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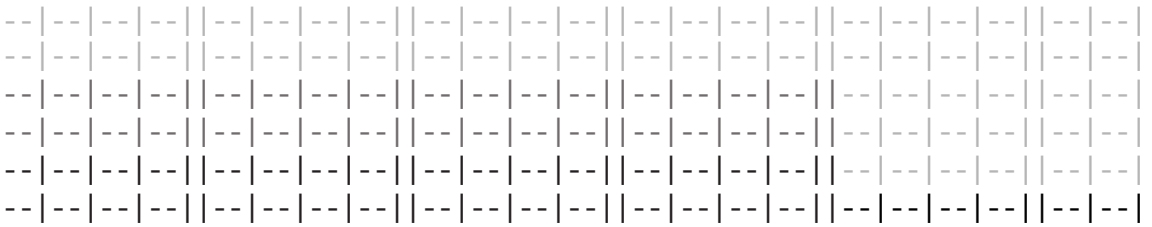


MegaCommand Live

Version:2.x.x

JUSTIN VALER

Contents:

Introduction:

The MegaCommand Live (MCL) firmware enhances the existing functionality of the Elektron Machinedrum (MD) & Analog 4 (A4).

At its most basic level MCL allows the user to capture individual Tracks from the MD and store them on the MegaCommand (MC) for later use. During a performance, stored tracks can be sent to the MD and written to patterns in real time. Sounds from the A4 can also be stored in the MC and recalled.

MCL features a 20 track internal sequencer with individual track lengths, parameter locks, micro timing and conditional trigs. 16 of these tracks can be used to sequence the Elektron MD, the remaining 4 tracks are 4 note polyphonic and can be used to sequence external instruments such as the Elektron Analog 4.

These functions allows the user to combine tracks from multiple patterns from both Instruments to help generate a dynamic musical performance. All of this happens whilst the MIDI clock is running and audio is being generated.

Other features of the MCL firmware include SD-Card memory storage, trigger interface, track cue system, on screen track information, graphical mixer, dedicated effects encoders, track pitch and scale modes, support for Turbo Midi 8x.

Key Definitions:

Project:

A project stored on the SD-Card. Each project contains one Grid.

Grid:

The MCL Firmware uses a Grid/Slot system to store Tracks.

The grid dimensions are 128 Rows x 22 Slots.

Slot:

A position in the Grid in which a Track can be stored. (Either occupied or unoccupied).

Row/Pattern:

A row of the Grid. Each row has 22 slots and can store 16 MD tracks, a complete MD pattern + 6 external sequencer or A4 tracks.

Ext Sequencer:

The 20 track external sequencer is used to sequence the MD, A4 or External MIDI.

External sequencer data is stored along side Track data in the Grid/Slot system.

Tracks

A track captured from the Elektron MD or Analog4, or an external MIDI track.

There are 3 types of tracks.

MachineDrum Track (Slots 0-15):

A track captured from the MD:

- Track Triggers
- Track Parameter Locks (up to 256 locks per track).
- Swing Triggers
- Slide Triggers
- Accent Triggers
- The Machine Type
- Machine Parameters
- Machine LFO settings.
- Pattern Information (length, scale, swing and accent amounts)
- Kit Name + Master FX settings (First track in row only).
- Ext Sequencer Data

Analog4 Track (Slots 16-19):

A track captured from the A4. (Only captures the sound settings, no A4 sequencer data is supported at this time)

-A4 Sound data

-Ext Sequencer Data

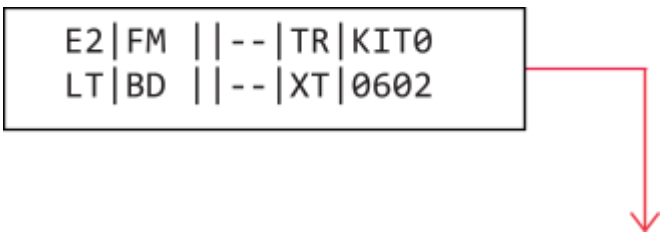
Ext Track (Slots 16-19):

(Only stores the external sequencer data)

- Ext Sequencer Data

Grid/Slot System:

MiniCommand Display: (In this example the MC is displaying Slots 6-9 of row 2 of the grid)



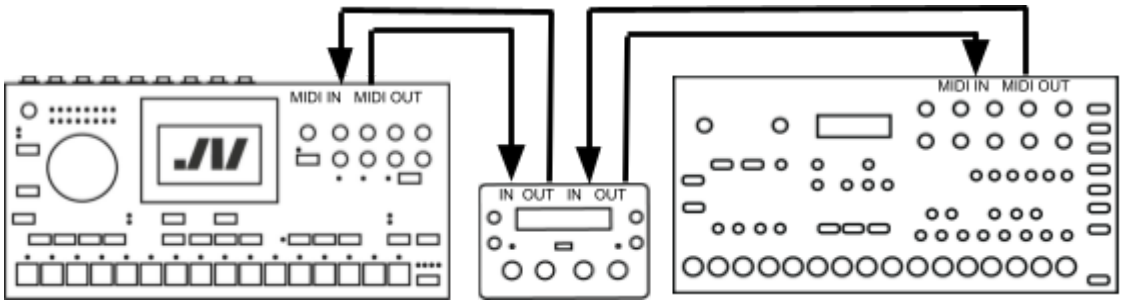
The Grid:

```
Machinedrum Slots                                   || Analog 4/Ext Midi Slots


E2|FM|FM|TR||--|--|--|--||E2|FM|--|TR||E2|FM|--|TR||--|--|--|--||--|--| Row 00
BD|BD|XT|XT||--|--|--|--||SD|CP|--|OH||RS|CY|--|CY||--|--|--|--||--|--|

--|--|--|--||E2|MI|R0|R0||--|E2|E2|--||FM|FM|FM|--||A4|A4|A4|A4||--|--| Row 01
--|--|--|--||RS|01|02|03||--|CP|SD|--||CH|CB|CP|--||T1|T2|T3|T4||--|--|

--|FM|FM|TR||--|--|E2|FM||--|TR|--|E2||--|--|--|--||EX|EX|--|--||EX|--| Row 02
--|XT|XT|RS||--|--|LT|BD||--|XT|--|SH||--|--|--|--||TK|TK|--|--||TK|--|

FM|TR|E2|E2||--|MI|--|--||--|--|--|--||CT|CT|RA|RA||--|--|--|--||--|--|
BD|BD|LT|HT||--|02|--|--||--|--|--|--||AL|RE|P1|02||--|--|--|--||--|--|

        .                   .                   .                   .
        .                   .                   .                   .
        .                   .                   .                   .

--|--|--|--||--|--|--|--||--|--|--|--||--|--|--|--||--|--|--|--||--|--|Row 127
--|--|--|--||--|--|--|--||--|--|--|--||--|--|--|--||--|--|--|--||--|--|
```

