)

The Spark controller is displayed within a host application as consisting of two sets of MIDI ports.

The first set of MIDI ports will present these labels to your computer:

- On Windows Vista and 7: "MIDIIN2(Spark Controller)"
- On Windows XP: "Spark Controller [2]"
- On Mac: "Spark Private IN" and "Spark Private OUT"

Note: These MIDI ports SHOULD NEVER BE USED by any application; they are used for internal communication between SPARK and the Controller. Telling the host software to use these ports would impair the efficiency of the controller.

The second set of MIDI ports will present these labels to your computer:

- On Windows Vista, 7 and XP: "Spark Controller"
- On Mac: "Spark Public IN" and "Spark Public OUT"

These are the public ports that are available for your applications to use.

All messages sent to these ports will also be sent to the Spark Creative controller's physical MIDI Out port. All messages sent to the Spark Creative controller's physical MIDI In port by an external device will be transmitted to the host software internally by the public port. When using Spark Creative as a MIDI controller, the data flow from the controller will be sent on the USB public port to the host, as well as to the MIDI OUT port, adding itself to any other existing MIDI information.

8.2.2 Use as MIDI Controller (*Spark Creative only*)

To use your SPARK Controller as MIDI controller, press [Filter] + [Slicer] + [Roller] (then open public MIDI port or connect a MIDI cable to MIDI Out).

8.2.3 Use as USB/MIDI interface (*Spark Creative only*)

To use your SPARK Controller as USB/MIDI interface, open the public MIDI port in your host program and connect the MIDI cable(s) to your Spark Creative controller.



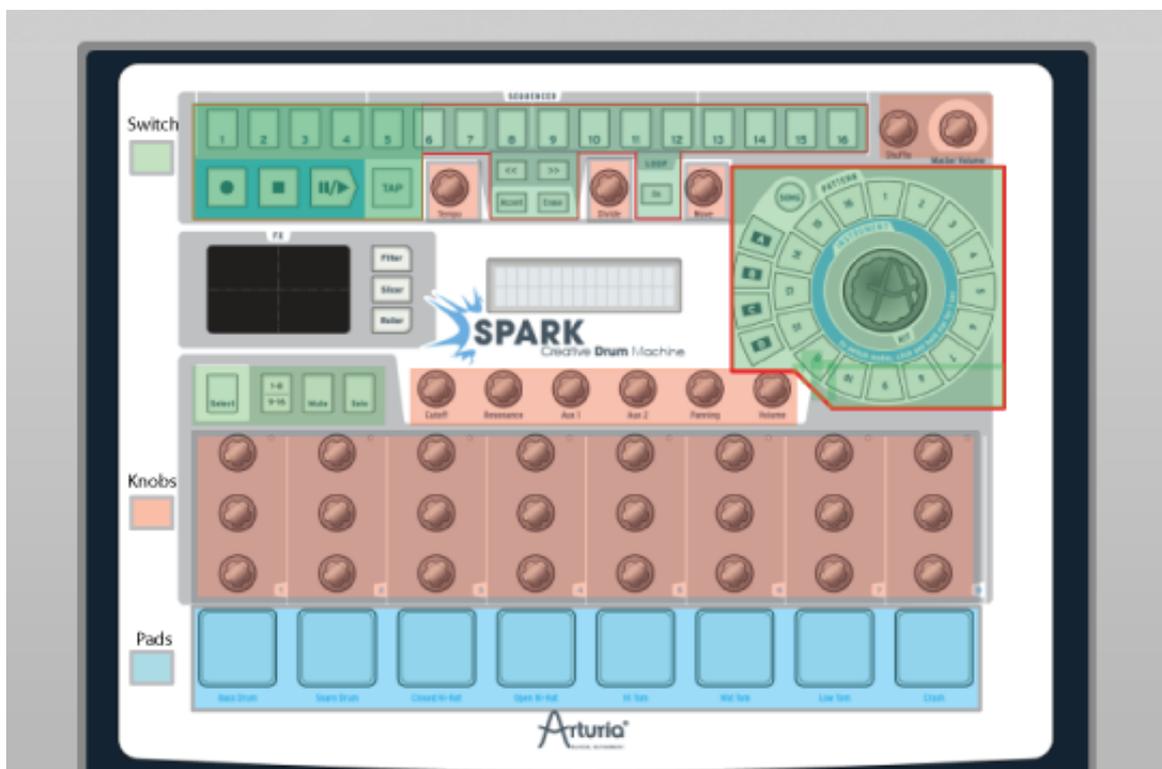
8.3 SPARK MIDI CONTROL CENTER

With the SPARK MIDI Control Center you can customize the functions of the Pads, Knobs and Buttons according to your needs.

