



ELEKTROAKUSTISCHE MANUFAKTUR

# meLoDICER & MEX3

User Guide

manual version: 1.4

firmware version: R41

# Foreword

The fact that you are reading this and hopefully the next sentences as well, means, that you purchased a meloDICER or at least want to know more about it. Thank you.

## What is meloDICER?

MeloDICER is our vision of a sequencer with the perfect balance between stochastic and deterministic creation of rhythm and melody. Its algorithms generate random values that magically turn into musical events only through your defaults.

Sounds complicated? Don't worry. You can play meloDICER like an instrument. All controls are intuitive and interact with the stochastic engine at any given time.

## Please use the manual!

You probably are eager playing around with your newly acquired meloDICER, aren't you? Make it so! Please mount the module into your case by observing all necessary safety precautions. Power it up, and have fun!

When you come to the point where you need some help, get back to this manual and continue reading.

We conceived this manual as a tutorial. It's best to follow it step by step. If you prefer exploring certain aspects of meloDICER, jump to the desired section. No matter how you like to use it, please do the one thing: **Use it!**

If you still are hungry for more information about meloDICER, check out its product site on our homepage.

Enjoy meloDICING!

Your VERMONA crew from the  
Elektroakustischen Manufaktur, Erlbach



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# Preparations

Probably you changed some settings when discovering the surface of meloDICER. To make sure, that your module behaves as expected reset it to factory defaults.

## Reset to factory defaults

1. Make sure your modular system respectively the module is not powered.
2. Press and hold both **DICE** buttons while powering the module. Watch the little lightshow around the *rotary encoder*. Once all LEDs light up, you can release the buttons.



**A factory reset will not affect saved patterns. It only applies to *edit-parameters* and *dice-mode* state.**

**If you like to clear the pattern memory as well, press the *rotary encoder* and **LOCK** when powering meloDICER. The lightshow is even more spectacular.**

## Basic settings and connections

In order to follow this tutorial you will need a synthesizer voice with at least an oscillator and a VCA, modulated by an envelope generator with a sustain-phase.

Connect **GATE OUT** to your envelope generator's input and **1V/OCT** to the oscillators corresponding CV-input.

Please set your meloDICER's knobs and faders like on Figure 1: MeloDICER with basic settings on page 6.



It is helpful to use some kind of metronome as rhythmical reference. Patch a percussive noise or use the click of your DAW and make sure to synchronize meloDICER to it.

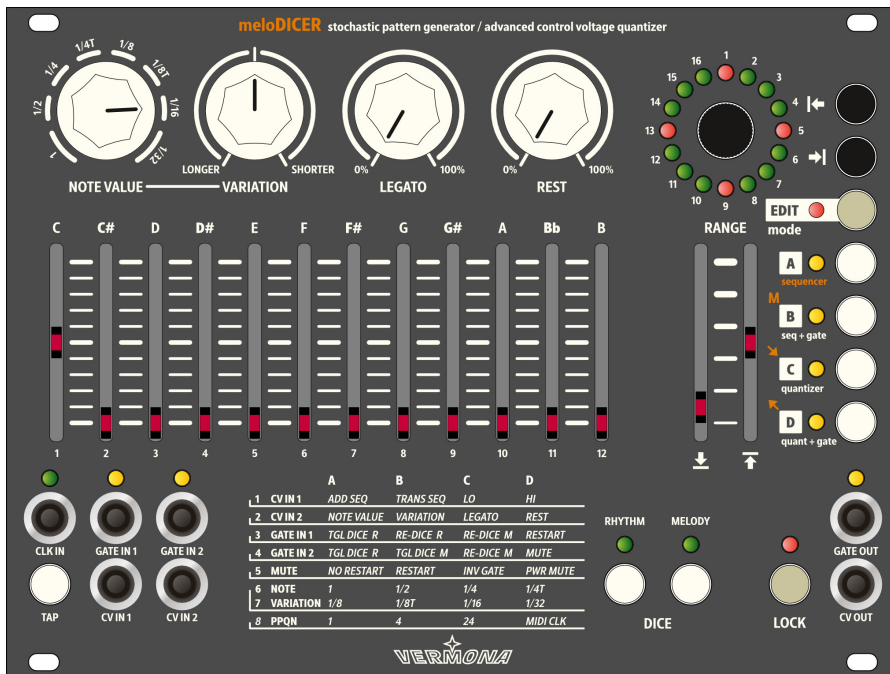


Figure 1: MeloDICER with basic settings

## Internal and external clocking

MeloDICER can generate its own tempo or it can be synced to an external clock source.