MIDI Setup:

1) Machinedrum:
Connect the MIDI-Out of the Machinedrum to the MIDI-In (1) of the MegaCommand. and connect the MIDI-Out (1) of the MegaCommand to MIDI-In of the Machinedrum.

2) Analog4 (Optional):
Connect the MIDI-Out of the Analog4 to the MIDI-In (2) of the MegaCommand. and connect the MIDI-Out (2) of the MegaCommand to MIDI-In of the Analog 4.



MD Settings:

The Machinedrum Globals (6) and (7) are automatically controlled by MCL.
You should not make changes to the MD Globals when using MCL

Analog4 Settings:

The following configuration must be manually applied to the Analog 4 in the Global Settings menu:

```
MIDI Port Config:
   1) Output to MIDI
   2) Input to MIDI
      3) Keyboard CFG = EXT
      4) Receive Notes = True
      5) Receive CC/NPRN = True

MIDI Channels:
   1) Tracks 1-6 channels need to be set to MIDI Channels 1-6
      respectively.
```

Active Pairing:

When MIDI traffic is detected on Ports 1 or 2 of the MC after powering on, the MC will automatically attempt to detect the attach device. Upon device detection the Turbo Speed setting for the port will be activated.

Verifying Connectivity:

Power on the MD and A4 first, then the MC. If the connections are correct you should see the Track LEDs on the MD scroll through twice in rapid succession. If the A4 connection is established you should see “Turbo 4x Mode” window appear briefly.

(Note: The Analog4 is optional and is not required to use MC.

How does MegaCommand Live Work?:

The MCL Firmware communicates with the Machinedrum and Analog 4 over MIDI using SYSEX messages.

This means that there is no setup requirement for the Machinedrum. You simply connect the two devices and you're ready to go.

The Analog4 requires some manual Global Settings to be applied as explained in "Setup".

NOTE:

MCL takes complete control of your MD Global Settings including MIDI Channel selection, MIDI Sync modes and Audio routing. As such MCL will overwrite global settings slots 7 and 8. These slots should always be reserved for MCL.

In order to capture the current state of the MD, MCL will frequently instruct the MD to save the current Kit.

The MCL Firmware executes the following procedures when Storing a Track from the MD

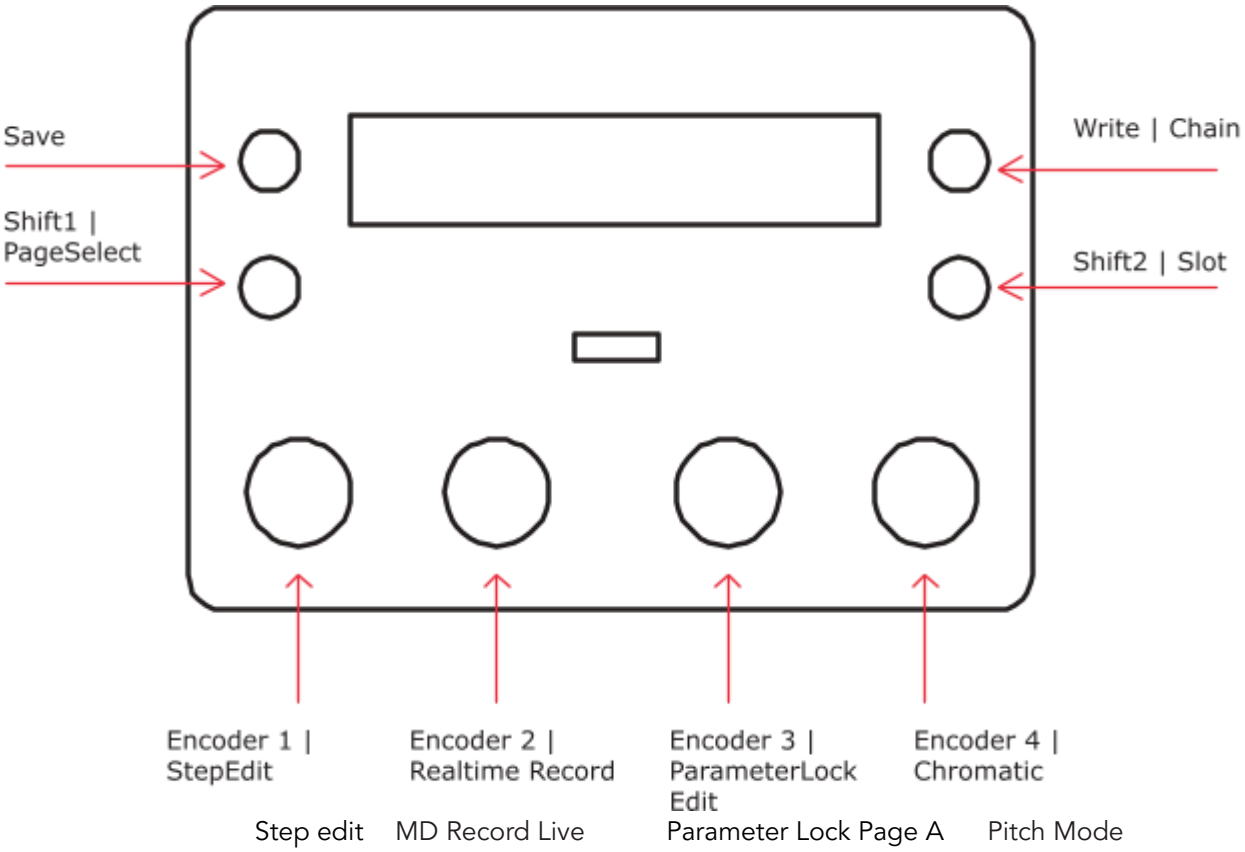
1. Instruct MD to save the current Kit.
2. Request the current Pattern from the MD.
3. Request the current Kit from the MD.
4. Extract and separate track data from the Pattern and Kit and store it on the SD Card.

