SEQUARALLEL
MIDI TO CV/GATE/VELOCITY + MIDI SEQUENCER MODULE
By
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Quick Start Guide "By Examples" V.1.4

*Note: Please plug the Sequarallel MIDI Out into a GM MIDI Synth (standard) for these examples!
- If you don't have a GM MIDI Synth, disregard any sections on percussion etc.

I.   Introduction

Thank you for purchasing the versatile Accord Sequarallel! At only 8 HP, this MIDI/CV sequencer will be a great addition to your rig, and may even become the hub of compositions and control where MIDI sequencing is concerned.

A.   What can this Module do?

The Sequarallel can record and play MIDI in several different ways from a simple tracker sequence to an entire easily controlled arrangement. Playing and recording dynamically merge seamlessly to make it a great module for live performance, and give you a break from manually plugging in steps as with a conventional sequencer, although the option remains to do so.

Up to 40 TRAX trackers, each up to 64 steps with 4 lanes can be arranged, recorded, or edited in a single "song". These can be played 5 at once and each tracker can have it's own MIDI channel/ port and Gate/CV targets. Variable sequence length, clocking, and unique per noteFX banks, up to 8 per tracker, makes the possibilities endless!

From within the PlayList, these TRAX sequencer patterns can be added and placed into a larger sequence group, simply named A to H. Each pattern in the PlayList can have unique FX applied as well, even while they are empty so if recording, the fresh patterns will already have FX applied. A different record mode will simple change the notes in a sequence without changing their lengths, position, or FX.

Playing a recorded MIDI "Song" sequence is made easy by placing loop markers from your source, or adding then in later. The Song recording is duplicated exactly as recorded in but will stay in sync with your rig, no problem.
MIDI Layers can be added via a controller or MIDI keyboard, even a DAW, and can be any MIDI from notes, MIDI CC's, program changes, so can be built upon with continuous recording up to 8 deep per Layer button, of which there can be 4. Each of these Layers are assigned a letter so various points of the build can be accessed within the PlayList.

Layers recorded during a Song Loop will snap to that size by default so you only need hit the Record button to build on that inspiration!

There's also direct MIDI2CV with quick-access configurations when the Sequarallel isn't sequencing. Each "Song" project has it's own configurations copied from Song 00 so once they're set up the way you like, it's easy to jump right in.

A second panel output mode is percussion. The 12 jacks become 12 gate or trigger outputs with quick on-screen MIDI note to Jack selection for the designated MIDI channel for percussion. Up to 8 programmable panel arrangements can be used globally so any MIDI song, sequence, or input, with percussion will be ported to these jacks.

CV inputs below the main outputs can be configured as internal controllers, MIDI controllers, or even gate+notes to be converted to MIDI or recorded to a TRAX tracker or MIDI Layer.
A second MIDI port on the back can act as a merger to the front panel, or MIDI remote control, and output to backplane MIDI capable modules.

*Notes:
This Guide by no means covers all of the features / functions of this module but rather is to get you started on a great voyage through the capabilities of the Sequarallel!

Although this module is designed to take advantage of the +/- 12 Volt rails in a modern eurorack console, there is the possibility of using the Sequarallel from the USB power only. This has some limitations:
   a) None of the CV output jacks will function as these rely on the +/-12V
   b) None of the CV inputs will function normally
   c) The clock input will work, but in a mobile environment the Self Clock (under the [CLOCK:/1] QB) can be used, or a MIDI clock.
   d) Select bus (PSU I/O) will not operate
   e) MIDI LINK port will not work, but MIDI I/O jacks will

B.   Scope of this Guide

This guide is a quick-start to get you familiar with the Sequarallel by example and is a jumping off point for the full User Guide. (http://www.freshnelly.com/sequarallel/sequarallel.htm)
It's an easy read and won't go too much into settings and more complex functions ;)

List of terms / conventions used in this document

QB
 Quick-Box Button. Appear on main screen and in editors. These can be scrolled through and selected.
Hold
 This is to push and hold the encoder knob for > 1 second to access [QB] menus and lists.
 Holding > 1 second will Exit any menu or list as long as not on a [QB] or Toggle button (i.e. MIDI Channel grid)
Under the QB
 This is a reference to what screen will open when a QB is held >1 second
Double Click
 Two successive presses on the encoder knob within 3/4 second (like a mouse)
Triple Click
 Three successive presses on the encoder knob within 1.5 seconds
Song
 1) Project or workspace. 2) The main MIDI Song recorded.
Scroll
 Rotating the encoder knob to point to a QB or item in a list, or setting a value.
Drop-down
This refers to a QB that, when clicked, "unfolds" into several to scroll down through and select options.
[---]
 Denotes a Quick-Box Button, the way it appears on the screen
**nnn**
 Denotes a number of 1,2, or 3 digits, usually as appears on screen
xxx
 Denotes a non-numeric option name such as "SIZE" or "INPUT" with explanatory list following

C.   The Panel

The panel jacks are comprised of 4 Rows of outputs, MIDI In/Out, Clock In/Out, and 2 CV I/O jacks.
The Clock Out can be configured as another Gate/CV input. The two buttons are for Play/Stop/Record.
The display shows encoder scrolling through various "Quick-Box" on-screen buttons which will be explained as you become more familiar with the Sequarallel.
The encoder also has a push button which is pressed to select to edit something, or "held" (> 1 second) for entering and exiting lists or menus.
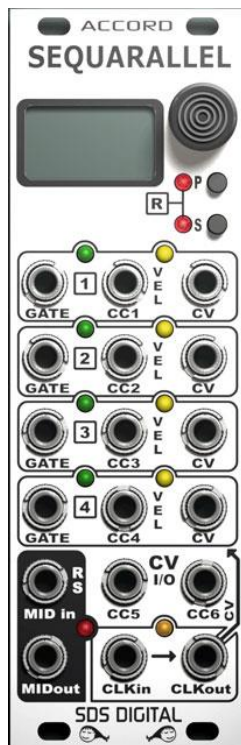
Encoder Knob:
The encoder knob is used for selecting Quick-Boxes to enable/disable functions, change settings, or, if held, to enter pertinent settings.

P & S Buttons:
The P button is primarily to arm Play mode, while the S button is primarily to Stop Play or abort Recording. Pressing the P button while playing will re-start play.
If both buttons are pressed together, Song Record mode is armed (both flash).

Main Jacks:
The top 12 jacks are arranged in four sets of 3 jacks each.
Each set, or CV Channel, has Gate (trigger), Velocity/CC1-4, and CV (1V/octave) outputs. During Drum Mode, these 12 are arranged as numerically descending sets of 4 staring with the left top-most jack.

CC Jacks:
The 2 CC jacks below the main 12 are I/O assigned by user. As inputs, they can send MIDI CC's, PC, Pitch Bend, or internal triggers. Can output almost anything!

MIDI in Jack:
The MIDI in jack is used for auditioning MIDI through to the output jack, recording, and with a regular T/S plug, for triggering Play or Stop of a sequence to sync to the rest of the system patch.

MIDI out Jack:
MIDI from sequences will merge with MIDI input to be output here.

Clock I/O:
During MIDI clock in, will output Clock. During Modular Clock in, CKout can be a CV or trigger input for many internal functions / controls. (user configured)

D.   About Song:00

Song:00 is the "initiator" or "proving ground" to test a song or sequences. You can record to it and edit TRAX or the Playlist, but can only save it to be another Song number. i.e. "SAVE AS:01"
The reason for this is so that you can fine-tune the way you want the Sequarallel to start up initially.

You may be oriented more toward trackers and may want to start with all 5 TRAX Quick-Box buttons on the screen, but no Layer buttons. Perhaps you will never record MIDI Songs so the LOOP, JUMPTO, and :SONGFX: QB's could be removed. Arranging QB's can be done in the [SETTINGS] Quick-Box, which must always remain in place.

Or perhaps you would like certain TRAX Record settings, like the same remote notes, clock ratio, or MIDI channels, to already be present upon starting a new project, saving time and keeping things organized.

Song:00 should be regarded as a blank canvass ready to start building on right away. As you become more familiar with the Sequarallel, you'll see how powerful this method is!

The Procedure
So the Sequarallel has just powered up, and will be on the last Song Project you were in before, but you want to start a new project…

-Scroll to [SONG:nn], click and dial down to SONG:00. Click to Load it.
You can begin working on the project in Song:00, but at this point, if you are going to want to save it:
-Scroll down to [SAVE:EDIT], click to open the "drop down" and select [SAVE*AS..]
-Click, then select a song number to save the project under. Click to select it.
You will then enter the Naming List, cursor already in the name to edit. You can press & hold to exit, or:
-Scroll to a Letter and click to edit the name of your project. Click to save Letter and move to another.
-Once finished, scroll to the end of the name to exit (and choose another name to edit), or just hold the
  encoder to exit the list.
                    You can re-name any project by holding on the [SONG:nn] QB at any time

Now you are in the new Song Project which will have all of the attributes from SONG:00.

Occasional Saves with SAVE:EDIT
While working on a project, especially a large one, it is recommended that you save every once in a while in case the power is interrupted. On the other hand you may not want to save it! If you do:
-Scroll down to [SAVE:EDIT] QB and click on it to select the drop-down QB's
-Click on [SAVE:EDIT] again to select. A "SURE?NO" prompt will appear
-Scroll to "YES" and click. This will save your editing to this point.

There is also an Auto-Save that writes a back-up every once in a while, this is to recover in the event of a power failure during a Save Edit and will recover the image automatically on the next power-up.

Saving an Edit to SONG:00
To prevent accidentally modifying Song 00, the procedure to save it is slightly different…
-Scroll to [SAVE:EDIT] and click to open drop-down
-Scroll to [SAVE:INIT] and click. This will prompt "SURE:NO"
-Scroll to select "YES"
-Press and hold the encoder for 1 to 2 seconds but not 5 seconds.
   There will be a confirmation (freezes brackets too)

Resetting SONG:00
Song 00 can be reset to factory values entirely. This will not affect any other Song Projects.
Follow the "Saving an Edit to Song:00" procedure above, but hold the encoder for at least 8 seconds.
                    Note: This will reset all changes you have made to Song:00 and cannot be recovered!

Saving Project Elsewhere
You may want to save "this version" of your project to another Song number. Just use [SAVE:AS..] in the drop-down and select a new number. Play must be stopped. There is also SysEx Save (see user manual)

Deleting a Project
The Project must be loaded to delete. Click [SAVE:EDIT] and scroll to [DELETE] and click. You will be prompted as a safety, "SURE?NO", scroll to yes and click. Project is removed.

II. Recording:

The Sequarallel has 3 main types of recording abilities, Full MIDI Song, MIDI Layers, TRAX tracker recording. Layers and TRAX recording can also be created via Gate/CV without MIDI.

If you don't want to record at the moment, may I suggest loading the demo Song:61 ?
Most elements are used in the demo and gives you something to tweak around right away!

A. A MIDI Song

Compose or download an entire MIDI Song (single or multi-channel) to record into the Sequarallel for looping and layering onto / sequencing with. Many songs you can download will loop well, and if not, import it into a software like Reaper to line it up nicely before recording it. Your own composition (from DAW) can be recorded with Loop Marker notes in place, simplifying the whole process. It's up to you.

Inserting Loop Markers
Any bar with a loop marker in it will be set as a "Loop To" and "Jump To" bar. Loop markers are set by adding a Note # 121 (C# 10) to the bar you want to loop to. This, of course will also be the end point of a loop. These markers can be on any channel and will not play.

Arm to Record
As good practice, scroll down and select [SONG:nn] Quick-box and set it to load default Song:00.
Any new Songs are best done here until you become more familiar.
-Remove Clock In and make sure you source will send MIDI Clocks (not MTC frames)
-Connect your MIDI input (TRS Type A) and press both P & S buttons to arm record.
-Play your MIDI source and the P/S LED's will stop flashing and stay on solid.
-If your source doesn't stop automatically, stop it once the recording is to be finished.

