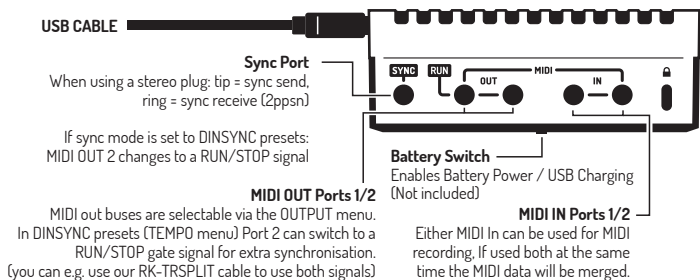


RK-008 QUICK MANUAL firmware v1.12

USB AND REAR CONNECTIONS

Use the provided USB cable to power the RK-008 via it's USB-C connector. You can make the RK-008 operate on battery power by fitting a Nokia 5C style LiPo battery in the bottom compartment. The battery will also be charged via USB Power.

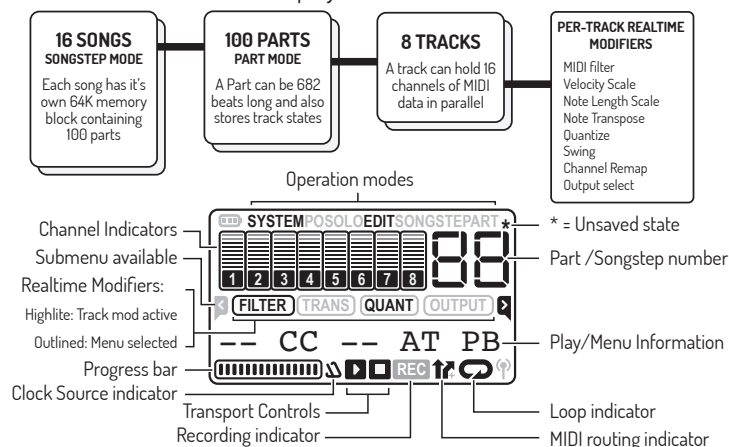
You can also use the USB-C Connector to connect with the RK-008 Settings page (retrokits.com/rk008/settings) via Chrome/webSerial



RK008 MIDI IN/MIDI OUT connectors are using the MIDI TRS-A Standard.

SONG/PART STRUCTURE AND DISPLAY

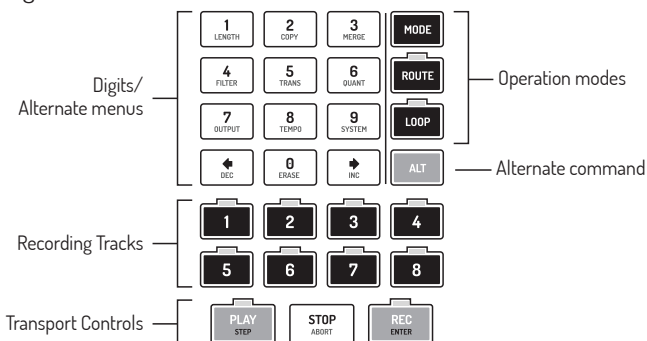
The RK008 structure and display are shown below:



If you want the RK008 to slave to a gate signal, set the clock source to AUTO (ALT+8,>,>5) and the metronome icon will light up. The RK-008 uses upscaling to generate a MIDI clock from these lower rate pulses.

THE KEYPAD

The keypad is arranged in 4 elements: The digits, operation modes, tracks and transport controls. The ALT-key can access an alternate function. On the digit-keys these functions are marked with the orange color. There are a lot of other ALT-options available which you will appreciate while working with the RK-008.

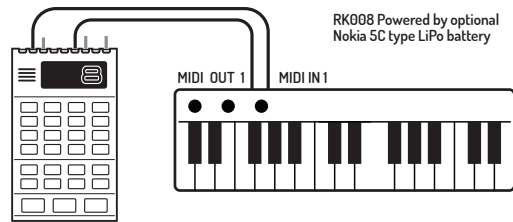


For Example: ALT+1 sets the recording length of a Part.
ALT+TRACK-x mutes/unmutes a track.
ALT+REC performs a quick save to memory.
ALT+ROUTE enters Performance Mode.
ALT+◀ or ALT+▶ can skip the playhead to a beat number.

