PSQ-1684

Operation Manual

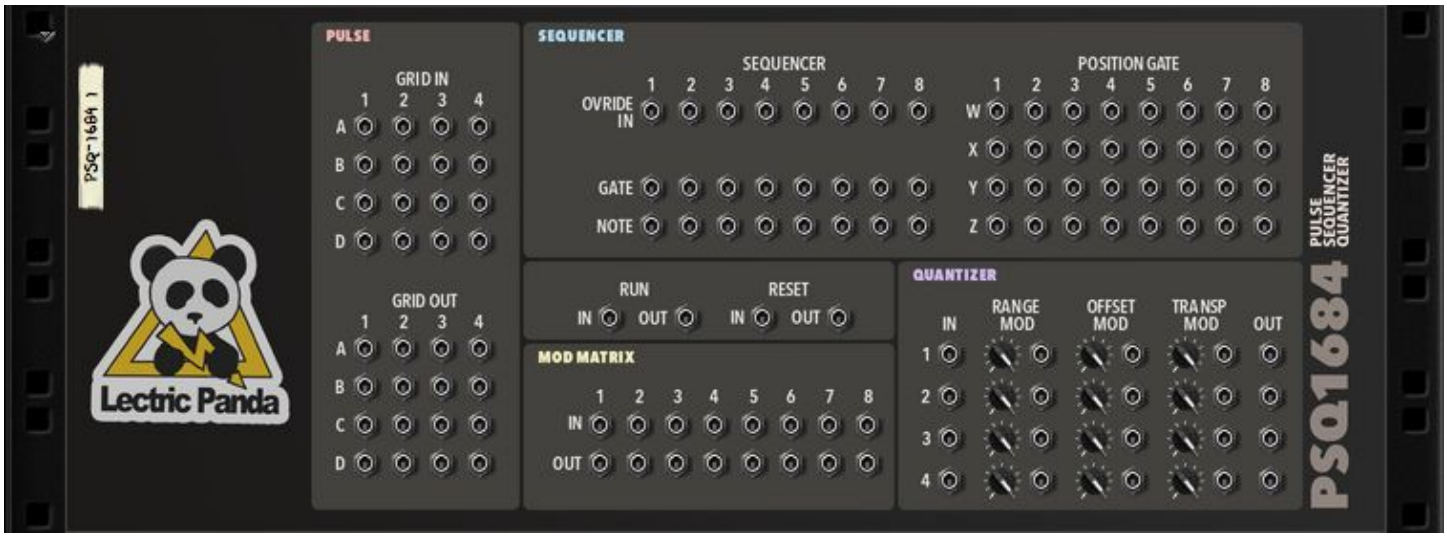
Version 3.0.0

Table of Contents

Introduction

PSQ-1684 is a collection of pulse generators and sequencers that were inspired by popular eurorack style modular units.

Front Panel



Back Panel

Pulse contains 16 pulse generators. Each generator is assigned a spot on a 4x4 grid. Each generator's pattern parameter allows it to additionally pulse its neighbors.

Sequencer contains 8 analog style sequencers, shift register sequencers, and Klee style sequencers.

Quantizer is 4 CV quantizers that take a CV signal and snap it to selectable note values.

Quick Start

Create a Thor and PSQ-1684 Device. Connect the Thor to the Sequencer S1 output.

Run the PSQ-1684

To get some pulses going, let's enable 3 sources. set **Pulse A1**'s **Division** to 4, **Euclidian Density** to 25, and **Drum Pattern Density** to 50.

You should now see pulses on the **A1** grid light up.

Set the **Sequencer S1**'s **Mode** to Row.

You should now hear thor sounding a single note, S1 pulsing, and the red playhead running.

Adjust the sequence value knobs to some random pitches.

Shorten up the sequence to run from W1 to W8

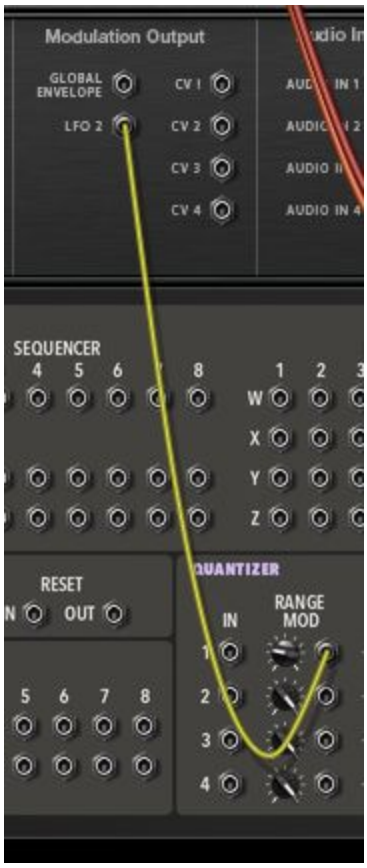
Adjust Thor to one of the monophonic modes.

At this point you should hear a pretty atonal sequence coming from Thor, lets hammer it into shape with the quantizer. Active Q1 in S1's **Quantizer**

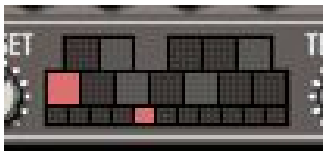
Lower Quantizer Q1's **range** to around **0.15** and up the **offset** to **0.30**

You should have a more pleasant sequence at this point.

Now let's add some variation to those notes by hooking Q1's **range mod** to Thor's global LFO 2. Adjust the CV Trim to ~30.



Add a few more available notes to Q1 by clicking on them.



Suggested further experiments:
Play around with A1's **Division** and **Density** parameters.
Play around with S1's **Skip** and **Move** parameters.
Attach a 2nd thor to Sequencer S2, make S2 use **Source** A1 and **Qtz** Q1 as well, but change the **Mode** and **Move** to produce different pitches.
Play around with A1's **Chaos** parameter.

Main Clock Section

Run

Starts the PSQ-1684 main clock. Led indicates current running state. If the **Sync** mode is **Transport**, then the **Run** state will be forced on if Reason's main transport is running.

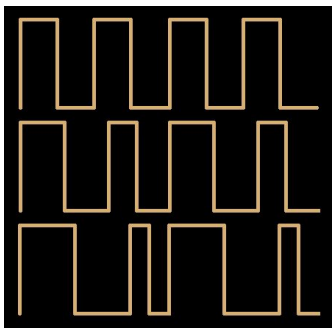
Sync & Rate

The Sync and Rate parameters combined determine PSQ-1684's playback mode and main clock pulse timing. The Sync parameter has four options:

- **Free Hz** sets a specific clock rate in cycles per second. 0.0 Hz - 50 Hz.
- **Free Ms** sets a specific clock duration in milliseconds. 10.0 ms - 4 sec.
- **Tempo** will synchronize to Reason's tempo using the rate's time signature. Available rates: 32/4, 28/4, 24/4, 20/4, 16/4, 12/4, 8/4, 7/4, 6/4, 5/4, 4/4, 7/8, 3/4, 5/8, 2/4, 7/16, 5/8T, 3/8, 4/8T, 5/16, 1/4, 3/16, 2/8T, 1/8, 1/8T, 1/16, 1/16T, 1/32, 1/32T, 1/64, 1/128.
- **Transport** will synchronize to Reason's tempo using the rate's time signature. Running state will be forced on if Reason's main transport is running. Clock always starts counting from 1 regardless of transport position. Same rates as Tempo setting.

Shuffle

The shuffle parameter with introduce a shuffle/swing into the main clock. The parameter ranges from 50% to 100%. The shuffle value is the duration percentage of the first pulse for every two pulses.



Shuffle Rate Examples. 50% (Normal), 60%, 75%

Reset

Applies a reset to the main clock and devices when the pulse count reaches the set number of pulses. All Pulse counters return to 1. All Sequencer sequences return to start positions. All Shift Registers reset to initial patterns. For example, setting the the rate to 1/16 and a reset of 16 creates a one bar loop.

CV Reset

CV Reset In
A pulse on this input will cause a reset.

CV Reset Out
A reset will cause a short pulse on this output.

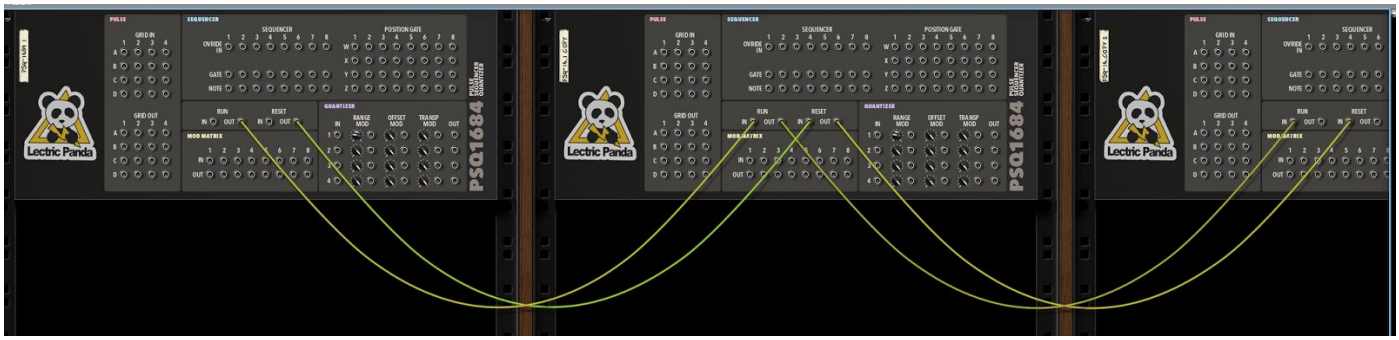
CV Run

CV Run In
A high value on this input will cause PSQ to run.

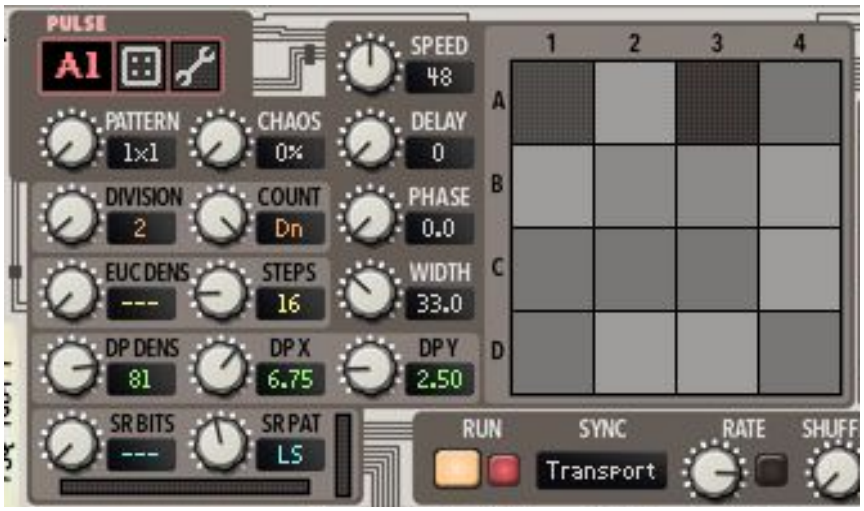
CV Reset Out
PSQ running will cause this output to be high.

