MANIKK OUTBREAK

Gates, CVs and Clocks Eurorack Module

Users Guide

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Document version 0.2

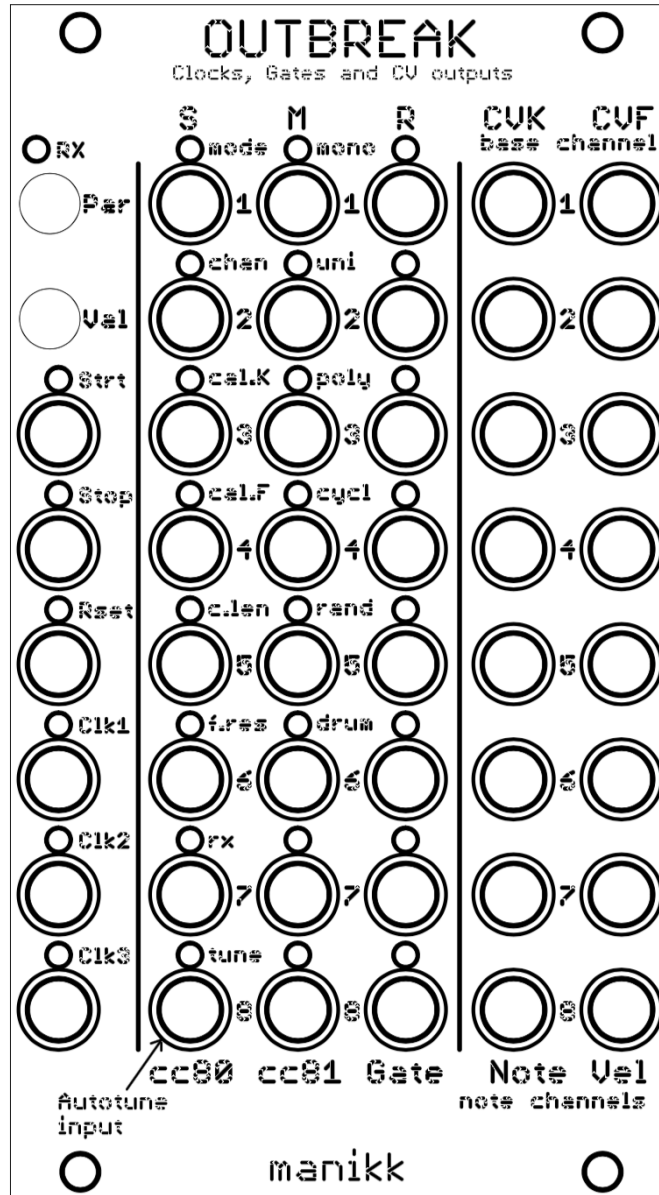# Table of Contents

Frontpanel layout

Welcome

Congratulations to your purchase of this module.

It will be an "Outbreak" of clocksignals, gates and CV-voltages in your Eurorack system.

As usual, you need to install it properly inside a case made for Eurorack synthesizer module systems.

The module is a MIDI-interface with eight voices. These voices can be used in a number of different modes: mono, unison, poly, cyclic, random and drum. Each mode with selectable number of voices, from 1 to 8.

The layout and jacks also work very well together with a Korg nanoKontrol2 or any other MIDI controller that has 8 channels, each with 3 buttons (S, M, R), 1 knob (CVK) and a fader (CVF).

MIDI CC and NRPN control templates for Ableton Max for Live can be downloaded from our website. Why not create your own templates?

Hook it up to your DAW and start making hits…

Overview

OUTBREAK is a very powerful MIDI-to-Euro interface with a massive number of 46 (!) jacks.

6 jacks are used for sequencer signals and clocks. The 3 clock outputs has individual clock dividers that scales down the incoming midi clock from 0 (off) to 63.

All the other jacks are used for the 8 voices and the 6 different modes.