When connected, you can use the Hardware controller itself instead of the Controller software interface to select the buttons, switches or knobs you want to work on.

SPARK MIDI Control Center needs Spark Controller to be in Midi Controller mode to be able to connect to it. Press [Filter] + [Slicer] + [Roller] to use Spark as Midi Controller. If Spark Controller is set to Midi Controller mode before opening SPARK MIDI Control Center, Spark Midi Controller Software will connect to it automatically at launch. If Spark Midi Controller Software is started before setting Spark Controller to Midi Controller Mode, you might need to explicitly connect to Spark controller using Connect to Spark Controller command in the Action Menu.

8.3.1 The Interface



The SPARK MIDI Control Center interface is exactly the same as that of the Spark Creative controller or the Spark Engine's Center panel.

All the buttons, pads and knobs can be reprogrammed to suit your needs.

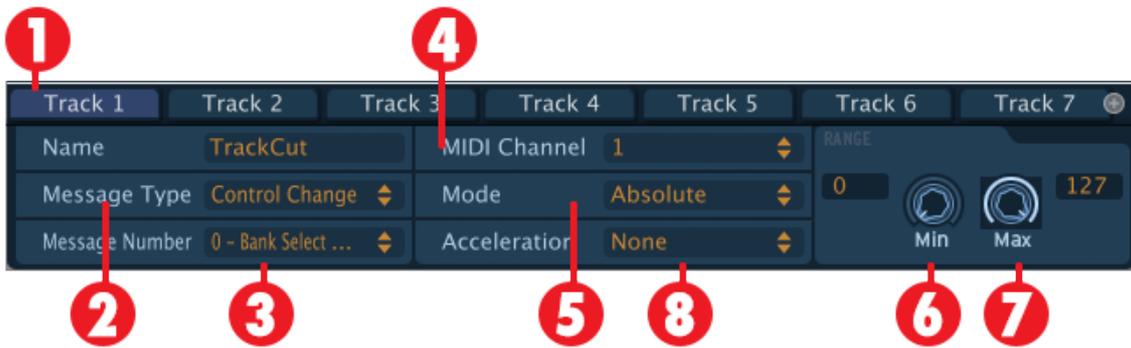
8.3.1.1 Edit Instrument Pad window

When clicking on a pad, a window appears with several tabs and drop-down menus to let you change the parameters assigned to pads.



1.	Edit Midi Message sent when pad – is triggered
2.	Edit Midi Message sent when pad – is pressed
3.	Edit Midi Message sent when pad – is triggered and Mute is ON
4.	Edit Midi Message sent when pad – is triggered and Solo is ON
5.	Edit Midi Message sent when pad – is triggered and Select is ON
6.	Choose Switch (and Pad) MIDI Message Type (Choice between CC, Note, Start, Stop, Continue, Program Change, Channel Pressure, Aftertouch and Off).
7.	Choose Switch MIDI Message Number (Not available for Start, Stop, Continue)
8.	Choose Switch MIDI Message Channel (Not available for Start, Stop, Continue)
9.	Choose Switch MIDI Message Mode. Choice between Gate and Toggle. (Not available for Start, Stop, Continue)
10.	Choose Switch MIDI Message Minimum Value (Not available for Start, Stop, Continue)
11.	Choose Switch MIDI Message Maximum Value (Not available for Start, Stop, Continue)
12.	Choose Switch MIDI Message Action On. Choice between Push or Release (Not available in Gate Mode)