Chaining PSQs

Multiple PSQ1684s can be chained by connecting **Run Out** to **Run In** and **Reset Out** to **Reset In.**



Pulse Section



Each of the 16 generators has 5 sources of pulses

- Traditional clock divider
- Euclidean rhythm source
- Drum pattern map
- Shift Register
- External CV input

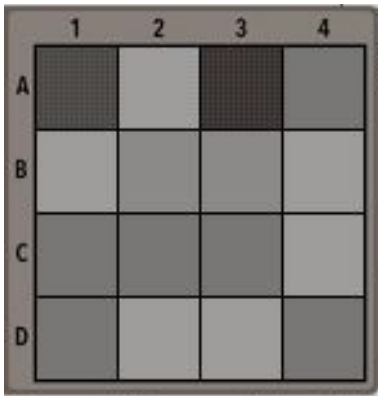
All 5 sources can run at the same time in a single generator. The sources pulses are added together for the generators output. Each generator is assigned a spot on a 4x4 grid. The pattern parameter allows a generator to pulse its neighbors along with itself.

All these overlapping pulse sources combined can create some really interesting and unique rhythmic patterns, especially when running at different speeds and clock divisions.

Generator Selection

Clicking the generator name will popup a menu listing all 16 generators (A1-D4).

Pulse Grid



A grid square lights up when its pulse generator is pulsed on. A brighter square indicates that the grid square originated the pulse. The fainter square means its neighbor originated the pulse. Clicking on a grid square will also select the generator for editing.

Clock Divider

The clock divider source takes the incoming main clock, counts to the number of pulses specified by division, outputs a pulse, and resets the counter.

Count has two modes:

- **Up** counter starts at 1.
- **Down** counter starts at **division**.

Main Clock Pulse Counts

Division 2, Count Down, Pulse Width 50%

Division 3, Count Down, Pulse Width 50%

Division 5, Count Down, Pulse Width 50%

Division 2, Count Up, Pulse Width 50%

Division 3, Count Up, Pulse Width 50%

Division 5, Count Up, Pulse Width 50%

Euclidean Rhythm

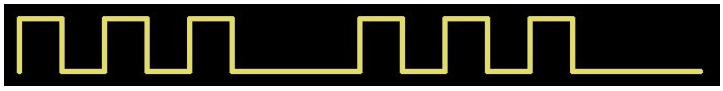
An euclidean rhythm generator will create pulses at intervals as equidistant as possible for a given density, repeating every time it reaches the specified number of steps.

Main Clock Pulse Counts

Steps 8, Density 1

Steps 8, Density 25

Steps 8, Density 50

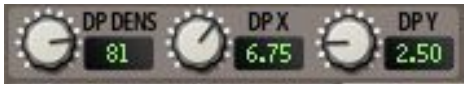


Steps 8, Density 75

Steps 8, Density 100

Steps 32, Density 60

Drum Pattern



The Drum pattern source uses a two dimensional, 10 by 10 map of percussion patterns to produce pulses. Each pattern is 32 steps long. The density parameter can be used to increase the number of pulses in the pattern. Patterns can be faded with their neighbor patterns using fractional values.

X	Y	Result
4	4	100% Pattern (4,4)
4.5	4	50% Pattern (4,4) 50% Pattern (5,4)
3.5	5.5	25% Pattern (3,5) 25% Pattern (4,5) 25% Pattern (3,6) 25% Pattern (4,6)

Pattern Fade Examples

Shift Register

The Shift register source produces a looping sequence of pulses. Simply put, it's a field of bits that when pulsed, will shift one bit right, with the right-most bit replacing left-most.

Pulse	6-Bit Pattern
0	110000
1	011000
2	001100
3	000110
4	000011
5	100001
6	110000

6-bit Shift Register Example

The number of bits in the register can be set from 1 to 32. There are 600+ Initial patterns to chose from. The initial pattern fills the register after a **Reset**. The patterns are sorted in order of bit density. The more clockwise you turn the Pattern knob, the higher in density they get.

The Shift Register is also used for **S.Reg** and **Klee** modes in the Sequencer.

 In the **S.Reg** mode, the Shift Register is converted to a value using a "Digital to Analog" converter. That value is displayed on the rightmost display.

See Modulation Destinations for more Shift Register Parameters.

External CV Grid Input

Each grid position has an CV pulse input that will get added to the other pulse sources. No parameters affect this pulse source.

Speed

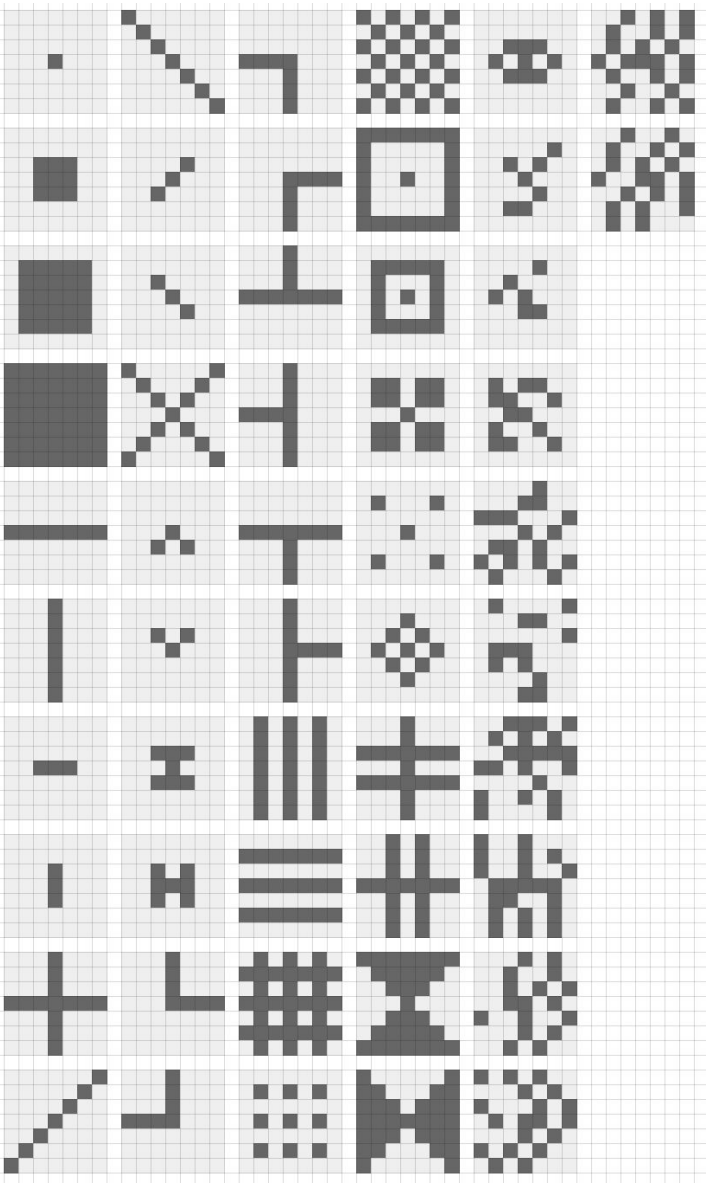
Speed is a pulse generators clock duration relative to the main clock. Speed is specified in 24ths of a main pulse. That is to say, a main clock pulse is divided up into 24 sub-pulses, and the pulse generator counts this number of sub-pulses before generating its own pulse.

Main Clock	Generator Speed	Result Generator Rate
1/16	24	1/16
1/16	48	1/8
1/16	12	1/32
1/4	24	1/4
1/4	8	1/12
1/4	4	1/24

Speed Examples

Grid Pattern

A pulse generator can pulse itself as well as its neighbors based on the pattern setting.



Available grid patterns. Originating pulse is centered.
1st Column: Pattern 1-10, 2nd Column: Pattern 11-20, etc.

Chaos

Chaos adds randomness to the pulse sources. Each source is affected differently.

The clock divider uses the chaos setting to assign a probability of pulsing. A 0% chaos setting means every division will pulse. A 100% chaos setting gives each division a 10% chance of pulsing.

The euclidean rhythm source uses chaos to add variability to the density setting. The density is recalculated and set each time the euclidean source reaches its number of steps or there is main clock reset.

The drum pattern source uses chaos to add variability to the density setting. The density is recalculated and set each time the drum pattern reaches 32 pulses (the length of the patterns) or there is main clock reset.

The shift register source will use chaos to determine if there is a new state to the right-most bit that gets rotated to the left-most bit. If chaos is set to 20%, then there is a 20% chance the bit will be considered for a change while being rotated. If the bit is considered for a change, the new state will be generated to maintain the density of the initial pattern.

Pulse Width

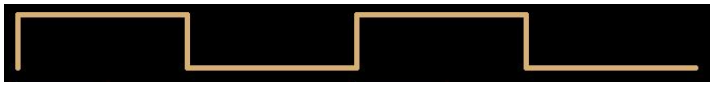
Pulse width adjusts the duration of the pulse. Each source is affected differently.

Clock Divider

Main Clock Pulse Counts

Division 4, Count Down, Pulse Width 12%

Division 4, Count Down, Pulse Width 25%



Division 4, Count Down, Pulse Width 50%

Division 4, Count Down, Pulse Width 95%

Division 4, Count Down, Pulse Width 100%

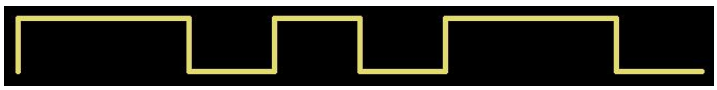
Euclidean, Drum Pattern, or Shift Register

Main Clock Pulse Counts

Pulse width 25%

Pulse width 50%

Pulse width 90%



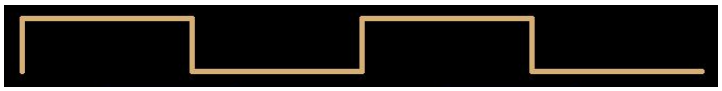
Pulse width 100%

Delay

Delay shifts the pulse sources later in time. The parameter is specified in units of whole pulses. Each source is affected differently.

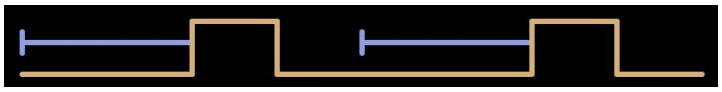
The clock divider uses the delay on every division, shifting the start point.

