TRIGATER

TRIGGER TO CV / GATE PROGRAMMABLE SEQUENCER

Operation Manual

QUADELECTRA

Re
Rack Extension
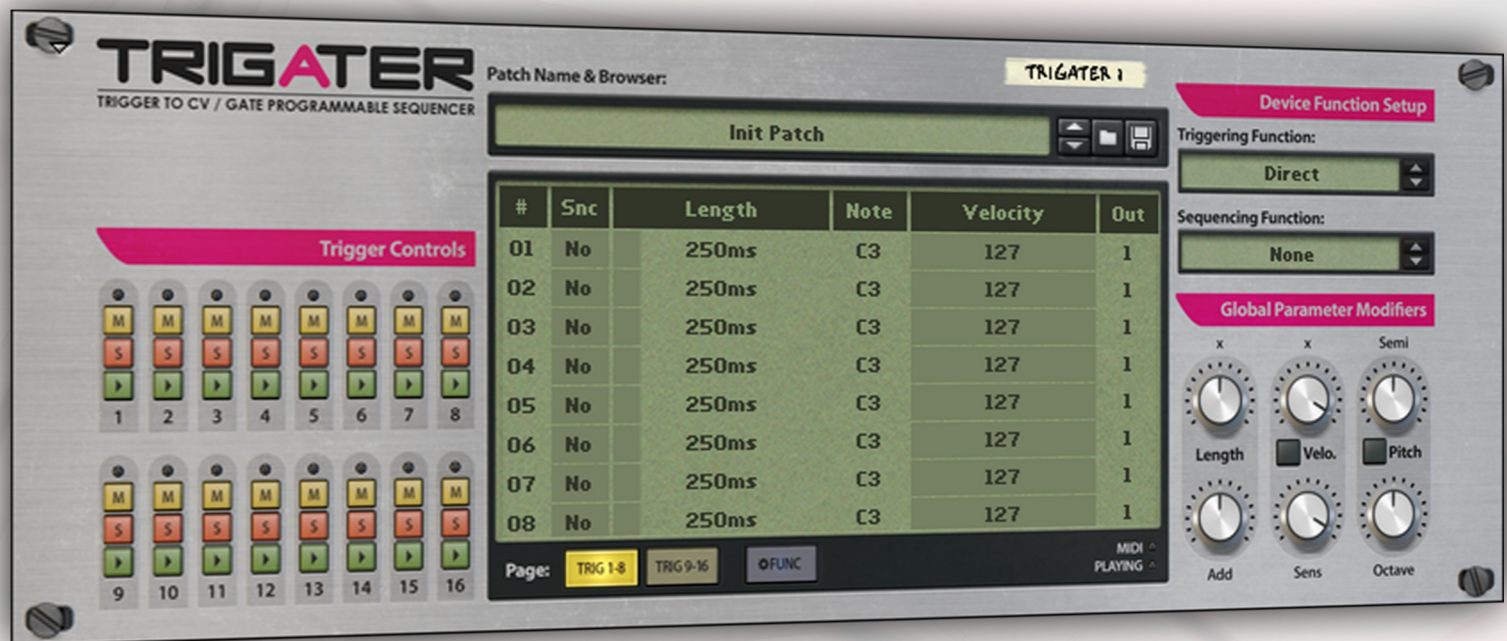
1. Introduction

We would like to thank you for trying / purchasing Trigater. Keeping up with our commitment to deliver intuitive new devices, we've put a lot of effort and work to deliver you this utility rack extension device for Reason.

1.1. What Is Trigater?

Trigater is a multifunctional tool which serves two basic purposes:

1) To convert a set of trigger signals to specific CV / Gate ones, of a predefined length.
2) To act as an analog old style step sequencer.

Moreover baked in to the Trigater there is an extensive set of tools and functions that make it a powerful utility device, especially when it comes to procedural style music.

In this manual we'll examine the functionality and the extensive ways you can use Trigater in your workflow.

1.2. Triggers & Gates

So what is the difference between triggers and note/gate pairs?

A trigger is a CV pulse that would be sent -probably by a drum machine or a sequencer output. It does not carry any information by itself. It's just a pulse and it's up to the recipient of that pulse to decide what to do with it. In contrast: A CV / gate pair is a set of two CV signals which carry the note pitch and velocity of a note respectively. The two signals are set by the sender. Moreover a trigger is fired for just an instant (a pulse), while CV / gate changes, remain constant for as long as the length of the note requires.