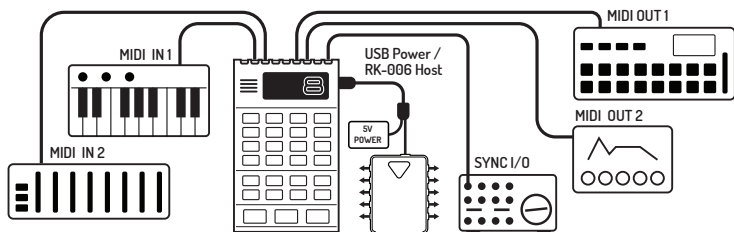
Once in an alternate function, generally the STOP or ALT-key exits/aborts the operation and the REC-key can be used as an ENTER/EXECUTE key.

HOW TO RECORD A MIDI PERFORMANCE

Connect one of the provided TRS-A/DIN5Male cables to the RK-008 and your MIDI Keyboard/music device. If you have a TRS-A MIDI keyboard you can also just connect a Stereo minijack audio cable in between. For TRS-B devices, check our website for connection solutions.



Above you can see a simple setup to add MIDI recording to a Synth. If you connect the RK-008 on a single MIDI device: Make sure 'MIDI Local control' on your device is set to 'off' to prevent note doubling. Otherwise disable direct MIDI output of the RK-008 by disabling the ROUTE option to prevent MIDI loops.



The schematic above shows a more extensive setup of RK-008. With 'ROUTE' and the OUTPUT-menu (ALT+7) you can configure the RK008 as a MIDI switchboard, quickly changing output port / MIDI channel by just pressing a Track button, the RK008 Hosts the RK008 and can also be selected as a separate output bus next to the existing outputs. You can select which MIDI goes to which channel and output port per Track.

The LED on top of the ROUTE pad indicates incoming MIDI messages. You can also see incoming MIDI messages on the RK-008 screen.

Select a Track to record to with one of the TRACK buttons (1-8). On the screen you will see the appropriate track outlined to indicate it is selected for recording. The recording Track LED will also blink to indicate your recording destination. Press REC to arm the RK-008 for recording.

Normally the RK-008 will use a 4-beat count-in until the recording starts. You can omit the count-in bars by pressing REC two times.

Pressing PLAY will start the recording. If you have no Part length set (ALT+1), the RK-008 will set the Part length to your recording. You can adjust the length later if you wish. If you want to shorten the recording the RK-008 will ask you which part of the recording you want to keep.

If you have made a recording, press REC again to stop and commit the recording to the Track. If you press STOP the recording will be deleted and you can try recording again.

If you are playing a Track which already contains data, pressing REC will overdub on that track. If you want to replace instead, mute the Track first with ALT+[tracknr] or erase the Track with the Erase function (ALT+0)

Note that the PLAY button restarts a pattern from the beginning. If you have stopped playback and want to resume where you left off: Press ALT+PLAY to continue playing.

If you want to skip to a certain Beat on a long Part you can press ALT+>>> and enter a beat number to continue the playing.

So a single track can record MIDI data from any of the 16 available MIDI channels. How you are using the Tracks is up to you: You can use them for retakes and keep performances as spares or perhaps use as performance tools with mute/unmute and routing.

WORKING WITH PART RECORDINGS

After you recorded something you can edit the Part/Track structure with Digits 1,2 and 3. Below a quick rundown to get you started:

ALT+1 : LENGTH

Cut the length or increase the Part length. If you cut an existing recording, select which section you want to keep from the original: The Beginning or the End, and press REC to cut. The result will be the length you have selected with the selected data from the original Part.

ALT+2 : COPY

Use the copy menu to replace Tracks or Parts, you can duplicate, expand (pull apart MIDI Data) or swap Tracks. When you have deselected all Tracks you can also make a copy of a complete Part.

ALT+3 : MERGE

You can use the MERGE menu to mix multiple Tracks together. You can also use it on a single Track to just mixdown real-time modifiers. If you have no Tracks selected you can merge a complete Part to another part -or- to itself! Useful if you have played for example a 4-beat loop and you want to expand to 8, 16 or 32 (or more) beats.

REALTIME MODIFIERS

If you have recorded something you can also let the RK-008 polish it up a bit. It has modifiers to change volume, transpose, quantize or alter the note length. All the performance modifiers are located in the 2nd row digits: 3, 4 and 5. They can be applied non-destructable. If you have applied any of these realtime modifiers on a Track, you can do a MIXDOWN (ALT+3) and they will be rendered to the recording. After this you can again add modifiers to the cleaned up Track.

