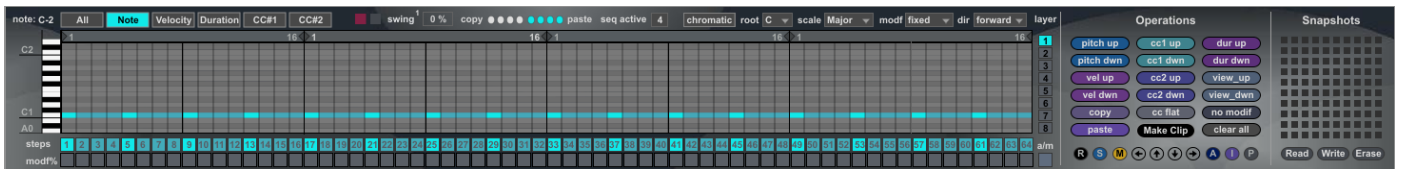# J74 StepSequencer64

A tool for creative sequence programming in Ableton Live

User Manual

How to Install the J74 StepSequencer64 devices
J74 StepSequencer64 is a set of plug-in's for creative sequencing in Ableton Live. It requires a Max for Live license to run and it will run properly only in Ableton Live 9 or higher (older versions of Live, such as Live 8, are not supported).

Installation of the tool set is extremely easy: just unzip the download pack and copy the files to your computer hard drive, any place you like. To start it up, drop the plug-in device (.amxd) on a MIDI track in the Ableton Live liveset.

The devices in the pack include:

- *Step Sequencer64 J74.amxd*: the 64-step sequencer MIDI device.
- *Step CC#1.amxd* and *Step CC#2.amxd*: add-on devices for modulation of any parameter in Ableton Live (or of external MIDI gear supporting CC# controls).

Next, one by one, a detailed explanation of what each control can do.

Step Sequencer64 J74.amxd device
This is a 64-step sequencer MIDI device, with full integration in Ableton Live's work-flow, including state saving, undo, automation, device presets, MIDI mapping and direct export to MIDI clips.
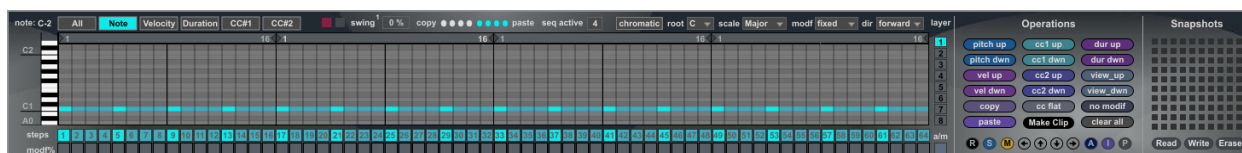
Step Sequencer64 J74.amxd – Note (pitch) view

The graphical user interface (GUI) of the device is dedicated, for its largest part, to step sequencing information (pitch, velocity, duration and envelope values of the steps). Each step has also a dedicated trigger (ON/OFF) and a pitch modifier (both explained further on throughout this manual). Around these, a number of tabs, buttons and menu's are available for further control and editing.

Important: the device has a built in [Help] which shows you exactly where each control is located and a brief explanation of what it does. Please use this [Help] view while reading this user manual for better reading.

Sequence navigation: [view selector]
This tab is used to select which type of step information is shown, presenting the following "views":
- Note Pitch
- Note Velocity
- Note Duration
- The CC#1 envelope values (custom assignable)
- The CC#2 envelope values (custom assignable)

The [view selector] moves between these views (in rotation fashion, if automated). Please notice that only the selected view allows changes directly from the GUI.

Individual [step triggers]
The step sequencer has 64 dedicated [step triggers], one for each step. When a step trigger is ON the corresponding step will be enabled to play back its content (note, velocity, duration, CC#1 and CC#2 envelope values). If a step trigger is OFF the corresponding step will be muted.

Sequence length and [seq active] sections
The internal logic of the device is based on the daisy chaining of *four coordinated 16-steps sequencers*, playing in round robin fashion. This behavior can be modified using the [seq active] field. This way the device can be set to run as a 16, 32, 48 or 64 step sequencer: a value of 4 (the default) activates all 4 sections, giving 64 steps. Similarly a value 3 gives you 48 steps (1 to 48), a value of 2 gives 32 (1-32) and of course a value of 1 just runs the (first) 16 steps.

Working with Pitch: [chromatic / in-key mode]
The step sequencer can operate in *chromatic* and *in-key* modes. In chromatic mode (the default) all pitch values can be programmed, with no specific restriction. In in-key mode pitch values will be constrained to a selected musical scale. The mode in use is defined by the *[chromatic/in-key mode]* selector. When in-key mode is selected *the combination* of the *[root]* and *[scale]* settings defines the musical scale in use.

