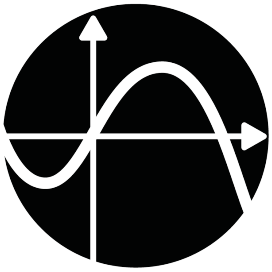
dialog audio



modulation
processor
3244

Modulation Processor 3244
User Guide

V1.2

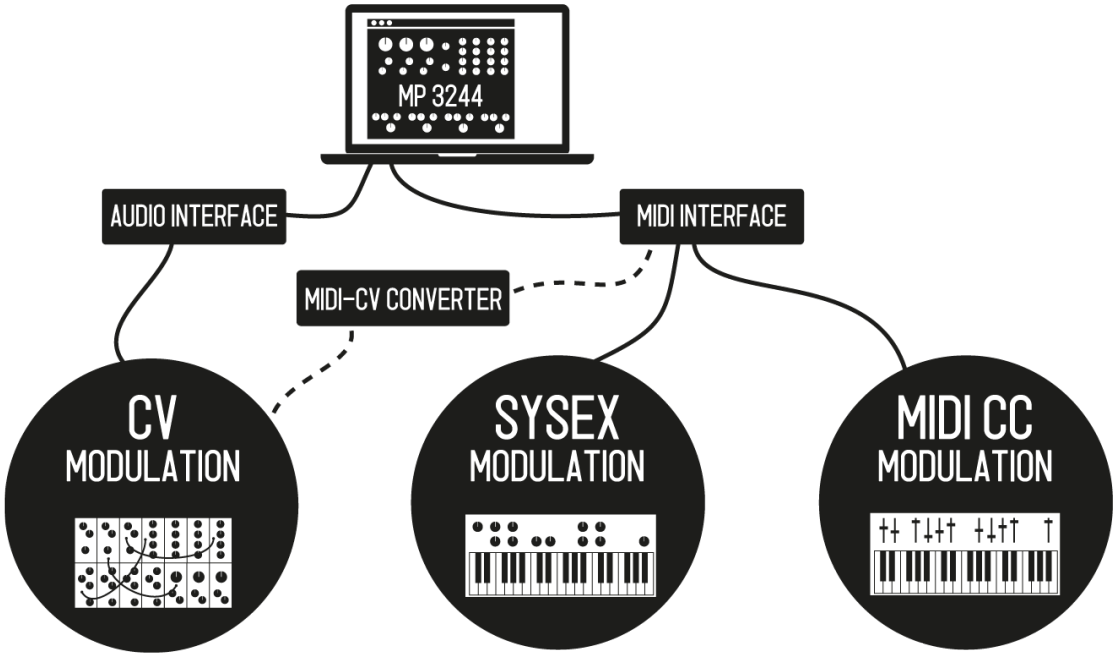
Table of Contents

1 Introduction

The Modulation Processor (MP3244) audio software plug-in is especially designed for synchronizing and modulating hardware synthesizer parameters within a digital audio workstation (DAW).

The modular structure of the plug-in allows you to create various modulations, which can be sent to any parameters of your synthesizers and other audio equipment.
Depending on your audio hardware setup, different connection possibilities are given:

Audio gear with MIDI inputs can be controlled via MIDI Continuous Controller messages (MIDI CC), or via MIDI System Exclusive messages (SysEx).
Audio gear that can be controlled via Control Voltages (CV), you either can use your audio interface (if appropriate) or you can use a MIDI to CV converter.
Furthermore the MP3244 can be used to modulate software synthesizers and audio plug-ins within the DAW, to give extended modulation possibilities.



2 Installation

2.1 Mac OS X

Requirements

- OSX 10.7 or higher with Intel Processor
- AU (Audio Unit), VST 2.4 or VST3 compatible host, or Pro-Tools 10.0 or higher

Install

- Download ModulationProcessor3244_V*_Mac.zip, unpack and run the installer. The installer will copy the plug-in into the appropriate directory. All available versions will by installed by default (VST 32/64bit, AU 32/64bit, AAX 32/64bit).

ⓘ Notice: some hosts require a restart to find the installed plug-in. Maybe a rescan is also required! Ableton Live: if the plug-in does not show up after a plug-in rescan, try to disable and re-enable VST plug-in support.