Main Clock Pulse Counts

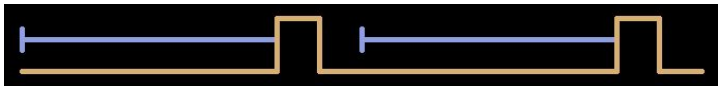


Division 4, Count Down, Pulse Width 50%, Delay 0

Division 4, Count Down, Pulse Width 50%, Delay 1



Division 4, Count Down, Pulse Width 50%, Delay 2



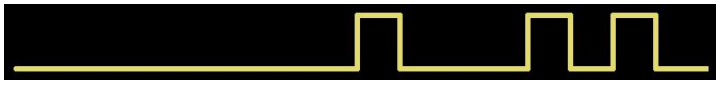
Division 4, Count Down, Pulse Width 50%, Delay 3

Note: When the delay parameter to be larger than the clock division, the value will wrap to the remainder of delay / division (modulo). For example a delay of 13 with a clock divison of 5 will be equivalent to a delay of 3.

The euclidean rhythm source, drum pattern source, and shift register will initially delay the pattern start after a reset.

Main Clock Pulse Counts

Steps 8, Density 50, Delay 0



Steps 8, Density 50, Delay 5

Phase

Phase shifts the pulse sources later in time within the pulse. They are like the delay parameter, but allow for fractional shifts. It can also be considered something of a front side pulse width. Each source is affected differently.

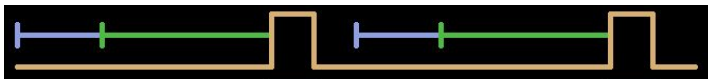
Clock Divider

Main Clock Pulse Counts

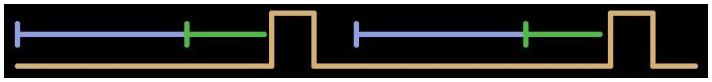
Division 4, Count Down, Pulse Width 50%, Phase 0

Division 4, Count Down, Pulse Width 50%, Phase 25%

Division 4, Count Down, Pulse Width 50%, Phase 50%

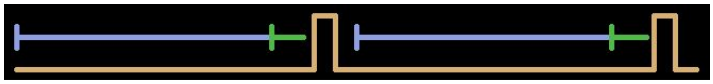


Division 4, Count Down, Pulse Width 50%, Delay 1, Phase 66%



Division 4, Count Down, Pulse Width 50%, Delay 2, Phase 50%

Division 4, Count Down, Pulse Width 50%, Delay 0, Phase 87%



Division 4, Count Down, Pulse Width 50%, Delay 3, Phase 50%

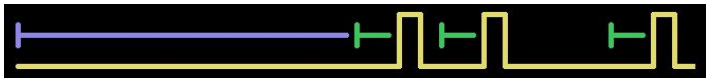
Euclidean, Drum Pattern, or Shift Register

Main Clock Pulse Counts

Delay 0, Phase 0%

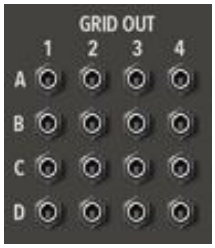
Delay 0, Phase 25%

Delay 0, Phase 50%



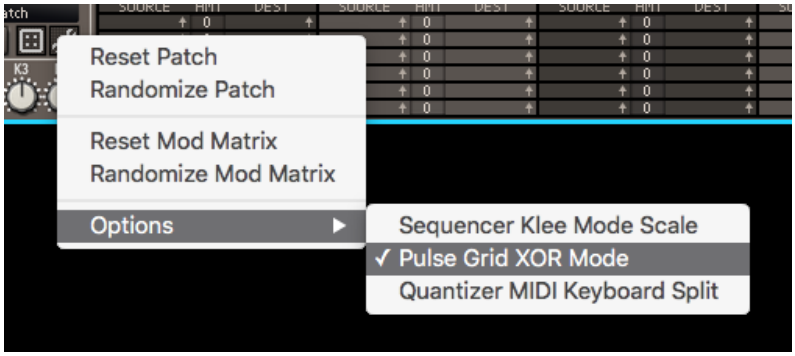
Delay 4, Phase 50%

CV Output



Each grid generator has an individual CV output that matches the 4x4 display.

Pulse Grid XOR Mode

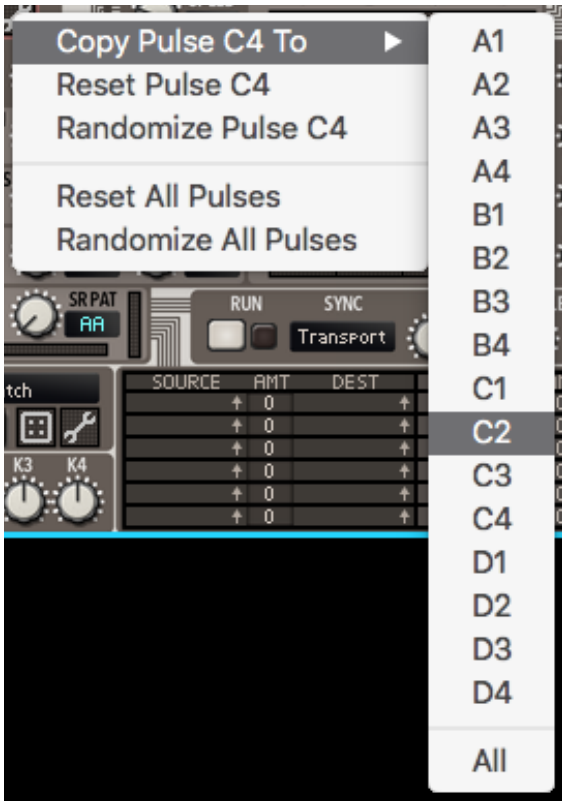


Under the Options Menu is the E**X**clusive **OR** Mode option. By default, all pulse generators pulsing a grid location are summed together. With **XOR** activated, they will *toggle* a grid location. This can create some very interesting pulse sequences.

Number of Pulse Generators Pulsing a Grid Location	Default Normal	XOR Mode On
0	0	0
1	1	1
2	1	0
3	1	1
4	1	0
5	1	1
6	1	0

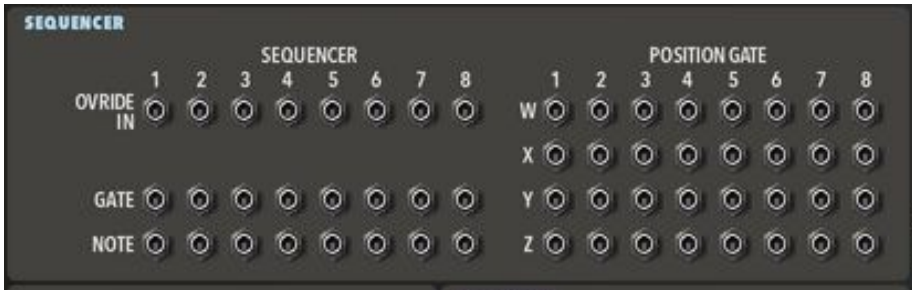
Generator Edit Tools

- **Randomize** Sets the current generator to intelligently randomized values.
- **Tool Pop-up Menu** Pop up a tool menu.



- **Copy Pulse To** Copies the current generator to another generator or all generators.
- **Reset Pulse** Sets the current generator to default values.
- **Randomize Pulse** Sets the current generator to intelligently randomized values.
- **Reset All Pulses** Sets all generators to default values.
- **Randomize All Pulses** Sets all generators to intelligently randomized values.

Sequencer Section

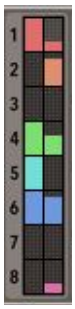


Sequencer contains 8 individual sequencers. Each is capable of running as a traditional analog sequencer, a clocked sample+hold, a shift register sequencer, or a klee sequencer. Playback can move in a variety of directions. The movement is clocked from a position on the Pulse grid. The output can optionally be run through a Quantizer note quantizer.

Sequencer Selection

Clicking the sequencer name will popup a menu listing all 8 sequencers (S1-S8).

Activity Strip



Shows the current values for the sequencer. The left box lights up when its pulse source is pulsed on. The right box shows the current sequencer value. Clicking on a sequencer square will also select it for editing.

Sequencer Values

Each knob sets the value for the sequencers output when the playhead is on that position.

Mode

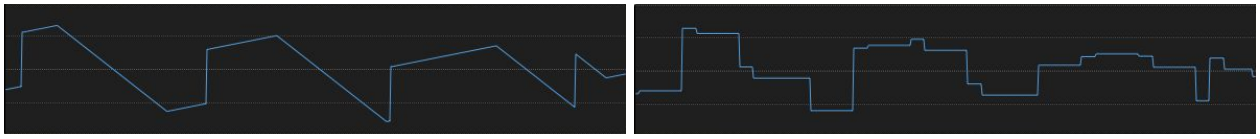
The mode parameter selects the method of sequencing.

Row and Column

These modes are the traditional analog style sequencers. When clocked, the playhead advances, and the sequencer output value is taken from the **Sequencer Values**. **Row** moves forward horizontally, left to right (W1,W2,W3,...). **Column** moves forward vertically, top to bottom (W1,X1,Y1,...).

Sample/Hold CV

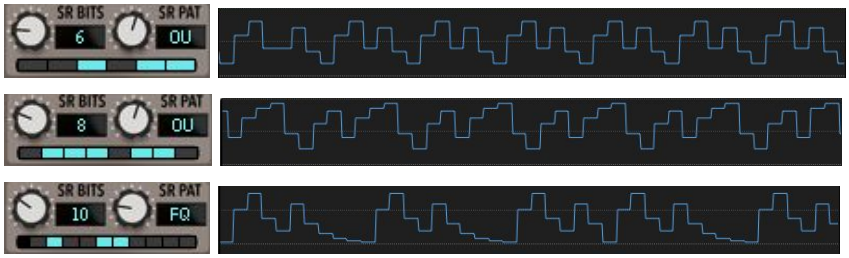
When there is a connection to the Override CV for a sequencer, Sample/Hold mode is activated. When clocked, the sequencer output value is set from the input CV value. This mode is great for generating a clocked sequence from a random LFO.