Use **TAP** to set the tempo. Hit the button at least twice, more taps will increase the accuracy. MeloDICER will measure the time between your taps and calculate the desired tempo.

The internal clock will be overwritten when using an external clock signal at **CLK IN**. MeloDICER accepts signals with a voltage of up to +10 volts. It syncs on the positive edge at a threshold of +2 volts.

With the factory defaults, meloDICER expects quarter notes as clock reference (1 PPQN). Higher values make the module run too fast. With the **PPQN** parameter you can change the rate to **4** or **24**. (See "PPQN – pulses per quarter note (8)" on page 22).

The module does not work like a step sequencer that triggers the next step with each incoming clock signal. Instead it synchronizes its own internal clock base to the external one. Thus, stopping and starting the clock will not immediately stop and start meloDICER.

To start and stop meloDICER use the mute function instead (see "Mute" on page 13).

With the optional MEX3 module meloDICER can recognize to the MIDI realtime messages START, STOP and CONTINUE. (see "MIDI Start/Stop/Continue" on page 33).



# Basics

With your meloDICER set up as described above, you are ready to explore the control elements and the stochastic engine.

Basically, music consists of two important parts: rhythm and melody. MeloDICER has a set of controls for each and although the one doesn't work without the other, we will take a look at them separately. Let's start with rhythm.

## The RHYTHM Section

The rhythm section has four controls labelled with **NOTE VALUE**, **VARIATION**, **LEGATO** and **REST**.

With the current settings you will hear 1/16th-notes and two pitches, one octave apart. The pattern length is four quarter notes. The LEDs around the *rotary encoder* indicate the position within the pattern with a 1/16-resolution.

### NOTE VALUE

You hear 1/16th-notes, because of **NOTE VALUE** is set to this value. If you turn it to another value, a different note length will appear. Play with **NOTE VALUE** to find out what note values meloDICER offers.

**NOTE VALUE** is a static parameter without any stochastic aspect. There are no surprises here. It simply sets the base rhythm. If you are ready, set it to **1/8** and let's proceed with randomness.

### VARIATION

**VARIATION** randomly brings in other note values, based on the setting of **NOTE VALUE**. It is turned off at 12 o'clock. From there it can create longer note values by turning it to the left, or shorter note values by turning it to the right. Always consider that **VARIATION** directly interacts with **NOTE VALUE**. Play with both controls to generate different rhythm patterns.



You may recognize, that **VARIATION** does not generate any of the triplets or 1/32nd-notes. Be relaxed, meloDICER can do that but it is switched off by factory defaults. You will find more information about that under "NOTE VARIATION (6 and 7)" on page 22.

## LEGATO

When you play legato on a keyboard, there is a smooth transition between two notes. On meloDICER it means that the pitch (**1V/OCT**) between two notes changes without generating a new gate signal at **GATE OUT**. With **LEGATO** you set the probability for this behavior. Increase the setting to get more legato. On the far right position, there won't be any gate signal at all which means that GATE OUT is always on (+10 volts).



**Legato between two notes with the same pitch is known as tie. It extends the length of the note by the length of the following note.**

## REST

Silence is golden. Does this make **REST** the golden rhythm control?

With **REST** meloDICER randomly adds musical rests to the pattern. Set the controls of the rhythm section back to basic settings (see Figure 1: MeloDICER with basic settings on page 6) and slowly increase **REST**. Some of the notes will get lost and are turned into rests instead of being played. If **REST** is at the far right position, there won't be any note left to play.

Get familiar with all four controls of the rhythm section. Isn't it amazing how the rhythm changes with just these four controls?

# The MELODY Section

Now that you know how the rhythm section works, let's explore the melody section with its faders.

## Octave Range

Our current pattern consists of only two different pitches, the same note in two octaves. The overall output range of meloDICER is up to five octaves (0...5 volts). You can set the lowest and highest note with the faders LO (♣) and HI (♠). Raise HI (♠) to instantly expand the pattern with higher notes.

If you raise LO (♣) as well, lower notes will disappear and the complete pattern will be shifted.

Can you find out what happens if you set LO (♣) higher than HI (♠)?

## Semitone Probability Faders

These faders set the probability for each semitone to appear in the pattern. In our basic setting we only raised the fader, labeled with **C**. As result, meloDICER generates only C-notes, resp. generates 1 volt and 2 volts at **1V/OCT**.