Trigater is a utility device which transforms an incoming trigger pulse, to a CV / gate pair of a specified length. In fact Trigater, accepts a total of 16 different trigger inputs, which can be addressed to up to 8 different CV / gate output pairs.

Trigater was created with System9 in mind, in order to provide extended functionality (f.e. Trigger loops, notes, etc), but you can use it with any drum machine or sequencer that sends CV trigger signals. You can even create polyrhythms by connecting different triggers to different sources such as LFOs, Arpeggiators and more.

The above only scratch the surface of what you can do with the Trigater. That's because instead of directly triggering, assigned triggers to CV / gate pairs one-to-one, you can have the device to fire relative CV / gate pairs from the one being played, such as the Next, Previous, Alternating (Next and Previous upon last trigger hit) or Random.

1.3. Step Sequencer

Trigater as we've mentioned before is a multipurpose tool. So except using external incoming signals to trigger the CV / gate events, you can set it up as a sequencer. In sequencer mode only one note is executed at a time. It plays for as long as it is programmed to, and then the sequencer moves to the next. This functionality resembles to an analog old-style step sequencer.

Of course you can run the sequencer in many directions, such as Forward, Backward, Pendulum and Random. Finally you can force Trigater to omit specific steps from the sequence.

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1.4. MIDI

Trigater also has a good relationship with your MIDI keyboard, which you can use for a number of things, such as:

- To trigger individual N/G pairs from the MIDI instead of an external device.

- To transpose your sequence according to a MIDI key.

- And to scale / affect gate velocities according to a MIDI key.

2. The Front Panel.

This is the front panel of the Trigater. It is separated into 5 distinctive regions:

1. Trigger Controls

2. Patch Browser

3. Multifunction Main LCD Screen

4. Device Function Setup
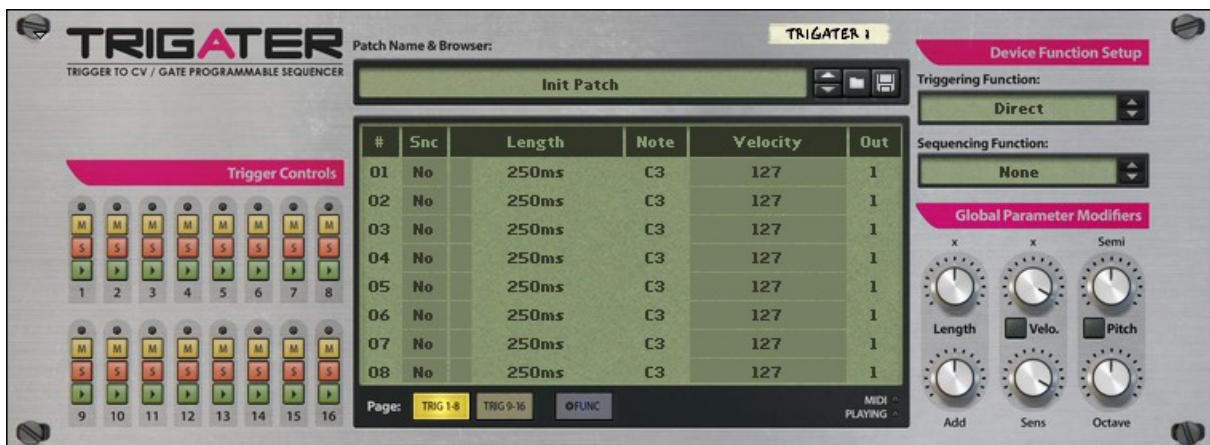
5. Global Parameter Modifiers

Fig 1: The Trigater Front Panel

2.1. Trigger Controls

This section controls the trigger execution state, and provides visual feedback on each trigger status. Each trigger is assigned the following controls (from top to bottom):

- **Status LED:** Indicates the status of the specific trigger. When no solo or mute is selected, the led flashes green only when the trigger is hit.

- **Mute Button:** Mutes the specific trigger. Incoming signals will be ignored.