ALT+4 : FILTER

Here you can play around with the velocity. For example if you want to play snappy basses it might help to modify notes by setting velocity transform to MAX, so you always play with full velocity. Digit 1-6 act as quick presets, Digit 7,8 and 9 allow you to set velocity percentages of the original. 8 Will set to 80% and 7 or 9 will respectively decrease or increase.

On the next page in the menu you can also filter out recorded MIDI messages. Say you have made that funky line but that pitchbend just is not right or the aftertouch should not be there: you can filter them out here.

ALT+5 : TRANSPOSE

This will be handy if you have for example changed a sound and it turns out it needed to be played an octave higher. Also transposing a few notes can be nice to experiment with in finding harmonies. Pressing << before entering a number sets a negative transpose value.

If you enter 99 as a transpose value, the field will change into 'PRF' and the Track will be responding to note-transpose via the MIDI Remote Channel (if set) If you set the RK-008 into 'Performance Mode' (ALT+ROUTE) you can use notes to transpose a selection of Tracks with the PRF value.

ALT+6 : QUANTIZE

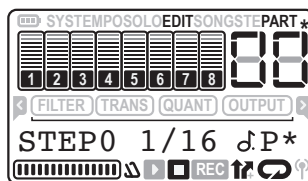
Quantize can be used for various things. You can add swing to a Track, group notes into chords or change the note length. Same as in the Filter menu, Digit 1-6 act as quick presets, Digit 7,8 and 9 allow you to set percentages. You can use it in real-time to completely change a Track playback or just add little nuances.

Just experiment with these and see what you can do with your performances recorded in realTime MIDI. But there's more...

HOW TO USE STEPTIME RECORDING

Although the realTime full MIDI recording is what the RK-008 is all about, sometimes it is just handy to enter notes in a sequencer fashion, for example if you want to make a quick drumbeat or carefully timed controller data or program changes. For that we have made the stepTime recorder.

ALT + MODE Enters the stepTime recorder The stepTime recording mode is only available if you have previously set a Part length (ALT+1).



- d. Step has note data (. for long note)
- P Step has Program Change data
- * Step has CC, Pitch, etc. data

The RK-008 realTime playhead is now stepping over at fixed intervals. You can choose how long the intervals can be with the Digits 1-6. Tap a time division multiple times if you need to access triplets or duplets.

You can use the arrow keys to step through the Part (Tip, if you need to move fast through a longer Part: just choose a long timeStep division). The display will indicate the Step position and if there is a Note, Program change(P) or Other(*) MIDI data on the step. A note which exceeds the step length is marked with an extra dot (like in normal note notation).

Press REC to start the step recording. If a note (or a chord) is played the step will auto advance so you can quickly fill the Part with a sequence of notes. Your played note's duration will be taken into account on the step note length. If you only dial in Controller values the step will not advance so you can stack multiple CC values in one timeStep. You can navigate through steps with << and >>.

You can clear a step by pressing '0'. If you only want to clear non-note data you can press ALT+0

StepTime events will sound via MIDI when playback is stopped so you can hear the step contents while navigating with buttons << and >>

Pressing **7** in stepTime will enter the MIDI Program Change assistant. Here you can add a Program Change /Bank Change on your track. Message details can be accessed by pressing the arrow right button.

Note that a MIDI Program Change message is set to a specific MIDI channel. The RK-008 can record on any MIDI channel so keep track on which device you want to send/receive the Program Change.

Normally the notes which arrive on the RK-008 MIDI input will select on which channel the Program Change is sent out. If you don't play notes the existing track data will set the channel.

You can override the MIDI channel selection in the last page of the Program Change Editor.

Note: If the Track output is forced to a specific MIDI channel, setting it in the Program Change editor will have no effect.

You can play around with Program Changes by entering numbers or quickly send them out with ALT+>> or ALT+<<

If you enter 0+REC for a Program Change the complete entry will be deleted from the Track. If you only want to clear a BankChange message, go to the MSB / LSB page and type a number over 127 (like 128 or 999)

In the Program Change editor, press REC to commit a Program Change to the Track or press STOP to exit the editor and leave the Track unaltered.

RK008 BY THE BUTTONS

On the next pages we have summarized the RK-008 main buttons and the ALT+[digit] menu combinations.

MODE Sets the RK008 in Part or Songstep mode. In Part mode you can record your musical Parts, in Songstep mode you can chain these Parts together. You can also save mute states and track transposes on a Songstep to re-use a Part in the song structure. The REC key toggles between browsing through Songsteps or adding/changing Parts or Track mutes in a Songstep.