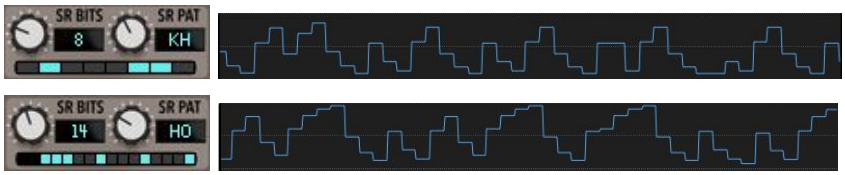
Sample and Hold Input vs Output

Shift Register (S.Reg)

This mode uses the sources **Shift Register** to calculate the sequencer output value. When clocked, the value is calculated by dividing the current shift registers binary value by the shift registers full binary value. For example a 4-bit shift register has a full range value of 1111 = 15. If it has a current bit pattern of 1010 = 5, the output would be 5/15 = 0.33. As the shift register shifts, it creates a looping pattern the length of the number of bits. Mixed a low **Chaos** Setting, it creates slowing morphing patterns.



Example Shift Registers and their patterns. Source's Division=1

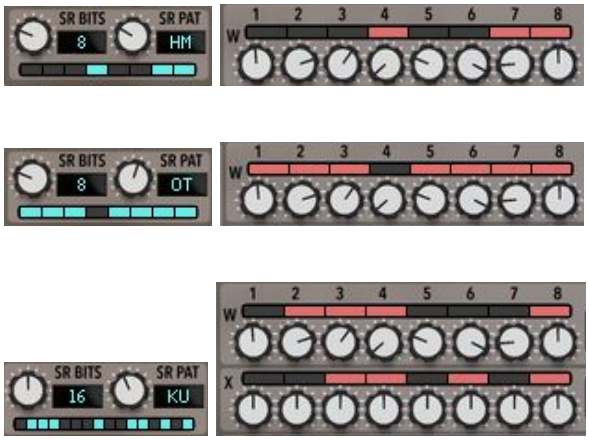


Example Shift Registers and their patterns. Source's Division=1. Chaos 5%

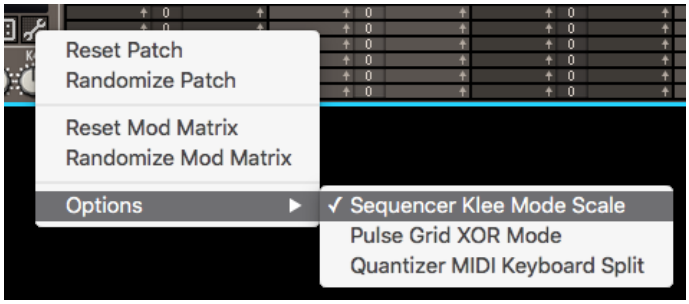
Set the sources division to 1 for regular pulses, instead of clocking from just the Shift Register.

Klee Sequencer

This mode maps the sources **Shift Register** to multiple sequencer positions and sums the sequencer values together. Mixed a low **Chaos** Setting, it creates slowing morphing patterns.



Example Shift Registers and their mapped sequencer positions.



Under the Options Menu is the **Klee Mode Scale** option. Since the sequencer values are added together, they can get very large. To prevent this, **Klee Mode Scale**, activated by default, scales the final value down into a useable range depending on how many bits are active in the Shift Register.

Move

Controls how the playhead advances.

In **Row** and **Column** mode:

- **Fwd** (Forward) Loops the pattern from first step to last step
- **Rev** (Reverse) Loops the pattern from last step to first step
- **Pnd1** (Pendulum 1) Loops the pattern from first step to last step, then last step to first step. The first and last steps will play twice.
- **Pnd2** (Pendulum 2) Loops the pattern from first step to last step, then 2nd last step to 2nd to first step. The first and last steps will play once.
- **Rand** (Random) Steps played in a random order.
- **Walk** (Random Walk) will randomly chose to step backward, stay and retrigger, or step forward with a bias for forward movement.

In **Klee** mode:

- **Fwd** (Forward) Maps the **Shift Register** directly
- **Rev** (Reverse) Maps the **Shift Register** in reverse

In all other modes, this parameter is ignored.

Source & Edge

Source parameter selects the Pulse generator used to clock the sequencer. In **Shift Register** and **Klee** mode, **Source** also assigned the **Shift Register** to be used.

Edge parameter selects when to advance the sequencer.

- **+** (Rising Edge) Advances each time the source pulse transitions from low to high.
- **-** (Falling Edge) Advances each time the source pulse transitions from high to low.
- **+-** (Both) Advances each time the source pulse transitions in any direction.

Start & End

In **Row** and **Column** mode, **Start** and **End** selects the region of values to use when advancing the playhead. In **Klee** mode, it defines the region to map the **Shift Register** onto.

Skip

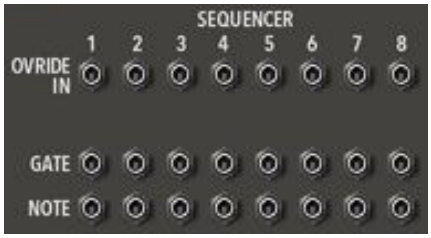
In **Row** and **Column** mode, **Skip** sets how many steps are skipped each time the playhead advances. This can also be thought of as how many extra advances are added on each source advance. Setting this to larger values can create some interesting patterns and diagonal movement.

In other modes, this parameter is ignored.

Quantizer

Assigns a note quantizer that will be used on the sequencers output.

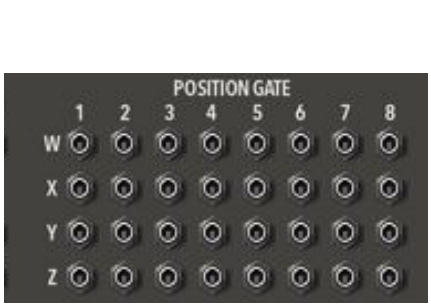
Sequencer CV



Each sequencer has one CV input and two CV outputs. **Gate** and **CV** are the typical outputs that would connect to another Reason instrument.

- **Gate** is a copy of the selected Pulse **source** used to pulse the sequencer.
- **CV** is the final output value of the sequencer.
- **Override CV In** is an override to the sequencer knob values. Connecting CV to this activates **Sample/Hold Mode**.

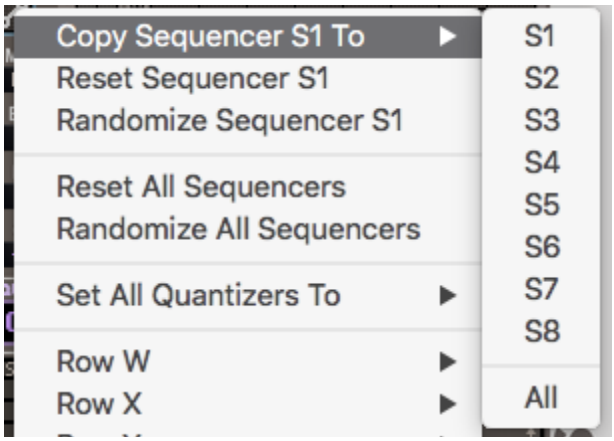
Sequencer Positional Gate CV Output



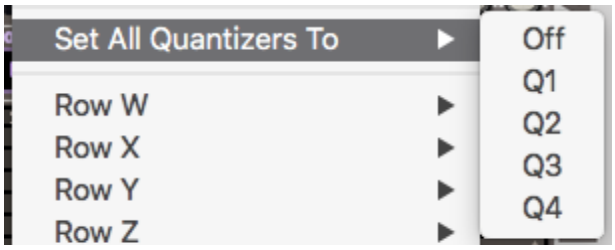
Each CV output corresponds to position in the sequencer values. When any sequencer playhead is in that position, the output is high. In the above images, CV outputs W1, W2, X4, Z1, Z3, and Z5 would be high, the rest would be zero.

Sequencer Edit Tools

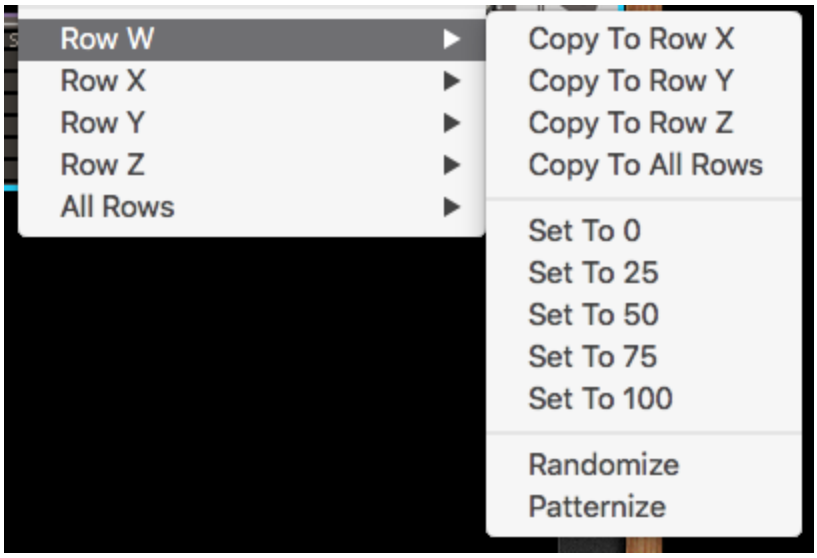
- **Randomize** Sets the current sequencer to intelligently randomized values.
- **Tool Pop-up Menu** Pop up a tool menu.



- **Copy Sequencer To** Copies the current sequencer to another sequencer or all sequencers.
- **Reset Sequencer** Sets the current sequencer to default values.
- **Randomize Sequencer** Sets the current sequencer to intelligently randomized values.
- **Reset All Sequencers** Sets all sequencers to default values.
- **Randomize All Sequencers** Sets all sequencers to intelligently randomized values.



- **Set All Quantizers To** Sets the quantizer value on all sequencers to the same value.



- **Copy To Row** Copies the values from a row to another row or all rows.
- **Set To** Sets all the values for a row.
- **Randomize** Sets the row to randomized values.
- **Patternize** Sets the row to a few randomized values with more of a musical pattern.

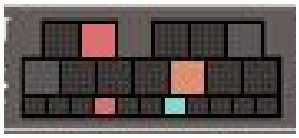
Quantizer Section

Quantizer is 4 CV quantizers that take a CV signal and snap it to selectable note values. The range and offset can be used to push any signal into the note ranges you want. The result quantized note stream can then be transposed by semitones. Running modulation into the range and offset can create some amazing melodies.

Quantizer Selection

Clicking the sequencer name will popup a menu listing all 4 quantizers (Q1-Q4).

Note Selection

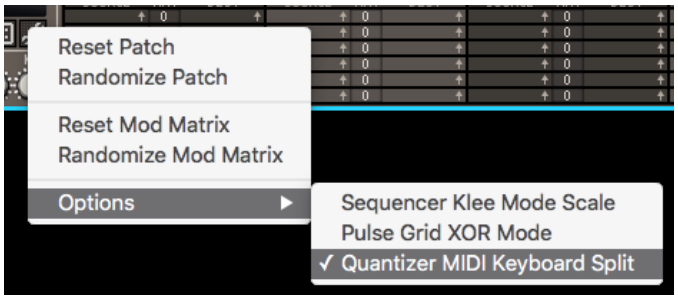


The note section is used to enable and disable notes form being quantized. The notes are arranged like a typical keyboard. Whenever a sequencer is assigned a Quantizer, its corresponding color will be used to highlight its output note and output octave on the bottom strip. Extra CV inputs from the back panel show up as bright white.