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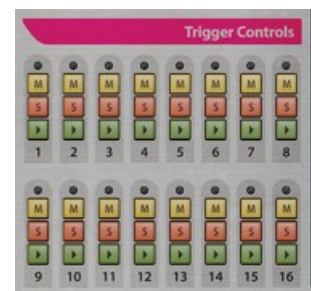
- **Solo Button:** Solos the specific trigger. You can solo multiple channels. When in solo mode (ie. Solo switch is enabled in one or more triggers), only the soloed triggers are fired.

- **Trigger:** When pressed executes the specified trigger. You can use this button to test your trigger settings.

2.2. Patch Browser

This section works as a standard Reason patch browser, which means that you can save and load entire patch setups. Please note, of course, that connected instruments from and to Trigater, are not saved within the patches. Use Trigater inside and save on a Combinator to store entire instrument setups.

Patch Name & Browser:
Init Patch

2.3. Multifunction Main LCD Screen

The Multifunction LCD Screen serves two purposes:

- To let the user edit all 16 trigger to CV / gate pair settings. The triggers are divided into two pages: 1-8 and 9-16. More info on Section 4 – Working With Triggers

- To provide access to the functions toolbox of the device. These functions include copy, paste, shift, reverse etc. More info on Section 5 – The Functions Toolbox

#	Snc	Length	Note	Velocity	Out
01	No	250ms	C3	127	1
02	No	250ms	C3	127	1
03	No	250ms	C3	127	1
04	No	250ms	C3	127	1
05	No	250ms	C3	127	1
06	No	250ms	C3	127	1
07	No	250ms	C3	127	1
08	No	250ms	C3	127	1

Page: TRIG 1-8 TRIG 9-16 FUNC   MIDI PLAYING

At the bottom right of the LCD black frame we also find two status LEDs:

- **MIDI:** Flashes when a MIDI key message is received. Alternatively if you connect a Note/Gate input pair as an input, the LED will change to yellow, to indicate that MIDI functionality is bypassed.

- **Playing:** Changes color to green if the device sequencer is playing. It's not used in direct mode.

2.4. Device Function Setup

This section defines the basic operation modes, under which the Trigater, will function. There are two main properties that define this functionality:

Device Function Setup

Triggering Function:
Direct

Sequencing Function:
None

- **Triggering Function:** This sets the way that Trigater will process incoming trigger signals. There are 5 available

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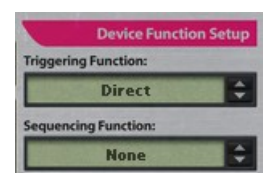
modes:

- ○ **Direct:** Each trigger will fire its corresponding N/G pair as set by the editor.

- ○ **Next:** Each trigger will fire the next CV / gate pair in the editor list. After the 16th trigger is hit, the device will resume from start

- ○ **Previous:** The opposite from "Next" – each trigger will fire the previous CV / gate pair in the editor list. After the 1st trigger is hit, the device will resume from end.

- ○ **Pendulum:** The device will start triggering notes forward. However once the 16th CV / gate pair is fired, the direction will be reversed, and all pairs will be triggered again in reverse order. Once 1st pair is triggered the operation will restart.

- ○ **Random:** In random mode of course, a random CV / gate pair is triggered once there is an input CV pulse.

- • **Sequencing Function:** The sequencing function sets, if and how the Trigater will behave as a sequencer. Again there are 5 modes:

- ○ **None:** The sequencing functionality is disabled.

- ○ **Forward:** The sequencer is enabled and will operate in forward mode. Steps will execute in a continuous loop, and in forward / ascending order.

- ○ **Backward:** The sequencer will operate in backward mode. Steps will execute in a continuous loop and in reverse / descending order.

- ○ **Alternating:** The sequencer will operate in alternating mode. Steps will execute in a continuous loop, first in an ascending and then in a descending order.

- ○ **Random:** The sequencer will trigger steps in random mode.

2.5. Global Parameter Modifiers

Last section of the Trigater at the bottom right is the Global Parameter Modifiers. The section, as the name suggests, provides controls that affect parameters on all triggers. The global parameters are grouped vertically, in accordance to what setting each control group is modifying:

- ○ **Length:** Allows you to control the length of all triggers.