Alternately, if you want to just record playing a keyboard, you could use your modular clock to "keep rhythm" by patching the Clock In and arming to record. If the clock is already running, then the recording will begin with the first NOTE played, commencing with the beat it was at.
This works for Gate/CV input as well (MIDI PUSH settings, see big user manual)

Play it back!
Patch in a modular clock input. For Clock/1 it should be about 2 ticks/second. If your clock is faster, then select the CLOCK/nn and set it so that the large on-screen beat count looks appropriately paced.
Hit the "P" (play) button to start playing, "S" (stop) button to stop.

Alternately, you could press "P" to arm for play, then start your clock. It's best to run the clock for a few seconds to "familiarize" the Sequarallel with it before arming play.

A MIDI source with transport and MIDI Clock will also work to start the Sequarallel playing, but Play must still be armed. This way, a sequence can be started in the middle of another MIDI sequence from a DAW or controller with MIDI clocking and transport. Sequarallel keeps track of the beats!

Looping
If the MIDI song/composition you recorded has the embedded Loop Markers mentioned above, you can turn on the Loop Quick-Box while playing to Loop a section of the song. If there where no loops, then you can edit some in while the Song plays in the Song Editor (will audition) to set bar numbers for Loops. Either way, these can be edited by holding down encoder on [LOOP:x] to enter the Loop List and editors.

Loops can be added, inserted, adjusted, and deleted here.. *Note: Loops always Quantize to Bars.*
To ADD a Loop, scroll down and click on LOOP:x ADD. To insert, scroll to :INSERT MARKERS and click to turn on, then scroll down to the Loop you want to insert at, the size will be split to accommodate.
To Delete a loop turn on :DELETE MARKERS and scroll to the loop to delete, the size will add to next loop.
To delete all loops, click on :DELETE:ALL:SONGFX. Warning: this will delete all loops <u>and</u> their songFX!

LOOP SONG+NONE / TRAX / LAYER / BOTH select what other sequencers will also pause in the Play list when QB is set to **[LOOP:ON]**
DISPLAY: BARS+BEAT or TO MARKER sets what displays in the **LOOP:xx** QB when cursor not on it.
    * *These Song Loops 1 to 17 can also be triggered to play in the PlayList which is covered later.*

Jump To
JUMP TO:nn QB has two modes, jump to Play List Groups (G0, G1 etc), or to Play List Rows (01,02, etc)
This is a quick way to change what sections of the Play List will play next, without having to go into the Play List and arm rows or blocks if arranged this way. Also can be controlled via PLFX, Remote MIDI or CV.

B.   (Recording) A TRAX Tracker Sequence

The TRAX trackers are 4 lanes wide, so can accommodate up to 4 notes at once. When recorded into, notes will be quantized (unless set not to) to the Tracker Steps. If one is happy with the default settings, Clock * 2, 16 Steps, and default record settings, one only has to Click on a TRAX Quick-Box, and select RECORD. Notes received will be plunked into the sequence as long as the PLAY LED is on. But we're a picky bunch so entering the RECORD options is a must!

-In a [TRAX - n]→[TRAX EDIT] Quick-Box, scroll to -RECORD- then press & hold to enter the settings.
-Select options and scroll to change them:
- ►REC NOTES VEL?NO   Do you want the velocity recorded or fixed value of 100?
- ►REC NOTES LEN?23   Do you want note lengths as you play (YES), or a fixed value (1-23)
- ►REC NOTES DEL?NO   (YES) This records delay into the step, thus removes quantizing
- ►KILL NOTE FX? NO   New notes will erase "NoteFX" you may have set in the editor
- ►RE-NOTE MODE?NO   Only Record to existing sequence notes, not creating new ones
- ►GLOBAL REC=CHAN:n Sets which channel will record to this TRAX tracker (1-16,ALL)
- ►MIDI THRU CHAN:n   Notes during record output on channel 1-16, TRX (TRAX chan.), or none

-GLOBAL TRAX REMOTES-
These are powerful control notes that can change the way TRAX records while held down.
Tapping the note twice will latch it on, and turn off any others. A single touch on the note will then turn the modifier back off.
These settings, while selected, can learn from a MIDI note input, or can be set manually. I like to use the top white keys on my keyboard, then the black key for the last remote key. Here's what each does:

DELETE NOTE:nnn	TRAX Steps will be deleted while this is held, or toggled on (2 taps!) Any notes played while erasing will cancel delete briefly so previous sequence can "poke through". Notes played just before tapping the DELETE note to release it will remain.
STACK NOTE:nnn	This remote note turns on Lane Stacking. So any notes played will fill lanes after notes already in the sequence, which is great for building onto a running sequence.
CYCLE NOTE:nnn	This remote note when on plugs notes in as stepping through lanes, creating new notes or overwriting previous ones while in present Step. This can be used to morph one sequence into another.
RECALL NOTE:nnn	This will recall the sequence to it's previous state before recording, or to the state it was when double-tapped last, so single tap it to recall.

I recommend setting these remote notes as they greatly enhance playing around with a TRAX sequence. They only need to be set once for this Song, but can be truly globally set by editing default Song:00 and doing a special save (it's protected). See Section IV. Editing: A. a MIDI Song
These settings can also be accessed from within the TRAX Editor under the [RECORD] button!

-TRAX REMOTE CC STEP CONTROL-
In addition to being able to record notes into the TRAX grid, steps can be modified remotely using MIDI CC's on the TRAX remote MIDI Channel, in a similar way to a normal sequencer module.

CC#'s can be set in the TRAX Record Menu:
FUNC SELECT CC#: Selects one of 8 functions for the row of CC's to control
NOTE OFFSET CC#: This adjusts the Root note (if using a Scale Quantization)
CC# ROW START: The first CC# alignment for the first Step
* These settings when hi-lighted will MIDI learn, just move the control!
* Note that RECORD must be on, and the Sequence must be playing.

The size of the row of CC's depends on the size of the sequence, 8, 16, etc. In this example, the CC# to control Step 1 is 11. This means Step 2 will be 12, Step 3 will be 13 etc.
The function the row of CC's will control can be selected with CC#43, which are:
RE-NOTE: Changes the Pitch of Step (Works with Scale!)   NOTE_FX: Select NoteFX# 1-8 for Step
VELOCITY: Adjusts the Velocity of a Step (All lanes)   FX_MAP: Turn on/off FX Mask Steps
LENGTH: Adjusts the Note-Lengths of a Step (to >5 steps)   KILL: Removes a step or recalls it
DELAY: Adjusts the delay of a Step (0 to 22 ticks)   SHIFT: Shifts Lane 1-4 up/down
            *These Changes are permanent and can change ANY TRAX Letter that is playing, so turn on

C.   (Recording) MIDI Layers

MIDI Layers (up to 32 total) are great for building up a Loop by playing in MIDI notes, CC controls, or any other MIDI, in layers. Sequarallel has 4 Layer Quick-Boxes and each can hold up to 8 Layer Letters.
Each Layer QB has it's own track in the Play List and up to 4 Layer Step Sequencers so can be set to play any combination of Letters, in any order, alone or as a group. For example, a Layer to control Pitch Bend a MIDI channel can be recorded by simply using the Pitch Wheel on the desired channel. Then another Layer can be added for some chords or bass line, all without touching the panel!

Record A Layer
-Scroll to the Song:00 QB (Quick-Box), select and load the initial Song:00.
-Scroll up to [LAYER:ADD] QB, select and scroll to YES to add LAYER :1
-Now click new Layer QB and scroll to L RECORD, click and set to 4 Bars, the click to arm for recording.
> *Under the [RECORD:n] QB there are settings like 1-shot, and "align record to" methods (leave that for now!)*

You are now set to begin recording a MIDI Layer. Assuming you have a clock source (MIDI or Clock In) press the "P" button to start Play. Creating Layers while playing is how you will be using this feature.
If there are no TRAX tracker sequences, other Layers, or Song playing, you may need to make a modular "metronome" to stay in time. Go ahead and start playing.
> *Record can be left on as only records when MIDI Notes,CC's, PW's are received, making a new Layer*

Each Time 4 bars passes, the record re-arms. Subsequent notes add a new Layer Letter and so-on.
> *When recording CC's or PW, be careful about adding the same controller though, it may collide with the last!*

Undo last Layer Letter
To undo a Layer, click on LAYER:1 * and scroll to KILL LAST and select YES when prompted.
> BTW: If the additions have been only on this Layer, then you can undo back to the beginning without using memory… But, if a new Layer QB is created and recorded to, then undoing "old" layers won't gain memory back, so eventually you'll run out of memory with this practice.

Each Layer Quick-Box
Because of quantizing or Layer Sizes, you may choose to use a different Layer QB for, say, FX like Cut/Rez or envelope changes if your synth supports that on any MIDI Channel. ..or perhaps confine percussion to a specific Layer QB. That's why there are 4 [LAYER] QB's.

Appending Layer Size
You don't need to stick to the original Layer Size (in bars) with the APPEND function. If notes are played within X beats (default 3) after a loop, then the Layer Size is doubled (default) or added. Playing of your first Layer is of course smoothly halted and isn't usually disruptive.
-Set a Layer to Record as above, note the initial Size in Bars. Set to 4 for this example.
-Click on Layer:n and scroll to APPEND and click to toggle on the append symbol. (+X)
-Press "P" button to Play if not already playing and start playing in some notes to match the beat etc.

Once the end of 4 bars comes around, just keep on playing your progression to expand size to 8 bars.

Kill Last - Layer Recorded
"Kill Last" will remove the last Layer Recorded so you can try again.

Remove a Layer QB
Only the last Layer QB can be removed for obvious reasons, so it's the only Layer QB with REMOVE. The Layer QB's above it will display ERASE instead. Erasing and Removing will clear out the memory used.

Layer Solo & Mute
You may have noticed SOLO & MUTE while scrolling through the LAYER QB in these examples? From the QB an entire Layer track can be muted/soloed if the need arises. In the PlayList individual Layer Letters can be Soloed, or muted, as well as the whole track. Solo has priority over Mute.

Layers in the PlayList
Layers are added into the PlayList as a Sub-Sequence where different Layer Letters can be removed and Bar Steps repeated many times. Recording into this Sub-Sequence will add a new Layer Letter at the proper position. Access by hold [LAYER n] QB and selecting a Sequence#. Double-click in the BA column to add steps or edit the number of bars in a step. Scroll extreme left in grid to edit a step's FX. Unfortunately the rest (Step FX etc.) is beyond the scope of the Quick-Start! Please see the User manual.