The MCL Firmware executes the following procedures when Writing a Track to the MD:

1. Instruct MD to save the current Kit.
2. Request the current Pattern from the MD.
3. Request the current Kit from the MD.
4. Place the track in the Pattern and Kit.
5. Send the updated Pattern to the MD.
6. Send the updated Kit to the MD.
7. Instruct MD to load the updated Kit.

As MCL overwrites patterns and kit data stored on the MD during read and write operations you should always backup your work before using MCL.

GUI:



The 4 function buttons on the MC are used to enter submenus and activate commands:

1) Save
2) Mixer/Shift1
3) Write
4) Shift2

The 4 Encoder Buttons are used to enter the Ext Sequencer pages.

(Sub page indicated with [ ] brackets and activated with top right button)

Encoder 1: MD Step edit [A4 Step edit]
Encoder 2: MD Record Live [MD Record Parameter Locks Live]
Encoder 3: MD Parameter Lock Page A [MD Parameter Lock Page B]
Encoder 4: MD/A4 Pitch Mode [MD/A4 Pitch Record Mode]

LEDs:

The left most LED indicates that data is being received whilst the right most LED indicates that data has been sent.

The left most LED will also flash at the tempo of the Midi Clock when a MIDI start message is received from either the MD or external MIDI device during merge mode..

Grid Page:

The first page you will see after loading or creating a new project is the Grid Page. The Grid page is the default page for MCL and is used to access all subpages and commands.

The MCL Firmware displays the Grid on screen, 4 Slots are displayed at a time. Occupied slots will show the Machine Name associated with the track (Machine Names are abbreviated to 4 characters).Unoccupied Slots are represented by two lines of "--" . You can scroll through the grid:

- Turning encoder 1 scrolls in the X direction.
- Turning encoder 2 scrolls in the Y direction.

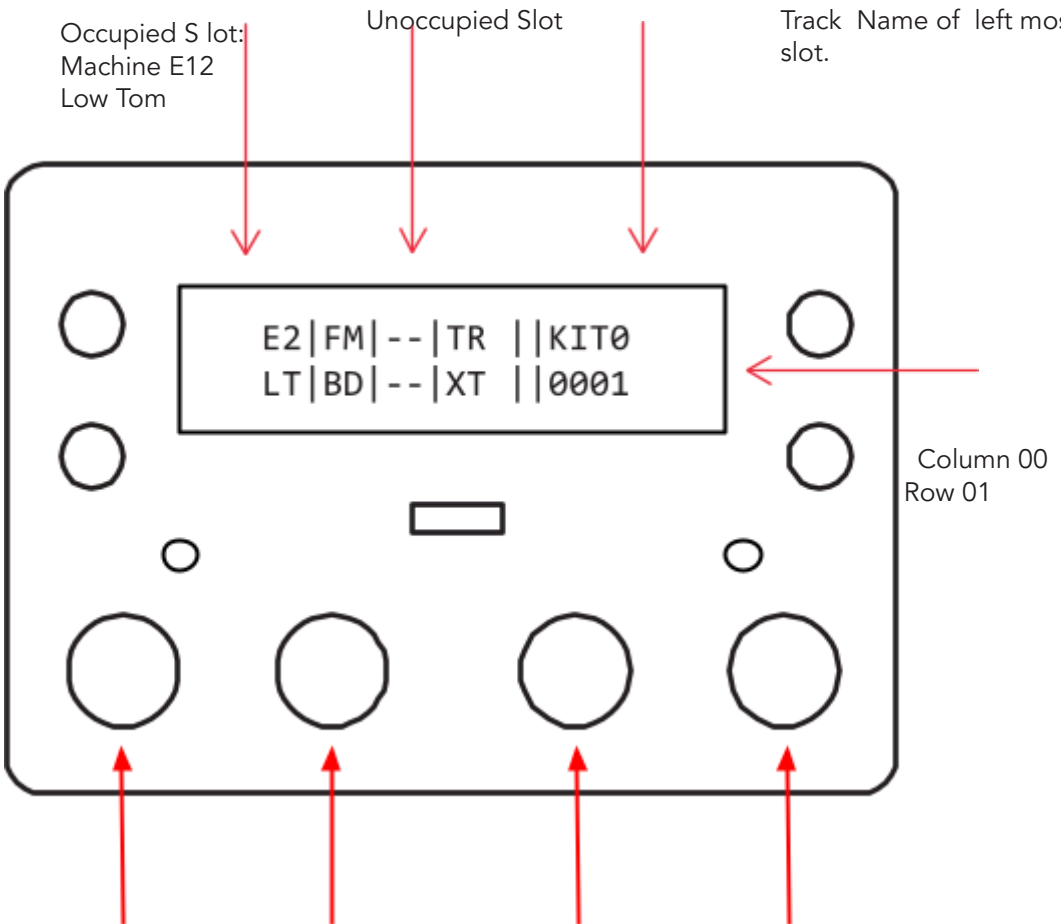
The Slot and Row Number are displayed in the bottom right hand corner of the screen.

When scrolling through the rows in the grid, The Kit Name associated with the left most Slot will be briefly displayed on screen in addition to the original MD pattern.