Working with Pitch: [step modifiers] and [modifier scheme] settings
Besides in-key mode of operation, this step sequencer also provides *probabilistic per-step musical variations*. The *[step modifiers]* are an additional row of toggles, one for each step, and activate this function when enabled. These toggles define if a step will be subject to the probabilistic pitch variation or not. When a [step modifier] is enabled the pitch played back for the step will not be the one programmed in the sequence by one defined by the combination of the *[modifier scheme]* and the *musical scale*. This will happen in a *pseudo-random fashion.*

The *[modifier scheme]* options offers the following pseudo-random variations:
- *fixed*, a fixed selection of music intervals is used for the variation. This selection does not change over time.
- *seldom-3*, 50% root note, 50% across two random alternative intervals. Each time a new choice is made.
- *lite-3*, 40% root note, 60% across two random alternative intervals. Each time a new choice is made.
- *lite-4*, 40% root note, 60% across three random alternative intervals. Each time a new choice is made.
- *some-4*, 25% root note, 75% across three random alternative intervals. Each time a new choice is made.
- *equal-5*, 20% root note, 80% across four random alternative intervals. Each time a new choice is made.
- *always*, root note never used, 100% across any alternative interval. Each time a new choice is made.

What is the difference between In-key mode of operation and pitch modifiers?
The *In-key* mode of operation is an aid to sequence programming, with results perfectly in key to a musical scale. Results will remain constant and predictable over time, being hard coded into the sequence. The *pitch step modifiers,* instead, are probabilistic variations to a basic sequence. They are also in-key to the selected scale, but are not predefined and tend to change pseudo-randomly over time. You can use the first feature if you are trying to create a sequence which fit precisely into a musical context, like creating a melodic phrase. You can use the second one if you are trying to create an unpredictable variation on an otherwise simple line. You can also combine the two, to have a basic melodic line having some (sparse) fluctuation, while still being in-key to the selected key.

Working with Pitch: transposing the sequence by real-time MIDI input
The J74 StepSequencer64 also responds to MIDI input by transposing the pitch of the sequence in real time based on the input notes. The sequencer uses a reference pitch of C2 (MIDI pitch value 48). If a note lower than C2 is received, the sequence is transposed down of the corresponding semitone difference. If a higher note than C2 is received, the sequence is transposed up of the corresponding semitone difference. For example a MIDI note A#1 (46) received in input will transpose the entire sequence two semitones down.

Note: a MIDI note input can be issued at any time, even half way the sequence. The sequence will immediately react and be transposed. This gives an additional degree of creativity for modulating a sequence musically, in real time.

And, of course, this feature can be used on top of all other pitch-related features already presented so far.

Manipulating the sequence: [loop-points] bars

Each of the four sections has an independent *loop-point bar* which is located at the top part of the sequencing area. The bar allows you to define the start and stop steps of each sequence sections during playback. This allows you to create a poly-rhythmic effect over time.

Manipulating the sequence: [direction] of playback

The four sections of the sequencer always follow the same direction. By default this is the standard "forward" direction (from left, to right). Anyway this can be changed using the [*direction*] menu. The following five modes are available:

- *forward*, the usual order (1, 2, 3 ... 64)
- *backward*, each section is reverted resulting in 16, 15, …, 1, 32, 31, …,17, 48, 47, …,33, 64, 63, …, 49
- *back_and_forth,* sections are split in two 8-steps, played first forwards, then backwards
- *rotate*, sections 1 and 3 play forwards, sections 2 and 4 backwards
- *random*, as you would expect a random playback order

Manipulating Timing: [swing]

The [swing] control allows you to add swing to the sequence. Negative % values will increase the time between certain steps (hesitation), while positive % values will decrease it (anticipation). Values of +/-50, +/-33, +/-25 will shift step timing to hit rhythmic "hot spots" (such as triplets or 1/32 notes, depending on the selected [Swing Type]). Small values (typically below 10) will add just a bit of a cadence. Other values will result in some strange syncopation.

The [Swing Type] defines the flavor of swing to be used, with 12 variations being available:
1 mpc classic swing
2 swing variation1
3 swing variation2
4 swing skip-through
5 triplets swing
6 break/remix1
7 break/remix2
8 break/remix3
9 syncopate1
10 syncopate2
11 syncopate3
12 chaos/reverse

Tip: the swing effect is quite flexible and works identically on other J74 devices as well, making possible to jam and swing together (e.g. if you map the same controls to a single MIDI controller knob). Also keep in mind that the nature of swing is to anticipate or delay certain hits in time and that a certain amount of delay or anticipation will move you into triplets or doubling very effectively. These values are typically the integer ratio's 1:4, 1:3 1:2 which correspond to swing values +/-25, +/-33, +/-50. These are "sweet spots" for many of the styles. Of course a given genre (and bpm speed) will respond differently, so you probably like to explore this area yourself. It is quite fun.

Additional controls (aimed more towards performance use) are the [Swing Bypass] and [Swing Quantize] toggles. The [Swing Bypass] (gray) toggle can be used to bypass the effect immediately (...and it suddenly rocks), while the [Swing Quantize] (magenta) toggle postpones changes to the begin of the next bar, for cleaner transitions. Of course you can also use the snapshot feature (presented further down this user manual) for achieving precise transitions quite easily.