A word on Song Swing & FX...
The [:SONG FX:] Quick-Box function SWING:nn will also modify the swing of Layers (and TRAX if the clock is *2). This is to simplify controlling Swing from the panel or a CV input and keeps things sounding great!
Song FX MIRROR, SCALE & LIMIT can also apply to Layers. TRANSPOSE:nn QB applies to all

III.   Playing:

There are 3 main types of sequences to play, the TRAX trackers, MIDI Layers, and of course a MIDI Song. Each has it's uniqueness and nuances in the way of pitch, timing and FX.
To start sequences playing you only need to hit the "P" button, but, depending on your clock source, rate, and initial state, starting to play the sequence varies. Any track ARMED in the Play List will play but tracks armed while playing will revert to their original armed block after a Stop condition (Button or no clock)

Clock input
If you like to use 1/8 time clocks, then the [CLOCK:/nn] QB could be set to /1 or /2, but if you have higher rate clocks, you can up the divisions accordingly. Pressing the "P" button with no clock will arm to Play.   *Under the [CLOCK:/n] QB is self-clocking BPM settings. CLKout jack will output this clock.*

 It's always a good idea to do a test Play for a bar or two so the Sequarallel can sync up, or else the first few notes may jump to meet the "unknown" clock rate. Once set it'll be OK for the rest of the day!
If the clock is removed, the Sequarallel will stop. Any clock will then re-start play from the beginning.
If using internal clock (self) then BPM will be set to last known rate from project or a clock input.
The Sequarallel's base clock rate assumes 1/4 note timing, i.e. @/1, 500mS pulses = 120 BPM

Clock Output
If your clock source is MIDI or Self clock (under **[CLOCK:/1]** QB) then the Clock Out will provide a source for other modules. In any other case, this jack can be configured to be a CV input.
                      Settings for CV I/O are under the [MIDI PUSH] QB: CKO MODE:CLOCK OUT,CV IN, AUTO

MIDI Clock vs. Clock in
If you are using a MIDI clock (i.e. to sync Sequarallel with DAW or MIDI hardware/sequencer), then decide to switch over to modular clock, the two clocks should be fairly close or there will be a big shift in the beat. Modular clock will take control once alignment is achieved.

A.   (Playing) A MIDI Song

To Load and Play a MIDI Song, scroll to the [SONG:nn] Quick-Box, click, and dial in a Song# to load.
Press the "P" button to begin playing. *(or hold to get under [SONG:nn] and double-click a Song Name to load!)*
If a clock is running into the Sequarallel, play will begin at the next "1" count after "P" is pressed.
             The Sequarallel keeps track of clock count even while not playing so will sync up properly!
To start the Song playing with the first clock, press "P" to arm to play. Start your clock.
To start the Song with a MIDI clock, press "P" to arm before the MIDI clock begins. Play MIDI.
To start the song with internal Clock (under [CLOCK:/1] QB) just press Play button.
Press the "S" button to stop play.

Song Loops
A Song can be divided into up to 17 Loops. This can be done in the [LOOP:ON] Settings.
1) Press and hold [LOOP:ON] QB and scroll down to below →MARK NOW to LOOP2:ADD
   LOOP:1 will show size of loop in bars starting at bar 1
2) click LOOP:2 ADD to add a loop between LOOP:1 and the end and set to 5. Press "P" button to play
   Now LOOP:1 SIZE will be 4 bars (5-1=4). Playing will play selected loop to audition while selected.

In the [PLAYLIST], these loops can be added as blocks and arranged in any order under the "SO" track.
For more on the PlayList see part D of this section.

Song FX
Each loop / block can have one of 17 FX modifiers assigned to it using the [SONG FX] QB while it's playing or looping, or in the PlayList at any time. An FX# assigned from the [SONG FX] QB will become the default FX# for that loop when opened for editing in the PlayList. At that point any other FX# can be assigned to that block so FX can be used interchangeably. See Section V. A. for more on Song FX.

Reset TRAX and/or Layer with Song Loop Editing FX
If you enter the menu under the [LOOP:ON] QB, the top entry is SONG LOOP:xxx. While loop is on, the progression of the Song track in the PlayList is halted, but TRAX and LAYER tracks can be opted in to do the same.
This setting is "Both" by default… on the other hand you may just want to hold the Song Loop while other tracks progress. *Note: Layer Blocks will hold in Play List, but Layer Bar Step Sequencer will continue…*

B.   (Playing) A TRAX Tracker Sequence

The 5 TRAX trackers can each have up to 8 different sequences to arrange in the PlayList. Up to 5 sequences can play at once. Each sequence can use it's own MIDI & LINK output channel and Gate+CV output or row combination. Double Clicking a TRAX block in th PlayList will arm it to Play Next.

Assuming a TRAX QB exists, press and hold on [TRAX:n] to select a letter (TRAX sequence) and enter the sequence editor grid.
                         Click to toggle to horizontal. Scroll right to enter into pop-up QB's.
If this sequence is the first (A) of this TRAX# then it will play while in the editor, regardless of not being in the PlayList yet. If not playing, then scroll right into pop-up and down to [SOLO+PL]. On:
1st click: Will Play exclusively along with all other tracks in the PlayList. The PlayList will progress.
2nd click: Will Solo this TRAX so all other tracks are muted
3rd click: Will return to normal PlayList progression where it would be normally.

To add blocks to the PlayList, scroll to [+PLIST+] and click for every block you wish to add. This will create a group on it's own if the Letter is new. These can be joined with the other sequences of this TRAX number in the PlayList Editor. Double-click cell and select **[++ADD NEW++]** or **[+INSERT]** or **[-REMOVE]**

TRAX Settings
Hold encoder down on [:SETUP:] to make Settings for this TRAX Letter. It's important to make these settings when creating the first TRAX Letter (A) as all following Letters created will use these settings as a default. Afterwards, these settings can of course be tailored for each Sequence. Here's a guide to Setup:

►BOTTOM: This is the first step of the sequence. This can be changed by PlayList FX.
►SIZE: This is the Size of the sequence in steps from 4 to 64. Default is 16 steps
►CLOCK: This is clock div/mult, compared to master clock, from /96 to *8. Default Clock is *2
►MINIM BARS: This sets minimum bars (4 beats) this will play in the PlayList. Default is 1 Bar.
►MAXIM BARS: This sets maximum bars that will play before resetting to start. Default is FREE (none)
►CV GATE OUT: Select a CV Row, or all 4 for multi-lane Steps, or none. Normally you will want to set as
                         Row 1-4 for one TRAX#, but if using single lane then perhaps single row is better!
                         CC 5&6 will output notes from any lane (left to right) with CC5=Gate, CC6=CV.
►VEL OUT: This is output to VEL Jack(s). If you want VCA note control then leave at VELOCITY.
                         Set to Envelope:1-4 to output a triggered envelope on these TRAX notes.
                         Set to None if you plan to use the VEL output for MIDI2CV or LFO Envelope etc.
                              Keep in mind that other TRAX #'s could clash with Gate/CV/VEL settings made here
►MIDI OUT: Panel MIDI Channel this TRAX will use. 1-16, none, or MPE Zone 1/2. (1-4)
►LINK OUT: Link MIDI Channel this TRAX will use. 1-16, none, or MPE Zone 1/2. (1-4)
►GLOBAL REC: Channel used to record into all TRAX trackers. 1-16 or All
►BRIDGE MAP SIZE and Bridge Map:
                         Bridging is to connect Gates while CV changes. The size can be 3 steps to 16 steps.
                         The bridging sequence steps are turned on/off by selecting a step box and clicking it.
                         Bridging steps has no affect on MIDI output (MIDI notes can't bridge)

TRAX Note-FX
Note-FX are FX modifiers applied to each note to affect the way a note in a step will play or affect following notes and the sequence in general. There are up to 8 Note-FX (1-8) per TRAX Letter.
To add a Note-FX to a note there are two ways:
-Click on [FX*EDIT] QB in the pop-up. This will show FX#'s assigned to notes. Double click notes to edit.
-Triple-Click on any note to enter it's settings and select an FX#. You can jump to the FX settings too!

Click on [FX*EDIT] a second time to see notes in grid but when selected (double click) their Note-FX# can be edited. Click [FX*EDIT] again to return to note edit mode.
                         * See Section IV. B. for more in depth look at editing in TRAX Editor.

Re-sizing a Sequence
A TRAX Sequence can be re-sized using the [X2 SIZE], [BOTT:nn], and [SIZE:nn] pop-up QB's.
[X2 SIZE]   Will double the sequence size and copy the lower half into the new upper half
[BOTT:nn]   This is the start of a sequence. You can change this to shift Play of a sequence live.
[SIZE:nn]   This sets the size (in steps) of the sequence. It can also be used while playing.
                         Bott and Size settings can be Automated. See Section VI. Automation

To better understand the Edit Functions of TRAX Editor, see Section IV. B. Editing a TRAX Sequence

C.   (Playing) MIDI Layers

Recorded MIDI Layers will be placed on the PlayList grid as a block. This block can be copied anywhere in the PlayList making it re-usable. By default, a newly created Layer # will appear near the top of the Play List, but on it's own (not immediately following another block). The position is irrelevant unless in series with another Layer Sequence or conditional block allowing flow through the Play List cells.

As mentioned in Section II. C. Layers on a Layer track form a Sub-Sequence of up to 8 Layers per block. This Sub-Sequence can be accessed by double-clicking on the main block in Play List and select LAYSEQ.

#	BR	A	B	C	D	E	F	G	H
01	02	02	--	--	--				
02	08	02	04	--	--				
03	16	02	04	08	--				
04	--	--	04	--	08				
05									

is the Layer Sub-Sequence step.
BR is how many bars in each step. This can be adjusted.
[A] - [H] are columns for each consecutive Layer created in the editor.
 Visible numbers under these are active Layers that will be played.
 The number in the grid reflects the size, in bars, of the Layer Letter.
"--" indicates muted Layers. Click to toggle each on/off.

Navigation of the Layer Sub-Sequence is similar to TRAX and PlayList. Single-click toggles horizontal or vertical cursor direction, while double-click edits the value or toggles the state.

Creating a Sequencer Progression
Before any modification after recording Layers in the Sequencer grid will reside in Step#1. Double-clicking on the "+" symbol under "BR" will add a new step with all previous Layer letters turned on.

Changing Bar Count (BR)
In the sample above, the first step is only 2 bars long. Therefore it will play Layer [A] for 2 bars then move on to Step 2. Step 2 has been changed to 8 bars (as default would be the maximum Layer size, 2). Therefore Layer [A] will play 4 times, while Layer [B] will play twice.

Muting a Layer Letter for a Step
Under Layer Letters [A] to [H], a "--" indicates there is a Layer muted. This gives control to thin out Layers into a refrain or alternate Layers as song passages often do. Step 4 has 2 Muted Layers ([A] and [C]) while Step 1 has 3. Once a Layer has been recorded in, it will appear in all active Steps.

Recording "into" a Playing Layer Sub-Sequence
When another Layer is recorded, all Sequencer Steps will contain the new Letter. The start time of the recording it relative to the step time into the present step, so if the present step is 8 bars long but you started playing after it was 4 bars in, then the step will play the same way. This solves the "early start" problem often encountered when recording into a DAW, initiating before the Loop point.

If the recording is set to longer than a Bar count for any step, that bar count will be increased to fulfill the new recording size, thus increasing the overall length of the Sequence.
Bar Counts can be turned back to original lengths but a consecutive letter in the grid will re-start a Layer letter before finished. Muting following Letter(s) will allow the longer Layer letter to play out to completion as it won't be re-triggered by the next step.

New Layer Sequences
Up to 4 Bar-Step Sequences can be created per Layer QB. A new Sequence is added when:
a) There are no sequence blocks on this Layer track
b) Any playing sequence has been disarmed (Double-click block and de-select ARMED)
Letters (A - H) can be re-used in other sequences. New Sequences can also be added to the Play List by double-clicking an empty cell, then selecting [+ADD NEW+] and scroll to select a Sequence number. This will disarm any previously armed Layer block and arm the new one as a target to record to.

MIDI Channels
By Default, Layers will play on the same MIDI Channel as recorded, thus those channels may be fed to CV MODE to output on the CV Row(s) according to CV MIDI selection. A whole row in the Layer Sub-Sequencer can be assigned to a specific MIDI Channel other than the original for that Step only. This is one of the modifiers in Layer Step FX.
Scroll to the left column (the row will highlight) and double-click to enter the FX menu.
See user manual for more on these FX.

D.   (Playing) The PlayList

The Sequarallel's main PlayList is a hybrid between old-style trackers and modern per-event controlled modifiers. It is comprised of up to 11 tracks of blocks representing Song Loops, Layers Sub-Sequencers, TRAX Sequences, and MIDI (+ MIDI Remote) Automations.