Raise the **F** fader to 50%. The melody changes immediately and F-notes will appear in the pattern. As both faders are set to the same probability amount the chance is the same for both notes being part of your pattern.

As a visual support, the faders' LED goes on for the duration of the corresponding note.

Raise the **F** fader fully up to increase the probability and with that the number of appearing F-notes.



**The probability for a semitone also depends on the pitch range. If a note is not between LO (♣) and HI (♠), it cannot be played. If only one semitone-fader is raised, its probability is always 100%, whether it is set fully up or somewhere in between 0 and 100.**

And now start to play with all the parameters you learned about. It's easy to lose yourself in this endless possibilities, randomness and probabilities.

## To Dice or not to Dice

There are two more essential control elements of the rhythm- and melody section: The **DICE** buttons.

Did you already hit one or both of them? If not, just do it. With each press, meloDICER generates new random values for the rhythm respectively the melody section. We call that behavior *dice-mode*.

The counterpart of *dice-mode* is *realtime-mode*. Press and hold one or both **DICE** buttons for a second until the corresponding LED goes off. MeloDICER leaves *dice-mode* and enters *realtime-mode*.

In *realtime-mode*, there is no repeated pattern. MeloDICER continuously generates new random values, based on the parameters you set for the corresponding section.

To re-enter *dice-mode*, hit **DICE** again.



**Whenever you re-enter *dice-mode*, you will get the same random values that you had before leaving it. Thus you can play a pattern, change to *realtime-mode* to get some variations and go back to the original pattern.**

**With separate **DICE** buttons for rhythm and melody section, you can i.e. generate a repeated pattern for the rhythm while the melody continuously plays random notes.**

# Advanced Functions

## Pattern Length


Until now our pattern had a length of four quarter notes which marks the maximum length. You can set the first and last step with a resolution of 1/16 and with that the pattern length.

### Setting first and last step

Before proceeding, make sure to activate *dice-mode* for the rhythm and melody section.

To the right of the *rotary encoder* you will find the buttons for the first **1** and last **16** step. If you hold down one of these, the LED around the *rotary encoder* shows the first (1) resp. last (16) step. For changing that, just turn the *rotary encoder* while still holding down FIRST STEP (**1**) or LAST STEP (**16**).

With release of the knob, the new position is assigned.

 **You cannot set the last step before the first step.**

### Moving the sub-range

If your range is less than 16/16, you can move the sub-range within the maximum length of four quarter notes. Just press and hold both buttons, FIRST STEP (**1**) and LAST STEP (**16**) while turning the *rotary encoder*. When releasing the buttons, the new position is applied.

### Returning to maximum length

If you'd like to quickly return to base settings (step **1** and **16**), hold FIRST STEP (**1**), LAST STEP (**16**) or both while pushing the *rotary encoder*.

## Restart


With a push on the *rotary encoder* (without pressing any other button), you can reset the pattern. This means, that it restarts from the first step with the next internal or external clock signal.





**This function can also be triggered with an external trigger signal on GATE IN 1 (see "Configuring the gate inputs" on page 20).**

## Mute

MeloDICER does not have a start, stop or continue button, it is always running. You can however mute **GATE OUT**. The sequencer is still running but doesn't generate any gate event.

You can manually activate mute by pressing **M** (button ). As long as mute is active, the yellow LED next to **M** is blinking.

With *edit-parameter 5* you can select if leaving mute instantly opens **GATE OUT** again (option ) or if it resets the pattern and opens **GATE OUT** with the next internal or external clock signal (option ) — see "MUTE-Mode (5-A and 5-B)" on page 21.

Mute can be configured being active when powering the module. This might be useful if you don't like that your modular system instantly starts playing melodies after you switched it on (see "MUTE-Mode (5-A and 5-B)" on page 21).

You can also activate/deactivate mute with a gate signal on **GATE IN 2** (see "Configuring the gate inputs" on page 20).

## LOCK-Mode

All adjustments of the rhythm- and melody sections are instantly applied. The stochastic engine reacts as soon as you turn a knob or move a fader. Thus, meloDICER can be treated as an instrument. You can and should play the module's control elements.

On the other hand you might want meloDICER to play a pattern while you already prepare new settings for rhythm and or/melody changes. Luckily we implemented *lock-mode* for that purpose.

Press **LOCK** to activate *lock-mode*; the red LED goes on. As long as *lock-mode* is active all control elements of the rhythm and melody section as well as FIRST STEP (◀) and LAST STEP (▶) are now decoupled from the stochastic engine. The adjustments you make do not have an immediate impact. To apply the settings leave *lock-mode* by pressing **LOCK** again.