Modes:

- Mono – up to 8 separate mono voices

- Unison – play 1 to 8 voices simultaneously

- Poly – polyphonic mode with up to 8 voices

- Cycle – Cycles the selected number of voices for each midi note

- Random – Same sa cycle but activates the voices randomly

- Drum – Each drum voice can trigger 3 drums, 2 with velocity and 1 without velocity. If you use all 8 voices for drums, you can trigger 8×3=24 drums…

Each voice has 5 jacks: 2 general purpose gate outputs, 1 gate out for the played midi-note, 1 CV for pitch and 1 CV for velocity.

All jacks and parameters can be controlled by MIDI-CC and/or MIDI-NRPN-messages. (Example templates exist for Ableton Max for Live).

The number of jacks and voices has been chosen based on the numerous 8 channel MIDI-control-boxes that exist on the market, for example KORG nanoKontrol2 that has 8 channels, each with 3 buttons (gates) and 2 knobs/sliders (CV). Using a MIDI-controller like this connected to your DAW, gives you 40+ eurorack outputs controllable live from your fingertips…

Each voice has an individual volume and a portamento-function.

The module has autotuning of the connected VCOs for each of the eight voices. An additional array of individual keytunings can also be attached to one of the eight voices. This can be used to control modules that do not respond to V/oct or if you want to make crazy key-tunings.

User interface and navigation

Par-button

The parameter button is used to cycle through the parameters. When you press it, the device steps into the parameter edit mode and the first parameter is selected for editing. This is indicated by a flashing LED in one of the first two LED columns to the left.

Now you can use the Val-button to cycle through the selected parameters values.

If you long-press (hold the button for a longer time) the Par button, it will normally mean back. Use this to leave the parameter editing mode. The edited parameter values will be saved when leaving editing mode.

Val-button

The Val-button is used to cycle through (increase) the values of a parameter. The parameters can have different number of values to cycle through. When you have reached the maximum value and press Val again, the value will wrap around and start again from the beginning.

If you long-press (hold the button for a longer time) the Val button, you will normally cycle backwards, or decrease the value.

LED's

The LED's are grouped in 4 columns.

Normal run mode
When in normal run mode (not in editing mode), the LED's reflects the status for that output jack.

Editing mode
When in parameter editing mode, the LED's shows the parameter and its value.

The first two columns from left shows the selected parameter with a blinking LED.

Columns M and R shows the value. Column R shows values 0-7 (least significant) by a number of lit LED's from top to bottom. Column M shows the multiplier by 8 (most significant) and starts with no LED.

Example:

(The digits represents the LED's, the rightmost digit is the topmost LED)

Value	M-LEDs	R-LEDs
0	00000000	00000001
1	00000000	00000011
2	00000000	00000111
3	00000000	00001111
4	00000000	00011111
5	00000000	00111111
6	00000000	01111111
7	00000000	11111111
8	00000001	00000001
9	00000001	00000011
…		
15	00000001	11111111
16	00000011	00000001
…		

Sub-parameters

Some parameters have sub-parameters for selection of voice.

These parameters are: cal.K selector, cal.F selector, Auto-tune selector.

Here you start with selecting the voice that you want to edit. You select the voice by using the Val-button to cycle through the 8 voices. The same selector is used for all these parameters. If you select voice 2 for calK-editing and later steps into the autotuned-parameter, then voice 2 will be selected for autotuning. If you change the selected autotuned voice to 5 and then step back to the calK-parameter, you will see that voice 5 is selected for calK-editing.

When you are satisfied with your choice of voice you have to long-press on the Val-button the enter the sub-page and start editing that voice.

Now when you are in sub-page-edit-mode you can use the Val-button normally to increase and decrease (long-press) the value for the selected voice.

If you press Par-button in a sub-page, you cycle to the next voice for that selector..

If you long-press the Par-button in a sub-page, you leave the sub-page and steps back to the parent parameter that you came from. Long-press again leaves edit mode.

Auto-tune is a bit special and has no value to edit, just starts or stops the auto-tuning for the selected voice. See more information in the description for the auto-tune parameter.