Arming Blocks to Play
Once armed to play, a track will play and continue to the next step if one exists, or loop back to the top block in that group. A series of blocks will play through and loop while an empty block on the grid isolates another group of blocks. The user can then arm different groups all at once or on single tracks to have total control over the final mix.

Double-clicking on a block or above it in an empty spot will arm that block to play when the previous block finishes. This method ensures synchronicity and simplicity in controlling how the grid plays out. A group of blocks can be armed for play anywhere in that group. This is indicated by flashing braces around the block

If there is an empty cell across the whole grid, double-clicking in the Step#'s column will arm all group below it. For this reason it's important to maintain spacing between groups if you plan to arm this way. Alternately, double-clicking on any step in the far-left column will arm all that intersects it at that step.

The last armed blocks will be remembered though, and the project will play from those points when the "P" button it pressed. This is also saved with the project.
       Note: Blocks armed during play will not be "remembered" after stop, original armed blocks will re-arm.

Adding Blocks
To add a block into any track, double-click on an empty Cell you want to populate and from the pop-up select ADD/NEW to return to the grid. Scroll to select the block letter/number you wish to add. A new block can be created if there are any left open, i.e. If there was TRAX [A] and [B] you could scroll to [C]. Once the block you want is found, click to put it into the grid.

TRAX tracks will display differently when scrolling for a block, i.e. TRAX will show a mini-layout of the sequence in a window nearby. If you scroll beyond the next open TRAX letter, you will see imports from other Song Projects and TRAX. This is a good way to copy TRAX from one track to another as well.

Solo, Mute, and Record
Select a track on any row and double-click for the po-up. Scroll to Solo, Mute, or Record and click to apply. For convenience, Looping can also be turned on/off this way from anywhere on the grid.

Importing Blocks
TRAX has an import capability to grab a block from another Song Project. Double-click a TRAX Block Letter or empty cell and select **[++ADD NEW++]** to scroll up to a new letter you want to load a sequence into. Click to exit.
Double-click the new Letter and scroll past the top Letter.
As you scroll, the mini-window will display the TRAX grid, but also the Song# and TRAX# will be visible.
If Playing, TRAX will arm this block and audition it once the previous block is finished playing.
Click to finalize once you have decided on a sequence.

Bulk Copy/Paste
A few or many blocks can be copied and pasted to a new location in the grid as a strip or region.
Double-click on the upper left corner of your proposed copy area, then "drag" the block right and/or down (click to toggle horizontal/vertical direction) to the button right corner. Double-click to copy region.
To paste, simply scroll up/down to what will be the top-left corner. The new region will hi-light but can be shrunk down vertically or horizontally for the paste. Double-click to paste.
*Note that cells previously occupied will be overwritten by new blocks, but not empty blocks.

Delete Remove and Insert Blocks
Double-click on upper left corner of delete area as with Copy above. Select DELETE, REMOVE (shifts all below it up) or INSERT to apply. FILL:nn can be set to do multiple Blocks at once.

Conditional Blocks
Double-click any cell to open pop-up and scroll to [+ADD COND] and click. Condition menu opens.
This will add a conditional block where you can set durations (in bars) or exit on certain conditions like another track stepping, reset pulse (if MIDI in not used), or external pulse on a CC5, CC6, or CKout jack.

PLFX (Playlist FX) & Block Transpose
The PlayList Blocks can have their own global FX Modifiers! Please see user manual for more on PLFX.

Blocks can also have their own +/- 12 transpose setting: double-click and select [TRANSPOSE] in pop-up.

IV.   Editing:

The Sequarallel has a few editing capabilities, primarily in TRAX, and Layer Sub-Sequence has already been covered in Section IV. C, so this section will cover TRAX Editor, the Song & Loop Marker Editor, and the Envelope Editors.

A.   (Editing) A MIDI Song

As a foreword, the actual Recorded Song can't be directly edited as that would greatly increase the complexity of the module and assumes that a song will have been tweaked in a DAW before being recorded. Applying SongFX though is the next best (better?) thing! See Section V. A. Song FX.

Song Loop Markers
There are 2 ways to add Song Loop Markers into your Song:
-Add "Special" Note 121 to the source in a DAW in Bars you want to be loop starts
-Create / edit a Marker list under the [LOOP:ON] QB:

Add Markers in DAW
If you have created the Song in a DAW MIDI sequencer, then this is a good way to get markers into a Song. Add Note #121 (C#10) into every bar you want to Loop to, up to 16, on any Channel. They are tagged during Record.

Add Markers with the Marker List
1) Scroll to [LOOP:ON] QB in the main screen and hold down encoder to enter Loop Settings
2) Scroll down to LOOP:1 ADD (or if markers already exist LOOP:nn ADD:)
3) Press "P" to start play and audition Song Loop. Moving the number will re-start play from that point
4) Click to save and Scroll down one to add the next Loop Marker. Note the SIZE:nn value (in bars)
   Any new Loops added will have a copy of the SongFX applied to first or previous loop, so it's a good idea to set your Song FX first. Added loops after the first ADD will be the same size.

Insert Markers within a list
1) Scroll to :INSERT MARKERS and click to turn on.
2) Scroll down to where you want to insert a marker and click
   All markers will shift down one and the size of marker you clicked will be equally divided with new.

Delete Markers from the List
1) Scroll to :DELETE MARKERS and click to turn on
2) Scroll down to the marker you want to delete
   All following markers will shift up one. The selected marker's size is added to the deleted one's size.

Delete All Loop Markers (to start anew)
Scroll to DELETE:ALL:SONGFX and click.
Warning: This will return the Song to one loop. All SongFX will also be erased.

Song Instruments
If the Song is GM-MIDI then there will be a list of instruments used by the Song under the [MIDI PUSH] QB. These were placed at record time so can be modified and saved.

Song Channels / Name
Under the [SONG:nn] QB is a display of Channels used by the Song. These can be disabled here, but more dynamically with Song FX. There is also a method to name the Song Project + load Songs by name. Simply click the Song you want to re-name, scroll to the letter and click to edit it, click to exit to another. To exit and save the Song Name, scroll off of the name to the right past the end of the screen.

Song FX!
An easy and fun way to manipulate the Song, once Loops have been sorted out, is the [:SONG FX:] QB. This feature allows manipulation of the Song Loops in bulk, and can have striking results very quickly. Each of the 16 Song FX's have their own internal mask sequencers (16) with a variety of modifiers to FX set in the QB drop-down. They conveniently line up with Loops created, but can be used interchangeably by any Song Loop. See Section V. A. Song FX for more.

   *SongFX applied to a Loop beforehand will also be applied to following Loops created immediately after it

B.   (Editing) A TRAX Tracker Sequence

The TRAX trackers are the most "similar to modular" sequencers in the Sequarallel. There are 5 main trackers that can play simultaneously, and each has 8 sequences to be selected and used in the PlayList. Each of the 40 has it's own NoteFx bundles (8 each) and Settings.
When a new TRAX Letter is created, the *Settings* are duplicated within the same [TRAX:n] QB.

The TRAX QB (in main screen) drop-down has some easy to access per-quick-box settings when clicked:
TRX SOLO   To solo all sequences within this TRAX QB
TRX MUTE   To mute all sequences within this TRAX QB
LEVELS:--   To set overall velocity limit for this TRAX QB
SWING+/-nn   To set a swing for this TRAX QB. (Has menu, see TRAX Editor pg. 15)
MIRROR:nn   Set a Note Mirror point for all sequences in this TRAX QB (*Has settings)
SCALE:xx   Select Scale Maj/min/Maj7/min7 or User 1-4 which can be edited under SCALE:xx QB.
LIMIT:>/<nnn   Set maximum or minimum note for all sequences in this TRAX QB
TRANS:+00   Set a transpose value for this TRAX QB.
-RECORD-   Turn on/off TRAX record mode for all sequences in this TRAX QB. Settings under this QB.
TRX ERASE   Clear presently playing sequence in this TRAX QB (shown if not last TRAX)
:DELETE: (In last TRAX QB) Removes this TRAX QB and deletes all of it's sequences
:EXIT: Exit TRAX QB Drop-down. *Can be exited from TRAX:EDIT at top too!*

Enter TRAX Editor
To access the trackers for editing, press and hold the [TRAX:n] QB, which will show [TRAX EDIT].
Choose a Sequencer Letter [A] [B] etc, to enter the Sequence, or:

EDIT NAME   Turn on to change the name(s) of a sequence(s) as follows
                1) Click on the TRAX Letter Name you want to Edit and hi-light a letter to edit
                2) Click to edit the name's letter, scroll up/down
                3) Click to edit another letter, and so-on
                4) Exit & Save the name by scrolling through the name past the end of the screen
                        Remember to turn off EDIT NAME to enter the TRAX Editor

TRAX ADD?   Add a new empty sequence Letter. Settings are copied from the previous.

COPY FROM   This is to clone one TRAX sequence into another. A new Sequence can be created, or
                an existing one overwritten. Select source Letter, then destination Letter.

Side Notes:

TRAX Scale vs. SongFX Scale:
the 4 TRAX User Scales (in TRAX QB drop-down) are unique to TRAX Trackers. The Song FX scales can be copied into TRAX if desired (under the [SCALE:xxx] QB) but SongFX can also apply it's scale to TRAX, Layers, or both which is more flexible.

TRAX Swing:
This swing setting adds or subtracts from the SongFX swing setting. Because TRAX doesn't have to be clocked at x2 (default) the results will vary, or be interesting. TRAX swing goes into negative side also. The SongFX swing→TRAX swing / nulling relationship is not linear.

Under the TRAX Swing QB there is a variable sized sub-sequencer that can mask the swing on certain steps, check it out!

TRAX Mirror and Transpose:
These can completely change the melody of a sequence but will also modify Drums (yes! the drums channel is not blocked here!) so can easily switch percussion in new and strange ways.
These can be controlled with a PLFX or assigned to be remote controlled with CC's or Notes.

Under the Mirror QB one can set Low and High Limits to the Mirroring of notes. See User Manual for a more in-depth look at Mirroring.

The TRAX Editor

The TRAX editor can sequence up to 64 steps with up to 4 lanes of notes per step. Ideally this matches the 4 rows of jacks on the panel, which can be assigned in the [SETUP] QB in the pop-up.
First a quick break-down of the TRAX sequencer grid.

The first column, little rectangles, displays the Note-FX mask cycle.
The numbers next to that are the Steps. 8 steps can show at once.
The next 4 are thhe notes in 4 lanes. At the top (not shown here) you'll see the Header "**NOTE1 NOTE 2 NOTE 3 NOTE4**". Also called lanes.

The notes are displayed as classic Note and Octave number, but if you are accustomed to HEX values, this can be changed in main [SETTINGS].

   Navigating the grid is the same as when in the PlayList where Horizontal and Vertical cursor direction is toggled with a click of the encoder. Scrolling to the Step numbers column will allow entire row to be selected at once.

Adding a note
Double-click anywhere on the grid and scroll through the notes. If not playing, the note, then other notes in the step, will be heard as you select. Click to exit and set the note.
To transpose up/down all existing notes in a step, scroll into the Step# column then double-click, scroll.