**If you have a MEX3 module connected to your meloDICER, lock-mode also applies for incoming MIDI Control Change messages (see "MEX3" on page 26 and "MIDI IN channel (9-A)" on page 31).**

# Saving and Loading Patterns

## What is a pattern?

In the context of meloDICER a pattern means the collection of all ingredients that leads to a certain rhythm and melody. It includes:

- the settings of the rhythm and melody section's faders and knobs
- the available note values of **VARIATION** (see "NOTE VARIATION (6 and 7)" on page 22)
- the patterns' length
- the state of **DICE** buttons
- all currently available random values

MeloDICER can hold up to 16 patterns.

## Saving patterns

For saving a pattern, just press the save button **⌘** and select a memory space (1...16) with the *rotary encoder*. By pushing the *rotary encoder*, the pattern will be stored.

If you'd like to abort the storing process, simply press **SAVE (S)** again.



## Loading patterns

To load a pattern press LOAD ( \* ) select the number of the pattern (1...16) with the *rotary encoder*. When pushing the *rotary encoder*, the new pattern is loaded.

With loading the pattern meloDICER automatically activates *lock-mode* to ensure that the current settings of control elements do not have an impact on the resulting pattern. Remember, meloDICER does not save the sequence but the parameters that leads to certain rhythm-melody-combination.

As soon as you leave *lock-mode* the stored values will be overwritten by the current settings.

# EDIT-Parameters

MeloDICER comes with a simple menu structure to set up some parameters that you won't have to change very often. We call these the *edit-parameters*.

You find a list of the most important *edit-parameters* printed on the surface of the module.

Here is a complete list of all available parameters including the ones that are only important when the meloDICER is paired with a MEX3 module ("MEX3" on page 26):

	A	B	C	D
1: CV IN 1	ADD SEQ	TRANS SEQ	LO	HI
2: CV IN 2	NOTE VALUE	VARIATION	LEGATO	REST
3: GATE IN 1	TGL DICE R	RE-DICE R	RE-DICE M	RESTART
4: GATE IN 2	TGL DICE R	TGL DICE M	RE-DICE M	MUTE
5: MUTE	NO RESTART	RESTART	INV GATE	PWR MUTE
6: NOTE	1	1/2	1/4	1/4T
7: VARIATION	1/8	1/8T	1/16	1/32
8: PPQN	1	4	24	MIDI CLK
9: MIDI	IN CH.	OUT CH. (NOTES)	OUT CH. (CC)	SEND MIDI CLOCK
10: MEX3 CTRLS	REST2	REST3	STD VELOCITY	ACCENT


Table 1: meloDICER and MEX3 parameter list

To access *edit-parameters* follow these steps:

1. Enter the edit menu by pressing **EDIT**.
2. Select a parameter by setting the *rotary encoder* to the desired value 1...10.
3. Change a parameter's value by using the buttons **▲**, **▼**, **◀** and **▶**. On some parameters you can use more than one option.
4. Leave the edit menu by pressing **EDIT** again.

## Configuring the control voltage inputs

MeloDICER offers two inputs for controlling various parameters by an external control voltage. Both CV inputs work with positive voltages between 0 and 5 volts, negative voltages have no effect.

 **Voltages up to +12 volts won't damage meloDICER. But above +5 volts there won't be any changes to the selected parameter(s).**

### CV IN 1 – pitch control

Control voltage input **CV IN 1** can be routed to control four destinations dedicated to pitch.

#### ADD SEQ (1-A) vs. TRANS SEQ (1-B)

Options **ADD SEQ (1-A)** and **TRANS SEQ (1-B)** are exclusive, meaning, that only one of them or none can be selected. They are very similar as both of them affects the sequence's pitch.

**ADD SEQ (1-A)** adds the incoming voltage to the **1V/OCT** output without quantization whereas **TRANS SEQ (1-B)** adds the incoming voltage with quantization to semitones.

In practice that means, that you can add a modulation, i.e. from an LFO with option *1-A*. With option *1-B* you can transpose the pattern.



When **CV IN 1** is set to **ADD SEQ (1-A)**, the input also accepts and processes negative voltages.

## **LO (1-C) and HI (1-D)**

**LO (1-C)** and **HI (1-D)** double the faders **LO (⬇)** and **HI (⬆)**. You can either modulate one of them, both or none. The incoming control voltage is added to the current fader setting. Options *1-C* and *1-D* work in addition to option *1-A* or *1-B*.