Parameters on the front-panel

start

Select the pulse-length on the start-jack in 16 steps.

Step 1 is the shortest and step 15 is the longest pulse.

Step 16 is a "gated" mode where the start-jack is held high as long as the DAW is running and held low hen the DAW is stopped.

stop

Select the pulse-length on the stop-jack in 16 steps.

Step 1 is the shortest and step 15 is the longest pulse.

Step 16 is a "gated" mode where the stop-jack is held high as long as the DAW is stopped and held low when the DAW is running.

reset

Select the pulse-length for the reset-jack in 15 steps.

Step 1 is the shortest and step 15 is the longest pulse.

The reset-jack is activated on a start that has been preceded by a stop.

clk1, clk2, clk3

When running (started) the DAW sends MIDI sync pulses. These sync pulses can be scaled down here in 64 steps. 0= Off, 1=1:1, 2=1:2, 3=1:3 … 63=1:63.

The module has 3 identical and individual clk-outputs that outputs a pulse set by the c.len parameter.

The clk-counter will be reset when the sequencer is stopped and started.

If you change the clk scaling when the sequencer is running, the new scaling takes place immediately without taking into account when the sequencer started. You need to stop/start if you want control over the clk-scalings you have set.

mode

Outbreak can operate in many different mode-groups.

Each mode-group has 1-8 selectable voices.

All modes respond to CC and NRPN on the base channel. These are global parameters that controls the whole device.

Depending on the mode, the voices can also respond to some CC messages on that single voice, if they are sent on the correct voice-channel.

Mono

Each voice is a mono voice that receives its commands on separate channels. The top voice receives on the base channel, and the following voices has channels +1, +2, +3 etc.

R-gate is used as the note gate for note on and note off. Individual voice gates can be inverted by NRPN.

CVK outputs the pitch CV for the note. The CVK can be calibrated individually for each voice. This is a linear calibration. Outbreak also has an CV-array that can be used for one of the voices if needed. The CV-array can store individual CV values for each of the 128 notes on the MIDI keyboard (0-127). This can be used for oscillators with non-linear control or when you want to make really crazy key to CV mappings.

CVF outputs the velocity CV for the note. The CVF is controlled in three stages. First, maximum CV can be set by the parameter cal.F both from the frontpanel and by NRPN. The CVF is then also controlled by the midi volume (CC 7) setting. The default setting for volume is max (127). The third and last stage of the CVF volume control is the note velocity (0-127). So the CVF is controlled in three steps: cal.F, cc volume, note velocity.

Key priority and key trig mode can be set by NRPN.

Unison

In unison mode, all the selected voices play together at the same time. All are controlled by the base channel. They behave as a single mono channel.

CC messages on the base channel will be sent to all unison voices (transpose, detune, portamento, volume).

NRPN messages can be used to set individual settings for each voice for: transpose, detune, portamento and volume.

Key priority and trig mode are the same as for the mono mode.

Poly

In polyphonic mode the selected voices are used to play chords up to the selected voice limit. When more notes are played than the selected voices, the oldest voice are reused by the new note.

Receives on the base channel.

Key trig mode parameter decides if a retrig of the gate is done when a running voice is reused.

Cycle

Cycle mode puts each new note on the next voice in a cyclic manner. Start from the top and cycles down and then wraps directly to the top voice again.

Receives on the base channel.

A midi start will always put the cycle back to the first again.

Also behaves a bit like poly, because multiple notes can have multiple voices ongoing simultaneously.

Random

Behaves a bit like the cycle mode but the difference is that notes are assigned randomly, not cyclic.

Drum

This is a mixed mode. It is a split of mono and drum voices. You can also change the splitmode from mono to unison, poly, cyclic or random, but this must be done via NRPN and the setting is not saved. It defaults to mono after a startup.

You select the number of drum voices you want. The rest becomes mono voices (or voices in another mode if you change this by NRPN).

The drum voices start from the bottom and up. The mono voices start from the top and down.