Editing a note
An easy way to access basic settings for a note is to triple-click it. A menu will open with the following:
►NOTE:nn   This is the MIDI note number i.e. C3=36
►VELOCITY:nn This sets the Note's velocity. Also called Note Level.
►DELAY:0:nn   This sets the notes delay in 24th's of a beat at 2 ticks resolution (at 24PPQN)
►LENGTH:n:nnThis sets the note's length in ticks. 0:24 is one full step. 8:00 is 8 steps long.
►FX SEL:n   This selects a NoteFX bank to use for the note. 0 = none.
►FX:EDIT>   This jumps to FX*EDIT if FX SEL is not 0. See Section V. B. for info on Note-FX
                    Hold the encoder to exit, like any other menu or list

The Pop-Up Window
There is an easier more global way to Edit the basic parameters of notes in the pop-up.
Scrolling to the right, past the 4th lane will open the pop-up window with editing controls, and enhancements to assist in building a sequence. These QB's are:
-- Sequence Arrangers--
COPY   Turn on to Copy area of the grid. Also creates a Recall (undo) backup ～
                     Once a Copy is executed, this switches to PASTE also hi-lighted. (See below)
SKIP:n   Set Fill to skip every 2nd, 3rd, 4th step hi-lighted. Works with all adjusters, Copy/Paste
FILL:nn   Selects number of steps to edit at once. Automatically on with Copy/Paste.
SHIFT+-   Shifts all lanes or a single lane (over Fill/Skip range or entire sequence) up/down ～
:DELETE   Deletes notes from the grid. Can be used with FILL and SKIP. ～
-- Note Modifiers --
SCALE: Applies selected Scale to notes hi-lighted on the grid with Lane 1 as the Root ～
RANDOM:n   Applies Randomization amount to notes selected on the grid ～
DELAYER   Click to show/edit all Note's delays. Click again to hide Delay unless notes selected～
LENGTH: Click to show/edit all Note's lengths, click again to hide lengths unless notes are selected～
LEVELS: Click to show/edit all note's levels, click again to hide levels unless note selected. ～
FX*EDIT   Click to show/edit all note's NoteFX#～
-- Sequencer Settings-
-RECORD   Click to toggle on/off Record function for recording notes and Remote CC controls
X2 SIZE   Click to double the sequence size and duplicate lower half to upper half.
BOTT:nn   Sets the Start (bottom) Step of the Sequence.
SIZE:nn   Sets the Size of the Sequence.
SOLO+PL   Click to lock TRAX Play to this Sequence Letter. Click again to Solo this sequence
+PLIST+   Click to Add this sequence to the Playlist. 1 block added per click.
:SETUP: Press and hold to enter Setup Menu for this TRAX Sequence Letter (see next page)
RECALL   Press to Recall sequence to entry state or last COPY state.
:EXIT:Let   Exit TRAX Editor. Holding encoder anywhere on the grid also exits.

(～) **Can be used with FILL and SKIP**

SCALE:
Scroll →right through the grid into the QB pop-up and down to [SCALE:] to access editing of the 4 TRAX
User Scales:
TRANSPOSE:+nn   Select +/- note offset for this TRAX QB
COPY FROM SONG FX: Copy All User Scales from Song FX:1-16
SCALE EDIT:n   Select a User Scale to edit
 [C][D][E] . . .   Toggle keyboard notes to include in scale

:SETUP:
Scroll right through the grid into the QB pop-up and down to [:SETUP:] to access this TRAX number's
Global settings and the TRAX Letter's unique settings. Press and hold to enter the list.
See Section III. B (Playing a TRAX Tracker Sequence) for a re-cap on TRAX Setup.

SOLO+PL
As mentioned above, the first click will pause progression of all tracks in the Play List as does the
[LOOP:ON] QB in main screen. This is useful when editing a Sequence that is already in the Playlist in
series with others, instead of waiting for this partical sequence to play. The cursor moving down the Steps
will indicate that the TRAX Letter show in the editor is playing.
Pressing [SOLO+PL] a second time will solo just this TRAX# and Letter. Pressing a third time will return
play to normal.

SWING MASK ([SWING+/-nn])
The Swing Mask in TRAX is a way of "softening" the mechanical sound of a tracker sequence and making it
sound more human. It works especially well on percussive sounds as the variation is more noticeable.
When the Map is masking a tracker step from the swing, the swing value is ignored so that step has no
swing. When swing is into the negative side, the swings reverse.
TRAX swing only works at Clock multiples (i.e. Clock x 2, x 4) because it uses the multiplier timing rather
than the input clock timing which remains constant, hence, no swing.

To access the Swing Map, select a [TRAX:n] QB from the main screen, scroll to [SWING+/-nn] and hold.
This menu is here as applies to all Letters in this TRAX. A unique feature of masking swing steps with a
sub-sequence makes this a worthwhile addition to the TRAX arsenal.
AFFIX TO SONG FX: Yes:This TRAX will also be "swung" by the Song Loop's Swing setting
SWING:+/-nn   Swing can be set here as in the QB
SWING MAP SIZE:nn   Adjust Size of the mask sequence
[1][2][3] … [15][16]   Toggle Swing enable steps on/off

C.   (Editing) An Envelope

Each Song Project can house up to 4 custom Envelope waveforms. These waveforms can be triggered by PlayList events, Beats, Bars, Loops, Sequencer Notes, MIDI channels, or free-running as an LFO. The waveforms can be then routed to CV outputs (CC1 to CC6) or any MIDI CC / PW / AT on assigned channels, directly or though selected CV MODE channels.

There are 3 types of Envelopes:
ADSR: (AHDSR with delay) solely on the positive side to envelope filters or VCA control
CV DRAW: Waveform recorder through CV input CC 5 to be used as triggered shape or LFO
PARAMETER: A parametric creation tool for useful wave shapes by entering values.

The Envelope Quick-Box
In the default layout, the Envelope QB can be found under the [TUNE:+nn] QB before Layers and TRAX.
Click the [ENVELOPE] QB to open drop-down to select different editors when encoder is held down.
A Quad view of all 4 envelopes will display. Scroll to select and enter the editor you selected.

  ENVELOPE: Displays default settings for selected Envelope:
    ►ENV SIZE: n:nn   Set duration of Envelope in Ticks (1/24th quarter note @ 24PPQN)
    ►TRIGGER: xxxxx   Set a trigger source: None, PlayList block, Bars, Beat, Clock, MIDI Channel 1-16,
                             CV MODE (channel's notes), Free Running (LFO)
    ►CV OUTPUT:xxxx   Set Envelope default output: None, CV MODE (VEL jacks), CV Outputs CC1 to CC6
    ►MIDI OUT:xxxxx   Set MIDI Output Type: NONE, CC#0-127, Pitch Bend, After Touch
    [1] [2] ... [15] [16]   Select MIDI Channels for MIDI OUT. Select / push to toggle on/off

  ADSR EDIT: Create an AHDSR Envelope waveform using poles and curves. The Editing Buttons are:
   [POLE] Click to select a Pole to move. Start | Attack | Hold | Decay | Sustain (H) | Release
          Click to Move Pole. Click to exit back to over head buttons.
                    Note: Sustain requires also a vertical Position so will take one extra Click to exit
   [CURV] Click to select a Curve to adjust. Attack | Decay | Release
   [SET]   Click to Send the Envelope via outputs defined in [ENVELOPE] settings (above)
   [EXIT] Exit and return to main screen

  CV DRAW: Use CV Input on CC6 to draw a waveform. The Editing Buttons are:
   [TRIM]   Trims down a waveform to smoothly loop as a LFO waveform. Timing remains same.
   [UNDO]   Recall last captured waveform from temporary memory if TRIM result is undesirable.
   [REC]   Turn On constant Record CV. Click again to save the last full screen recorded.
   [EXIT]   Exit and return to main screen
 (Hidden Function): While Recording, scroll left/right to change the scan rate for slower or faster window.

  PARAMETER: Create a waveform for Envelope or LFO using parameters selected and scrolled up/down.
                    These controls are live updated and the adjustment value remains in place overlaid:
 ►PHASE: nnn   The phase angle to start the first sine wave from 0 to 358 degrees
 ►FREQUENCY:nnn   Adjust the primary sine wave from 1/2 cycle to 9 cycles
 ►FREQUENCY RAMP:n Adjust ramping of frequency upwards or downwards. Negative side will wrap.
 ►AMPLITUDE:nnn   General size of waveform. 1 to 100. 50 is full size, so >50 causes clipping.
 ►AMPLITUDE RAMP:n Ramp Amplitude upwards or downwards from starting Amplitude.
 ►OFFSET:nn   Adjusts general waveform offset -50 to +50 (bottom to top, 0 = centered)
 ►OFFSET RAMP:nnn Adjusts offset to raise waveform or keep bottoms even or clipped. -127 to +127.
 ►WAVE STEP:nnn   Adjusts "blockiness" of waveform for glissando effect or CV sequence. 0 to 255.
 ►MIX MULT BY:nn   Set Multiple of Sine wave to Mix with original. 0 = off, 1X to 127X
 ►MIX LEVEL:nnn   Set Level of Sine wave Mix. -127 to +127, 0=off. Negative value inverts phase
 ►WAVE FUZZ:nn   Put random fuzz onto waveform. 0 to 50 (about +/- 12%)
 ►BI-POLAR:YES   Select for bi-polar +/-5 Volts, or NO for 0 to 5V only placing 0V at screen bottom.
 ►TRIM   Trims waveform to loop well as a LFO. To Undo, simply adjust any parameter.
 ►:EXIT: Exit / save this waveform

Any waveform can be set as an LFO, or triggered by notes or events, and has a timing range based on the present BPM (up to 8 beats long) so can be easily sync'ed with playing sequences.
To trigger with MIDI Notes, set TRIGGER to CV MODE to use notes on it's channels to the CV jacks, which will output the envelope on the row(s) VEL Jack(s)....or TRIGGER can be set to MIDI CHANNEL:1-16 which will output from the CV CC1 to CC6 Jack yo select in MIDI OUTPUT.
TRAX has a facility to combine velocities with envelopes. See TRAX Settings.

V.   FX

"FX" can be regarded as autonomic MIDI control modifiers (CC), internal parameter changers, and sub-sequencers to mask or enhance these controls. FX Generally come in bundles that can be configured then re-used multiple times, streamlining application.
Song FX, TRAX FX / Note FX, Layer FX / Step FX, Play List FX, and Automation can all modify the way sequences play and are intertwined through internal, modular I/O, and the MIDI realm.

A.   Song FX

Song FX has it's own Quick-Box in the main screen and applies to the Recorded MIDI Song but can also be used with a dummy Song with it's empty loops to apply some FX to other sequencers, TRAX and Layers. There can be up to 16 Song FX sets, each with numerous modifiers to change the way a Song sounds.
If the [:SONG FX:] QB is clicked while the song is playing, the progression of the song and PlayList will be held as if the [LOOP:ON] QB was selected. The FX adjustments will be applied to this playing Song Loop.

The QB is a "drop down" type that scrolls through unfolded QB's related to Song FX as follows:

:SONG FX:	Click to enter the drop-down for Song FX, or hold to enter main FX controls for this loop
S:SOLO	Toggles the Song sequence into and out of the Solo group. Leaves an "**S**" in the QB.
S:MUTE	Toggles Muting of the Song sequence. Leaves a small "**x**" in the QB
SWING:+nn	This controls the amount of swing this Song Loop will have.
SCALE:xxxx	This applies a scale quantization of the entire Song. Maj/min/Maj7/min7/User 1-4
LIMIT<>nnn	This sets a note pitch limit to below (<) or above(>) set Note number
QUANT:OFF	This quantizes the timing of notes to 1/4, 1/8, 1/12, 1/16, 1/24, or 1/32 points
LENGTH:nn	This is a note length attenuator control in % from 1 to 99% of original lengths.
LEVELS:nn	This is a note velocity attenuator 1-99% and +1 to 50% increase
FX-SEQ:n	Select an FX Sub-Sequencer (below) 1 to 4
FX-MOV+n	Shifts the Sub-Sequencer in MIDI Ticks (1/24 of quarter note @24PPQN)
MIRROR:nn	Mirrors notes above and below the set note number.*Under this QB: Settings, see TRAX FX)*
:EXIT:	Exits the Song FX QB. Clicking on :SONG FX: will also exit.