## **CV IN 2 – rhythm control**

Control voltage input **CV IN 2** is dedicated to rhythm. They double the rhythm section's functions parameters **NOTE VALUE (2-A)**, **VARIATION (2-B)**, **LEGATO (2-C)** and **REST (2-D)**. All four options can be selected at the same time. The incoming control voltage will be added to the corresponding parameter's setting.

# Configuring the gate inputs

The gate inputs **GATE IN 1** and **GATE IN 2** can handle gate or trigger signals with a voltage of up to +12 volts. Some of the functions can be assigned to **GATE IN 1** as well as **GATE IN 2**. We describe these functions only once.

## Toggle DICE

You can toggle between *dice-mode* and *realtime-mode* using the gate inputs. MeloDICER switches to the opposite mode for the rhythm respectively melody section with each incoming positive edge.

**TGL DICE R** (3-A and 4-A) activates the toggle dice parameter for the rhythm section, **TGL DICE M** (4-B) for the melody section.



**If you change from *realtime-mode* to *dice-mode*, MeloDICER won't dice new random values. It always uses the last available random values. Use the parameter RE-DICE if you want to dice new randomness.**

## RE-DICE

You can dice new random values using trigger signals. This only works if the corresponding section is in *dice-mode*.

**RE-DICE R** (3-B) generates new random values for the rhythm section, **RE-DICE M** (3-C and 4-C) for the melody section.



**The parameters toggle dice and re-dice can be mixed for the same gate input.**

## RESTART (3-D)

Restart doubles the restart function that you can access by pushing the *rotary encoder* (see "Restart" on page 13). It restarts the sequence from the first step with incoming trigger signals.

## MUTE (4-D)

Mute doubles the MUTE function that can be accessed by pressing the **M** button (see "Mute" on page 13). It activates the functions with a positive edge, respectively deactivates it with a negative edge at **GATE IN 2**. This behaviour can be inverted with parameter **INV GATE** (5-C).

## MUTE-Mode (5-A and 5-B)

There are two options of how mute works. With option **NO RESTART** (5-A), it continues at the current position when leaving mute.

If **RESTART** (5-B) is active, it deactivates mute with the next clock signal and restarts from the first step.

## INV GATE (5-C)

With this parameter activated, the MUTE function will be activated with a negative edge and deactivated with a positive edge on **GATE IN 2**. This only has an effect if MUTE is activated for **GATE IN 2** (4-D).

## POWER MUTE (5-D)

When you power up your meloDICER, it is instantly running and sending CVs and gate signals. If you want the module to be quiet when switching on your modular system you can do that with parameter **PWR MUTE** (5-D). If it is activated, meloDICER will automatically go into mute after powering. Just hit the **MUTE** button to unmute it.

## NOTE VARIATION (6 and 7)

Parameter 6 and 7 are dedicated to the **VARIATION** parameter of the rhythm section (see "The RHYTHM Section" on page 8). You can choose which note values should be included in the random variation. Maybe you don't like to use 1/32nd-notes or triplets within your pattern. You can deactivate these values for **VARIATION**.

This parameter doesn't influence **NOTE VALUE**. You still can access triplets there, even if they are not included into **VARIATION**.

 **NOTE VARIATION parameters 6 and 7 are stored with a pattern.**

## PPQN – pulses per quarter note (8)

This parameter sets the number of pulses that meloDICER expects per quarter note at the **CLK IN** input. There are three options:

- **1 PPQN (8-A)**: Each incoming pulse represents one quarter note of the meloDICERs internal grid.
- **4 PPQN (8-B)**: Each incoming pulse represents 1/4 of a quarter note of the meloDICERs internal grid.
- **24 PPQN (8-C)**: Each incoming pulse represent 1/24 of a quarter not of the meloDICERs internal grid.

Factory default for the **PPQN** parameter is option **1 PPQN (8-A)**. If you i. e. use a 1/16th-clock rate at the **CLK IN** you will have to set the parameter to option **8-B**.

## MIDI CLK (8-D)

With a connected MEX3 extension module, meloDICER can be synchronized directly to an incoming MIDI clock. With edit-paramter 8-D you can activate/deactivate this (see "MIDI Clock Synchronization" on page 32).

# Modes

You can use meloDICER in four different ways. It has two sequencer- and two quantizer-modes. To change the mode follow these steps:

1. Press and hold **EDIT** for one second.
2. When the red LED is blinking you can select the desired mode **A**, **B**, **C** or **D**.
3. The new mode is instantly applied. The yellow LED next to the buttons **A**, **B**, **C** and **D** shows the current mode.