If you for example select 3 drum voices, then the lowest 3 voices are drum voices and the top 5 becomes mono voices.

The mono voices behave exactly like a normal mono voice described above.

A drum voice has a unique behavior and responds to three keys each.

The first/lowest drum voice (voice 8) receives note numbers 36, 37 and 38. The second (voice 7) responds to notes 39, 40, 41 and so on.

The drum-channel is the base channel and the mono voices follows thereafter (+1, +2, +3 etc).

Selection	Drum voices	Drumkeys	Mono voices	Mono-channels
1	1	36,37,38	7	Base+1 to +7
2	2	39,40,41	6	Base+1 to +6
3	3	42,43,44	5	Base+1 to +5
4	4	45,46,47	4	Base+1 to +4
5	5	48,49,50	3	Base+1 to +3
6	6	51,52,53	2	Base+1 to +2
7	7	54,55,56	1	Base+1
8	8	57,58,59	0	None

The output jacks for a drum-voice are used like this example (for voice 8):

Drumkey	Gate	Invert	Velocity CV	Additional CV modulations
36	S	No	None	None
37	M	No	CVK	Voice portamento and detune
38	R	Possible	CVF	Voice volume

The maximum velocity is controlled by the parameters freeCVK (only by NRPN) and calF.

If you have inverted the R-gate for a voice via NRPN, it will also be inverted for a drum with R-gate on that same voice.

chan

Here you set the MIDI/RX base channel 1-16.

Depending on the mode, the device can receive on additional channels. You cannot select a too high base channel with many mono channels, it will be limited to the maximum of 16 channels in the midi standard.

cal.K

This parameter has 8 sub-parameters, one for each voice.

You reach the sub-parameter by pressing the Val-button a number of times until the led lights for the voice that you want to calibrate. Then you long-press on the Val-button to select that sub-page.

When you have entered a sub-parameter, the LED's will indicate the current calibration value. By pressing the Val-button you increase the value, and by long-pressing you decrease the value. When you come to the minimum or maximum values, the value will wrap around.

When you are editing a sub-parameter, you can move to the next sub-parameter inside that group of sub-parameters by pressing the Par-key.

You leave the sub-parameter and navigates back to the cal.K-selector parameter again by long-pressing on the Par-button.

Here you calibrate the CVK 1V/octave factor. You can adjust the factor with a value between 0 and 63.

> **Note**
>
> If the CV-array is attached to the voice that you are editing, The CV-array will be disconnected and set to none and the voice is starting to use the linear offsetK and calK values from now on.

cal.F

This parameter has 8 sub-parameters, one for each voice.

The same selection and navigation mechanism is used as for the cal.K parameter.

Cal.F calibrates the maximum out level for the CVF or note velocity outputs. The calibration has 16 steps.

Please observe that the final output from the CVF jacks, also depends on the MIDI Volume and the note velocity.

c.len

This is the pulse lengths used for the clk1-3 outputs. The parameter has 15 steps and has the same pulse-lengths as the start/stop/reset. Only pulses, no gated modes.

f.res

Factory reset.

When executed, the module will revert back to the factory settings. The default factory settings will be saved.

Please observer that the rx-parameter will be set to normal midi speed 31.250 baud.

Two steps:

1 - Factory reset not possible

2 – Factory reset enabled. The led blinks. Long-press on Val-button executes!

rx

Selection of the serial receive (rx) speed.

Other serial parameters: 8 data bits, 1 stop bit, no parity, no flow control.

5 different serial baud-speeds can be selected.

1 – 31.250 (MIDI)
Normal MIDI serial speed. Use this when using the internal built-in MIDI interface or when connected to a MIDI-receiver that forwards the serial stream as MIDI serial 5V logic. For example the "manikk THRU" module.

2 – 115.200
Serial speed 115.200 baud. Use this when connected via the USB connector on the microcontroller on the backside, or when connected to a serial device on a computer.

3 – 230.400
Experimental. Serial speed 230.400 baud. See description for 115.200 above.