For every 4 slots a partition "||" is displayed on screen.

The TrackName associated with the left most Slot is displayed in the top right corner of the screen (track names default to their original Kit Name).

Two effects encoders are assigned to encoders 3 and 4. See “Effects” for more information.



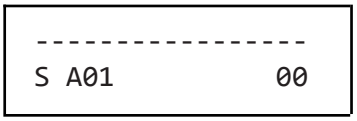
Trigger Interface

A sleek new feature of MCL V2.0 is the ability to use the MD trigger buttons as control input for the MegaCommand.

For example, the trigger interface can be used to select multiple tracks in the Mixer window to attenuate their volume simultaneously; to mute selected tracks using the cue page; or store or write tracks to the MD corresponding to the trig keys pressed on the MD. The trigger interface is also used to edit the External Step Sequencer.

For pages that incorporate the trigger interface, 16 dashes are displayed on the top or bottom rows. When a user presses a trigger button, the corresponding dash will change to a [], indicating that the key press has been received.

The trigger Interface is also expanded to the External Midi or Analog 4 device. The white buttons of the attached MIDI keyboard are used as the trigger interface when the trigger interface is enabled. For example, in track store, pressing Analog 4 white buttons 1 and 2, will store Analog 4 tracks 1 and 2 in slots 16 and 17.



Limitations:

The MD Trigger Interface is not natively supported by the MD and is instead achieved using a Global Page/MIDI Channel exploit. The exploit is used to differentiate between notes triggered by the sequencer and notes triggered by a user keypress.
The trigger interface is reliable in most situations but does fail in certain scenarios.

The trigger interface fails whenever the MD display is unexpectedly updated. As a precaution, whenever entering a Page on the MC that uses the exploit, the MD track will be automatically changed to track 16.

Entering a MC Save/Write/Mixer page and then opening the MD mute menu, global menu, accent menu, swing menu will cause the exploit to stop working.

Entering a MC Save/Write/Mixer page and then changing a MD parameter other than Level will cause the exploit to stop working.

Entering step edit mode on the MD will cause the trigger interface to fail.

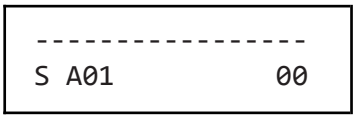
Recovery:

If the Trigger Interface stops working exit all submenus on both the MD and MC. On the MD press Func + Extended to reset the state of the MD.

Save Page:

The Save Page is used to transfer Track Data from the Machinedrum or Analog4 to the MegaCommand. (See Track page for more detail on what data is saved)

The corresponding ExternalSequencer data is also stored alongside the captured track data.



There are two ways of interacting with the Save Page. Using the Machinedrum trigger interface (Trigger Mode), or using the buttons on the MC encoders (Precision Mode).

Trigger Mode:

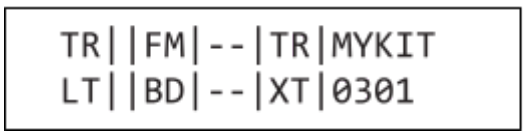
1) Enter the Save page
2) On the MD press the corresponding track triggers to store each track in the MC.
   On the A4 the first 6 white MiniKeyboard buttons correspond to A4 tracks 1-6

Tracks are stored in a one to one mapping. That is to stay. Pressing triggers 1,2,3,4 will store MD tracks 1,2,3,4 in MC slots 1,2,3,4.

Precision Mode:

Precision mode allows users to store one or more MD tracks into a specific MC slot.

1) Using the MD, Select the desired track to be captured by rotating the Track Encoder or pressing Function + Trig[x]



2) From the MC Use the column encoder to display empty slot(s) or slot to be replaced

3) Enter Read mode
4) Press encoder button(s) corresponding to the desired slot(s).

Multiple encoders can be pressed at the same time to transfer multiple tracks in succession.

Store Entire Pattern [Shift1]:

By pressing shift1 from within the Read Page an entire MD pattern plus it's associated kit can be stored including Master Effects settings. In addition all A4 sounds or external sequencer data will also be saved.

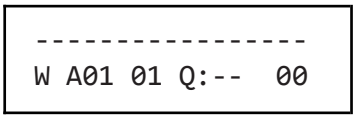
Pattern + Kit Selection:

Changing the Bank+Pattern encoders or the Kit encoders allow you to specify the transfer location for either the Pattern or Kit. The MD's current pattern and kit are shown by default

Write Page:

The Write Page is used to transfer tracks from the MiniCommand to the MD or A4.

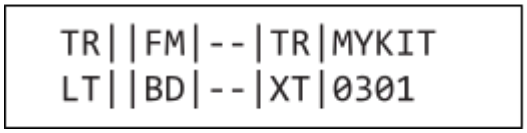
When tracks are written to either device, their corresponding External Sequencer track data will be loaded.



There are two ways of interacting with the Write Page. Using the Machinedrum trigger interface (Trigger Mode), or using the buttons on the MC encoders (Precision Mode).

Trigger Mode:

1) Enter the Write page
2) On the MD press the corresponding track triggers to write each track to the MD.
   On the A4 the first 6 white MiniKeyboard buttons correspond to A4 tracks 1-6

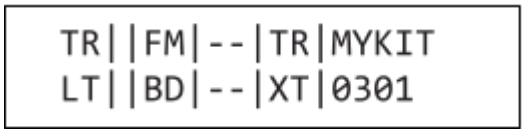


Tracks are stored in a one to one mapping. That is to stay. Pressing triggers 1,2,3,4 will write slots 1,2,3,4 to MD tracks 1,2,3,4

Precision Mode:

Precision mode allows users to write one or more slots into a specific track.

1) Using the MD, Select the desired track to be written to overwritten by rotating the Track Encoder or pressing Function + Trig[x]
2) From the MC Use the column encoder to display tracks to be sent



3) Enter Write mode
4) Press encoder button(s) corresponding to the desired track(s) to have them written to the selected MD track(s).

Multiple encoders can be pressed at the same time to transfer multiple tracks.