Read on to find a short explanation of the four modes.

## A - Sequencer (meloDICER)

This is the standard meloDICER mode. All functions that you learned about in the manual so far work in this mode.



**EDIT-parameters as well as saving and loading patterns are only available here.**

## B - Seq + Gate

This mode only uses the melody section as well as **LEGATO** and **REST** of the rhythm section. The module doesn't generate an own rhythm, instead you will have to feed it with gate signals using the **GATE IN 1** input.

The module generates a control voltage at **1V/OCT** based on the settings of note- and octave range faders with each incoming gate signal.





**This mode can be used to alter rhythms that you get from another module, i.e. a randomRHYTHM. You can also use it to pair two meloDICER modules for duophonic melodies with the same rhythm base.**

## C - Quantizer 1

In this mode meloDICER works as quantizer for external CV signals. It works with voltages between 0 and 5 volts at **CV IN 2**. The faders of the melody section define your scale. The higher a fader is raised, the wider its quantization range.

The quantized voltages are available at **1V/OCT**. The module quantizes on quarter notes (clock in respectively the red LEDs around the *rotary encoder*). The pattern length can be adjusted by setting up first and last step (see Pattern Length on page 9).

## D - Quantizer 2

This mode works similar to quantizer mode 1 but with external gate signals at **GATE IN 2**. As long as **GATE IN 2** gets a gate signal, the voltage at **CV IN 2** will be quantized and output at **1V/OCT**.

# Technical Specification meloDICER

## In- and Outputs

CLOCK input.....	max. +12 volts, threshold +2 volts
GATE inputs.....	max. +12 volts, threshold +2 volts
GATE output .....	+10 volts
CV inputs .....	0...5 volts (max. 12 volts)
1V/OCT output.....	0...5 volts

## Maximum Power Consumption

+12 volts .....	150 mA
-12 volts.....	50 mA
+5 volts .....	n/a

## Dimensions and Weight

Width/Height .....	34 HP, 3U
Depth .....	about 25 mm
Weight .....	350,0 g

# MEX3

MEX3 is a MIDI interface for meloDICER. This might not sound very spectacular, but it remarkably extends meloDICER's application possibilities, beside offering full integration with any MIDI setup. The combination of both modules provides the following features:

- **Send sequences as MIDI notes**

You are not limited to your modular system anymore. You can directly sequence any MIDI synthesizer without the need of CV/Gate-to-MIDI converters.

- **Polyphonic Sequences**

Sequences being sent via MIDI can have up to three-voice polyphony. You can set the probability for the appearance of additional notes.

- **Receive MIDI Control Change Messages**

All parameters of meloDICER respond to MIDI Control Change messages. Thus, you can automate all movements with your DAW or send controller snapshots for chord changes, probability alterations, etc.

- **Send MIDI Control Change Messages**

All buttons, faders and knobs of meloDICER can send MIDI control change messages. This allows you to record movements with any MIDI sequencer or control a second meloDICER for parallel chord progressions.

- **Receive and Send MIDI Clock**

You can directly synchronize meloDICER to your MIDI setup without the need for additional clocking modules.

- **START, STOP and CONTINUE**

With MEX3, your meloDICER understands these MIDI realtime controls. You will never be out of sync with your whole project.

# Getting Started

## Scope of Delivery

You will find the following items inside the box:

- The MEX3 module
- A five-pin JST cable. One end is already connected to MEX3.
- Two MIDI cables DIN-3,5-mm-jack (type A)

## Preparation

Your meloDICER requires firmware version **R41** or newer to work with MEX3. If your meloDICER has the serial number **D 33639** or greater, this is already given. If not, please browse to <https://downloads.vermona.com/firmware/melodicer> and download the latest firmware. Use the file that fits to your computer's operating system (macOS or Windows) and follow the instructions in the README-file.

## Connecting MEX3 and meloDICER

1. Switch off your modular system and remove meloDICER. You will have to access the module's rear.
2. Connect the five-pin JST cable that comes with your MEX3 to the white connector on the rear of MEX3. It will only fit in the correct position.
3. Connect the other end of the five-pin JST cable to the white connector on the rear of meloDICER.
4. Install meloDICER and MEX3 into your modular system.
5. Switch on your modular system.

Congratulations! Your meloDICER's firmware is up-to-date, and you successfully connected MEX3 to it. You can now proceed to have fun with MIDI.