4 – 250.000
Experimental. Serial speed 250.000 baud. See description for 115.200 above.

tune

Auto-tuning function.

This function uses the S-jack on voice 8 as an audio input.

This is the ONLY jack that can be used as an input. All other jacks are output only. The module can get damaged if you connect it's outputs to other modules outputs (except for the auto-tuning input).

For the best result from this function, the oscillator output source should be as clean as possible. No filters, no modulations, square wave…

1) Connect the oscillator audio out to the autotuned input jack.

2) Use the Val-button to select which one of the 8 voices to be autotuned.

3) Long-press the Val-button to start tuning on the selected voice.

4) Wait! The M-led and R-led are blinking, starts slower and blinks faster and faster. You can abort by pressing the Par-button.

5) When auto-tuning is done, the LED's are acting normal again and only the Auto-tune led is blinking and the selected voice led is lit constantly.

If you auto-tune a voice that has the CV-array connected. Then the CV-array will be filled with an autotuned value for each key. The CV-array mode can be used when the oscillator is a non-linear type or when you want to calibrate something strange or crazy.

If you auto-tuned a "normal" voice, without the CV-array attached, the offsetK and the calK variables are automatically calibrated for the voice.

You can also set the offsetK and calK parameters for each voice by NRPN.

> **Note**
>
> The CV-array can be attached to none or one of the 8 voices. If the CV-array is attached, you calibrate each note in the array and not the offsetK and calK values for that voice.

To attach the CV-array to a voice, you long-press the Par-button when standing on the tune-parameter. All 8 M-LED's are now blinking. Now you can use the Val-button to select none or voice 1-8.

You can also detach the CV-array from a voice, by editing the calK value for that voice. Then that voice detaches the CV-array and starts using its linear calK and offset values instead.

It is also possible to attach, detach and start the auto-tuning sequence from NRPN.

Connections

Communication

This module communicates by serial communication. It can only receive information. There is a "RX"-LED that indicates when the module receives data. See also the parameter "RX" where you can select the serial baud rate.

There is no bulky old MIDI-connector on the front. Instead, there are RX and GND pins on the backside where you can connect the type of serial device that you want.

There is an internal built-in MIDI-input-interface on the board (optocoupler). The jumper on the backside must be placed in the "INT" position if you want to use this. The supplied midi-in-connector cable must be attached to the midi pins.

You can also use and external MIDI to serial converter and attach this to the pins on the backside. The jumper must then be placed in the "EXT" position.

Some devices, for example the manikk THRU, can provide multiple Outbreaks with MIDI-data.

The serial signal voltage levels on the RX input pin must be 0 and 5V.

Serial TX to RX providers

There are some different possibilities to provide the necessary serial RX input signal for this device:

The built-in MIDI-in-interface
This is the preferred and recommended set-up!

Set the jumper to the "INT" position.

Attach the supplied MIDI-in-connector to the 3-pin-connector.

Connect the output from your MIDI-interface to the Outbreak MIDI-input-cable.

If you use this setup, you must set the RX parameter to: 1 = 31.250 (MIDI).

manikk MIDI-dongle

This is a separate little board that you attach directly on the RX-TX header pins on the backside. The little board has pins for normal MIDI connectors In and Out. You only need to connect the MIDI-in, because this device is only receiving data. The pins MIDI-IN-4 and MIDI-IN-5 need to be attached to the pins 4 and 5 of the MIDI-in-connector on the dongle PCB.

If you use this setup, you must set the RX parameter to: 1 = 31.250 (MIDI).

Set the jumper to the "EXT" position.

manikk THRU

This is a separate eurorack module that has 1 MIDI input, 3 MIDI THRU outputs on the front and 2 TX MIDI serial outputs on the back.

The TX outputs on the "manikk THRU" can be connected to the RX input on the Outbreak device.

One "manikk THRU" can therefore provide two Outbreaks with the needed serial midi data. And with some modifications, the three THRU-connectors on the front, can be used TX outputs too. In total a possibility to drive five different Outbreaks simultaneously.