ALT + MODE Pressing ALT+MODE enters part stepTime mode, described in the extra pages of this manual.

ROUTE Route sends incoming MIDI messages through to the output of the RK-008. The selected track determines which processing is applied to the incoming MIDI message (in terms of modifiers, filters, transpose, MIDI channel and output port). Incoming MIDI messages are also indicated by a blink on the Route LED.

ALT + ROUTE Pressing ALT+ROUTE sets the RK-008 in Performance Mode. In this mode you can quickly mute/unmute tracks by pressing the Track buttons (while normally pressing Track keys will select for recording). If the RK-008 MIDI Remote Control Channel is set you can also invoke Track note transpose by a MIDI key. The transpose will be applied on all tracks which have '99' as their transpose value.

LOOP Depending on the RK-008 MODE state, **LOOP** will repeat current Part or the current Songstep.

1-8 TRACK 1-8 + LED STATES

The 8 Track keys can be used to select the Record Track destination. If used in conjunction with **ALT** they will act as (un)mute keys. The LED above the Track button tell you about the contents:

- | | |
|--|--|
| ● OFF
Track contains no MIDI data. | ● ON
Track contains MIDI data. |
| ● DIMMED
Track contains MIDI data but is muted. | ● BLINK ON/OFF
Track (empty) selected for recording. |
| ● BLINK ON/DIMMED
Track (muted but containing MIDI data) is selected for recording | |

TRACK SOLO

Long-press a Track key to solo the Track. Add extra Tracks to solo just by pressing them. There are three ways to exit Solo:

1. If more Tracks are solo'd, press **ALT** to exit solo mode. The resulting Solo states will be set to Track mute/unmute states.
2. Reduce all solo Tracks back to one and short press this last one to exit and revert to your old mute/unmute state
3. Press **STOP** when in solo mode to revert the mix states.

Note: If you have track solo active during Part change the Track solo-states will override the saved Track mute-states. You can use this to your advantage in a performance.

Each Track can have it's own real-time MIDI modifiers. You can apply the following transformations on note-data:

- Quantize (note on/length) & Swing
- Transpose
- Velocity

You can also set output Filter on the following MIDI Channel data:

- Notes
- Controllers
- Program Changes
- Aftertouch
- Pitchbend

Merge/mixdown Tracks will render/fix modifiers to Part memory.

You can also select each Track to Mute, force MIDI data to a single MIDI channel or route it to a specific Output port (OUT1, OUT2 or -if connected - the RK006). If any of these real-time modifiers are active it will light up in the RK008 display.

Most keys are taken up by the digits, these are for selecting Parts but also have an alternate function which you can invoke with the orange **ALT** key. If you have a function activated the screen will show '**EDIT**' active. Generally **REC** acts as operation execute and **STOP** as abort.

ALT Pressing **ALT+[grey numeric]** gives you various RK-008 options.

ALT + PLAY Resume playback

ALT + STOP Send MIDI Note Panic

ALT + MODE Enter StepTime Recording

ALT + LOOP TrackButton Trigger mode

When Record is armed, there is a count-in when you press Play to start. If you want to omit count-in, **press REC twice**.

In calculator-CE-button-fashion: Would you like to return to main operation mode: Three presses max on the **STOP** button gets you home.

ALT + [num] [ALT+DIGIT] MENU COMBINATIONS:

1 /1] PART LENGTH

Type the Part length with the numeric keys, Max 682 beats. Note that beats are not applicable in free record mode (TEMPO menu). Shortening existing Part data to a new length will ask you which data of the Part to use: Begin or end data.

1 /2] SIGNATURE

Type timebase of the track (affects metronome click and loop detection)

1 /3] PART SCALE

Select a scale preset to use on the part. To use the scale in the realtime-Transpose (ALT+5), set 'SCALED' to 'YES' in the Transpose menu.

1 /4] PART NAME

Enter Part name here with digits 0-9 in Ye Olden E.161 phone style.

2 /1] COPY

The active Track will be used as copy source. **Select another Track** to set the Track copy destination. **Select a Part** on the digit keys to copy selected Tracks to another Part. **Deselect all Tracks** to enter Part copy.

Note: To combine two Parts, use **MERGE**, not COPY (COPY overwrites).

2 /2] EXPAND

Enables note extraction on a Track with single-MIDI channel data and the extraction of separate MIDI Channels on a multi-channel Track.