# Polyphonic Sequences

MeloDICER can generate patterns with up to three voices. Voices 2 and 3 are only available via MEX3's MIDI output.

Like the first voice, the second and third voice depend on the settings of the RHYTHM and MELODY sections.

## MELODY

Voices 2 and 3 share the settings of the Octave Range and Semitone Probability Faders. This makes it easy to get sequences that follow an intended chord structure.

There are some logical limitations:

- If you raise only one semitone probability fader and the pitch range is just one octave or lower, meloDICER cannot generate a second or third voice.
- Voices 2 and 3 could generate the same pitch as voice one. In this case, meloDICER sends only one MIDI note.

## RHYTHM

All three voices share the RHYTHM section's **NOTE VALUE**, **VARIATION** and **LEGATO** parameters. But you will have to set **REST** individually for each voice. This works as described in chapter "REST" on page 9 for voice 1:

- The more you turn the knob clockwise, the higher the probability for musical rests (= fewer notes).
- The far-right position means 100% musical rest probability. As a result, you won't hear any note at all.
- The far-left position means 0% musical rest probability. As a result, all events are note events. There won't be any musical rest at all.

**REST2** (for voice 2) and **REST3** (for voice 3) are accessible via MIDI Control Change messages or *edit-parameter 10-A* and *10-B*. They work like the **REST** control on meloDICER with one specific characteristic: Whenever voice 1 is generating a musical rest, voice 2 is generating a musical rest as well. In other words, **REST2** set to **0%** probability creates a second note event for each note event of voice 1 (assuming that the probability faders for semitones and range allow this to happen). The same relationship is true for **REST3** and **REST2**.

Here are some examples:

REST	REST2	REST3	Result
0%	0%	0%	MeloDICER has the chance to generate three-note-chords for all events.
50%	0%	0%	The probability for rests is 50%, but all occurring note events have the chance to be three-note chords.
50%	50%	0%	Only half of the notes of voice 1 are probably three-note-chords. Whenever the voice 2 generates a note event, voice 3 does that as well.
50%	50%	50%	The probability for three-note-chords is reduced to 25%, probably 50% of all note events are two-note-chords.
50%	0%	50%	There is a chance that half of all events are notes. They are at least two-note-chords, about half of them are three-note-chords.

*Table 2: Examples for REST settings*

## Setting REST2 and REST3

You can set the REST probability for voice 2 and voice 3 on your meloDICER with *edit-parameters 10-A (REST2)* and *10-B (REST3)*:

1. Enter the edit menu by pressing **EDIT**.
2. Select *edit-parameter 10* by turning the rotary encoder until the LED labeled with **10** lights up.
3. Press and hold button **▲** for **REST1** or **▼** for **REST2** while setting the desired value using the *rotary encoder*. New values will immediately be applied.
4. Leave the edit menu by pressing **EDIT** again.

You can also set **REST2** and **REST3** via MIDI Control Change messages. For more information about that, see "MIDI Implementation Chart" on page 34.

## Velocity and Accent

You can set the standard velocity value for MIDI notes with *edit-parameter 10-C* from **16** to **104**. To bring more dynamic into your sequences, we introduced **ACCENT** probability (*edit-parameter 10-D*). The higher you set **ACCENT** probability, the more notes will be played with maximum velocity (127).

Velocity and ACCENT can also be controlled by MIDI Control Change messages ("MIDI Implementation Chart" on page 34).

## Setting up MIDI channels

In order for two MIDI devices to understand each other, you will have to set their MIDI channels equally. There are three MIDI channels that can be set up on the meloDICER. The procedure is the same for all of them:

1. Enter the edit menu by pressing **EDIT**
2. Select *edit-parameter* 9: MIDI
3. Press and hold Button **A**, **B** or **C** (depending on which MIDI channel you would like to set up) and turn the *rotary encoder* to select the MIDI channel 1...16 or off (for **A** and **C**).

The MIDI channel is instantly applied after releasing button A, B or C.

### **MIDI IN channel (9-A)**

With a connected MEX3 module, all controls of meloDICER can be altered by MIDI Control Change messages. You can find a list with all controller numbers in chapter "MIDI Implementation Chart" on page 34. With the *edit-parameter* MIDI INPUT CHANNEL (9-A) you can choose the MIDI channel that meloDICER is receiving those Control Change messages on.

You can disable the reception of MIDI Control Change messages at all. To do so, you'll have to set the MIDI channel below **1** – no LED is on. This is the factory setting.