  - ▪ **Add:** This knob extends or shortens the time length of each CV / gate pair by a number in ms

  - ▪ **Multiply:** Multiplies each CV / gate pair by a factor. From x0.5 (half the length) to x2.0 (two times the length)

- ○ **Velocity:** The velocity section allows you to control the velocity for all CV / gate pairs. The controls in particular are:

  - ▪ **Multiply:** Multiplies all velocities by a factor. From x0 (no velocity) up to x1 (normal velocity)

  - ▪ **Sensitivity:** Controls how much, each CV / gate pair velocity setting, will affect the

actual value used upon execution. Smaller values of this setting will narrow the velocity range, pushing resulting values closer to the multiplier setting.

When sensitivity is set to 0%, individual CV / gate pair velocity values are not taken in account, and all triggers use the "Multiply" setting.

- **Velocity Source:** This multi state switch, selects different external sources for the velocity. Individual values from the editor are multiplied with this source to determine the actual velocity value. There are 4 different settings.

  - **Off:** No external source will affect the CV / gate pair velocity.

  - **Trigger:** The trigger input value will affect the CV / gate pair velocity.

  - **MIDI:** The key velocity from the MIDI will affect the CV / gate pair velocity.

  - **Both:** Both the Trigger and the MIDI modes will affect the CV / gate pair velocity.

  Velocity from all sources is applied before multiplication and sensitivity settings. Thus turning these parameters off at 0% will also diminish the source affect.

- **Pitch:** The pitch section allows you to transpose all triggers. This is also where you can enable MIDI pitch control.

  - **Semitone:** Affects all CV / gate pairs pitch by a number in semitones. The range is from -11 to +11 semitones.

  - **Octave:** Affects all N/G pairs by an entire octave. The range is from -3 to +3 octaves.

  - **Pitch Source:** In contrast to velocity, pitch source can only come from MIDI notes. Therefore when this switch is enabled you can use MIDI keys to transpose the CV / gate pairs by one octave up or down.

3. The Back Panel

Trigater's back panel exposes a large amount of CV inputs and outputs. But don't worry, once explained it will be very easy to find your way.
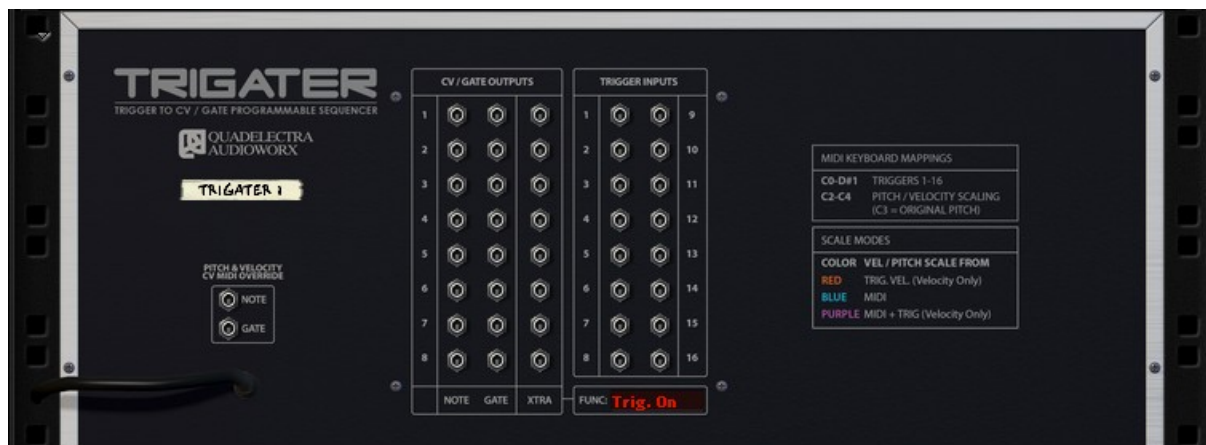
Fig 2: The Trigater Rear Panel

The connections are divided into 3 distinctive regions. We'll examine them from left to right:

3.1. CV / gate CV Input.

The Note/Gate CV Input pair can be used instead of MIDI input as a Velocity and Pitch source. When connected the MIDI led on the front panel will turn to yellow, to indicate that MIDI functionality is bypassed. Meaning that Note/Gate In precedes MIDI in Source selection order.

3.2. CV / Gate + XTRA Outputs

These are the outputs where you should connect the target devices that Trigater will control. Any device which accepts CV / gate info is eligible. However next to a pair there's also a column of CV Outputs marked "XTRA". These outputs can be configured to be triggered under a number of different circumstances. We'll check them out in section 3.4.