Uninstall

- Delete the plug-in in following directories:
  /Library/Audio/Plug-Ins/Components/DA_ModulationProcessor3244.component
  /Library/Audio/Plug-Ins/VST/DA_ModulationProcessor3244.vst
  /Library/Audio/Plug-Ins/VST3/DA_ModulationProcessor3244.vst3
  /Library/Application Support/Avid/Audio/Plug-Ins/ DA_ModulationProcessor3244.aaxplugin

2.2 Windows

Requirements

- Windows XP or higher
- SSE 2 compatible processor (Pentium II or higher, or an AMD equivalent)
- VST 2.4 or VST3 compatible host, or Pro-Tools 10.0 or higher

Install

- Download ModulationProcessor3244_V*_Win.zip and unpack.
  Install VST/VST3: Run Install_VST_32bit.exe or Install_VST3_32bit.exe for the 32 bit version. Run Install_VST_64bit.exe or Install_VST3_64bit.exe for the 64 bit version. Please check with your host's manual to see if it takes 32 or 64 bit plug-ins. You can also install both bit versions.
  The wizard will guide you trough the installation and allows you to choose the directory path where you want to install the plug-in. If you do not choose a directory the standard directory will be /Program Files/Steinberg/VstPlugins and /Program Files (x86)/Steinberg/VstPlugins for the 32bit versions on a 64bit operating system.
  Install AAX: Run Install_AAX.exe for the Pro-Tools versions. This will install both, 32bit and 64bit, version.
  The wizard will guide you trough the installation and allows you to choose the directory path where you want to install the plug-in. If you do not choose a directory the standard directory will be /Program Files/Common Files/Avid/Audio/Plug-Ins.

ⓘ Notice: some hosts require a restart to find the installed plug-in. Maybe a rescan is also required! Ableton Live: if the plug-in does not show up after a plug-in rescan, try to disable and re-enable VST plug-in support.

Uninstall

- Delete the plug-in in the directory where you have installed it.

3 Registration & Activation

To use the full version of the plug-in you need to purchase a software license. As soon you received your software license key by email you can activate the plug-in.

3.1 Activate Online

If your DAW is connected to the Internet the activation is very simple.

Go to: Register -> Activate Online

1. Copy your SOFTWARE-LICENSE-KEY into the product license field and activate. The plug-in will connect to the Dialog Audio server and activate itself. For your freedom no further connections will be made by the plug-in.
2. You’re all set!

3.2 Activate Offline

In case you have no Internet access on your DAW you can activate the plug-in offline.

Go to: Register -> Activate Offline

1. Copy the SERIAL-NR into a text file and save on a USB drive.
2. Go to a computer with internet access and go to this web page: http://dialogaudio.com/authentificate_offline.php
3. Copy your SOFTWARE-LICENSE and your SERIAL-NR into the appropriate fields and generate the PRODUCT-KEY
4. Copy the PRODUCT-KEY back to the USB drive. Back at your DAW copy the PRODUCT-KEY into the corresponding filed and activate.
5. You’re all set!

ⓘ Notice: if you have more than one instance loaded in the host, you might need to reload these instance to make sure all instances are activated.

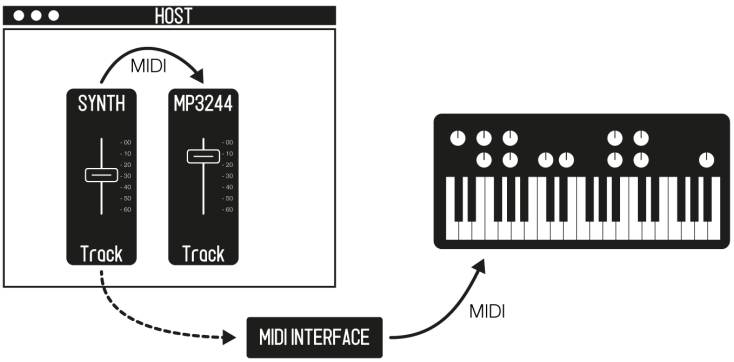
4 Quick Start Guide

Load the Plug-in in your favorite DAW. Have a quick look around and get comfortable with the controls. The plug-in loads a default preset. Press play in your DAW software and you should see a continuous sine wave in the display area.

4.1 Setup Host Application

External Synthesizer

The setup to control hardware synthesizers within most host applications requires two tracks. On one track you setup your external synthesizer (as you normally would), on the other track you insert the MP3244 plug-in. This can vary depending on your host application. Several setup guides for specific host applications can be found on our website (see below).



1 Create a track for your external synthesizer. Set the MIDI connections between host application and synth according to your setup.