8.3.1.2 Edit Instrument knob window



1.	Edit Midi Message sent by instrument 1 to 8 knob
2.	Choose Knob MIDI Message Type (Choice between CC and Off)
3.	Choose Knob MIDI Message Number (0 to 127)
4.	Choose Knob MIDI Message Channel (1 to 16)
5.	Choose Knob MIDI Message Mode (Choice between Absolute, Relative1, Relative2, Relative3)
6.	Choose Knob MIDI Message Min Value (0 to 127 (should be < max val))
7.	Choose Knob MIDI Message Max Value (0 to 127 (should be > min val))
8.	Choose Knob MIDI Message Acceleration (Choice between None, Slow and Fast - not available for encoder with detent: Encoders with detent are Move, Jog Dial, Loop)

8.3.1.3 Edit Instrument Parameter knob window



1.	Edit Instrument parameter knob 1 to 8 MIDI Message
2.	Choose Knob MIDI Message Type (Choice between CC and Off)
3.	Choose Knob MIDI Message Number (0 to 127)
4.	Choose Knob MIDI Message Channel (1 to 16)
5.	Choose Knob MIDI Message Mode (Choice between Absolute, Relative1, Relative2, Relative3)
6.	Choose Knob MIDI Message Min Value. 0 - 127 (should be < max value)
7.	Choose Knob MIDI Message Max Value. 0 - 127 (should be > min value)
8.	Choose Knob MIDI Message Acceleration (Choice between None, Slow and Fast - not available for encoder with detent: Encoders with detent are Move, Jog Dial, Loop)



8.3.1.4 Edit Clickable Knob window

There are only two clickable knobs on the Spark Creative controller:

The Jog Dial

1.	Choose MIDI Message Type (Choice between CC, Note, Start, Stop, Continue, Program Change, Channel Pressure, Aftertouch and Off).
2.	Choose Action on MIDI Message (Choice between Push/release)

The Move knob (Loop Move)

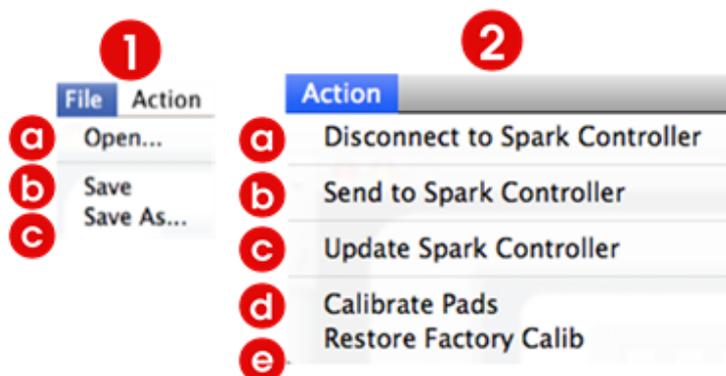
1.	Choose MIDI Message Type (Choice between CC, Note, Start, Stop, Continue, Program Change, Channel Pressure, Aftertouch and Off).
2.	Choose Switch MIDI Message Number (0 to 127)
3.	Choose Switch MIDI Message Channel (1 to 16)
4.	Choose Switch MIDI Message Mode. (Choice between Toggle, Trigger, Gate, Inc, Gate and Toggle).
5.	Choose Knob MIDI Message Min Value. 0-127 (should be < max value)
6.	Choose Knob MIDI Message Max Value. 0-127 (should be > min value)
7.	Choose Switch MIDI Message Action On. Choice between Push or Release <i>(Not available in Gate Mode)</i>
8.	Choose Action on. (Choice between Push/Release)

8.3.1.5 Edit Touch Pad window



1.	Choose Touch Pad MIDI Message Type (Choice between CC and Off)
2.	Choose Touch Pad MIDI Message Number (0 to 127)
3.	Choose Touch Pad MIDI Message Channel
4.	Choose Touch Pad MIDI Message X or Y Minimum Value 0 to 127 (should be < maximum value)
5.	Choose Touch Pad MIDI Message X or Y Maximum Value 0 to 127 (should be > minimum value)

8.3.2 The Menu



1.a File > Open...: Open and Load a Template

1.b File > Save: Save A Template on the Computer

1.c File > Save As...: Save As A Template on the Computer

2.a Action > Connect to Spark Controller: Disconnect Or Connect to Spark Controller