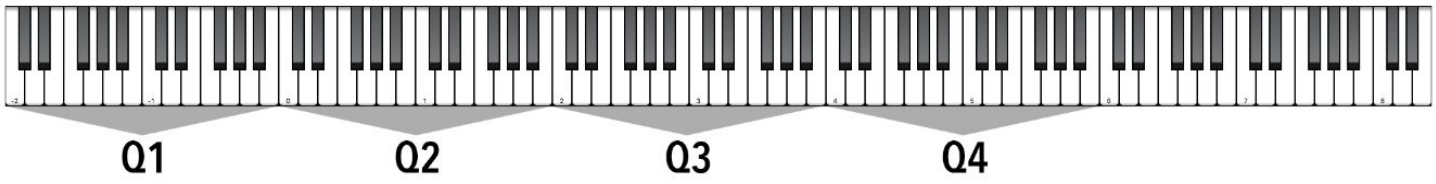
In the above image, notes C, D#, G, A# are enabled. Sequence S1 (Red) output is quantized to G, Octave 4. Sequence S2 (Orange) output is quantized to D#, Octave 6.

MIDI Input

Each Quantizer can be controlled via midi input. The Behavior depends on the MIDI Key Split setting.



When MIDI Key Split is enabled, the following graphic shows the mapping regions. Each Quantizer is assigned a 2 octave region. This allows for “playing” of the quantized values.



When MIDI Key Split is disabled, the entire range of the keyboard is mapped to all Quantizers simultaneously.

Range

The range is a multiplier for the incoming quantizer value. Decreasing the range will minimize the distance between the highest and lowest value.

Offset

The offset is added to the incoming quantizer value. Decreasing the range will minimize the distance between the highest and lowest value.

Transpose

Transpose shifts the final quantized output by semitones.

Range Modulation CV

Each quantizer has an external CV input to modulate its range parameter.

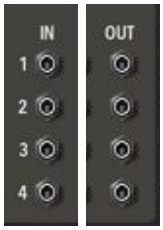
Offset Modulation CV

Each quantizer has an external CV input to modulate its offset parameter.

Transpose Modulation CV

Each quantizer has an external CV input to modulate its transpose parameter.

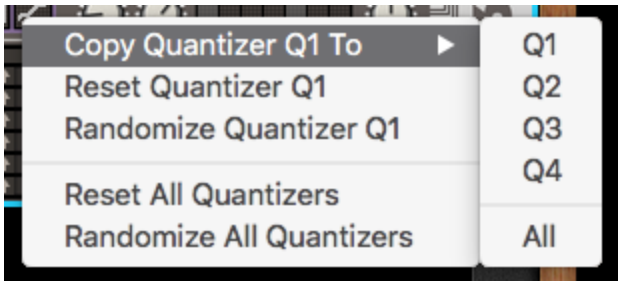
Extra Quantizer CV



Each quantizer unit has a stand alone input and output pair that is not tied to the Sequencer units. These will show up on the **Note Selection** as white when in use.

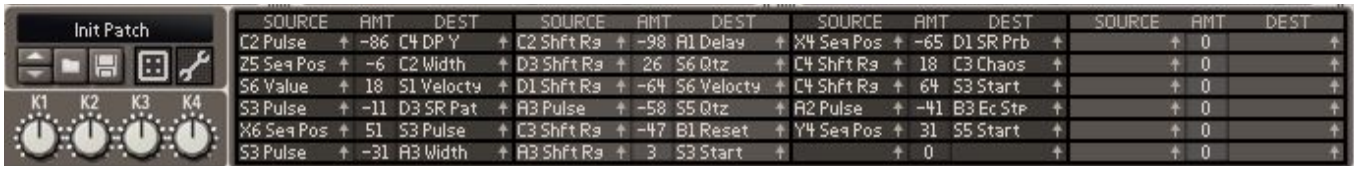
Quantizer Edit Tools

- **Randomize** Sets the current quantizer to intelligently randomized values.
- **Tool Pop-up Menu** Pop up a tool menu.



- **Copy Quantizer To** Copies the current quantizer to another quantizer or all quantizers.
- **Reset Quantizer** Sets the current quantizer to default values.
- **Randomize Quantizer** Sets the current quantizer to intelligently randomized values.
- **Reset All Quantizers** Sets all quantizers to default values.
- **Randomize All Quantizers** Sets all quantizers to intelligently randomized values.

Modulation Matrix



The **Modulation Matrix** has 24 slots and allows flexible internal modulation of PSQ.

Drag to Set

PSQ's modulation matrix allows sources and destinations to be set by dragging to the location on the panel.

1. Click-hold the arrow  next to the source or destination you wish to set.
2. Drag to the panel element you wish to assign.
3. As you hover over a valid target, the parameter name will appear to the left of the arrow.
4. Release the mouse button.

Knobs

The modulation matrix includes 4 general purpose knobs that range from -100 to 100.

Modulation Sources

Mod Matrix Knobs	4 general purpose input knobs.
CV Input 1-8	CV Inputs on the back panel.
Constant	Constant values: -200, -100, 100, 200
Pulse A1-D4	
Pulse	Pulse Grid Out.
Shift Register Value	See Shift Register (S.Reg)
Sequencer S1-S8	
Pulse	A Sequencers Pulse / Gate Output
Value	A Sequencers Value / Note Output
Sequencer Position W1-Z8	See Sequencer Positional Gate CV Output

Modulation Destinations

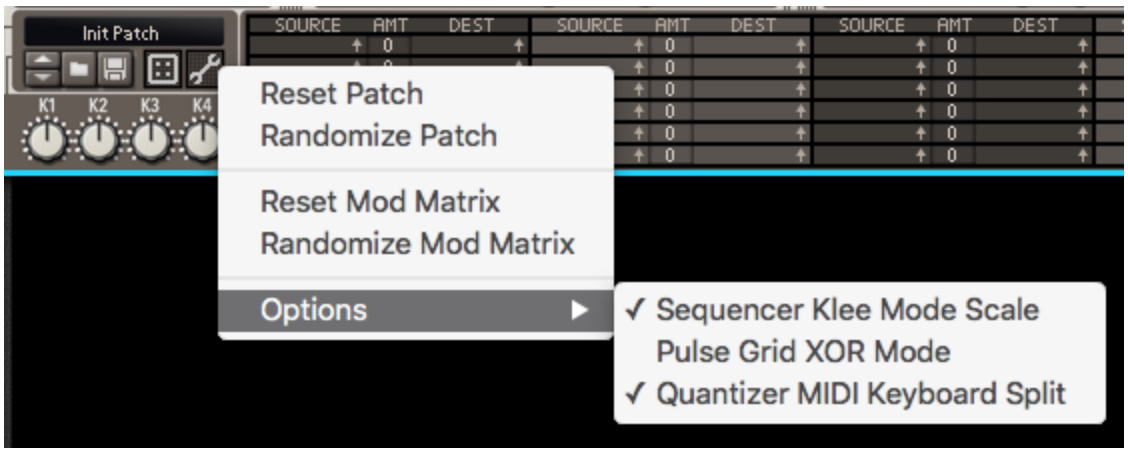
CV Output 1-8	CV Outputs on the back panel.
Quantizer Q1-Q4	
Range	See Range
Offset	See Offset
Transpose	See Transpose
Pulse A1-D4	
Speed	See Speed
Grid Pattern	See Grid Pattern
Chaos	See Chaos
Delay	See Delay
Phase	See Phase
Pulse Width	See Pulse Width
Division	See Clock Divider

Count Mode	See Clock Divider
Euclidean Density	See Euclidean Rhythm
Euclidean Steps	See Euclidean Rhythm
Drum Pattern Density	See Drum Pattern
Drum Pattern X	See Drum Pattern
Drum Pattern Y	See Drum Pattern
Shift Register Bits	See Shift Register
Shift Register Pattern	See Shift Register
Shift Register Probability	When used the Chaos, the probability of a bit being set is determined by the current SR Pattern. This modifies the probability that a bit is set or not.
Shift Register Set	This will force wrapped bits to be set or unset. +50 will Set. -50 will unset.
Grid Input	See External CV Grid Input
Reset	Triggers a state reset
Sequencer S1-S8	
Sequencer Mode	See Mode
Movement	See Move
Pulse Source	See Source & Edge
Pulse Edge	See Source & Edge
Start	See Start & End
End	See Start & End
Skip	See Skip
Quantizer	See Quantizer
Value	Adds to the sequencers input value/note.
Pulse	Adds to the pulse input. To drive a Sequencer directly, set the Source off. 
Velocity	Modifies the sequencers pulse / gate out velocity. Since the velocity defaults to 100, you must use constant to provide a -100 offset and then you can set velocity directly. 
Reset	Triggers a state reset

Patch

Patch Edit Tools

-  **Randomize** Sets all pulses and sequencers to intelligently randomized values.
-  **Tool Pop-up Menu** Pop up a tool menu.