Note: Expand only works with free Tracks in a Part.

2 /3] SWAP

Select two tracks to swap their contents (structural organization). If all Tracks are deselected you can swap Parts with each other.

3 MERGE

Mixdown Track MIDI Modifiers (e.g. quantize, velocity, channel, ...) and/or merge multiple Tracks to one. After merging, modifiers are set to default.

If entered with a Track active, the Track will be used as the mixdown destination. Select other Tracks to include in mixdown by pressing the corresponding Track buttons and press **REC** to execute.

Deselect the active Track to enter Part Merge: Enter the two-digit Part number to merge to the current Part and press **REC** (**DEC/INC** changes Part number).

Note: If you select the current Part as merge destination, effectively the Part will be merged to itself, doubled in length.

4 /1] FILTER Velocity

Numeric keys scale note velocity to:

- | | | |
|--------|--------|--------|
| 1 20% | 2 50% | 3 90% |
| 4 120% | 5 150% | 6 MAX |
| 7 -10% | 8 80% | 9 +10% |
| | 0 ORG | |

4 /2] FILTER Events

Digit keys toggle filtering for:

- | |
|--------------------------|
| 1 Notes |
| 2 Controllers |
| 3 Program Changes |
| 4 Aftertouch |
| 5 Pitchbend |
| 0 No Filtering / Default |

5 TRANSPOSE

Enter numeric value to transpose the Track an xx amount of notes. Pressing **DEC** before entering the number enters negative transpose.

Pressing **ALT+DEC/INC** the transpose value will be changed by 1.

If you enter **99** as transpose value, the Track will be set to Performance Transpose (**ALT+ROUTE** mode). Meaning the track will be transposed according to MIDI key input on the RK-008 MIDI Remote Control Channel.

6 /1] QUANTIZE Timebase

Numeric keys set the quantize timebase. Press again to select alternatives like duplets / tuplets:

1 / 64	2 / 32	3 / 16	1 52%	2 54%	3 56%
4 / 8	5 / 4	6 / 2	4 58%	5 60%	6 63%
7	8	9	7 65%	8 67%	9 75%
	0 OFF		0 OFF		

6 /2] QUANTIZE Swing

Adds swing to the selected quantization:

1 52%	2 54%	3 56%
4 58%	5 60%	6 63%
7 65%	8 67%	9 75%
	0 OFF	

6 /3] QUANTIZE Note Length

Numeric keys scale note length. Press twice to toggle lengthed timebase.

1 / 64	2 / 32	3 / 16	8 Presets to 80%
4 / 8	5 / 4	6 / 2	Key 7 and 9 are used to
7 -10%	8 80%	9 +10%	de-and increase the value.
	0 OFF		

7 /1] OUTPUT MIDI Channel

Each track can contain data on all sixteen MIDI channels. Type channel 1-16 on the digits to force a single MIDI channel. (00 reverts to omni/original)

7 /2] OUTPUT Output Port

Select track hardware output:

1 OUT1	2 OUT2	3 RK006
4	5	6
7	8	9
	0 ALL	

8 /1] TEMPO - BPM Value

Enter numeric value to set the tempo (if tempo is set to internal at menu 4). Use **ALT+DEC/INC** to finetune decimal value if needed.

Note: You can press **ALT+8** multiple times to use it as a tap-tempo

8 /2] TEMPO - CLICK (metronome)

Use the numeric pad to change metronome options. The keypad columns change audible timebase on the click signal:

1 REC+PLAY:	Send click to speaker at all times.
2 REC:	Send click to speaker while recording only
3 PLAY:	Send click to speaker while recording only
0 OFF:	No metronome output

8 /3] TEMPO - CLOCK SOURCE [INT]

Use the numeric pad to change MIDI clock source:

1 IN1:	Sync to MIDI on IN1
2 IN2:	Sync to MIDI on IN2
3 RK006:	Sync to RK006 via USB
4 OFF:	Free record (no BPM)
5 AUTO:	Auto detect where clock is coming from (Also gate-in)
0 INT:	RK008 Internal clock (default)

8 /4] TEMPO - TX CLOCK [ON]

Send MIDI clock to outputs. 1 =Disabled 2 / 0 Enabled (default)

8 /5] TEMPO - STARTSTOP [RXTX]

Changes handling of MIDI Transport (start/stop/continue):

1 RX:	Receive only	2 TX:	Send only
3 NONE:	No sending/receiving	0 RXTX:	Send and receive (def.)

8 /6] TEMPO - SYNC OUT [VOLCA]

Use the numeric pad to change the Sync Out Jack clicktrack timebase. Press multiple times to select timebase alternatives:

1 BAR	2 VOLCA	3 PPQN
4 DINxx	5	6
7	8	9
	0 [DEF] (=VOLCA)	

IMPORTANT: DINxx presets changes MIDI Out port 2 to a digital RUN/STOP signal! If active, this will be indicated on the OUTPUT menu (7/2).