2 Create a second track for the Modulation Processor. Make a virtual MIDI connection between the synth track and the MP3244 track. The MP3244 needs to receive MIDI note on/off messages to trigger the Slope and Envelope Generators. For special triggering you can skip the connection and trigger the MP3244 directly from the track.

Software Synthesizer

The setup procedures within different host applications vary strongly. However, in some hosts the setup is quite easy to get third party software modulated. In other hosts the modulation of third party software is impossible. Please refer to the several setup guides on our website (see below).

Online Help: Further information and setup guides for several host applications can be found at the Dialog Audio website:
https://dialogaudio.com/modulationprocessor/#guides
If you need any further help please feel free to contact us.

4.2 Control Synthesizer via MIDI CC

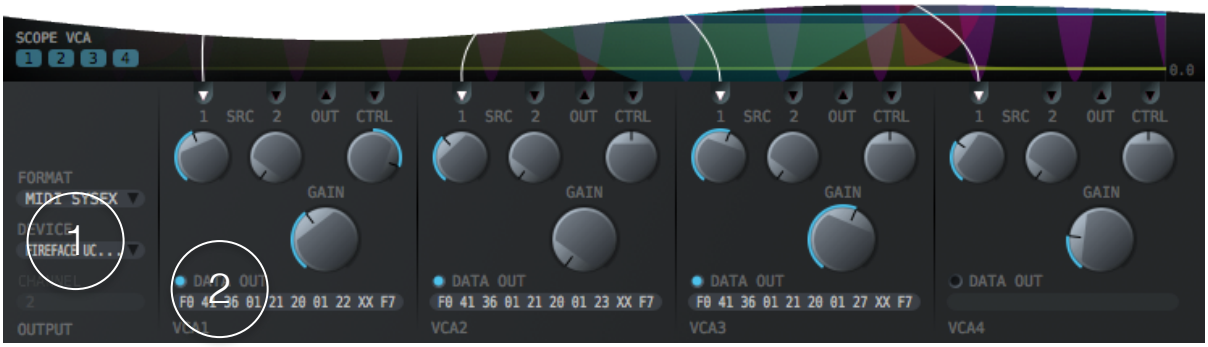
3 Be sure that the FORMAT is set to MIDI CC. Choose the MIDI output DEVICE on which your synthesizer is connected. Select the MIDI CHANNEL on which the synthesizer is receiving MIDI messages.

4 Got to the DATA OUT section of VCA 1 and select a Continuous Controller (CC) number, which you whish to modulate. You might need to refer to the synthesizers manual to look up the CC assignments.
Note: At the beginning the best way to go is modulating the VCF of your synth!

5 Press play in your DAW and press a key of your synthesizer. You should now hear the modulation.

4.3 Control Synthesizer via SYSEX

First you probably need to refer to the synthesizers manual to look up the SysEx specifications.



1 Change the FORMAT to MIDI SYSEX. Choose the MIDI output DEVICE on which your synthesizer is connected to.

2 Go to the DATA OUT section of VCA 1. Type the SYSEX message into the blank field. The string should look similar to:
`F0 41 36 01 21 20 01 22 XX F7`
Note: At the beginning the best way to go is modulating the VCF of your synth!

3 Press play in your DAW and press a key of your synthesizer. You should now hear the modulation.

Create a SysEx message

- Grab the SysEx specifications of your synthesizer. Look up the section where parameter changes are specified (e.g. “Remote Parameter Edit”)
- Every message has to start with `F0` and end with `F7`
- If the specification requires a MIDI channel to be set, set the channel according to your setup: Channel 1 = `00`; Channel 16 = `15`
- Find the parameter which you want to modulate (e.g. VCF = `81`)
- The parameter value has to be marked with `XX`. The plug-in will replace `XX` with the values processed
- For example this command `F0 41 06 00 81 XX F7` is created by following specifications: `41`=Manufacturer ID, `06`=Device ID, `00`=Midi Channel, `81`=Parameter ID, `XX`=Parameter Value

Online Help: Further information and SysEx messages for some synthesizer can be found at the Dialog Audio website:
https://dialogaudio.com/modulationprocessor/sysex_info.php
If you need any further help please feel free to contact us.

ⓘ Notice: getting the SysEx messages correct can take a while. Be patient, once you get this running your reward will be a perfectly syncing, fantastic sounding classic synthesizer!