3.3. Trigger CV Inputs

This is where you connect your input triggers. Typically these are signals from drum machines, arpeggiators, or LFO units, which send a momentary pulse. Nevertheless Gate CV Output signals are also allowed, although Trigater will ignore their length.

3.4. The "XTRA" CV Output.

Right next to the Note/Gait CV Outputs, there is another separate column of connectors marked "XTRA" (Extra). These are a set of 8 CV Output connectors, one per Note/Gate pair, whose triggering condition can be set according to the "Func" setting, right under the trigger inputs on the left. For the moment 3 conditions are supported:

- **Trig On:** A pulse (trigger) will be sent when the corresponding Note/Gate event will start.

- **Trig Off:** A pulse (trigger) will be sent when the corresponding Note/Gate event will end.

- **Gate:** The CV output will remain open (active) for as long as the Note/Gate event is executed.

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4. Working With Trigater

As we've mentioned, Trigater works both as a Trigger to CV / gate converter, and an Analog style Step Sequencer. In this chapter we'll see in more depth, how to program the device trigger editor for both of these operations.

#	Snc	Length	Note	Velocity	Out
01	No	250ms	C3	127	1
02	No	250ms	C3	127	1
03	No	250ms	C3	127	1
04	No	250ms	C3	127	1
05	No	250ms	C3	127	1
06	No	250ms	C3	127	1
07	No	250ms	C3	127	1
08	No	250ms	C3	127	1

Fig 3: The Triggers Editor

The 16 triggers at the back of the device correspond to 16 entries in the main LCD screen, which appear as two pages of 8 rows each. You access these pages by pressing the buttons labeled "1-8" and "9-16" respectively.

The adjustable parameters for each row appear as a set of 6 columns. In conjunction with the trigger rows a grid with editable cells is formed.

4.1. Editable Trigger Parameters / Columns

The six columns are:

- **# (Trigger Number):** This setting references the ID of the trigger row. It can't be edited.

- **Snc (Sync):** Sync refers to the length sync. It can be set to either "No" or "Yes". Changing the Sync value will immediately affect the length value. See "Length" bellow for more details.

- **Length:** The Length refers to the duration that a Note/Gate will be held, once a trigger is hit. According to "Sync" switch (see above) "Length" can be set to either milliseconds or time measures:

  ○ If "Snc" is set to "No" the length is adjusted in milliseconds. Valid range is from 25ms to 2000ms (2 seconds).

  ○ With "Snc" set to "Yes" the length is adjusted in time measures. The longest setting in this mode is "2 Bars" and the shortest is "1/64".

  Note that when changing the "Snc" setting, length is initialized to the default value for the succeeding "Snc" value (250ms or 1/16).

- **Note:** This of course sets the Note of the specified N/G pair.

- **Velocity:** The cell sets the Velocity amount of the Gate part of the specified N/G pair.

- **Out (CV Output):** The cell routes the N/G pair to one of the 8 Note/Gate cv outputs. There's also an "Off" mode (seen as "---") which turns the specified Trigger off, meaning it won't fire any CV / gate events upon execution.

You edit the values either by dragging up / down, starting from the desired cell, or just by clicking on

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the cell – in the case of "Sync" value. However by clicking on some cells while holding [Control] on PC or [Command] on Mac a handy pop-up menu is revealed and you can make your selection quickly from there. Columns having this feature are: "Length" (When "Sync" mode is set to "Yes"), "Note" and "Output".

4.2. Operation Under Trigger Mode.

When the Sequencer Function is set to "None", Trigater is operating as a Trigger To Gate converter. Here are some points to remember when using it in this mode.

- **Precedence:** It is possible that a number of triggers whose output is set to the same N/G cv output, might fire in such a way that their corresponding N/G pairs overlap one onto the other. In this case, the pair of the last trigger fired has precedence and will mute any other pair currently executed.

4.3. Operation Under Sequencing Mode:

When the Sequencer Function is not set to "None", Trigater is operating as an old-school style sequencer. In this mode all active triggers, are executed as steps in the order indicated by the "Sequencer Mode" function. Bellow there are some points to remember when using Trigater as a Sequencer.

- **Length Adding / Multiplying:** The Length added or multiplied from the Global Parameters does not affect sequencer. Lowering the length values below the editor settings, will produce shorter notes (staccato), while raising length above editor settings, will lead to, sort of "voice stealing" for the cv outputs, under the rules of precedence (to last - as described above).