2.b Action > Send To Spark Controller: Send Template to Spark Controller

2.c Action > Update Spark Controller: Update Spark Controller Firmware

2.d Action > Calibrate Pads: Calibrate the velocity sensitivity of the Pads

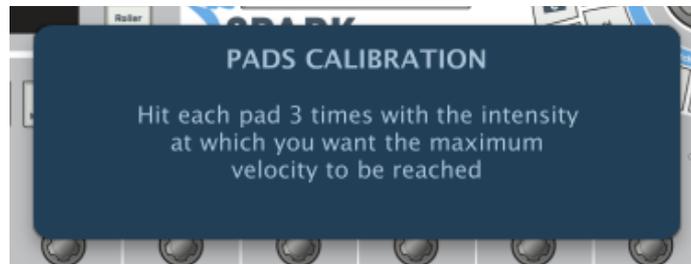
2.e Action > Restore Factory Calib: Restore Factory Calibration of the Pads

8.3.2.1 Midi Templates

Midi Templates: Each control (Pad, Knob or Button) sends a Midi message to the USB output. Default MIDI mapping is used for controlling the Spark Engine. You can customize this mapping, editing Midi messages sent from any of the controls. New mappings can be saved as Template Files using the File > Save command. In order for a template to be active on Spark controller you need to send your template to Spark controller with 'Action > Send to Spark Controller' command. Only one template can be active on Spark controller at a time.

8.3.2.2 Pad Calibration

You can calibrate the hit intensity at which the maximum velocity will be reached on the Pads of your Spark controller. Use 'Action>Calibrate Pads' command to start the calibration process. You will be asked to hit each pad 3 times.



LED indicators show you the progress of the calibration:



You can restore the Factory calibration using Action>Restore Factory Calib command.

8.4 SPARKLE MIDI CONTROL CENTER

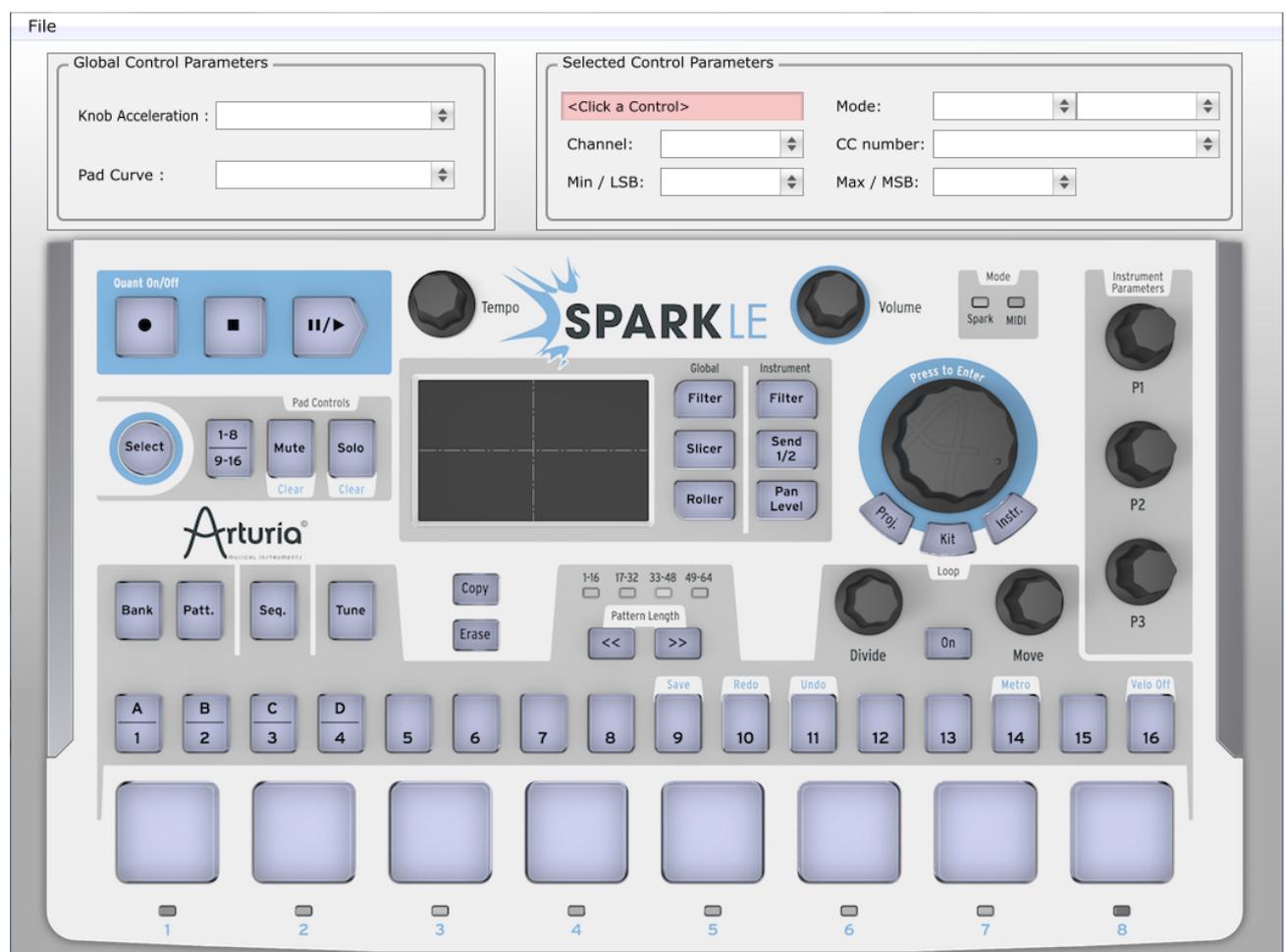
SparkLE's MIDI Control Center (MMC) is dedicated software which allows customization of the MIDI function of each pad, knob or button according to your needs.