4.4 Control Synthesizer via CV

To modulate a synthesizer via Control Voltages you either need a DC-coupled audio interface or a MIDI to CV Converter (eg. Doepfer MCV 4). If you want to use a MIDI to CV converter please refer to the section “Control Synthesizer via MIDI CC”. This section describes how to setup the plug-in with a DC-coupled audio interface.

WARNING: CV audio signals produced by the plug-in might damage your audio interface and/or other equipment such as synthesizers, speakers etc.! If you are unsure or do not know how to use this feature, please contact us before enabling this feature!
Compatible Audio Interfaces: Please check if your audio interface is compatible and what type of cable is required:
https://dialogaudio.com/modulationprocessor/device_info.php

1 For safety reasons the audio CV output option is disabled. You first need to enable the audio CV output option. Go to SETTINGS > AUDIO CV SETTINGS and enable the option. If the plug-in is not yet registered go to REGISTER > AUDIO CV SETTINGS.

2 Select AUDIO CV as the FORMAT.

3 Got to the CV OUT section of VCA 1 and enable the output. You than need to setup your host application according to its specifications for multi-channel plug-ins. Depending on your setup the CV signal will be available at one of your audio interface audio outputs.

Multi-Channel Configuration
In AUDIO CV mode the plug-in functions as a multi-channel plug-in with following configurations:

- Main Out: No output
- AUX 1 = VCA 1
- AUX 2 = VCA 2
- AUX 3 = VCA 3
- AUX 4 = VCA 4

In order to setup correctly, you might need to add AUX channels within the DAWs mixer where the MP3244 is located on. Each AUX channel can then be routed to your preferred audio interface output.

4.5 Connecting Modules

Connecting modules is easily made with “drag & drop” Just click on one of the connection pins and drag to another connection pin. Keep in mind, that you only can connect an output to an input and vise versa.

1 Click on an output pin and drag and move your mouse to an input pin.

2 As soon you are over the destination pin click on it. The connection will be made. You also can use drag and drop to connect pins.

3 To see all of your connection activate the ROUTING button. For simplicity you always can add connections even when the ROUTING button is not activated!

4 To remove a connection you need to have “Routing” activated. To proceed just double click the line which you want to remove.

4.6 Output Oscilloscope

Sometimes it is very useful to see what is happening. For this reason you have an oscilloscope for each VCA.

1 Click on the number button of the VCA for which you want to see the waveform. Enjoy your created waveforms visually!

4.7 Creating Custom Waveforms

You have the freedom to create up to 10 custom waveforms to use with one of the LFO's.

1 Select the WAVE EDITOR button.

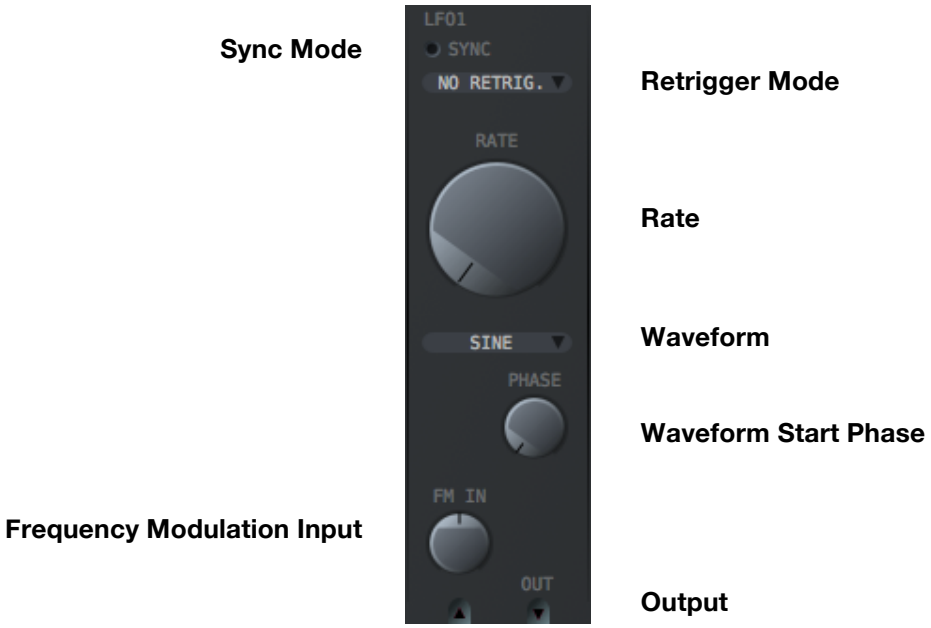
2 Choose one of the waveforms you whish to edit. If you want to draw precisely you can activate SNAP to grid button.