Working with layers: [alternative / multiple layer mode]

Multiple parallel sequence "layers" are available to this step sequencer. Layers can be used either as *alternative set of* monophonic sequences (one only being active) or as multiple parallel lines (sequenced instrument being able to

support polyphony). The [a/m] toggle defines which layering mode is selected. The numbered [layers] toggles activate a layer, if you are working in alternative mode, or select a layer for editing if you are working in multiple mode.

Section [copy_seq/paste_seq]

The four sections of the sequencer (section 1 = steps 1-16, section 2 = 17-32, section 3 = 33-48 and section 4 = 49-64) have a dedicated copy / paste button. This feature may appear not particularly useful, but it can come very handy while editing and creating: it allows you to copy a section (i.e. section 1) and paste it onto another (i.e. Section 3), which is a useful trick for creating a global "longer" sequence (i.e. 64 steps) composed of variations of a shorter sequence. In combination with pitch step modifiers and/or modulation, this can make a short sequence evolve interestingly over time.

All-steps Operations

On the right side of the device you will find a set of buttons which can be used to modify a type of information for all the steps altogether. This is useful while editing, creating and performing. The following operations are available:

- [pitch up/down] Move all sequence pitches up or down in
- [velocity up/down] Increase or decrease the velocity of all notes in the sequence
- [duration up/down] Increase or decrease the duration of all notes in the sequence
- [cc#1 up/down] Increase or decrease the cc#1 modulation values in the sequence
- [cc#2 up/down] Increase or decrease the cc#2 modulation values in the sequence
- [cc flat] Reset all cc# values
- [view up/down] Scroll the view up or down
- [no modif] Remove all [step modifiers]
- [copy] Copy the sequence
- [paste] Paste into the sequence
- [clear all] Reset all controls to defaults
- [R] Random generation of settings (for the selected view only)
- [S] Random activation of [step triggers]
- [M] Random activation of [step modifiers]
- [A] Activate all [step triggers]
- [I] Invert [step triggers]
- [P] Reset all note pitch values to the root of the selected scale
- [Shift arrows] Shift values of the selected view left/up/down/right

Note: if a specific view (i.e. the velocity view) is selected, the [R] button only affects that view values (velocities in this case); if the "All" view is selected all values will be randomized altogether.

Tip: Try the [R] function in combination with In-Key mode! This can be used for random melodic sequence generation, in harmonic relation with the selected scale. A powerful source of inspiration.

MIDI Clip creation and recording

The J74 StepSequencer64 can directly export the current sequence to a MIDI clip in Ableton Live. Due to the current limitations in the Max for Live API the export will not include the CC#1 and CC#2 step envelopes. The swing effect on timing though will be exported. Use the [MakeClip] button to create a MIDI clip in Live.

Note: an alternative way for recording results is to pipe the MIDI information to a separate MIDI track and record MIDI clips in real-time on that track. In this case all information (including the envelopes) will be recorded as generated.

Modulation: Step Envelopes (CC#1 and CC#2) and companion modulation devices
Two step modulation envelopes (CC#1 and CC#2) are available to this step sequencer and can be used to modulate any parameter in Ableton Live or even outside of it (e.g. MIDI external devices supporting MIDI CC messages).

While programming and generation of the envelopes is done directly on the "StepSequencer64.amxd" device, routing to the destinations is accomplished using the companion "Step CC#1.amxd" and "Step CC#2.amxd" devices.

These two small devices do the following:

- They collect the modulation values generated by the step sequencer
- They select the destinations of the modulation and send the modulation values to them
- If required they can do some processing on the modulation values (gain, offset, normalization)

The destination can be chosen from any device in Ableton Live using the *[Map]* and *[X]* controls. If you wish to have external MIDI gear modulated by MIDI CC messages, select a value different from zero in the *[out CC#]* setting, corresponding to the targeted MIDI CC# control number.

Here a summary for all the other settings available on the "Step CC#1.amxd" and "Step CC#2.amxd" devices:

- [static] apply a static value to the destination. Useful for testing.
- [gain] apply a gain to the modulation
- [offset] offset the modulation of a static coarse value
- [off_fine] offset the modulation of a static fine value
- [minimum] set the modulation minimum value
- [maximum] set the modulation maximum value
- [output CC#] a value different from zero activates sending the corresponding MIDI CC output

Snapshots
The step sequencer is provided of its own snapshot system. This way you can make a snapshot of all the settings (including the pitch, velocity, duration, CC#1 and CC#2 step information) and recall it at any time. How it operates:

- Do a **SHIFT + CLICK** on a slot to create a snapshot (or replace an existing one)
- Do a **CLICK** on a slot to recall a stored snapshot

Note: MIDI program change messages can be used to recall snapshots. This is a powerful way to add automation to snapshot recalling. A useful approach for this is to add the program number directly on a MIDI clip in the same track (see Launch section of MIDI clips) so that if the clip is triggered the selected snapshot is recalled.

Snapshots can be exported and imported back using the [read] and [write] operations.

Important: the file extension MUST be ".maxpresets" in order for the read and write operations to be done correctly.

Questions?
If you still have questions or issues, please send an email to: info [at] fabriziopoce.com