If you use this setup, you must set the RX parameter to: 1 = 31.250 (MIDI).

Set the jumper to the "EXT" position.

USB on the back

The USB connector on the back of the Outbreak can be used to transfer the serial signals needed.

First you must install a serial driver for the chip used on the microprocessor board. There is a CH341 chip onboard and you need to install the correct drivers for that chip. It can be found on many places on the internet. See our FAQ for more information about this.

Now you have some options how to communicate serial over USB with the Outbreak:

　　1)　MIDI to Serial converter

In this case you need to install a "MIDI to Serial converter" on your computer. You will also need to create a "virtual MIDI device" on your computer that will be the MIDI device that you use in your DAW, that forwards the signals to the MIDI to Serial converter that in turn forwards the signals to the Outbreak. On a Mac there are built-in virtual MIDI drivers called IAC Drivers that you can use.

There are a number of different MIDI to Serial converters that you can find on the internet. One of them is "Hairless MIDI <-> Serial Bridge" and it works for Mac, Windows and Linux. Do not forget to set the correct serial speed parameters. See the RX parameter for more information.

2) Ableton Live - Max for Live

You can create a Max for Live MIDI Effect where you connect the output from a "midiin" object to the input of a "serial" object.

Settings for the serial object should be "serial a 115200 8 1 0", where "a" is the serial-port on your computer where the Outbreak USB cable is connected. "a" is the first port, "b" is the second, "c" is the third and so on…

Put this Max MIDI effect at the end of the effects chain for a MIDI-channel, and the MIDI information will be routed out on that serial port that you have chosen.

There seems to be a limitation with this method, that it always will send on midi channel 1. The base channel needs to be set to 1 and you cannot access modes with higher channels than the base channel. In mono modes the mono2 to mono8 cannot be used. In drum modes you can only access the drums, not the other voices. Another limitation seems to be that Ableton don't send MIDI sync out with this method.

Set the jumper to the "EXT" position.

Direct serial on the RX and GND pins

Maybe you have another serial solution that sends normal serial 5V? Then you can connect your computer or that device directly to the RX pin and the GND-pin.

Set the jumper to the "EXT" position.

Same procedure for settings as in the USB case above.

PLEASE NOTE! No warranty if you break this module when connecting bad things here.

manikk USB Interface

Does not exist yet but may become available in the future.

USB to midi interface that has TX pins on the backside.

manikk OSC Interface

Does not exist yet but may become available in the future.

OSC to midi interface that has TX pins on the backside.

MIDI controller

The module is designed with the Korg nanoKontrol2 in mind. That MIDI controller has 8 channels (voices) with 3 buttons (gates) and two knobs/faders (CVK and CVF).

If you hook up a MIDI-controller like this to your DAW, you have complete control over most of the jacks directly from your fingertips. You can of course record your movements into your DAW, edit it and play it back in your song.

See the MIDI-CC Chart for which CC-numbers to use for each button or knob on your MIDI-controller.

On our website, you can download an example template for the Korg nanoKontrol2.

MIDI CC - base channel

The module can receive and act upon a number of control change messages received on the base channel.

All CC's responds to a value 0-127 and will be scaled up or down depending on the parameter range.

CC	Parameter	Description	Saved
6	NRPN data MSB	Highest 7 bits in a NRPN data value	No
8 - 15	Free CVF 1-8	Sets CVF output for voice 1-8, adjusted by the detune setting.	No
16 - 23	Free CVK 1-8	Sets CVK output for voice 1-8, limited by the volume setting.	No
24 - 31	Gate R 1-8	Sets the R gate on/off for voice 1-8	No
32	Start pulse length	0-15, 0=shortest, 14=longest, 15=gated	Yes
33	Stop pulse length	0-15, 0=shortest, 14=longest, 15=gated	Yes
34	Reset pulse length	0-15, 0=shortest, 15=longest	Yes