Write Entire Row [Shift2]:

By pressing shift2 from within the Write Page all tracks on the current row will be transmitted to the attached devices. In addition, Complete Kit settings will be transferred to the MD including Master Effects settings; Pattern: Swing, Slide, Accent amounts and Scale Mode.

Note: Trigger and Precision mode write operations do not transfer the Master Effects + Master Pattern setting

Pattern + Kit Selection:

Changing the Bank+Pattern encoders or the Kit encoders allow you to specify the transfer location for either the Pattern or Kit. The MD's current pattern and kit are shown by default.

If the bank encoder is rotated to the value "OG" the pattern a will sent to its original location. If the kit encoder is rotated to the value "OG" the kit will sent to its original location.

Step count:

The step count is synced to the MIDI Clock and will display the number of steps that have elapsed since the start of the pattern. The step count resets to 0 every 64 steps.

A4 Data Transfer:

When writing a track to the A4 only the sound data for the specific track is transfered. This is copied in to "workspace" memory of the Analog4 and will not overwrite any saved data.

Quantization Modes:

Quantization modes are used to control the behaviour of the write operations and allow for write events to be musically timed.

When a numerical quantization value is chosen, the selected tracks will be muted before any data is transferred. After both the pattern and kit is received by the MD the selected tracks will be unmuted on the next specified multiple of the step-count.

--: Write tracks to current pattern as soon as possible, no muting.
02: Unmute new tracks on next possible 2nd step
04: Unmute new tracks on next possible 4th step
08: Unmute new tracks on next possible 8th step
16: Unmute new tracks on next possible 16th step
32: Unmute new tracks on next possible 32th step
64: Unmute new tracks on next possible 64th step

P+:Transfer tracks to adjacent pattern and schedule pattern change.
P-: Transfer tracks to previous pattern and schedule pattern change

CU: Send new tracks to Audio Cue
LV: Set volume of new tracks to 0

Toggle Mode:

When P+ mode is used, P- mode is automatically selected for the next write operation. When P- mode is used, P+ mode is automatically selected for the next write operation. With this functionality in mind you can alternate between two patterns. If the current kit is selected it will automatically be reloaded on

the scheduled pattern change.

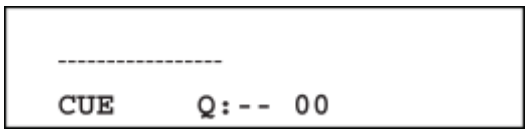
Audio Cue:

By sending new tracks to the Audio Cue, new tracks can be previewed with a pair of headphones before being played through the Master Output.

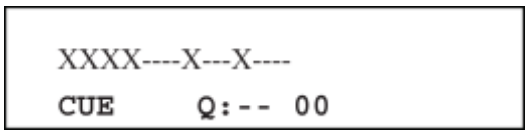
Cue Page:

The Cue Page is used to send the audio of a specific track to the Audio Cue output. The audio cue output is Audio Output F on the MD.

The CUE Page can be used in one of two ways. As an alternative to the MD Mute menu. Cued tracks are muted on the Master Output. Or as a way to preview tracks before they are played on
the MD Master output, much like cueing a track on a traditional DJ mixer.



Tracks with audio routed to the AudioCue output are denoted with an X as depicted below.



The Trigger Interface is used to interact with CUE Page. Pressing a MD trigger will toggle the CUE output of the corresponding track.

Quantization Modes:

Quantization modes are used to control the behaviour of the cue operations and allow for cue events to be musically timed.

When a numerical quantization value is chosen the selected track's cue will be toggled on the next specified multiple of the step-count.

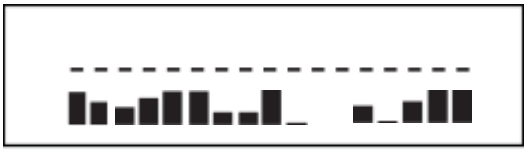
--: Write tracks to current pattern as soon as possible, no muting. 02: Toggle cue on next possible 2nd step
04: Toggle cue on next possible 4th step
08: Toggle cue on next possible 8th step
16: Toggle cue on next possible 16th step
32: Toggle cue on next possible 32th step
64: Toggle cue on next possible 64th step

LV: Set volume of selected tracks to 0 and toggle cue.

Mixer Page:

The mixer page graphically depicts the volumes of the 16 MD tracks of the current Kit.

The trigger interface is used in conjunction with Encoder 1 to raise or low the volume of multiple tracks simultaneously.



Effects Encoders:

The MCL Firmware gives you access to two effect encoders when on the grid page. Encoders 3 and 4 act as controllers for either Delay or Reverb and can be toggled between two effects parameters each.

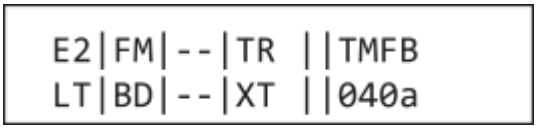
Encoder 3: is switchable between Echo Time (TM) and Reverb Decay (DC).
Encoder 4: is switchable between Echo Feedback (FB) and Reverb Level (LV).

Toggle Effect Parameter:

1) To toggle the effect parameter of either Encoder 3 or 4 press the respective encoder button and rotate either Encoder 3 or Encoder 4.

When an effects encoder is rotated, the updated value is sent to the MD and the MC display changes to show the Effects Encoder values. Encoder Values are displayed in the Hex numerical format. The display will revert back to the default Row/Column display when Encoders 1 & 2 are rotated again.

MiniCommand Display showing Echo Time and Echo Feedback:



External Sequencer:

MCL features a powerful 22 track external sequencer. There are 16 tracks dedicated to the MD and 4 tracks dedicated to the Analog 4 or an External Midi device.