### **NOTE MIDI OUT channel (9-B)**

With this parameter, you can set the MIDI channel on which the generated pattern is being sent on the MIDI OUT connector.



## Controller MIDI OUT channel (9-C)

MeloDICER not only receives MIDI Control Change messages. Each physical control element can send them as well. With this feature, you can, i.e., record your movements and alterations in a MIDI sequencer or control a second meloDICER to follow your chord progressions or rhythmical alterations. If you set this *edit-parameter* below value 1, the feature is switched off. This marks the factory setting.

## MIDI Clock Synchronization

With MEX3, meloDICER can not only be synchronized via analog clock signals as described in chapter "Internal and external clocking" on page 7, but also directly by an external MIDI Clock signal on its MIDI input. By factory default, this feature is turned off. You can activate it by turning on *edit-parameter 8-D: MIDI CLOCK*.

Please be aware that the MIDI Clock synchronization works in parallel to the analog **CLK IN** input. If this jack receives an analog clock signal and MEX3's MIDI IN receives MIDI Clock messages at the same time, meloDICER will mix both clock sources, which may lead to unwanted behavior. So please ensure that you feed your meloDICER with only one clock signal.



**You may ask yourself why we allowed meloDICER to receive clocks from two different sources at the same time. But this offers a big advantage. Let's assume you use the same modular system that contains the meloDICER/MEX3 in different scenarios: In the studio you have a DAW and use MIDI synchronization, in live situations you synchronize your setup from an analog trigger source.**

**You won't have to change settings on your meloDICER each time the scenario changes. Just use the analog CLK IN input for your live gig and MEX3's MIDI IN with a MIDI Clock signal in your studio environment.**

We recommend setting your clock source (DAW) to even send the MIDI clock when the DAW stops. MeloDICER has an internal clock source that continuously synchronizes to the external clock. Once the external clock disappears, it runs with the last received tempo, but needs to resynchronize when the external clock starts again. This may lead to a little hiccup at this moment.

MeloDICER can handle shuffled MIDI clocks.

## **Sending MIDI Clock messages**

MeloDICER can send MIDI Clock messages via the MEX3's MIDI OUT. You can activate this feature with *edit-parameter 9-D*. This way, you can, i.e., generate a MIDI clock out of an analog clock patched into **CLK IN** or meloDICER can be your master to synchronizing MIDI equipment.

## MIDI Start/Stop/Continue

With MEX3 you can send the MIDI Realtime Messages START, STOP and CONTINUE to meloDICER.

# MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	
	Changed	1-16	1-16	MIDI channel for receiveing and sending Control Change messages can be switched off)
Mode				
Note Number		36 ... 96	X	+ transpose via CV1
Velocity	Note On	0	X	ACCENT (see CC 87/88)
	Note Off	X	X	
After Touch	Key's	X	X	
	Channel's	X	X	
Pitch Bend		X	X	

Control Change	12	O	O	NOTE VALUE (0...127)
	13	O	O	VARIATION (0...127)
	14	O	O	LEGATO (0...127)
	15	O	O	REST (0...127)
	16	O	O	REST voice 2 (0...127)
	17	O	O	REST voice 3 (0...127)
	18	O	O	LO (0...127)
	19	O	O	HI (0...127)
	20-31	O	O	note propabilities C...B (0...127)
	73	O	O	DICE RHYTHM ON/OFF (0...63 = OFF; 64...127 = ON)
	74	O	O	DICE MELODY ON/OFF (0...63 = OFF; 64...127 = ON)
	75	O	O	DICE RHYTHM (any value)
	76	O	O	DICE MELODY (any value)
	78	O	O	LOCK
	85	O	O	FIRST STEP (8 values per step)
	86	O	O	LAST STEP (8 values per step)
	87	O	O	Accent probability (0...127)
88	O	O	Standard velocity (20...100)	
System Real Time	Clock	X	O	
	Start	X	O	
	Continue	X	O	
	Stop	X	O	
Aux Messages	Local On/Off	X	X	

O: Yes | X: No

# Technical Specification MEX3

## In- and Outputs

MIDI IN .....	3,5 mm TRS, type A
MIDI THRU .....	3,5 mm TRS, type A
MIDI OUT .....	3,5 mm TRS, type A

## Maximum Power Consumption

+12 volts .....	10 mA
-12 volts .....	n/a
+5 volts .....	n/a

## Dimensions and Weight

Width/Height .....	4 HP, 3U
Depth .....	about 25 mm
Weight .....	35,0 g



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