9 /1] SYSTEM - SONG

Press **REC** to enter this submenu in order to Save/Load Songs or a Template (and press **ALT** to go back up one level).

- A Song is a collection of 100 parts and a Song Sequence.
- A Template is a default Part routing setup.

Initially every Track in a Part outputs to All MIDI outputs / all MIDI Channels. If you have a specific setup (e.g. Track 1 =MIDI channel 1 and Track 5-10 to MIDI channel 10, separate quantize, transpose, ...) - Then you can make the RK-008 start with this setup on an empty Part making MIDI routing by Track selection easy to use.

You can clear the Template if you want the default setup again.

Note: Pressing **ALT+REC** is a quick key combo for saving a Song.

Save and Load operations can affect playback: Avoid the urge to save your current performance while in a live situation :-)

9 /2] SYSTEM - MIDI SETUP

• MAP WHEEL [OFF]

Allows you to remap the Modulation wheel into a custom MIDI controller. The maximum controller number is #119.

Enter the Controller number with the numeric keys for remapping. Input value #0 to disable the remap.

Input value #1 to change the Modulation wheel into Aftertouch message (Channel Pressure).

• MIDICLICK [OFF]

1 Echos the Metronome (ALT+8/2) to MIDI channel 10 (def=off)

• REMOTE CHANNEL [OFF]

The Remote Control Channel allows you to control the RK-008 from a MIDI Device. It allows MIDI Note Transpose in the Performance Menu as well as Play/Stop, Mutes, Recording and Part Changes via MIDI (in Performance Mode with: **ALT+ROUTE**).

Select the channel with the numeric keys or enter channel **00** to disable RK-008 MIDI Remote Control.

Remember that if the Remote Channel is set, normal MIDI behavior is **disabled** for that MIDI channel.

The RK-008 Remote MIDI Mapping is as follows:

KEY 10-17 (A#-2_F-1)	Select Track 1-8
KEY 18-25 (F#-1_C#0)	Mute Track 1-8
CC #105	Toggle Stop
CC #115	Toggle Play
CC #117	Toggle REC
Program Change 0-99	Change Part
KEY C3 (60) =	Key Transpose Base Note
	(ALT+ROUTE performance mode)

9 /3] SYSTEM - INFO

Displays Firmware Revision and Build ID

0 ERASE

When a Track is active you can erase one or more Tracks, just press the according Track buttons to erase and press **REC**.

Deselecting all Tracks will allow you to delete a complete Part and set the length back to zero.

TIP: In Track Erase mode, choose to delete a specific note or CC message from the Track by **just pressing the note or wiggle the controller**. The message will appear on the display and can be deleted by pressing **REC**.

BATTERY OPERATION

You can fit a Nokia Li-Ion 5C battery in the RK008. It will charge when the RK008 is connected to USB. The bottom switch on the RK008 disables the battery / battery charge. You can press STOP for a few seconds to put the RK008 in sleep mode.

RK008

Manual fw1.121 / Dec 2022 retrokits.com the Netherlands
RK-008 EAN:7434051990974 A.J. Huitsing / G.Dijkstra



Function	Transmitted	Recognized	Remarks
Basic Default Channel Changed	1-16 1-16	1-16 1-16	
Mode Default Messages	0	0	
Note True Voice Number **REMOTE MODE Select track Mute track Transpose basekey Midiclick notes	0 0-127	0 0-127	10-17 *1 18-25 *1 60 76,77
Velocity Note on Note Off	0 X	0 X	
After Key+Chan Touch	0	0	
Pitch Bend	0	0	
Control 0-127 Change **REMOTE MODE Stop Play Record	0	0	105 *1 115 *1 117 *1
Program 0-127 Change **REMOTE MODE Part change	0	0	0-99
System Exclusive	0	0	
Common	0	0	
System Real Time	0	0	
Aux Msg	0	0	
Notes: *1 REMOTE MODE Messages respond on toggle button state			

0 : Yes X : No