MD Sequencer Tracks:

- 16 Track Sequencer with independent track lengths (64 max steps).
- Conditional Trigs and Micro Timing per step (10 degrees left or right of centre.)
- 4 lockable parameters per track with 64 locks per parameter.
  Lockable parameters are MIDI learnt and recordable from the MD.
- Trigless Locks.
- Real time record for both step and lock data.
  Chromatic Mode. (Machine pitch values are chromatically mapped to the MD.
  Melodies are recordable)

A4 or ExtMIDI Sequencer tracks:

- 4 x 4-Note Polyphonic On-Off sequencer tracks. Each track can run in either high or low resolution modes.
- Each track transmits on MIDI-OUT2, Midi channel = Track Numbers 1 to 6.
- Conditional Trigs and MicroTiming (6 degrees for high res, 10 degrees for low res)
- Low resolution mode up to 128 steps per track,
- High resolution mode up to 64 steps per track with the ability trigger successive 16th notes.
- Chromatics Mode with selectable scales.
- Legato record

The external sequencer is synced to the MIDIClock source.

External Sequencer Pages:

Encoder 1: MD Step edit [A4 Step edit]
Encoder 2: MD Record Live [MD Record Parameter Locks Live]
Encoder 3: MD Parameter Lock Page A [MD Parameter Lock Page B]
Encoder 4: MD/A4 Pitch Mode [MD/A4 Pitch Record Mode]

Ext Sequencer: Loading and Saving

External sequencer tracks are linked to the slot positions in the Grid.

When storing a track within the Save menu, the external sequencer data for that track is stored along with the track data in the specified slot.

External Sequencer tracks are loaded when tracks are sent to the MD or A4 in the Write page.

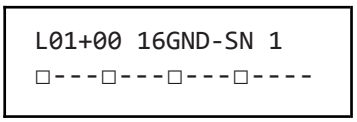
MD Step Edit:

The step edit page is used to program a step sequence for the selected track on the MD. The programmed sequence will run alongside any sequence programmed for the same track on the MD.

Before you enter the MD Step Edit page, ensure that the MachineDrum is not in step-edit mode.

To enter the MD Step Edit mode:

1) First select desired track on the MD [Function + Track n]
2) From the MCL grid menu press [Encoder Button 1].



- Trigger buttons on the MD correspond to the 16 steps on the current page of the current track.
- The 16 steps of the current page of the current track are displayed on the bottom row.
- Conditional Mode and Microtiming settings are per step and selectable from encoders 1 and 2 respectively.

Trig Conditions:

L1,L2,L3,L4,L5,L6,L7,L8 (For Ln, step is only triggered after every n iterations of track)
P10, P25, P50, P75, P90 (For Pxx, step has a xx% chance of being triggered)

To program the sequence:

1) Press and hold trigger button(s) on the MD to place triggers in the sequence.
2) Rotate encoders 1 and 2 to change the conditional mode or microtiming if desired.

Clearing a sequence:

1) To clear the current track, press the [write button] (top right)
2) To clear all MD tracks, [write button] + [shift2]

Rotating Track Page:

- Each track consists of 4 pages of 16 steps, for a total of 64 steps per track.

1) Rotate the current track-page by pressing the [Shift 1] button.

Changing Track Length:

1) Track length is controlled by rotating the third encoder. Only steps less than the current track length are drawn.
2) To change the lengths of all 16 tracks simultaneously hold down [Shift 2] whilst rotating Encoder 3.

PolyStep Edit:

The PolyStep Edit page is used to program sequences for the Analog 4 or attached External MIDI device.

To enter the PolyStep edit mode:

1) Enter the MD Step Edit mode by pressing [Encoder button 1] from within the MCL grid menu.
2) Press the [save] button to enter PolyStep mode.

To change track in PolyStep edit mode:

1) If using the Analog 4, select the desired track using the A4's track select buttons. The first note played on the mini keyboard will cause the PolyStep edit page to switch to the corresponding external sequencer track.

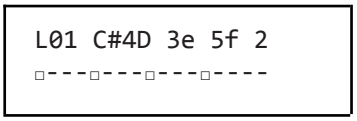
Note: When in the MD Step Edit page, the PolyStep edit mode is automatically activated if note data is received from the Analog 4 or ExtMidi.

The trigger interface on the MD is used to edit the steps of the step sequence in the PolyStep Edit page.

The notes of the Analog4 keyboard or External Midi keyboard are used to edit the note data.

The Poly Sequencer is a 'Note on' and 'Note off' sequencer. There is no note length, instead for each 'Note on' event, a corresponding 'Note off' event should be placed on a step elsewhere in the sequence.

Each step can hold a maximum number of 4 NoteOn or NoteOff events



NoteOn events are shown in uppercase, for example C#4 and D 3 are NoteOn events.
NoteOff events are shown in lowercase, for example e 5 and f 2 are NoteOff events

The first note event entered for a specific note number is always of event type NoteOn.
The next time the same note is entered it will automatically be placed as a NoteOff event.

To program the sequence:

1) Press and hold the desired trigger on the MD whilst simultaneously pressing one or a maximum of 4 notes on the Analog4/Ext keyboard.
2) Adjust conditional mode or microtiming as needed using encoders 1 and 2.
3) Repeat the above for another step in the sequence, (Selecting the exact same notes). This time the notes will be entered as NoteOff events.

Clearing a sequence:

1) To clear the current track, press the [write button] (top right)
2) To clear all Analog4/ExtMIDI tracks, [write button] + [shift2]

Track length and TrackPage selection is edited as per MD Step Edit page.

Resolution Modes:

The polyphonic step sequencer has 2 resolution modes.

By default High Resolution mode is activated and the maximum number of steps per pattern is 128 x 32th note steps, equivalent to 64 x16th note steps.

Low resolution mode is 128 x 16th note steps. This is perfect for slow melodic progressions where sequential 16th notes are not required

High resolution mode is required, if you intend to play 16th notes in quick succession. This mode is best for live recording.

Switching Between Low and High Resolution Modes.

1) Press [shift2] followed by [shift1]

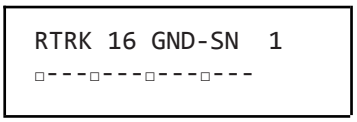
MD Realtime Record - RTRK Page:

The RTRK Page is used to record tracks in Realtime. If the sequencer is running, trigger presses on the MD will be recorded.