- **Reset Patch** Resets all pulses and sequencers to default values.
- **Randomize Patch** Sets all pulses and sequencers to intelligently randomized values.
- **Reset Mod Matrix** Resets modulations to default values.
- **Randomize Mod Matrix** Sets modulations to intelligently randomized values.
- **Options**
  - **Sequencer Klee Mode Scale** See Klee Sequencer
  - **Pulse Grid XOR Mode** See Pulse Grid XOR Mode
  - **Quantizer MIDI Keyboard Split** See MIDI Input

Remote Items

Name	Type	Min	Max
"Modmatrix 10 Dest"	Int	0	420
"Modmatrix 10 Dest Amt"	Number	-100.0	100.0
"Modmatrix 10 Source"	Int	0	97
"Modmatrix 11 Dest"	Int	0	420
"Modmatrix 11 Dest Amt"	Number	-100.0	100.0
"Modmatrix 11 Source"	Int	0	97
"Modmatrix 12 Dest"	Int	0	420
"Modmatrix 12 Dest Amt"	Number	-100.0	100.0
"Modmatrix 12 Source"	Int	0	97
"Modmatrix 13 Dest"	Int	0	420
"Modmatrix 13 Dest Amt"	Number	-100.0	100.0
"Modmatrix 13 Source"	Int	0	97
"Modmatrix 14 Dest"	Int	0	420
"Modmatrix 14 Dest Amt"	Number	-100.0	100.0
"Modmatrix 14 Source"	Int	0	97
"Modmatrix 15 Dest"	Int	0	420
"Modmatrix 15 Dest Amt"	Number	-100.0	100.0
"Modmatrix 15 Source"	Int	0	97
"Modmatrix 16 Dest"	Int	0	420
"Modmatrix 16 Dest Amt"	Number	-100.0	100.0
"Modmatrix 16 Source"	Int	0	97
"Modmatrix 17 Dest"	Int	0	420
"Modmatrix 17 Dest Amt"	Number	-100.0	100.0
"Modmatrix 17 Source"	Int	0	97
"Modmatrix 18 Dest"	Int	0	420
"Modmatrix 18 Dest Amt"	Number	-100.0	100.0
"Modmatrix 18 Source"	Int	0	97
"Modmatrix 19 Dest"	Int	0	420
"Modmatrix 19 Dest Amt"	Number	-100.0	100.0
"Modmatrix 19 Source"	Int	0	97
"Modmatrix 1 Dest"	Int	0	420
"Modmatrix 1 Dest Amt"	Number	-100.0	100.0
"Modmatrix 1 Source"	Int	0	97
"Modmatrix 20 Dest"	Int	0	420
"Modmatrix 20 Dest Amt"	Number	-100.0	100.0
"Modmatrix 20 Source"	Int	0	97
"Modmatrix 21 Dest"	Int	0	420
"Modmatrix 21 Dest Amt"	Number	-100.0	100.0
"Modmatrix 21 Source"	Int	0	97
"Modmatrix 22 Dest"	Int	0	420
"Modmatrix 22 Dest Amt"	Number	-100.0	100.0
"Modmatrix 22 Source"	Int	0	97
"Modmatrix 23 Dest"	Int	0	420
"Modmatrix 23 Dest Amt"	Number	-100.0	100.0
"Modmatrix 23 Source"	Int	0	97
"Modmatrix 24 Dest"	Int	0	420
"Modmatrix 24 Dest Amt"	Number	-100.0	100.0
"Modmatrix 24 Source"	Int	0	97
"Modmatrix 2 Dest"	Int	0	420
"Modmatrix 2 Dest Amt"	Number	-100.0	100.0
"Modmatrix 2 Source"	Int	0	97
"Modmatrix 3 Dest"	Int	0	420
"Modmatrix 3 Dest Amt"	Number	-100.0	100.0
"Modmatrix 3 Source"	Int	0	97
"Modmatrix 4 Dest"	Int	0	420
"Modmatrix 4 Dest Amt"	Number	-100.0	100.0
"Modmatrix 4 Source"	Int	0	97
"Modmatrix 5 Dest"	Int	0	420
"Modmatrix 5 Dest Amt"	Number	-100.0	100.0
"Modmatrix 5 Source"	Int	0	97
"Modmatrix 6 Dest"	Int	0	420
"Modmatrix 6 Dest Amt"	Number	-100.0	100.0
"Modmatrix 6 Source"	Int	0	97
"Modmatrix 7 Dest"	Int	0	420
"Modmatrix 7 Dest Amt"	Number	-100.0	100.0
"Modmatrix 7 Source"	Int	0	97
"Modmatrix 8 Dest"	Int	0	420
"Modmatrix 8 Dest Amt"	Number	-100.0	100.0
"Modmatrix 8 Source"	Int	0	97
"Modmatrix 9 Dest"	Int	0	420
"Modmatrix 9 Dest Amt"	Number	-100.0	100.0
"Modmatrix 9 Source"	Int	0	97
"Modmatrix Knob 1"	Number	-100.0	100.0
"Modmatrix Knob 2"	Number	-100.0	100.0
"Modmatrix Knob 3"	Number	-100.0	100.0
"Modmatrix Knob 4"	Number	-100.0	100.0
"Pulse A1 Chaos"	Number	0.0	100.0
"Pulse A1 Count Mode"	Int	0	1

"Pulse A1 Delay"	Int	0	96
"Pulse A1 Division"	Int	0	96
"Pulse A1 Drum Pattern Density"	Int	0	100
"Pulse A1 Drum Pattern X"	Int	1	10
"Pulse A1 Drum Pattern Y"	Int	1	10
"Pulse A1 Euclidean Density"	Int	0	100
"Pulse A1 Euclidean Steps"	Int	0	96
"Pulse A1 Grid Pattern"	Int	0	51
"Pulse A1 Phase"	Number	0.0	100.0
"Pulse A1 Pulse Width"	Number	0.0	100.0
"Pulse A1 Shift Register Bits"	Int	0	32
"Pulse A1 Shift Register Pattern"	Int	0	675
"Pulse A1 Speed"	Int	1	96
"Pulse A2 Chaos"	Number	0.0	100.0
"Pulse A2 Count Mode"	Int	0	1
"Pulse A2 Delay"	Int	0	96
"Pulse A2 Division"	Int	0	96
"Pulse A2 Drum Pattern Density"	Int	0	100
"Pulse A2 Drum Pattern X"	Int	1	10
"Pulse A2 Drum Pattern Y"	Int	1	10
"Pulse A2 Euclidean Density"	Int	0	100
"Pulse A2 Euclidean Steps"	Int	0	96
"Pulse A2 Grid Pattern"	Int	0	51
"Pulse A2 Phase"	Number	0.0	100.0
"Pulse A2 Pulse Width"	Number	0.0	100.0
"Pulse A2 Shift Register Bits"	Int	0	32
"Pulse A2 Shift Register Pattern"	Int	0	675
"Pulse A2 Speed"	Int	1	96
"Pulse A3 Chaos"	Number	0.0	100.0
"Pulse A3 Count Mode"	Int	0	1
"Pulse A3 Delay"	Int	0	96
"Pulse A3 Division"	Int	0	96
"Pulse A3 Drum Pattern Density"	Int	0	100
"Pulse A3 Drum Pattern X"	Int	1	10
"Pulse A3 Drum Pattern Y"	Int	1	10
"Pulse A3 Euclidean Density"	Int	0	100
"Pulse A3 Euclidean Steps"	Int	0	96
"Pulse A3 Grid Pattern"	Int	0	51
"Pulse A3 Phase"	Number	0.0	100.0
"Pulse A3 Pulse Width"	Number	0.0	100.0
"Pulse A3 Shift Register Bits"	Int	0	32
"Pulse A3 Shift Register Pattern"	Int	0	675
"Pulse A3 Speed"	Int	1	96
"Pulse A4 Chaos"	Number	0.0	100.0
"Pulse A4 Count Mode"	Int	0	1
"Pulse A4 Delay"	Int	0	96
"Pulse A4 Division"	Int	0	96
"Pulse A4 Drum Pattern Density"	Int	0	100
"Pulse A4 Drum Pattern X"	Int	1	10
"Pulse A4 Drum Pattern Y"	Int	1	10
"Pulse A4 Euclidean Density"	Int	0	100
"Pulse A4 Euclidean Steps"	Int	0	96
"Pulse A4 Grid Pattern"	Int	0	51
"Pulse A4 Phase"	Number	0.0	100.0
"Pulse A4 Pulse Width"	Number	0.0	100.0
"Pulse A4 Shift Register Bits"	Int	0	32
"Pulse A4 Shift Register Pattern"	Int	0	675
"Pulse A4 Speed"	Int	1	96
"Pulse B1 Chaos"	Number	0.0	100.0
"Pulse B1 Count Mode"	Int	0	1
"Pulse B1 Delay"	Int	0	96
"Pulse B1 Division"	Int	0	96
"Pulse B1 Drum Pattern Density"	Int	0	100
"Pulse B1 Drum Pattern X"	Int	1	10
"Pulse B1 Drum Pattern Y"	Int	1	10
"Pulse B1 Euclidean Density"	Int	0	100
"Pulse B1 Euclidean Steps"	Int	0	96
"Pulse B1 Grid Pattern"	Int	0	51
"Pulse B1 Phase"	Number	0.0	100.0
"Pulse B1 Pulse Width"	Number	0.0	100.0
"Pulse B1 Shift Register Bits"	Int	0	32
"Pulse B1 Shift Register Pattern"	Int	0	675
"Pulse B1 Speed"	Int	1	96
"Pulse B2 Chaos"	Number	0.0	100.0
"Pulse B2 Count Mode"	Int	0	1
"Pulse B2 Delay"	Int	0	96
"Pulse B2 Division"	Int	0	96
"Pulse B2 Drum Pattern Density"	Int	0	100
"Pulse B2 Drum Pattern X"	Int	1	10
"Pulse B2 Drum Pattern Y"	Int	1	10
"Pulse B2 Euclidean Density"	Int	0	100
"Pulse B2 Euclidean Steps"	Int	0	96
"Pulse B2 Grid Pattern"	Int	0	51
"Pulse B2 Phase"	Number	0.0	100.0
"Pulse B2 Pulse Width"	Number	0.0	100.0
"Pulse B2 Shift Register Bits"	Int	0	32
"Pulse B2 Shift Register Pattern"	Int	0	675