Some of the Song FX QB's above have menus behind them (press and hold to enter→), these are:
:SONG FX: →Settings:
►PL:0 LOOP:1 FX:<u>1</u>	Select which FX# this Song Loop will use. Initially it matches the Loop number
►FX EDIT:COPY	Copy and paste FX numbers from other Loops, or this one for others
►FX TRANSPOSE:+nn	Transpose offset for this Loop +/-48 semitones
►MINIMUM LOOPS:nn	Sets minimum times a Song Loop with this FX# will play.
►MAXIMUM BARS:nn	Limits the number of bars/measures this Loop will play before looping/exit
►:EXIT:	Exit this menu back to :SONG FX: QB. Does not exit the QB to hold looping.
[1] [2] … [15] [16]	Turns off/on MIDI channels in song (same as muting but per channel)

SCALE:xxxx →User Scales
►APPLY SCALE TO:	With this FX, also sets Scale Quantize for TRAX, Layer, All
►SCALE DRUMS?NO	Option to apply Scale Quantization to assigned Percussion MIDI Channel (10)
►SCALE EDIT:n	Select which User Scale to edit (1 to 4) with keyboard below
► [C][D][E][F] …	One octave "keyboard" to add/remove notes from scale

FX-SEQ:n →Sub-Sequencer Modifiers
►FX_SEQ SELECT:n	Select which Sub-Sequence to edit, 1 to 4. Parameters will change
►RE-TRIGGER?NO	Sub-Sequencer step (on) will re-trigger any notes already on to add it's cadence
►DRUMS TRIGGER?NO	Re-trigger notes (drums) on assigned Percussion Channel, Applies to CV's also
►+ 1 OCTAVE? NO	Adds an octave to all notes when Sub-Sequencer Step is on
►VELOCITY LOWER:nn	Drop Note Velocities when Sub-Sequencer Step is <u>off</u>, ducking effect
►KILL MIRROR?NO	When on this removes Mirror FX when Sub-Sequencer Step is on
►NOTE LENGTH:nn	Changes Note's lengths when Sub-Sequencer Step is on. 1 to 150%
►NOTE LIMIT:nnn	Switches in a < note limit when Sub-Sequencer step is on. 1 to 127.
►STEP:TIME:n/n	Sets timing of steps as 1/32, 1/16, 1/8, 1/4, 1/2, 1/1 (bar)
►FX_SEQ:SIZE:nn	Sets size of Sub-Sequence 3 to 16 steps.
[1] [2] [3] … [15] [16]	Toggles Song-FX Sub-Sequence Steps on or off

* For more on Song FX and Sub-Sequencer, please see the User Manual.

B.   TRAX FX

TRAX Trackers have two types of FX, TRAX Global, and NoteFX. TRAX Global FX modify a single TRAX number but all of it's "Letters", no matter which is playing.
Only one TRAX Letter (A, or B, etc) can play at once, but each of these trackers can be completely different, each with 8 unique NoteFX bundles to apply to selected notes in the sequence. Continue to the next page to learn about the TRAX NoteFX .

To access a TRAX drop-down, Click a [TRAX:n] QB, then scroll down to:

S:SOLO	Toggles the Song sequence into and out of the Solo group. Leaves an "**S**" in the QB.
S:MUTE	Toggles Muting of the Song sequence. Leaves a small "**x**" in the QB
LEVELS:--	Sets overall Velocity Level Limit. This is not an attenuator but a limiter for TRAX.
SWING+nn	Sets True Swing of this TRAX Tracker. Plays best at Clock*2 (1/8th's), *has Menu (below)
MIRROR:nn	Mirrors notes above and below the set note number.*Under this QB: Settings, (see below)
SCALE:xxxx	This applies a scale quantization of this TRAX. Maj/min/Maj7/min7/User 1-4 (see below)
LIMIT<>nnn	This sets a note pitch limit to below (<) or above(>) set Note number.
TRANS:+nn	Adjust this to offset (transpose) all Layers +/- 48 semitones.
RECORD	Turn on Record for this TRAX QB (All Letters) *Under this QB: Record Settings, (see II. B.)
DELETE	Remove this TRAX QB. Only on last TRAX QB, or will show:
TRX ERASE	Erase presently playing TRAX Letter (RECALL in TRAX Editor may be able to bring it back)
:EXIT:	Close drop-down. Clicking at the top of drop-down (TRAX EDIT) will also exit.

SWING+nn → Swing Mask
The TRAX Swing can reverse swing (on negative side) with a range from -99% to +99%. The is far beyond the usual 50% and will offset the main (SongFX) Swing if active. Under the [SWING+/-nn] QB is a Swing Mask Sequencer, exclusive to TRAX.
> *Note: Swing does not work with non-multiplied TRAX clocks (/x) as is always on the beat when set that slow.*

Hold QB to open the settings for Size of the Mask Sequencer, 2 - 16, and up to 16 blocks to turn on / off swing steps. The clock for this sequencer is the same as this TRAX Button's Clock.

MIRROR:nn →Settings
Upper and lower limits to Mirror's range can be set, along with octave-only selection (6 notes!). Under the Mirror QB you'll find the following settings:

MIRROR:nn	This is the same as QB, adjust here conveniently
MIRROR:STEP:OCT:NO	If set to YES, will step in octaves which are 6 notes (reflection 6+6=12)
LOWER LIMIT:nn	Original Notes below this point won't mirror
UPPER LIMIT:nn	Original Notes above this point won't mirror

SCALE:xxxx →User Scales

►TRANSPOSE :	Set Transpose notes offset +/- 48 (same value as QB in drop-down)
►COPY FROM SONGFX	Copy selected User Scale from *presently Playing* Song FX Scale to TRAX Scale
►SCALE EDIT:n	Select which User Scale to edit (1 to 4) with keyboard below
► [C][D][E][F] …	One octave "keyboard" to add/remove notes from scale

TRAX NOTE FX

Any single Note in any Step of a TRAX Sequence can have FX applied from 8 bundles in that tracker. This is a guide to NoteFX settings and what they do. Hold [TRAX:n] QB, then select a TRAX Letter (A) to enter the TRAX Editor. We'll add a few notes then apply various affects to one of them for clarity.

1) Double-click to place a few notes around the grid.   * If this is a new TRAX# or Letter then MIDI=Chan.01
2) Press "P" button to play the new notes on the grid.
3) Triple-Click a note you would like to add some FX to, then scroll down to ▶FX SEL:n
4) Click and scroll to change to FX SEL:1. Click to set then scroll to FX 1 EDIT▶ and click to enter FX EDIT
          * [FX*EDIT] can also be accessed from grid by scrolling right into pop-up QB's to FX*EDIT and hold.

NOTE FX TRAX:1 A   .

TRAX EDIT FX:1	Selects which NoteFX bundle to edit. 1 to 8
COPY FROM T:1:A FX1	This is to copy from another TRAX # and Letter in the Song Project.
RANDOMIZE:	Select a modifier or FX to add randomness to:

NONE:	**No Random control**
GLIDE:n	**Up to full +/- randomness to Glide Rate**
CC#--/CC#--	**Up to full +/- randomness to MIDI CC#-- value**
MICRO ARP	**Adds randomness to Echo/Chop Micro-Arp Sequencer's start point**
VELOCITY	**Randomizes Velocity of note by +/- 32**
DELAYER:	**Randomizes Note Delay up to full range (22 ticks)**
LENGTH:	**Randomizes Note Length up to +/- 8 ticks**
CHOP/ECHO	**With Echo randomizes Feed, with Chop (ratchet) randomizes count**
FINE TUNE:	**Sets Pitch Wheel up or down 1 semitone (100 cents)**
MIDI PAN:	**Randomizes MIDI Panorama (left/right) for this step.**
SOLO DUCK	**Solo's this TRAX Number over other TRAX for just this step. No affect on Song.**
BRIDGE	**Random placement of gate bridges (no affect on MIDI)**
SKIP NOTES	**Randomizes Probability setting by up to 50%**
REPEAT	**Repeats last step. Warning: may set sequence out of sync**

RAND RANGE:n	Intensity of randomness 1 to 8
ECHO:REPEAT:n	Turns on Echo Mode, sets number of echoes of note. Chop turns this off.
ECHO:FEED:nnn%	Echo level to next echo, from 1% to 150%
ECHO:TIME:n:nn	Time echoes are spaced apart as Steps : Ticks (i.e. 2:12 is 2.5 Steps)
CHOP:MULT:OFF	Set Chop Multiplier (Ratchet) 1-8 repeats per step. Disables Echo Repeat.
CHOP:CURVE:OFF	Set curve of Chop timing -15 to +15.
MICRO ARP=s +n	Echo/Chop Arp Offset Sequencer. "s" is starting step, "n" is +/- notes offset
MIDI PAN:+n	MIDI Panorama for this Note/Step -64 left to +63 right, 0 is centered. (*)
INSTRUMENT:nnn	MIDI Program Change selects a different instrument (must be set back)
FINE TUNE:+n	MIDI Pitch Wheel +/- semitone, CV semitone offset. (*)
GLIDE:n	Glide Start note. If 0 then uses last note on channel. CV Glide.
GLIDE RATE:nnn	Speed of Glide to next note. MIDI full range, CV matches MIDI width setting.
CC#:nnn TO nnn	Set 2 MIDI CC Values for this note/step only. (*)
NOTE PROBABLTY:nnn	The probability of this Note and it's FX occurring. 0 to 100%
FX MAP SIZE:nn	Sets the Size of the FX Mask Sequencer.
FX MAP STEP:/1	Normally the Mask steps with TRAX steps, increase this value to step more slowly
[1] [2] [3]…[15][16]	Toggle FX MAP on/off. Hi-lighted step enables FX.

          * MIDI MPE allows division of MIDI FX to single notes while non-MPE affects entire Step.
          * For more in-depth look at TRAX Note FX, please see the User Manual

Notes on TRAX NoteFX

Micro-Arp can be applied to notes with this NoteFX# assigned to them without actually Echoing notes by turning on Echo but applying no Feed. This is useful when
a) being controlled via a PLFX: Some notes in the tracker will transpose to micro-arp step set by a PLFX
b) being controlled via MIDI/CV Remote Notes/CC/CV to transpose notes in grid
c) using Randomize:Micro-Arp to randomly change some notes in grid.

Probability setting decides whether a note with applied NoteFX# will play, while the FX MAP (mask) will still allow the note to play, but not apply any FX to it. As Randomize:Skip Notes varies probability, this can also cause notes to disappear. This is best used with steps that contain chords!

Chop Curve setting (+/-15) will also have an affect on Echo timing (slow to fast, or fast to slow).

"Copy From", if accidentally clicked, can be adjusted to the present NoteFX (or left alone) to prevent any work on the present FX getting overwritten.

C.   Layers FX

Layers Created by playing in sequences have a few Global (per Layer QB) FX, PlayList controls, and some FX imposed by the Song FX options (i.e. Apply to: Layers) which span all Layer QB's.
The Layer QB Global FX are Time Quantizing, handy for "played in" sequences, Level and Length, affecting all Layer Letters in the selected QB, Scales which can be taken over by Song FX, and Density, a random note plucker to "thin" out the number of notes.

These settings can be accessed by clicking on a Layer QB for a drop-down, and scrolling down.