The hardware must be in MIDI mode for SparkLE's MIDI Control Center Software to be able to connect to it. SparkLE can be put in MIDI mode by pressing the Global [Filter] + [Slicer] + [Roller] buttons simultaneously. If the hardware is set to MIDI mode before SparkLE MIDI Control Center is opened, the software will connect to the controller automatically at launch. However if Midi Control Center is launched before the hardware is set to MIDI mode you may have to establish the connection between the two by using the Connect to SparkLE command in the Action Menu.

If the SparkLE hardware is connected, the MMC instantly updates the controller with any changes made; this means that you don't have to worry about uploading your settings, as it is done automatically. However, to permanently save your MIDI mapping on the hardware you must use the store command (details in 8.4.2).

8.4.1 The Interface

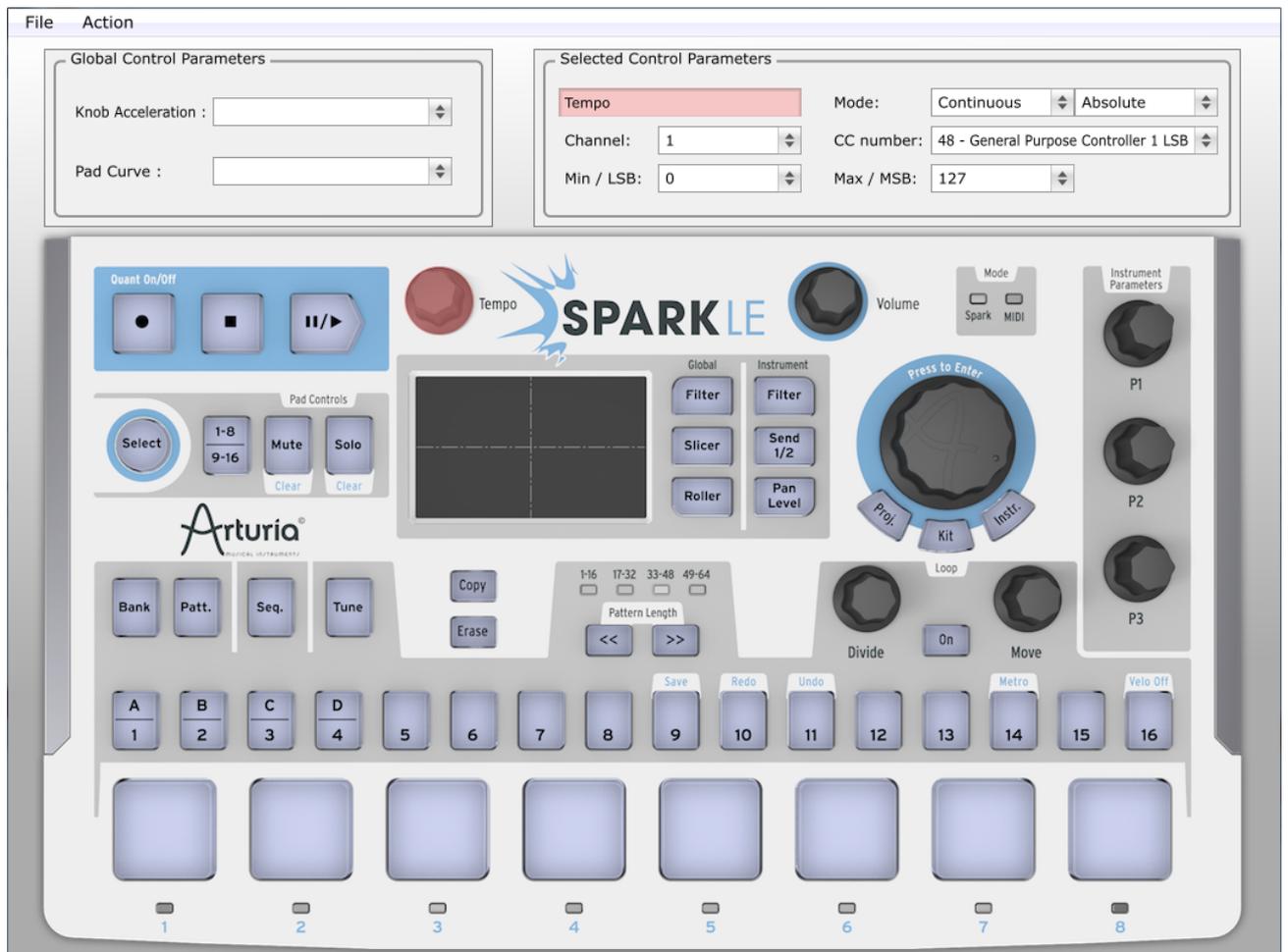
The SparkLE MIDI Control Center interface consists of three main elements, a screenshot of the SparkLE controller, the Global Control Parameters window and the Selected Control Parameters window.



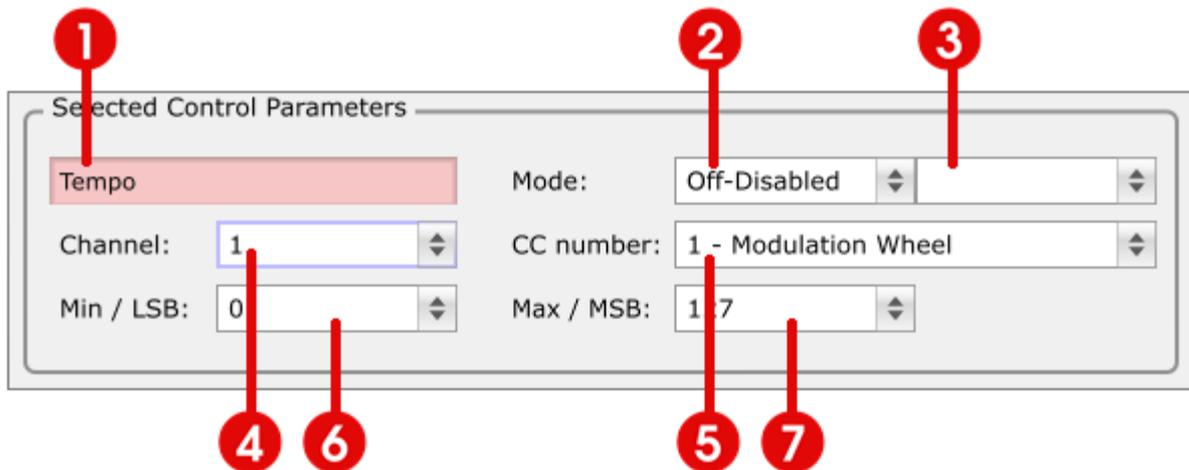
8.4.1.1 SparkLE Controller Screenshot and Selected Control Parameters

The main component of the MCC's interface is a screenshot of the SparkLE controller which allows you to select the control you want to change, simply by clicking on any one of the Knobs, buttons or pads.