3 Draw your desired waveform. As soon you are done you can select the waveform in one of the LFO's.

5 The Modules

5.1 Low Frequency Oscillator (LFO)

There are three LFO's available to generate modulation data.



Sync Mode

The LFO offers a synchronization and a free running mode.
Sync Mode: In sync mode the LFO rate is synced to the host. The LFO rate will then be set in measures of bars.
Free Running Mode: In free running mode the LFO rate is not related to the host. Rates will then be set in seconds.

Retrigger Mode

The LFO offers three different retrigger modes.
No Retrig: In this mode the LFO will run continuously. Without any options to retrigger.
Note Retrig: In this mode the LFO will start a new waveform cycle as soon a new note on event occurs. The start angle of the waveform will depend on the time when the event occurs. Keep in mind that in sync mode the start angle can shift depending on the note on event.
Cycle Retrig: In this mode you can choose a host synchronized cycle when the LFO should retrigger. This is only available when the LFO is free running.

Rate

The rate will set the speed of the LFO. In sync mode the rate will be set in bars. In free running mode the rate will be set in seconds.

Waveform

Typical wave forms such as sine, square, triangle can be selected. Additionally you can select a random sine (rnd sine) or a random square (rnd square) where internally the output amount off these two waveforms are randomly modulated. To use one of the custom created wave forms select them accordingly.

Waveform Phase The start angle of the wave can be set between 0 and 360 degrees. Depending on the other settings this allows you to adjust the start phase of the waveform.

Frequency Modulation Input Each LFO has a frequency modulation input. You can connect any output of the other modules to this input. The amount of how much of the incoming signal is used to modulate the frequency can be set from 0 to 1 or negative from 0 to -1, which means that the frequency will go slower.

Output The output of the LFO can be connected to any input of the other modules.

5.2 Slope Generator

The slope generator module is quite unique and is somewhat comparable to an envelope generator with a single attack or decay. If the curve is set to “up” the generator will run from minimum to maximum, and will stay at the maximum until a new note event occurs. If the curve is set to “down” the generator will start from the maximum and will run to the minimum.

Sync Mode The slope generator offers a synchronization and a free running mode.
Sync Mode: In sync mode the time of the slope generator is synced to the host. The time will then be set in measures of bars.
Free Running Mode: In free running mode the time of the slope generator rate is not related to the host. Rates will then be set in seconds.

Time This will set the time of how long the generator needs from the note on event to reach the final state. In sync mode the time will be set in bars. In free running mode the time will be set in seconds.

Direction The curve of the slope generator can either go up or down.
UP: The curve will go from 0 to 1.
DOWN: The curve will go from 1 to 0.

Curve

The curve of the generator can either be linear or exponentially.
EXP: In exponential mode the curve will first grow slow and at the end fast until the maximum is reached.
LIN: In linear mode the curve will grow steady until the maximum is reached.

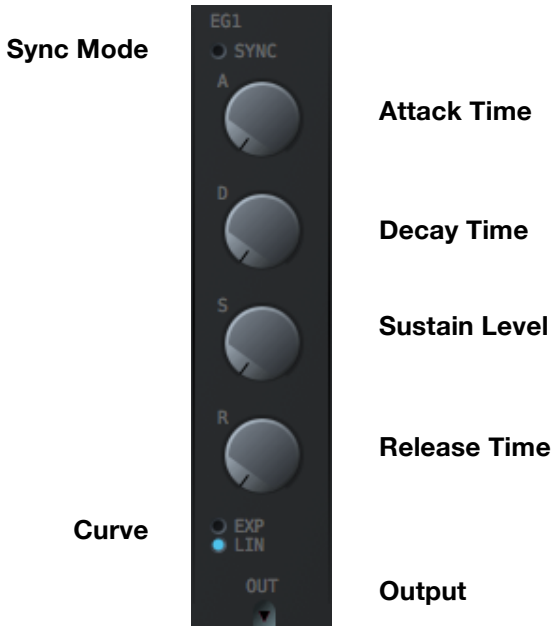
Outputs

The slope generator module has two outputs. The outputs can be connected to any input.
Output 1: The output marked with 1 is the output of the upper slope generator.
Output 2: The output marked with 2 is the output of the lower slope generator.

ⓘ Notice: a note on event only triggers this module.

5.3 Envelope Generator

Up to four envelope generators can be used to create the desired modulation.