LAYER 1	Click to enter the drop-down for Song FX, or hold to enter Layer Loop Step Sequencer
L RECORD	Click to set Record Bars (measures) and arm to Record. *Under this QB: Record Settings
S:SOLO	Toggles the Song sequence into and out of the Solo group. Leaves an "**S**" in the QB.
S:MUTE	Toggles Muting of the Song sequence. Leaves a small "**x**" in the QB
APPEND	Toggles Layer Recording Append Function to allow doubling of set record bars size.
LEVELS:nn	This is a note velocity attenuator 1-99% and +1 to 50% increase
QUANT:OFF	This quantizes the timing of notes to 1/4, 1/8, 1/12, 1/16, 1/24, or 1/32 points
MIRROR:nn	Mirrors notes above and below the set note number.*Under this QB: Settings, see TRAX FX)
SCALE:xxxx	This applies a scale quantization of Layers. Maj/min/Maj7/min7/User 1-4
LIMIT<>nnn	This sets a note pitch limit to below (<) or above(>) set Note number
TRANS:+nn	Adjust this to offset (transpose) all Layers +/- 48 semitones.
KILL LAST	Click and select "YES" to delete previous recording, can be used repeatedly.
REMOVE	Delete this Layer QB (Only the bottom Layer QB can be deleted)
:EXIT:	Exits the Song FX QB. Clicking on :SONG FX: will also exit.

L RECORD→Settings
There are some settings exclusively for recording in this Layer QB.

BARS:nn	Set Loop Size in bars (measures) just like in the QB when arming for recording
REC UNTIL:xxx	Stop recording & wait for more (NO NOTES) or end Record after a Loop (1-SHOT)
REC LAY MUTE	Set to YES to mute other Layers while actively recording (will un-mute after loop)
QUANT START	Unless set to NONE, start quantization realigns the start of the recording to:
	BARS: Beginning of loop size if Layer Step size bars is > loop bars (default)
	ZERO: The start of Sequencer Steps, assuming the loop start is at beat 1
CLOCK START	This will start recording just on a clock (at bar) which is useful when recording from a DAW or HW Sequencer that has no notes or MIDI CC's to start recording. (V.1.3)

Layer Step FX
Each step in the Layer Loop Bar Step Sequencer has some unique FX that can be applied.
To access the FX list, scroll left-most to the step number. This will highlight entire row. Double-click to open FX list.
This list of options is as follows:

TRANSPOSE	Transpose all notes in the Layer Letters in this step.
LEVELS	Adjust overall velocity gain of all notes in this step up +/-127
USE RE-TRIGGER?	If a Song Loop FX is playing it's Sub-Sequencer, it can also re-trig Layers' notes in this Step (*)
USE SONG FX?	If a Song Loop FX is playing, use it's FX on these Layers in this Step.
LAY SOLO?	This Layer can join the Soloed tracks, or be the soloed track (Mute overrides)
CHANNELS	Select "ALL" to use original recorded channel(s), or pick a chan for them all to use in this Step.
EXIT	Return to Layer Sequencer Editor

* Note: Re-trigger option in SongFX Sequencer playing must also be turned on for Layer Note Re-Triggering to occur.

Use Song FX?
When the above "Use SongFX" option is enabled, the following additional songFX presently playing / loaded will modify the way Layers in the Step will play:
MIRROR, SUB-SEQ KILL MIRROR, LIMIT, SUB-SEQ LIMIT, LEVEL, SUB-SEQ VELOCITY LOWER, LENGTH, SUB-SEQ NOTE LENGTH, SUB-SEQ +1 OCTAVE. *See User Manual for more ..*

As SongFX are loaded in the Play List, these act as an automation of sorts to control potentially all Layers in a useful way.
SongFX also has Transpose offset and Scale application for all Layers and TRAX. These settings are global.
Experimental overlaps can produce some great results with even just a handful of loops.

Keep in mind the percussion channel of a Layer recorded can be changed by these FX. If you don't want this to happen, confine percussion to a different Layer QB.

D. PlayList FX

The Play List FX, or PLFX, can be added to any Play List block by double-clicking the block and selecting [*PLFX*] from the pop-up QB's. When a block is entered into, the PLFX is executed, which can change any nearly parameter in the Sequarallel you set it to. Each track has 8 PLFX bundles, with 4 modifiers in each. Entering the PLFX list you will see:

PLFX#:-　　　Click to select a PLFX bundle number 1-8. This *must* be set, if not set this PLFX is ignored
COPY FROM:-　Click and select to Copy one of the other bundles to this one
1: 2: 3: 4:　　Click one of these to assign a parameter then value to set when this PLFX entered (below)
:EXIT:　　　　Click to exit back to the Play List grid.

For our example, in Play List scroll over to an empty TRAX track and **[+ADD NEW+]** 4 blocks. These will be used to carry the PLFX on. Now double-click the top block and select **[*PLFX*]**. Set PLFX# to 1.

Selecting a parameter
-Click one of the numbers and you will be taken to the main screen to find a parameter to adjust
-Once you have found a parameter, let's try master **[TRANS:+00]** click to highlight it but leave at zero
-Press the "S" button to Save parameter to PLFX bundle. You may have noticed the "S" LED flashing.
 Now you'll be back in the PLFX list, with the parameter name MASTER TRANSPOSE showing.
-Go to exit and open a new PLFX on the 3rd TRAX block.
-Select PLFX#:2 bundle and the click on 1: to program it. You will again be taken to the main screen.
-Scroll up to **[TRANS:+00]** but change to +5 semitones and press the "S" button.
-Exit the PLFX list and Arm the top TRAX block by double-clicking and selecting the [::ARM::] QB
-Exit the Play List (**[::EXIT::]** or just hold encoder on grid) and Hit Play ("P" button)

If you have other sequences playing, then the transpose mod's will change them +5 semitones. If not scroll up to the [TRANS:+00] and you'll see it change.

PLFX can be used to changed any parameter but any timing parameters may change in ways you hadn't foreseen as it's the chicken before the egg dilemma, which occurs first?

E. Automation

The Sequarallel also has an Automation Recorder. This is primarily for saving MIDI CC / Pitch Bend tweaks that can be re-trigger in the Play List by adding a block in the AU track and defining which MIDI stream should occur. i.e. to add some pitch bend to Channel 1.
Automation can also be used on the remote channel to reproduce the exact way you tweaked them during play. Any number of tweaks can occur in a recording. *This can be powerful but mind your timing!*
The Automation recording time can be as long as 999 bars so can in affect be applied over the course of an entire song if armed before song is played.

VI. Remote Control

The Sequarallel has various types and methods of remote control:

1) Programmable universal remote control of any parameter using MIDI CC's and MIDI Notes on a channel
2) Simple Track remote Notes over lay (for Mutes / solos / gating mutes / record etc)
3) TRAX CC Remotes to use as a legacy type sequencer
4) CV input remote control of any parameter
5) PLFX Internal Remote control
6) Automation remote control recording

Several of these can be set up via the "MIDI learn" feature, or by directly panel programming with select / find / save method.
The universal remote lists (CC & Notes) have local (by Song#) and Global lists with a priority mesh setting so Song# remotes can override global ones.

Because of the variety and features of Remotes, I have decided to leave this to the user manual (Page 32)

VII.   Gates & CV's

The Sequarallel has 14 configurable jacks for output gates, triggers, and Control Voltages from -5V to +5V
The main 12 jacks, in CV Mode 1-4, can be seen as 4 rows to control 4 VCO's. The first column of jacks, left of the green LED's, are specifically for Gates and triggers, while the 2nd and 3rd columns are CV. The 3rd column's CV's can be Auto-tuned to up to 8 different VCO's per jack so are more precise that way. When a note is played, the Gate jack always follows whatever the CV jack is assigned to. The left side of the display shows actual notes being sent to each corresponding row.

The 2nd column, VEL, or CC1 to CC4, can be assigned to out put Velocity levels, Triggered or Free-running Envelope shape, Envelope*Velocity, any MIDI CC value from any source, or Gates or triggers. The Velocity and Envelopes can be Linked to the same source as the Gate+CV, which is from Notes.

If CV MODE:n is set to DRUMS, then all 12 of these jacks become configurable drum triggers. While playing, the left side of the display will show a grid matching the jacks and which are active.

[CV MODE:n]
The [CV MODE:n] QB selects up to 4 Gate+CV/CC jacks configurations, or "Drums" mode. The default configuration is the same for all 4: TRAX:1 A Lanes 1 to 4 will be presented to the Gate, Velocity (cc1 to CC4), and CV output jack rows. CC5 and CC6 jacks will output TRAX 1 Reset and master Transpose offset.

Gate+CV/CC Jack Assignments
These jack assignments can be changed under the [CV MODE:n] QB. Press and hold to enter settings list:
CV MODE:n   Select a CV MODE to edit. Will be on the QB selection when enter these settings.
→JACK:xxxxx   Select a jack to edit, i.e. GATE+CV 1, CC 6

SOURCE:xxx   Select a source for the Jack from the following inputs:
    NONE   No Source
    SONG:LOOPn   A specific Song Loop# or "ALL" Song Loops will send to this jack(s)
    TRAX:n L   Trax #1-5 with TRAX Letter or "ALL" letters will send to this jack(s)
    LAYER:n L   Layer #1-4 with Layer Letter or "ALL" letters will send to this jack(s)
    MIDI IN   Panel MIDI IN on set MIDI channel(s) will send to this jack(s)
    LINK IN   Backplane LINK input on set channel(s) will send to this Jack(s)
    MIDI OUT   All Panel MIDI Output on set channel(s) will send to this jack
    LINK OUT   All Backplane LINK Output on set channel(s) will send to this jack

MIDI CH:nn   For Song/Layer/MIDI & LINK I/O source, this sets the Channel 1-16 or "ALL"
 /LANE#:n   For TRAX Source, this sets which TRAX Tracker Lane (1-4) will send to this jack

FUNC:xxxx   For Jacks CC1 to CC6, this selects the source parameter that will be sent to this jack:
    NONE   No Function
    VELOCITY   The Velocities of Source Notes will be sent to this jack.
    VEL+ENVn   The Velocity of Source Notes will be attenuated by Envelope# n (1-4)
    ENVELOPEn   An Envelope, source/type as defined by ENV settings will be on this jack.
    CC#:nnn   MIDI CC#:0 -127 (nnn) from Source/Channel will send to this jack.
    TR:xxx   A Trigger will be output from Global Source selected:
        SONG LOOP   When a Song Loop ends/loops, a pulse will be sent from this jack
        BARS   Every bar (measure) start will send a pulse to this jack
        BARS+BEAT   Every Beat (4/4) and Bar will send a pulse to this jack
        TRAXn RESET   When selected TRAX# sequence starts, a pulse is sent to this jack
        PLAY   When Sequarallel Starts Playing a pulse is sent to this jack
        SOLO   While any Track is Soloed, this jack will be held high

    CV:xxx   A CV will be output from the Global Source selected:
        TRANSPOSE   The Master Transpose Offset (in V/Oct) is sent to this Jack
        BARS+BEAT   4 Voltage steps (0-1-2-3 volts) on beats

ROW:n vvv   Select a VCO Tuning name (vvv) for this row (n) of this jack. (GATE+CV jacks only)
 /BI-POLAR: Select if jack can go to negative side. (CC Jacks only)
OCTAVE +/-n   Set a CV Octave offset for this Jack, -1 to +2 octaves/volts. (GATE+CV jacks only)
 /ENV NOTE LENGTH   Yes: Will vary envelope size with notes. No: Uses set ENV SIZE (CC Jacks only)
MERGE MIDI/LINK IN: Yes: Will Send MIDI / LINK in on set MIDI Channel to this jack
BLOCK MIDI/LINK IN: Yes: Will prevent MIDI output of Source to this jack.(Like CV Soloing)
COPY FROM:CV MODE: Select a different CV Mode# or Song# (All) to copy from.
                Song#: Copies same CV MODE# in selected Song (i.e. in CV Mode1, gets CV Mode 1)

CV Mode Tips & Tricks:

1 As each CV MODE 1-4 can completely change the board of 14 jack's functions, it may be a good idea to categorize them universally, i.e. Using with VCO's with filters vs. VCA control (different Envelope Type)

2 As each Song Project can have it's own 4 CV Modes, if you want them already set up when a new Song Project is created, edit the CV Modes in SONG:00, from which everything defaults.