The selected control will turn pink to confirm that it has been chosen and its name will be displayed in the Selected Control Parameters Window.



The Selected Control Parameters window allows you to customize the MIDI functionality of the chosen control.

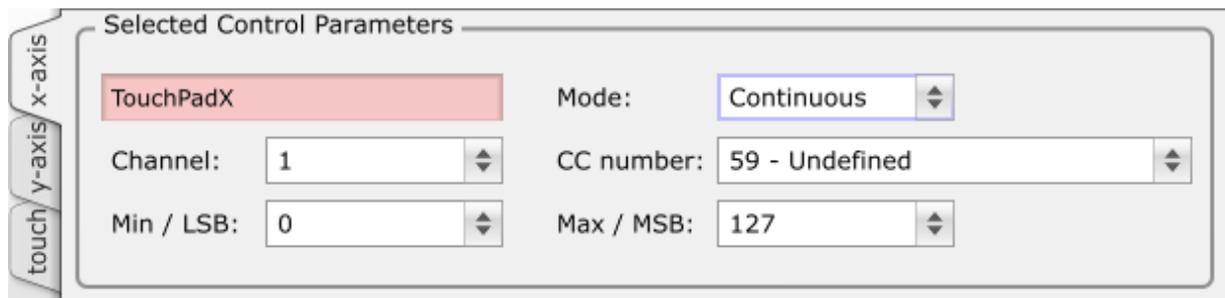


1.	Displays the name of the selected parameter
2.	<p>The first Mode menu is used to select the mode of operation assigned to a control. The second Mode menu specifies sub categories of the selected mode. The different modes and sub categories available are:</p> <ul style="list-style-type: none"> • Continuous: Absolute, Relative • NRPN/RPN • MMC • Switched: : Toggle, Gate • MIDI Note: Toggle, Gate • Patch Change • Pitch Bend: Standard, Hold • Channel Aftertouch: Standard, Hold <p>Note: The availability of modes is dependent on each control.</p>
3.	Allows you to select a sub category of the mode defined in 2.
4.	Specifies which MIDI channel is assigned to the parameter
5.	Specifies the MIDI control number assigned to the parameter
6.	Specifies the minimum possible value or LSB of the selected parameter.
7.	Specifies the maximum possible value or MSB of the selected parameter.

Note: The SparkLE controller has three hardware elements which have multiple controls:

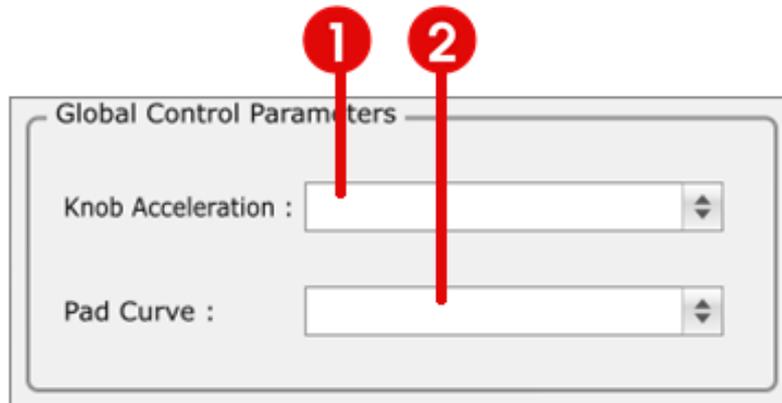
- two clickable knobs: the jog wheel and the move knob.
- the Touchpad.

When one of these controls is clicked the Selected Control Parameters window will display multiple tabs so that you can choose which parameter you want to edit. The tabs are identical and contain the same options as the standard window.