Sync Mode

The slope generator offers a synchronization and a free running mode.
Sync Mode: In sync mode the time of the slope generator is synced to the host. The time will than be set in measures of bars.
Free Running Mode: In free running mode the time of the slope generator rate is not related to the host. Rates will then be set in seconds.

Attack Time

This will set the time of how long the generator needs to reach the end of the attack state. In sync mode the time will be set in bars. In free running mode the time will be set in seconds.

Decay Time This will set the time of how long the generator needs to reach the end of the decay state. In sync mode the time will be set in bars. In free running mode the time will be set in seconds.

Sustain Level This will set the level during the sustain phase.

Release Time This will set the time of how long the generator needs to reach the end of the release state. In sync mode the time will be set in bars. In free running mode the time will be set in seconds.

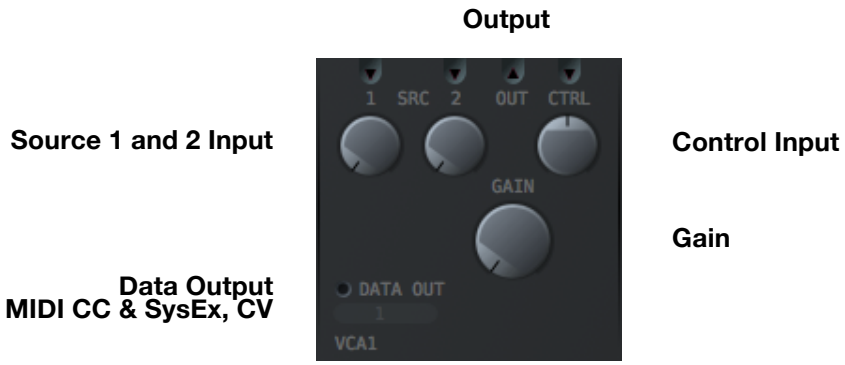
Curve The curve of the generator can either be linear or exponentially.
EXP: In exponential mode the curve of the envelope behaves like a classic exponential envelope generator.
LIN: In linear mode the envelope curve is straight between each point.

Output The output of the envelope generator can be connected to any input of the other modules.

ⓘ Notice: a note on event only triggers this module.

5.4 Voltage Controlled Amplifier (VCA)

The VCA is the final and actual output stage of the modulation processor.



Source 1 & 2 Input The source inputs can be connected to any output of the other modules. If both inputs are connected the signals are mixed together. The amount of the input signal can be set for each source.

Control Input The control input can be used to control the source inputs. The amount of the control input can either be positive ore negative. If the amount is positive the initial gain will raise as soon as a control level is received. If the amount is negative the initial gain will fall as soon as a control level is received. This input is usually connected to an envelope generator.

Gain The gain setting is the initial gain for the entire output level. All operations are calculated from the initial gain. Use this to set the initial modulation level.

Output The output can be used to route the VCA output to another module. This is especially useful when more than two source signals should be mixed. For this the output can be routed to a second VCA.

Data Output If no modulation data output is required, the VCA data output can be turned off. The module can still be used for internal processing and the output can be routed to any other module.

MIDI CC & SysEx, CV Depending on the FORMAT setting the VCA signal can either sent a specific MIDI CC number or a specified SYSEX data string. If the FORMAT is set to AUDIO CV nothing can be selected here. Please refer to the chapter “Control Synthesizer via SYSEX” for detailed information.

5.5 MIDI Input

With the MIDI input module specified midi data can be received by the Modulation Processor and be routed to any input.

Note Velocity

MIDI CC 1 & 2

MIDI CC 1 & 2 Two independent MIDI CC values can be used to route to any input. The desired CC number has to be set.

Note Velocity To use the velocity of an incoming note on event, this output can be routed to any input.

5.6 Output

This module defines the type and destination of the modulation processor signal outputs.

Output Format

MIDI Output Device

MIDI Channel

Output Format

According to the receiving device the output format can be set here. Select MIDI CC if the receiving device can be modulated by CC messages. Select SYSEX if the receiving device can be modulated by SYSEX messages. Select AUDIO CV if the receiving device can be modulated by CV signals.

MIDI Output Device

This defines the physical MIDI output device. All available devices are listed. Select the according device where the modulation data should be send to.
MIDI TO HOST: If a virtual instrument or other plug-in should be modulated this has to be chosen.

MIDI Channel

Depending on the studio setup the according channel has to be chosen where the data should go.

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