3 Categorize your Envelope types. i.e. Env#1 always an ADSR type, while Env#2 an ADSR-like Parameter type that ends up a 0 volts, but Env#3 is more LFO-like for triggered modulations…

DRUMS:n Mode

The 5th state of the [CV MODE:n] QB is for percussion triggering. The entire 3 x 4 grid of 12 jacks become drum triggers but CC5 and CC6 I/O modes and functions can still be set from the [MIDI PUSH] QB.
This grid is displayed during Play or when there is no Clock inputs to show large beat-count numbers. Each "box" in the grid has the MIDI note number that will trigger the corresponding jack.
To access displaying of the grid and edit, scroll to the top of the main Quick-boxes (to [LOOP:OFF]), pause the continue scrolling upwards into the grid. This pause prevents fast scrolls to the Loop QB during a performance running into the drums instead!
Click on any drum box in the grid to edit it's value.

DRUMS:n Settings

Alternately, drum's note numbers and other settings can be accessed behind the [DRUMS] QB
Click & Hold the [DRUMS:n] QB to enter the settings or edit drums in the lists. The menu is as follows:

DRUMS=CHAN:nn	This will set the Sequarallel's percussion MIDI channel (usually 10)
TRIGGER:xxxx	Select original note-lengths to gate jacks, or 1mS to 20mS for a trigger length
LAYOUT:n	Select a Drum Grid Layout to use/edit. There can be up to 8 configurations
SOURCE:	Select a source(s) for Gate/Trigger output of drums (must be on drums channel):
NONE	No internal source will trigger drums. Merged Midi/Link input can still trigger.
SONG	Only Percussion in Song Loops will trigger jacks
LAYER	Only Percussion in Layers will trigger jacks
SONG+LAYER	Song and Layer percussions will trigger jacks
TRAX	Only TRAX (on drums channel) will trigger jacks
TRAX+SONG	Song and TRAX percussions will trigger jacks
TRAX+LAYER	TRAX and Layer percussions will trigger jacks
ALL	All internal sequencers on drums channel will trigger jacks
MERGE MIDI IN:	Panel MIDI input on drums channel will trigger jacks
MERGE LINK IN:	Backplane LINK input on drums channel will trigger jacks
BLOCK MIDI OUT:	Yes: Drums MIDI will not be sent to Panel MIDI out, using solely the triggers
BLOCK LINK OUT:	Yes: Drums MIDI will not be sent to Panel LINK out, using solely the triggers

[ORD:xxxxx] Chord Order QB

The Order Quick-box inputs are linked to the CV Mode above in that it defines how notes will be distributed to the Gate/CV Jacks. This is useful if multiple notes are on the same MIDI Channel as are chords. If each source in CV Mode is on a different channel then there's really no need to organize.
There are 5 types of ORD's, and if held each has it's own settings. *Please see user manual for in depth*

[ORD:STACK]
Notes Are Stacked to output from Gate+CV jack Rows 1 to 4. Under the QB are Timing related settings to refine handling of notes, and choice of action if there are greater than 4 notes

[ORD:RANGE]
Notes are divided by set note ranges, like a 4-way split keyboard, to Gate+CV jacks
Range is different than all of the other Order Methods in that it simply mixes multiple channels and sources, up to 4, to split into ranges This is useful for dividing VCO's by bass,/treble/ high response. Holding the [ORD:RANGE] QB allows the setting of the ranges.

[ORD:CYCLE]
Similar to Stack, but notes are time cycled through the jacks upward or downward. Under the QB are adjustments for the release time between notes, which is required to cycle through the jacks.

[ORD:RANDM]
Randomly distributes to jacks via trickle-down probability settings, accessible under the QB.

[ORD:ARPEG]
Each Gate+CV jack Row becomes a fully functional Arpeggiator as from CV Mode. The settings under this QB are pretty intuitive if you are familiar with Arp's, but refer to the user manual for finer points!

[TUNE:+n]
All CV's can be simultaneously tuned up or down (in cents) with this QB by simply selecting it and
adjusting the value +/-99 cents. To tune individual row's CV's hold down the QB to enter the settings:
FINE TUNE:ROW:n   The 4 rows can be individually adjusted here.
FINE TUNE:CC5/6   The two bottom CC jacks can also be fine tuned (as they may output transpose)
ZERO NOTE:ROW:n   The 4 rows Zero-Volt notes can be set here. Default is Note#36.
--CALIBRATES--   This section is to automatically calibrate to a connected VCO's dynamics (below)
>EDIT NAME   Turn this on to edit names below (rather than just selecting them)
R1:xxx - R4:xxx   Click to select a VCO tuning to use on each Row (CV)

VCO Auto-Tune
For every CV (row 1 to 4) output jack, up to 8 VCO tunings can be created. Each can be named (probably
to reference a VCO you have) and, because they aren't used on another CV jack, are very accurate.
Assuming you have just read [TUNE:+n] QB above, follow these instructions to calibrate a VCO:

1) Select a Row CV jack name (i.e. R1:VCO SETUP..). You *can* re-name it now if you'd like. *(should)*
2) Scroll down to CALIBRATE:n and set "n" to the same Row. You will be taken to Calibrate Screen.
3) Switch your VCO to Square-wave and max output, then patch it's output into MIDI IN jack
4) Patch your VCO's CV input to the Row:n CV *(make sure to remove modulations/offsets etc)*
5) Hit the "S" button to start. "NOTES:nnn" will progress at bottom of display. If not check your
   connections and try again. This is a tedious process but once it's done, it's done forever!
   I recommend tuning all 4 CV jacks this way while the VCO is patched, but it's up to you!
                 *For more on CV Modes and tuning, please see the full user's manual

VIII. Settings

The final Section of this "Quick-Start" Guide deals with the Global Settings of the Sequarallel and parting words, you're almost done!

Global Settings means that these settings span across any Song Project and can be changed without editing Song:00 or losing the setting due to not doing a Save:Edit.

REMOTE:DISPLAY:YES
When this is turned on, some remote control changes will update screen to indicate changes. This consumes a lot of processing power and can clutter the screen's actions when a lot is displayed, so can be disabled.

SYSEX SAVE
This is to save a song project or all projects to a DAW via MIDI with a SysEx stream. See User Manual for instructions.

SCREEN-SAVE:x min
The screen saver will dim the display to about 30% after the set time in minutes. The range is appx. 3 minutes to 60 minutes. This dimming will protect the screen from OLED burn-in over many months of use + save power. Moving the encoder or pressing any button will return display to normal brightness.

CV IN→:MERGE INPUT
CV input (CC5, CC6, CKO) to MIDI steering: **OUTPUT:** directly to output or **MERGE INPUT:** merges with panel MIDI in to follow all configurations of MIDI in. When set to merge, the CV can be recorded just like any MIDI input.

As the jack can be configured to send MIDI Notes, Pitch Bend, After Touch or CC's, MIDI Layers can be recorded from a CV input. Similarly, Notes can be recorded to a TRAX tracker. Note that if you don't plan to use the CC jacks this way, setting to directly **OUTPUT** is lighter on the processor.

BLOCK DRUMS PC:YES
This will turn on blocking of PC messages on percussion channel (10 by default) as some GM synths do not like it!

SEND MIDI RESET:YES
This will allow a MIDI master reset (0xFF) to be sent upon loading a song project or pressing the **[MIDI PUSH]** QB Button. Note that some synths do nothing with a reset. Check your synths spec's for possible information.

SEND MIDI CLOCK:YES
When the Play button is pressed, MIDI clock sync messages will be sent if this is turned on. MIDI clock is good for some synth's delay or arpeggio sync if it is set to use external clock, as well as following MIDI seq's / FX in the chain.

SWING CLOCK:NO
Set to **YES** to output MIDI Clock after the swing modifiers. This may be useful for swinging the Arp or delay of a synth but some don't like a varying clock. Experimentation will reveal the truth!

FREE RUN CLOCK:NO
Set to yes to output continuous clock based on modular clock or MIDI clock regardless of Playing or Stopped. Only once the clock input source stops, will the MIDI clock output stop. This can be useful for continuing a long delay on a synth that switches it's clock source to internal after an input clock stops.

NRPN Map
Up to 16 NRPN MSB/LSB Messages can be programmed for global use. Simple select an NRPN Slot, then set MSB and LSB values according to your synth's manual's NRPN listing.

GATE DELAY
The Sequarallel's CV Slew rate is a few microseconds, but long patches, CV input filtering on modules, or timing latency at the other end can cause CV/Gate timing issues. Because many "1-shot" modules rely on a stable CV input at gate time, the Sequarallel sets the CV just before sending the Gate.
This delay time, which applies to all of the gates, can be expanded several milliseconds with the
"GATE DELAY:nn" setting.

Quick-Box Edit Mode

The Sequarallel boasts the unique option to define the Quick-Boxes on the main page. User configurations can be different for every Song Project. Quick-boxes can be removed or added, duplicated and arranged in any order, however you see fit.

To enter QB Edit mode:
- press and hold the "S" button until it's LED begins to flash (about 5 seconds)
- To change a QB, scroll to it, click and select a different QB. Click to exit.
- To Add (insert) a QB, scroll to where you want to add one, click and scroll to **[ADD:]**. Click to apply. Click again to change.
- To **DELETE** a QB, scroll to it, click and scroll way down to **[DELETE]**. Click and the QB is gone.
- To Exit QB-Edit Mode, press the "S" button.

Closing Comments:

Well there it is in a nutshell!

This guide should be enough to get you going and couldn't be shrunk down much more without missing vital functions of the Sequarallel. Still, some sections are pretty minimal, like the TRAX Editor pop-up QB's and how to use the editing functions in more detail. Don't be frustrated if you didn't figure it out.

The User Manual takes a much more intricate look at the Sequarallel and includes links to videos to further explain a function or method, assuming the manual is being read in .pdf format rather than a hard copy.

The "record" methodology in the Sequarallel is to get a sequence up and running easily by simply playing it in, then tweaking it afterwards. I have found through the years, working with a DAW is fine but very time-consuming, which removes the spontaneity and inspiration of composition right away. This all depends on what you methods are, but if you like to create then tweak, I would recommend a MIDI controller and/or a MIDI keyboard all set up to control and record into the Sequarallel.

Most of the Sequarallel's MIDI control configurations have "MIDI Learn" where you select the thing to edit, then hit a key, pad, or CC controller to assign it. This saves a tremendous amount of time referencing the source's number or figuring out note offsets, then scrolling it in...

One final word ... the Play List!

If you are accustomed to DAW layouts, then the Play List probably seems pretty alien, and perhaps this guide only added to the confusion. Looping through groups of blocks that represent sequences may seem visually out of sync without an across-the-board play cursor, or at least cumbersome.

When a sequence of blocks is put together as a vertical group, you must think vertically, not horizontally, i.e. trying to align everything to be armed at once from the left column. While this is fine, and I do it, it can leave huge spaces in a limited sized grid. One trick I do is fill those spaces with shorter sequences, perhaps a variation of the one above, so they can be selected to play at any time.

The whole idea is to be able to easily change track mixes with other tracks by arming them at the appropriate time, which becomes pretty intuitive after some practice. This isn't easily possible in a horizontal Play List where the main cursor plays everything under it. Another benefit is that unlikely track sequences can be armed to be mixed with others, sometimes creating unexpected results.

All that said, one does have the option of making each Track's group the same size, i.e. 16 bars, loop. That option is there and, with all the cursors moving together, would be similar to a horizontal DAW Play List. ;)

I hope you enjoy making music on the Sequarallel as much as I do!

Sandrine Sims **SDS Digital Modular**

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