- **Disabling Outputs:** When in sequencer mode, disabling the output of a trigger will cause its corresponding step to be omitted from the sequence, and the sequencer will instantly move to the next. If you want a step to play silently, you should use its "Mute" button

5. The Functions Toolbox

Trigater comes with a powerful set of functions to manipulate triggers and their parameters. You access these functions by clicking the "Func" button next to the page numbers at the bottom of the LCD screen. The toolbox functions are divided into three main categories, which are represented by the 3 items of the main menu. Let's see which they are:
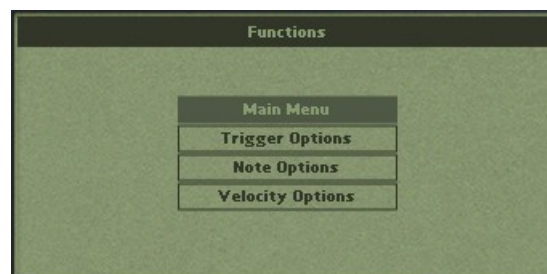

- **Trigger Options:** The trigger options are functions the results of which apply to all parameters of a trigger. However Trigater provides the ability to select which parameters you wish to apply the results.

- **Note Options:** The note options are functions specifically for the note parameters of the triggers.

- **Velocity Options:** The velocity options are function specifically for the velocity parameters of the triggers.
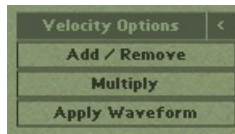
The options for each category appear as items of a submenu, right after you click at the category of your choice. By clicking on the "<" sign at the right of the menu title bar, you can return to the main menu.

Next we'll see the functions of each category separately.

5.1. Trigger Options

The "Trigger Options" are a set of functions that can be applied to all parameters. These are:

- **Initialize:** Initializes a Range of triggers under "Select Range" to the values of a single trigger defined under "Src Trig"

- **Reverse:** Reverses the order of a range of triggers, defined under "Select Range".

- **Shift:** Shifts a range of triggers defined under "Select Range" by a number of (trigger) positions defined under "Shift Stp". Positive numbers will shift the selected range downwards, while negative numbers will shift the selected range upwards.
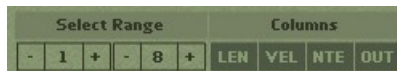
   Rows that after the shift are outside the range will be reinserted from the opposite side.

- **Randomize:** Randomizes the parameters of a trigger range under "Select Range", by a percentage deviation from their original value, set under "Rnd Amt.".

   However this function has two more modes when you further reduce the "Rnd Amt." value below 1%:

   ○ **ABS:** Values are randomized in absolute mode, using their entire valid range, without deviation from the original.

   ○ **SHF:** The trigger values are shuffled.

Thus there is no randomization in the values, only in the order of the triggers.

- **Copy / Paste:** Copies a selection set under the "Select Range" and pastes starting from the trigger under "Dest.".

- **Insert / Delete:** The function inserts blank trig-gers to -or- deletes the selection defined under "Select Range". The operation is set by clicking under the "Function".

As mentioned the Trigger functions affect all parameters on the specified triggers. However the user can select to prevent results into specific parameters. To select which parameters a trigger function will affect, click to enable or disable the corresponding fields on the "Columns" control.

Note: "Insert / Delete" does not allow parameter selection.

5.2. Note Options

The note options are specific functions that can only apply to Notes, such as transpose, scale etc. Here's the list of available functions:

- **Transpose:** The function transposes the notes of a trigger range, which can be set under "Select Range", by a number of semitones set under the "Transp." control.

- **Scale Conform:** This function conforms a set of triggers between a range set under "Select Range" to a specified scale. The scale is set by adjusting the values under "Note" and "Scale".

- **Gen. Interval:** Re-tunes the notes of a trigger range specified under "Select Range", by constant number of semitones set under "Interv", starting from the note under "Start". The function also provides a wrapping mode for the notes exceeding the valid range. The wrapping modes are CLIP, BOUNCE or ROTATE.

  See the "Warp Notes" function for more information on each mode.