35		Clk1 scaler	0=no sync, 1-63=scale down	Yes
36		Clk2 scaler		Yes
37		Clk3 scaler		Yes
38		NRPN data LSB	Lowest 7 bits in a NRPN data value	No
39		c.len	Clk1-3 pulse length, 0-15	Yes
41		Gates M	0-127, enables gates from top to bottom	No
42		Gates S	0-127, enables gates from top to bottom	No
45		Gates R	0-127, enables gates from top to bottom	No
46		Par-button	Remote control the Par-button, press >63	No
47		Par-button-longpress	Remote control the longpress of Par-button	No
48	- 55	Gate M 1-8	Sets the M gate on/off for voice 1-8	No
58		Val-button-longpress	Remote control the longpress of Val-button	No
59		Val-button	Remote control Val-button	No
60		Manual clk1	OR:ed with the clk1	No
61		Manual clk2	OR:ed with the clk2	No
62		Manual clk3	OR:ed with the clk3	No
72	- 79	Gate S 1-8	Sets the S gate on/off for voice 1-8	No
82		Mode	0-7 mono, 8-15 uni, 16-23 poly, 24-31 cyclic, 32-39 random, 40-47 drum	Yes
95		Goto Parameter	Remote control to jump to a parameter	No
96		NRPN data inc	Not used	No
97		NRPN data dec	Not used	No

98	NRPN param LSB	Lowest 7 bits of the NRPN parameter number 0-127	No
99	NRPN param MSB	Not used	No
100	RPN LSB	Not used	No
101	RPN MSB	Not used	No

MIDI CC - voice

The module can receive and act upon a limited number of control change messages received on the channel of a voice. These voice-channels and their numbering depends on the mode parameter.

CC	Parameter	Description	Saved
5	Portamento	Portamento time	No
7	Volume	Limits the CVF max output	No
56	CVF MSB	Hi-res CVF value MSB (MSB+LSB required)	No
57	CVF LSB	Hi-res CVF value LSB (MSB+LSB required)	No
65	Portamento	Portamento on/off	No
70	Transpose	0-127, gives -64 to +63 notes, 64=none	No
80	Gate S	S-gate on/off	No
81	Gate M	M-gate on/off	No
85	CVK MSB	Hi-res CVK value MSB (MSB+LSB required)	No
86	CVK LSB	Hi-res CVK value LSB (MSB+LSB required)	No
94	Detune	0-127, gives -64 to +63 detuning, 64=none	No

NRPN

The module can receive and act upon a number of NRPN messages received on the base channel. A NRPN message is a series of ordinary CC messages sent on the base channel and they must be sent in the specific order below.

The last selected NRPN parameter is selected for editing, and only CC6 and CC38 is needed to adjust the same parameter when one is selected.

The parameter value requires both MSB and LSB to change. You can not only send the MSB value.

CC	Parameter	Description
99	NRPN parameter MSB	Unused by this device
98	NRPN parameter LSB	The NRPN number, se below
6	NRPN data MSB	MSB part of a 14-bit value
38	NRPN data LSB	LSB part of a 14-bit value

All NRPN data values is received as 0-16383 and scaled down depending on the range of the parameter, see below.

NRPN	Parameter	Description	Saved
1 - 8	calK1-8	Calibrate linear 1V/octave constant for CVK output on voice 1-8. Range 0-4095	Yes
9 - 16	offsetK1-8	Offset/bias CVK output for voice 1-8. Range 0-4095	Yes
17 - 24	Free CVK 1-8	Sets a free CVK value. Range 0-4095. Adjusted by the detune setting.	No
25 - 32	Free CVF 1-8	Sets a free CVF value. Range 0-4095. Limited by the volume setting.	No
33 - 40	Invert Gate 1-8	inverts the GATE/R jack output on noteon and noteoff for the voices 1-8. Range on/off	Yes
41 - 48	Calibrate CVF 1-8	Sets max level of CVF output. Range 0-15	Yes
49 - 56	Transpose 1-8	Transpose for voices 1-8. Range 0-127 gives -64 to +63 notes.	No