Thanks to micro-timing, trigger presses are recorded at 1/96th note resolution and have a much more organic feel than the MD's real-time record mode.

To enter RTRK Page:

3) From the MCL grid menu press [Encoder Button 2].



When in RTRK Page, the current sequencer Track will automatically change according to the track corresponding to the last MD Trigger pressed.

Clearing a sequence:

1) To clear the current track, press the [write button] (top right)
2) To clear all MD tracks, [write button] + [shift2]

Rotating Track Page:

- Each track consists of 4 pages of 16 steps, for a total of 64 steps per track.

1) Rotate the current track-page by pressing the [Shift 1] button.

Changing Track Length:

1) Track length is controlled by rotating the third encoder. Only steps less than the current track length are drawn.
2) To change the lengths of all 16 tracks simultaneously hold down [Shift 2] whilst rotating Encoder 3

Parameter Locks:

Each Track has access to 4 Parameter Locks, with 64 steps per lock.
Trigless locks are supported, meaning parameter values can change without retriggering the sound.

On the Parameter Lock pages the pattern masks uses special character:s to represent the different types of locks.

Lockless Trigs:

```
RLCK 16 GND-SN 1
.---.---.---.---
```

Triggers on steps 1, 5, 9 ,13. No locks
Trigs can only be added or removed from the StepEdit page.

Locked Trigs

```
RLCK 16 GND-SN  1
▫---▫---▫---▫---
```

Triggers and locks on steps 1, 5, 9, 13

Trigless Locks:

```
RLCK 16 GND-SN 1
x---x---x---x---
```

Locks on steps 1,5,9,13 . No triggers

Parameter Lock Record - RLCK Page:

The RLCK Page is used to record Parameter Locks in realtime. If the sequencer is running, any parameter changes on the MD will be recorded.

To enter the RLCK Page:

1) Enter the RTRK Edit mode by pressing [Encoder button 2] from within the MCL grid menu.
2) Press the [Save] button to enter RLCK mode.

For each track parameter locks are automatically MIDI learnt. If a free parameter lock slot is available, it will automatically be assigned to the last Parameter received.

When in RLCK Page, the current sequencer Track will automatically change according to the track of the last MD Parameter modified.

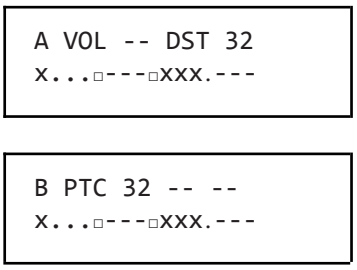
Clearing :

1) To clear the current track of all parameter locks, press the [write button] (top right)
2) To clear all MD tracks of all parameter locks, [write button] + [shift2]

Parameter LockEdit Pages A|B:

The ParamEdit Pages are used to add or remove Locks to the track's sequence.

There are two dedicated pages used to edit 4 the Parameter locks per track.
Each page can be used to edit 2 parameters at a time.



Unassigned parameters or locks are indicated by a '--'

To enter the ParamEdit Page:

1) Select desired track on MD by pressing [Function] + [Track n]
2) Enter the ParamEdit A mode by pressing [Encoder button 3] from within the MCL grid menu.
3) Press the [Save] button to enter ParamEdit B mode.

To change a Parameter type rotate Encoders 1 or 3.

To change a Parameter Value for a specific step:

1) Press and hold one or more triggers on the MD trigger interface
2) Rotate encoders 2 or 4 to specify the parameter lock value for the specific step(s).

For each track parameter locks are automatically MIDI learnt. If a free parameter lock slot is available, it will automatically be assigned to the last Parameter received.

Clearing :

1) To clear the current track of all parameter locks, press the [write button] (top right)
2) To clear all MD tracks of all parameter locks, [write button] + [shift2]

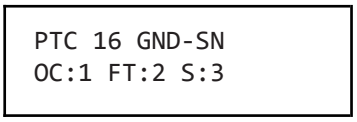
Chromatic Mode - PTC/RPTC Pages:

The PTC page, also known as Chromatic Mode is used to play MD tracks chromatically using the MD Trigger interface.

For supported track types, the Track's Pitch is mapped to Notes of a selected scale across the MD Trigger interface.

Melodies can be recorded in realtime.

In addition, PTC Page is used to record/play the Analog4 or ExtMIDI tracks. Scale modes are also supported for these Tracks.



OC: Octave +/- 2
FT: Fine tune, used to offset the sound frequency by desired amount
S: Scale type.

To enter the PTC Page:

1) Select desired track on MD by pressing [Function] + [Track n]
2) Enter the PTC mode by pressing [Encoder Button 4] from within the MCL grid menu.

Recording sequence:

1) Press the [save] button to enter record mode, RPTC.
2) Play notes on either the MD or A4/ExtMidi to record a melody

Clearing Recorded Sequence:

1) To clear the current track press the [write button] (top right)
2) To clear all tracks of the current track type press [write button] + [shift2]

Changing Track Length:

1) Track length is controlled by rotating the third encoder.
2) To change the lengths of all tracks of the same track type simultaneously hold down [Shift 2] whilst rotating Encoder 3.

Recording Poly Sequencer Tracks.

Melodies and chords can be recorded from the Analog4 or ExtMIDI device in the RPTC page.

To change track in PolyStep edit mode:

1) If using the Analog 4, select the desired track using the A4's track select buttons. The first note played on the mini keyboard will cause the PolyStep edit page to switch to the corresponding external sequencer track.

Switching Between Low and High Resolution Modes on Poly Sequencer Tracks.

1) Press [shift2] followed by [shift1]

System Menu: [Read + Write]

The System Menu is used to access the System Settings and Load/Create new projects.

The name of the current project is displayed on the first line of the System Menu
"Name: projname"

The most recently accessed project will be loaded automatically when the MC is next turned on.