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- **Warp Notes:** This function wraps the note pitches, from range of triggers set under "Select Range", between a given note range. The note range is set under the "Low" and "Hi" controls.
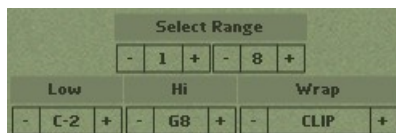
  Finally the "Wrap" control defines the type of wrapping that will be applied to the notes exceeding the given range. There are three available modes:

  - CLIP: The notes outside the selected note range will be clipped to either the lowest or the highest value of the range.

  - BOUNCE: The notes outside the selected note range will be bounced back. For example a note exceeding the highest limit by 2 semitones, will be "reflected" back to the valid range by 2 semitones -meaning 2 semitones lower than the highest limit. The same kind of "bouncing" will happen if f.e. a note is 3 semitones lower than the lowest limit: It will be reflected by being raised 3 semitones higher than the low limit.

  - ROTATE: In rotate mode a note that exceeds the lower or the higher limit, is shifted at the higher

5.3. Velocity Options

Finally the last set of functions are specific to, and apply only to the Velocity. These "Velocity Options" are:

- **Add / Subtract:** The function adds a number of units under "Add Vel." control, to the velocity of a range of triggers set under "Select Range". The number of units can be positive, but also negative – in which case subtraction is performed.

- **Multiply:** The multiply function scales a range of selected triggers under "Select Range" by a percentage set under "Scale By". Scaling can be calculated either by a positive percentage where all affected velocities are multiplied. Yet it can be calculated using a negative percentage, in which case the result is inverted (subtracted from 127).
  There's also a "NORM" mode which acts

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as a normalize option. All velocities of a range are scaled so that the highest value among them is set to 127.

- **Apply Waveform:** The last velocity option applys a waveform to the velocities of a specific trigger range set under "Select Range". The waveform is selected under "Waveform", and you also have the choice to scale it's amplitude by setting the value under "Scale By".
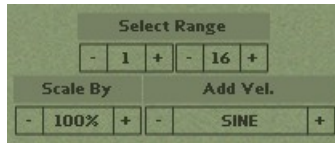
  There are six waveforms to choose for conforming the velocity:

  ○ SINE: Sinewave waveform.

  ○ TRIANGLE: Triangular waveform.

  ○ RAMP UP: A raising sawtooth waveform.

  ○ RAMP DOWN: A falling sawtooth waveform.

  ○ SQUARE: A square waveform.

  ○ HALF SINE: Half a sinewave.

  Note: For creating random variations to a range of velocities use "Trigger Options" > "Randomize".

Note that when you use the spinner controls, holding down Control (or Command in Mac) and clicking on +/- buttons will increase the spinner value by 10. You can also click and drag on the spinner value to change it.

When you have finished making the adjustments for each functions parameters, click "OK" at the bottom left of the screen to apply the changes, or "<BACK" to cancel and go back to the options submenu.

APPENDIX I: MIDI CC TABLE

Below there's a list of all available MIDI CC for the Trigater 1.0 Rack Extension:

CC	Parameter
20	Length Multiply
21	Length Add

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CC	Parameter
22	Velocity Multiply
23	Velocity Sensitivity
24	Velocity Source
25	Pitch Semitone
26	Pitch Octave
27	Pitch Source
130	Trigger #1: Mute
131	Trigger #2: Mute
132	Trigger #3: Mute
133	Trigger #4: Mute
134	Trigger #5: Mute
135	Trigger #6: Mute
136	Trigger #7: Mute
137	Trigger #8: Mute
138	Trigger #9: Mute
139	Trigger #10: Mute
140	Trigger #11: Mute
141	Trigger #12: Mute
142	Trigger #13: Mute
143	Trigger #14: Mute
144	Trigger #15: Mute
145	Trigger #16: Mute
150	Trigger #1: Solo

CC	Parameter
151	Trigger #2: Solo
152	Trigger #3: Solo
153	Trigger #4: Solo
154	Trigger #5: Solo
155	Trigger #6: Solo
156	Trigger #7: Solo
157	Trigger #8: Solo
158	Trigger #9: Solo
159	Trigger #10: Solo
160	Trigger #11: Solo
161	Trigger #12: Solo
162	Trigger #13: Solo
163	Trigger #14: Solo
164	Trigger #15: Solo
165	Trigger #16: Solo
230	Sequencer Function
231	Trigger Function

APPENDIX II: MIDI Keyboard Mapping

The following illustration shows the mappings for all operations accessible via MIDI keyboard.

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