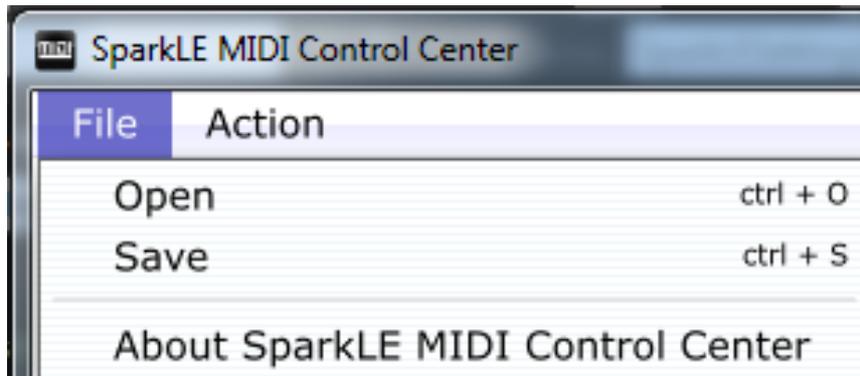
8.4.1.2 Global Control Parameters

The MIDI control center's Global parameters allow you to customize certain aspects of the hardware controller. These parameters have an effect on all of the specified controls.



1.	Knob Acceleration defines the speed at which a parameter will change, depending how fast the knob is turned on the controller. There are three options: <ul style="list-style-type: none">- Slow- Medium- Fast
2.	Pad Curve defines the rate of growth of the velocity/aftertouch values. There are four options: <ul style="list-style-type: none">- Linear- Logarithmic- Exponential- Full: all velocity/aftertouch values will be set to maximum.

8.4.2 The Menu

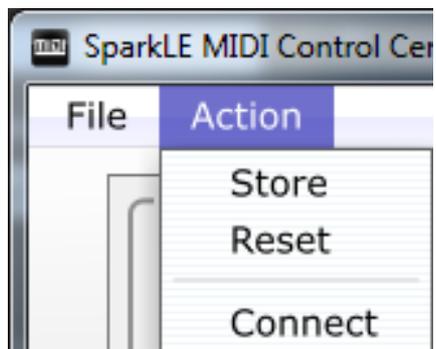


The MCC's menu contains three items:

- Open: allows you to open and load a previously saved MIDI mapping.
- Save: allows you to save a MIDI mapping on your computer.
- "About SparkLE MIDI Control Center"

The MCC's Action Menu contains three items:

- Store: the MCC sends all changes made to the SparkLE controller in real-time, allowing you to test your current MIDI layout. The Store command will commit these changes to the hardware's memory, allowing you to safely disconnect the controller without losing your new MIDI mapping.
- Reset: the Reset command will clear the SparkLe controller of all changes made, resetting it to the last stored MIDI mapping.
- Connect: If the MCC software is launched with the controller plugged in at start up a connection will automatically be established between the two. If the Hardware is connected after the launch of the software, the connection must be established by clicking this item.



9 SPARK LEGAL INFORMATION

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9.2 FCC INFORMATION (USA)

Important notice: DO NOT MODIFY THE UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirement. Modifications not expressly approved by Arturia may void your authority, granted by the FCC, to use the product.

IMPORTANT: When connecting this product to accessories and/or another product, use only high quality shielded cables. Cable (s) supplied with this product **MUST** be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

NOTE: This product has been tested and found to comply with the limit for a Class B Digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide a reasonable protection against harmful interference in a residential environment. This equipment generate, use and radiate radio frequency energy and, if not installed and used according to the instructions found in the user's manual, may cause interferences harmful to the operation to other electronic devices. Compliance with FCC regulations does not guarantee that interferences will not occur in all the installations. If this product is found to be the source of interferences, which can be determined by turning the unit

"OFF" and "ON", please try to eliminate the problem by using one of the following measures:

- Relocate either this product or the device that is affected by the interference.
- Use power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter(s).
- In the case of radio or TV interferences, relocate/ reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to coaxial cable.
- If these corrective measures do not bring any satisfied results, please the local retailer authorized to distribute this type of product. If you cannot locate the appropriate retailer, please contact Arturia.

The above statements apply ONLY to those products distributed in the USA.

9.3 CANADA

NOTICE: This class B digital apparatus meets all of the Canadian Interference-Causing Equipment Regulations.

AVIS: Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

9.4 EUROPE

 This product complies with the requirements of European Directive 89/336/EEC.

This product may not work correctly by the influence of electro-static discharge; if it happens, simply restart the product.

10 NOTES