57 – 64	Detune 1-8	Detune for voices 1-8. Range 0-127 gives -64 to +63 steps.	No
65 – 72	Portamento-time 1-8	Range about 0 to 1000ms for each voice 1-8	No
73 – 80	Portamento on 1-8	Portamento on for voice 1-8	No
81 – 88	Max free CVK 1-8	Sets the maximum cv level that the CVK output can have when set by CC or NRPN. Range 0-4095	Yes
89	Attach CV-array to voice	Attaches the cv array to voice 1-8. Range 0-7	Yes
90	Detach CV-array	If the CV array is attached to any voice, it will be detached, and all voices will now be linear.	Yes
91	Array key-tune	Sets a CV value for the CV-array for the last received note number on the base channel. Range 0-4095	Yes
92	Key Priority	Mono: 0=latest, 1=lowest, 2=highest, 3=N/A	Yes
93	Key Trig mode	Mono: 0=off, 1=retrig on each note	Yes
94	All notes off mode	0=does not respond to All notes off messages, 1=Responds to All notes off messages and clears the gates depending on the current mode.	Yes
95	Mode	Mono, unison, poly, cycle, random, drum. Each with 1-8 voices.	Yes
96	Auto-tune start	Range 0-7 selects voice 1-8 for auto-tuning and starts the tuning.	Yes
97	Retrig dip time	Range 0-14.	Yes
98	Drum splitmode select	0-2047=mono (default), 2048-4095=uni, 4096-6143=poly, 6144-8191=cycle, 8192-16383=rnd	No

127	Disable	Disable active NRPN parameter for editing	No

Program Change

The module can receive and act upon a number of Program change messages received on the base channel.

PgmCh	Parameter	Description
0-7	Mono 1-8	Selects mono mode and number of voices
8-15	Unison 1-8	Selects unison mode and number of voices
16-23	Polyphonic 1-8	Selects poly mode and number of voices
24-31	Cyclic 1-8	Selects cyclic mode and number of voices
32-39	Random 1-8	Selects random mode and number of voices
40-47	Drum 1-8	Selects drum mode and number of voices
48	KeyPrio Latest	The latest note played gets priority
49	KeyPrio Lowest	The lowest key held has priority
50	KeyPrio Highest	The highest key held has priority
51	KeyRetrig Off	No retrig
52	KeyRetrig On	A short gate-fall-rise is inserted for each key

Pulse-lengths

The parameters start, stop, reset and c.len selects pulse-lengths from an internal table. This is the pulse-length-durations that is used:

Nr	Pulse-length time
1	200ns
2	500ns
3	1ms
4	2ms
5	4ms
6	6ms
7	7ms

8	8ms
9	9ms
10	10ms
11	20ms
12	30ms
13	40ms
14	50ms
15	65.5ms
16	GATED (not for c.len)

Technical details

Current consumption	+12V	-12V
Idle mode	72mA	42mA
Edit mode	79-95mA	42mA
All leds are lit	137mA	42mA

Please note! All jacks are outputs except for S8 that also acts as the auto-tune input. Do not connect the outputs to other modules outputs.

More information

You can find more information on the website manikk.com:

- Latest version of this manual

- FAQ

- Max for live patches

- Other products

- And more…

Warranty

This device has a one (1) year limited warranty starting from the first purchase date.

The warranty covers malfunctions in the device.

The warranty does not cover bad usage, external damage or other abnormal usage.

The device is designed to work in a Eurorack synthesizer system. Other uses are not covered by the warranty.

If you have to use this warranty you need to do the following:

1) Check that the date is still in the warranty-time of 1 year from the date of purchase.

2) Contact the seller where you purchased the device.

3) Send the malfunctioning device to the address given by the seller. You have to pay for this freight yourself. Very important that you attach your return-address to the device, so we know where to return the repaired device.

4) Manikk will repair or replace the device if the problem is covered by the warranty. We will send the repaired device back to you.