"Pulse B2 Speed"	Int	1	96
"Pulse B3 Chaos"	Number	0.0	100.0
"Pulse B3 Count Mode"	Int	0	1
"Pulse B3 Delay"	Int	0	96
"Pulse B3 Division"	Int	0	96
"Pulse B3 Drum Pattern Density"	Int	0	100
"Pulse B3 Drum Pattern X"	Int	1	10
"Pulse B3 Drum Pattern Y"	Int	1	10
"Pulse B3 Euclidean Density"	Int	0	100
"Pulse B3 Euclidean Steps"	Int	0	96
"Pulse B3 Grid Pattern"	Int	0	51
"Pulse B3 Phase"	Number	0.0	100.0
"Pulse B3 Pulse Width"	Number	0.0	100.0
"Pulse B3 Shift Register Bits"	Int	0	32
"Pulse B3 Shift Register Pattern"	Int	0	675
"Pulse B3 Speed"	Int	1	96
"Pulse B4 Chaos"	Number	0.0	100.0
"Pulse B4 Count Mode"	Int	0	1
"Pulse B4 Delay"	Int	0	96
"Pulse B4 Division"	Int	0	96
"Pulse B4 Drum Pattern Density"	Int	0	100
"Pulse B4 Drum Pattern X"	Int	1	10
"Pulse B4 Drum Pattern Y"	Int	1	10
"Pulse B4 Euclidean Density"	Int	0	100
"Pulse B4 Euclidean Steps"	Int	0	96
"Pulse B4 Grid Pattern"	Int	0	51
"Pulse B4 Phase"	Number	0.0	100.0
"Pulse B4 Pulse Width"	Number	0.0	100.0
"Pulse B4 Shift Register Bits"	Int	0	32
"Pulse B4 Shift Register Pattern"	Int	0	675
"Pulse B4 Speed"	Int	1	96
"Pulse C1 Chaos"	Number	0.0	100.0
"Pulse C1 Count Mode"	Int	0	1
"Pulse C1 Delay"	Int	0	96
"Pulse C1 Division"	Int	0	96
"Pulse C1 Drum Pattern Density"	Int	0	100
"Pulse C1 Drum Pattern X"	Int	1	10
"Pulse C1 Drum Pattern Y"	Int	1	10
"Pulse C1 Euclidean Density"	Int	0	100
"Pulse C1 Euclidean Steps"	Int	0	96
"Pulse C1 Grid Pattern"	Int	0	51
"Pulse C1 Phase"	Number	0.0	100.0
"Pulse C1 Pulse Width"	Number	0.0	100.0
"Pulse C1 Shift Register Bits"	Int	0	32
"Pulse C1 Shift Register Pattern"	Int	0	675
"Pulse C1 Speed"	Int	1	96
"Pulse C2 Chaos"	Number	0.0	100.0
"Pulse C2 Count Mode"	Int	0	1
"Pulse C2 Delay"	Int	0	96
"Pulse C2 Division"	Int	0	96
"Pulse C2 Drum Pattern Density"	Int	0	100
"Pulse C2 Drum Pattern X"	Int	1	10
"Pulse C2 Drum Pattern Y"	Int	1	10
"Pulse C2 Euclidean Density"	Int	0	100
"Pulse C2 Euclidean Steps"	Int	0	96
"Pulse C2 Grid Pattern"	Int	0	51
"Pulse C2 Phase"	Number	0.0	100.0
"Pulse C2 Pulse Width"	Number	0.0	100.0
"Pulse C2 Shift Register Bits"	Int	0	32
"Pulse C2 Shift Register Pattern"	Int	0	675
"Pulse C2 Speed"	Int	1	96
"Pulse C3 Chaos"	Number	0.0	100.0
"Pulse C3 Count Mode"	Int	0	1
"Pulse C3 Delay"	Int	0	96
"Pulse C3 Division"	Int	0	96
"Pulse C3 Drum Pattern Density"	Int	0	100
"Pulse C3 Drum Pattern X"	Int	1	10
"Pulse C3 Drum Pattern Y"	Int	1	10
"Pulse C3 Euclidean Density"	Int	0	100
"Pulse C3 Euclidean Steps"	Int	0	96
"Pulse C3 Grid Pattern"	Int	0	51
"Pulse C3 Phase"	Number	0.0	100.0
"Pulse C3 Pulse Width"	Number	0.0	100.0
"Pulse C3 Shift Register Bits"	Int	0	32
"Pulse C3 Shift Register Pattern"	Int	0	675
"Pulse C3 Speed"	Int	1	96
"Pulse C4 Chaos"	Number	0.0	100.0
"Pulse C4 Count Mode"	Int	0	1
"Pulse C4 Delay"	Int	0	96
"Pulse C4 Division"	Int	0	96
"Pulse C4 Drum Pattern Density"	Int	0	100
"Pulse C4 Drum Pattern X"	Int	1	10
"Pulse C4 Drum Pattern Y"	Int	1	10
"Pulse C4 Euclidean Density"	Int	0	100
"Pulse C4 Euclidean Steps"	Int	0	96
"Pulse C4 Grid Pattern"	Int	0	51
"Pulse C4 Phase"	Number	0.0	100.0

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"Pulse C4 Pulse Width"              Number     0.0      100.0
"Pulse C4 Shift Register Bits"      Int        0        32
"Pulse C4 Shift Register Pattern"   Int        0        675
"Pulse C4 Speed"                    Int        1        96
"Pulse D1 Chaos"                    Number     0.0      100.0
"Pulse D1 Count Mode"               Int        0        1
"Pulse D1 Delay"                    Int        0        96
"Pulse D1 Division"                 Int        0        96
"Pulse D1 Drum Pattern Density"     Int        0        100
"Pulse D1 Drum Pattern X"           Int        1        10
"Pulse D1 Drum Pattern Y"           Int        1        10
"Pulse D1 Euclidean Density"        Int        0        100
"Pulse D1 Euclidean Steps"          Int        0        96
"Pulse D1 Grid Pattern"             Int        0        51
"Pulse D1 Phase"                    Number     0.0      100.0
"Pulse D1 Pulse Width"              Number     0.0      100.0
"Pulse D1 Shift Register Bits"      Int        0        32
"Pulse D1 Shift Register Pattern"   Int        0        675
"Pulse D1 Speed"                    Int        1        96
"Pulse D2 Chaos"                    Number     0.0      100.0
"Pulse D2 Count Mode"               Int        0        1
"Pulse D2 Delay"                    Int        0        96
"Pulse D2 Division"                 Int        0        96
"Pulse D2 Drum Pattern Density"     Int        0        100
"Pulse D2 Drum Pattern X"           Int        1        10
"Pulse D2 Drum Pattern Y"           Int        1        10
"Pulse D2 Euclidean Density"        Int        0        100
"Pulse D2 Euclidean Steps"          Int        0        96
"Pulse D2 Grid Pattern"             Int        0        51
"Pulse D2 Phase"                    Number     0.0      100.0
"Pulse D2 Pulse Width"              Number     0.0      100.0
"Pulse D2 Shift Register Bits"      Int        0        32
"Pulse D2 Shift Register Pattern"   Int        0        675
"Pulse D2 Speed"                    Int        1        96
"Pulse D3 Chaos"                    Number     0.0      100.0
"Pulse D3 Count Mode"               Int        0        1
"Pulse D3 Delay"                    Int        0        96
"Pulse D3 Division"                 Int        0        96
"Pulse D3 Drum Pattern Density"     Int        0        100
"Pulse D3 Drum Pattern X"           Int        1        10
"Pulse D3 Drum Pattern Y"           Int        1        10
"Pulse D3 Euclidean Density"        Int        0        100
"Pulse D3 Euclidean Steps"          Int        0        96
"Pulse D3 Grid Pattern"             Int        0        51
"Pulse D3 Phase"                    Number     0.0      100.0
"Pulse D3 Pulse Width"              Number     0.0      100.0
"Pulse D3 Shift Register Bits"      Int        0        32
"Pulse D3 Shift Register Pattern"   Int        0        675
"Pulse D3 Speed"                    Int        1        96
"Pulse D4 Chaos"                    Number     0.0      100.0
"Pulse D4 Count Mode"               Int        0        1
"Pulse D4 Delay"                    Int        0        96
"Pulse D4 Division"                 Int        0        96
"Pulse D4 Drum Pattern Density"     Int        0        100
"Pulse D4 Drum Pattern X"           Int        1        10
"Pulse D4 Drum Pattern Y"           Int        1        10
"Pulse D4 Euclidean Density"        Int        0        100
"Pulse D4 Euclidean Steps"          Int        0        96
"Pulse D4 Grid Pattern"             Int        0        51
"Pulse D4 Phase"                    Number     0.0      100.0
"Pulse D4 Pulse Width"              Number     0.0      100.0
"Pulse D4 Shift Register Bits"      Int        0        32
"Pulse D4 Shift Register Pattern"   Int        0        675
"Pulse D4 Speed"                    Int        1        96
"Pulse Selection"                   Int        0        15       // Pulse Selection
"Pulse Selector"                    Int        0        15       // Removed Use pulse selection
"Quantizer Q1 Note 1"               Boolean    0        1
"Quantizer Q1 Note 10"              Boolean    0        1
"Quantizer Q1 Note 11"              Boolean    0        1
"Quantizer Q1 Note 12"              Boolean    0        1
"Quantizer Q1 Note 2"               Boolean    0        1
"Quantizer Q1 Note 3"               Boolean    0        1
"Quantizer Q1 Note 4"               Boolean    0        1
"Quantizer Q1 Note 5"               Boolean    0        1
"Quantizer Q1 Note 6"               Boolean    0        1
"Quantizer Q1 Note 7"               Boolean    0        1
"Quantizer Q1 Note 8"               Boolean    0        1
"Quantizer Q1 Note 9"               Boolean    0        1
"Quantizer Q1 Offset"               Number     0        127
"Quantizer Q1 Range"                Number     0.0      2.0
"Quantizer Q1 Transpose"            Int        -24      24
"Quantizer Q2 Note 1"               Boolean    0        1
"Quantizer Q2 Note 10"              Boolean    0        1
"Quantizer Q2 Note 11"              Boolean    0        1
"Quantizer Q2 Note 12"              Boolean    0        1
"Quantizer Q2 Note 2"               Boolean    0        1
"Quantizer Q2 Note 3"               Boolean    0        1
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"Quantizer Q2 Note 4"              Boolean    0       1
"Quantizer Q2 Note 5"              Boolean    0       1
"Quantizer Q2 Note 6"              Boolean    0       1
"Quantizer Q2 Note 7"              Boolean    0       1
"Quantizer Q2 Note 8"              Boolean    0       1
"Quantizer Q2 Note 9"              Boolean    0       1
"Quantizer Q2 Offset"              Number     0       127
"Quantizer Q2 Range"               Number     0.0     2.0
"Quantizer Q2 Transpose"           Int        -24     24
"Quantizer Q3 Note 1"              Boolean    0       1
"Quantizer Q3 Note 10"             Boolean    0       1
"Quantizer Q3 Note 11"             Boolean    0       1
"Quantizer Q3 Note 12"             Boolean    0       1
"Quantizer Q3 Note 2"              Boolean    0       1
"Quantizer Q3 Note 3"              Boolean    0       1
"Quantizer Q3 Note 4"              Boolean    0       1
"Quantizer Q3 Note 5"              Boolean    0       1
"Quantizer Q3 Note 6"              Boolean    0       1
"Quantizer Q3 Note 7"              Boolean    0       1
"Quantizer Q3 Note 8"              Boolean    0       1
"Quantizer Q3 Note 9"              Boolean    0       1
"Quantizer Q3 Offset"              Number     0       127
"Quantizer Q3 Range"               Number     0.0     2.0
"Quantizer Q3 Transpose"           Int        -24     24
"Quantizer Q4 Note 1"              Boolean    0       1
"Quantizer Q4 Note 10"             Boolean    0       1
"Quantizer Q4 Note 11"             Boolean    0       1
"Quantizer Q4 Note 12"             Boolean    0       1
"Quantizer Q4 Note 2"              Boolean    0       1
"Quantizer Q4 Note 3"              Boolean    0       1
"Quantizer Q4 Note 4"              Boolean    0       1
"Quantizer Q4 Note 5"              Boolean    0       1
"Quantizer Q4 Note 6"              Boolean    0       1
"Quantizer Q4 Note 7"              Boolean    0       1
"Quantizer Q4 Note 8"              Boolean    0       1
"Quantizer Q4 Note 9"              Boolean    0       1
"Quantizer Q4 Offset"              Number     0       127
"Quantizer Q4 Range"               Number     0.0     2.0
"Quantizer Q4 Transpose"           Int        -24     24
"Quantizer Selection"              Int        0       3       // Quantizer Selection
"Quantizer Selector"               Int        0       3       // Removed Use quantizer selection
"Rate Free Hz"                     Number     0       127
"Rate Free Ms"                     Number     0       127
"Rate Sync"                        Int        0       30
"Reset Count"                      Int        0       128
"Rt Input Quantized Note 1"        Int        0       999     // 0=Off, 1-128=Midi Note+1
"Rt Input Quantized Note 2"        Int        0       999     // 0=Off, 1-128=Midi Note+1
"Rt Input Quantized Note 3"        Int        0       999     // 0=Off, 1-128=Midi Note+1
"Rt Input Quantized Note 4"        Int        0       999     // 0=Off, 1-128=Midi Note+1
"Rt Pulse"                         Boolean    0       1
"Rt Pulse A1"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse A2"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse A3"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse A4"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse B1"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse B2"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse B3"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse B4"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse C1"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse C2"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse C3"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse C4"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse D1"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse D2"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse D3"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Pulse D4"                      Int        0       99      // 0 = Off, 1-3 = On with Brightness
"Rt Quantizer Q1 Note 1"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 10"          Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 11"          Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 12"          Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 2"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 3"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 4"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 5"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 6"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 7"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 8"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q1 Note 9"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 1"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 10"          Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 11"          Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 12"          Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 2"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 3"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 4"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 5"           Int        0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 6"           Int        0       2       // Off=0, On>=1
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"Rt Quantizer Q2 Note 7"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 8"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q2 Note 9"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 1"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 10"           Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 11"           Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 12"           Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 2"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 3"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 4"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 5"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 6"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 7"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 8"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q3 Note 9"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 1"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 10"           Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 11"           Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 12"           Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 2"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 3"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 4"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 5"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 6"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 7"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 8"            Int       0       2       // Off=0, On>=1
"Rt Quantizer Q4 Note 9"            Int       0       2       // Off=0, On>=1
"Rt Reset"                          Boolean   0       1
"Rt Running"                        Boolean   0       1
"Rt Sequencer Position 0 S1"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S2"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S3"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S4"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S5"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S6"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S7"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 0 S8"        Int       0       65535   // Position Bit Field, W1-X8, Bit_0=X8
"Rt Sequencer Position 1 S1"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S2"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S3"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S4"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S5"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S6"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S7"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position 1 S8"        Int       0       65535   // Position Bit Field, Y1-Z8, Bit_0=Z8
"Rt Sequencer Position S1"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S2"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S3"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S4"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S5"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S6"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S7"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Position S8"          Int       0       99      // Deprecated, Always 0
"Rt Sequencer Pulse S1"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S2"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S3"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S4"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S5"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S6"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S7"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Pulse S8"             Int       0       99      // Off=0, On>=1
"Rt Sequencer Quantized Note S1"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S2"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S3"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S4"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S5"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S6"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S7"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantized Note S8"    Int       0       999     // 0=Off, 1-128=Midi Note+1
"Rt Sequencer Quantizer S1"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S2"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S3"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S4"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S5"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S6"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S7"         Int       0       999     // Result Quantizer
"Rt Sequencer Quantizer S8"         Int       0       999     // Result Quantizer
"Rt Sequencer Value S1"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S2"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S3"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S4"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S5"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S6"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S7"             Number    0       127     // Final Sequencer Value
"Rt Sequencer Value S8"             Number    0       127     // Final Sequencer Value
"Rt Shift Register 0 A1"            Int       0       65535   // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 A2"            Int       0       65535   // Shift Register Bit Field, Bits 0-15
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"Rt Shift Register 0 A3"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 A4"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 B1"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 B2"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 B3"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 B4"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 C1"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 C2"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 C3"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 C4"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 D1"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 D2"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 D3"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 0 D4"            Int       0       65535    // Shift Register Bit Field, Bits 0-15
"Rt Shift Register 1 A1"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 A2"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 A3"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 A4"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 B1"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 B2"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 B3"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 B4"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 C1"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 C2"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 C3"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 C4"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 D1"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 D2"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 D3"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register 1 D4"            Int       0       65535    // Shift Register Bit Field, Bits 16-31
"Rt Shift Register Analog A1"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog A2"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog A3"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog A4"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog B1"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog B2"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog B3"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog B4"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog C1"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog C2"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog C3"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog C4"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog D1"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog D2"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog D3"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Analog D4"       Number    0       127      // Shift Register D/A Value
"Rt Shift Register Bits A1"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits A2"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits A3"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits A4"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits B1"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits B2"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits B3"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits B4"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits C1"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits C2"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits C3"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits C4"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits D1"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits D2"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits D3"         Int       0       32       // Shift Register Number Bits
"Rt Shift Register Bits D4"         Int       0       32       // Shift Register Number Bits
"Run"                               Boolean   0       1
"Sequence Data W1 Val"              Number    0.0     100.0
"Sequence Data W2 Val"              Number    0.0     100.0
"Sequence Data W3 Val"              Number    0.0     100.0
"Sequence Data W4 Val"              Number    0.0     100.0
"Sequence Data W5 Val"              Number    0.0     100.0
"Sequence Data W6 Val"              Number    0.0     100.0
"Sequence Data W7 Val"              Number    0.0     100.0
"Sequence Data W8 Val"              Number    0.0     100.0
"Sequence Data X1 Val"              Number    0.0     100.0
"Sequence Data X2 Val"              Number    0.0     100.0
"Sequence Data X3 Val"              Number    0.0     100.0
"Sequence Data X4 Val"              Number    0.0     100.0
"Sequence Data X5 Val"              Number    0.0     100.0
"Sequence Data X6 Val"              Number    0.0     100.0
"Sequence Data X7 Val"              Number    0.0     100.0
"Sequence Data X8 Val"              Number    0.0     100.0
"Sequence Data Y1 Val"              Number    0.0     100.0
"Sequence Data Y2 Val"              Number    0.0     100.0
"Sequence Data Y3 Val"              Number    0.0     100.0
"Sequence Data Y4 Val"              Number    0.0     100.0
"Sequence Data Y5 Val"              Number    0.0     100.0
"Sequence Data Y6 Val"              Number    0.0     100.0
"Sequence Data Y7 Val"              Number    0.0     100.0
"Sequence Data Y8 Val"              Number    0.0     100.0
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```
"Sequence Data Z1 Val"              Number     0.0      100.0
"Sequence Data Z2 Val"              Number     0.0      100.0
"Sequence Data Z3 Val"              Number     0.0      100.0
"Sequence Data Z4 Val"              Number     0.0      100.0
"Sequence Data Z5 Val"              Number     0.0      100.0
"Sequence Data Z6 Val"              Number     0.0      100.0
"Sequence Data Z7 Val"              Number     0.0      100.0
"Sequence Data Z8 Val"              Number     0.0      100.0
"Sequencer S1 End"                  Int        0        31
"Sequencer S1 Movement"             Int        0        5
"Sequencer S1 Pulse Edge"           Int        0        2
"Sequencer S1 Pulse Source"         Int        0        16
"Sequencer S1 Quantizer"            Int        0        4
"Sequencer S1 Sequencer Mode"       Int        0        4
"Sequencer S1 Skip"                 Int        0        30
"Sequencer S1 Start"                Int        0        31
"Sequencer S2 End"                  Int        0        31
"Sequencer S2 Movement"             Int        0        5
"Sequencer S2 Pulse Edge"           Int        0        2
"Sequencer S2 Pulse Source"         Int        0        16
"Sequencer S2 Quantizer"            Int        0        4
"Sequencer S2 Sequencer Mode"       Int        0        4
"Sequencer S2 Skip"                 Int        0        30
"Sequencer S2 Start"                Int        0        31
"Sequencer S3 End"                  Int        0        31
"Sequencer S3 Movement"             Int        0        5
"Sequencer S3 Pulse Edge"           Int        0        2
"Sequencer S3 Pulse Source"         Int        0        16
"Sequencer S3 Quantizer"            Int        0        4
"Sequencer S3 Sequencer Mode"       Int        0        4
"Sequencer S3 Skip"                 Int        0        30
"Sequencer S3 Start"                Int        0        31
"Sequencer S4 End"                  Int        0        31
"Sequencer S4 Movement"             Int        0        5
"Sequencer S4 Pulse Edge"           Int        0        2
"Sequencer S4 Pulse Source"         Int        0        16
"Sequencer S4 Quantizer"            Int        0        4
"Sequencer S4 Sequencer Mode"       Int        0        4
"Sequencer S4 Skip"                 Int        0        30
"Sequencer S4 Start"                Int        0        31
"Sequencer S5 End"                  Int        0        31
"Sequencer S5 Movement"             Int        0        5
"Sequencer S5 Pulse Edge"           Int        0        2
"Sequencer S5 Pulse Source"         Int        0        16
"Sequencer S5 Quantizer"            Int        0        4
"Sequencer S5 Sequencer Mode"       Int        0        4
"Sequencer S5 Skip"                 Int        0        30
"Sequencer S5 Start"                Int        0        31
"Sequencer S6 End"                  Int        0        31
"Sequencer S6 Movement"             Int        0        5
"Sequencer S6 Pulse Edge"           Int        0        2
"Sequencer S6 Pulse Source"         Int        0        16
"Sequencer S6 Quantizer"            Int        0        4
"Sequencer S6 Sequencer Mode"       Int        0        4
"Sequencer S6 Skip"                 Int        0        30
"Sequencer S6 Start"                Int        0        31
"Sequencer S7 End"                  Int        0        31
"Sequencer S7 Movement"             Int        0        5
"Sequencer S7 Pulse Edge"           Int        0        2
"Sequencer S7 Pulse Source"         Int        0        16
"Sequencer S7 Quantizer"            Int        0        4
"Sequencer S7 Sequencer Mode"       Int        0        4
"Sequencer S7 Skip"                 Int        0        30
"Sequencer S7 Start"                Int        0        31
"Sequencer S8 End"                  Int        0        31
"Sequencer S8 Movement"             Int        0        5
"Sequencer S8 Pulse Edge"           Int        0        2
"Sequencer S8 Pulse Source"         Int        0        16
"Sequencer S8 Quantizer"            Int        0        4
"Sequencer S8 Sequencer Mode"       Int        0        4
"Sequencer S8 Skip"                 Int        0        30
"Sequencer S8 Start"                Int        0        31
"Sequencer Selection"               Int        0        7        // Sequencer Selection
"Sequencer Selector"                Int        0        7        // Removed Use sequencer selection
"Shuffle"                           Number     50.0     100.0
"Sync Mode"                         Int        0        3
```