New Project:

To create a new project, rotate Encoder 1 to select the menu item "New Project". Then press any one of the encoder buttons to enter the "New Project" Screen.

The new project screen willl be displayed:

```
New Project
project001.mcl
```

To enter the name of the new project rotate Encoder 1 to scroll through the characters of the filename. Rotate Encoder 2 to change the value of the corresponding character.

A combination of AlphaNumerical values can be used for project names.

Once a desired Project Name has been entered, press one of the encoder values to confirm.

```
Creating Project
Please wait..
```

Project Creation takes approximately 1minute. This is normal. Switching between projects is instantaneous.

Load Project:

Rotate Encoder 1 to select the menu item "Switch Project". Then press any one of the encoder buttons to enter the "Switch Project" Screen.

The "Load Project" screen will be displayed:

```
Load Project: newproject.mcl
```

Rotate Encoder 1 to browse through all the Projects on the SD Card. Only ".mcl" files can be loaded. Select the desired project and press one of the Encoder Buttons to load.

Note: Project Data is modified in real time. Any changes that are made to the project such as capturing or deleting tracks are automatically saved to the SD-Card.

TURBO ON or OFF: Enable or disable turbo midi. Turbo MIDI increases the transfer speed between the MC and MD by up to 8x.

Merge ON or OFF: Enable or disable MidiClock Merge. When enabled MIDI Clock signals received on the Minicommand MIDI-IN-2 will be forwarded to the MD.

SD Card:

MegaCommand Live uses the onboard Micro-SD card slot for data storage, for this reason, there must be a FAT16/FAT32 formatted MicroSD card inserted into the MegaCommand before the firmware can be used. SDHC cards are supported.

To access the MicroSD card slot you must unscrew the 4 bottom screws of the MiniCommand and remove the back plate.

If the card is incorrectly formatted or cannot be read an error message “SD CARD ERROR, CHECK CARD” will appear.

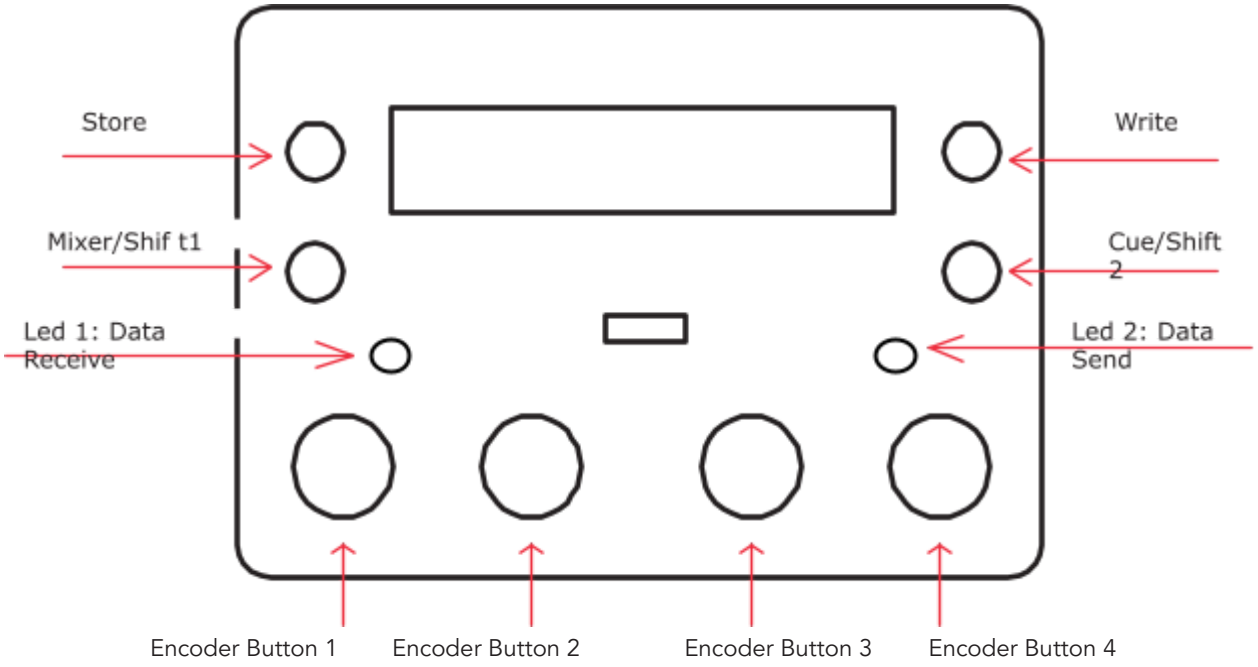
Files:

Projects are stored on the SD-Card as “.mcl” files.

You can therefore backup your work by copying the .mcl file corresponding to your project to your computer. Only projects located in the root directory of the SD-Card will be accessible from MCL.

“config.mcls” is the configuration file for the MCL firmware and stores current project settings.

GUI and Command Summary



Encoder 1 Rotate to scroll grid in X direction.

Encoder 2 Rotate to scroll grid in Y direction.

Ef fects Encoder 1.

Effects Encoder 2.

Grid Page Commands:

System Menu	[Read + Write]
Save Page	[Store]
Write Page	[Write]
Cue Page	[Mixer, then Store]
Mixer Page	[Mixer]
Delete Current Row	[Store + Shift2]

Read Page Commands:

Store an entire Pattern + Kit	[Shift1]
Store a track in slot x:	[MDtrackSelect + EncoderButton(x)]
Store track n in slot n	[MD track n | A4 white key n]

Write Page Commands

Write an entire Pattern + Kit:	[Shift 2]
Write slot x to MD track:	[MDtrackSelect + EncoderButton(x)]
Write a slot n to track n:	[MD track n | A4 white key n]

If the Trigger Interface stops working exit all submenus/pages on both the MD and MC. On the MD press Function + Extended to reset the state of the MD.

http://www.justinvaler.com/mcl/
contact@justinvaler.com

Many thanks to Wesen (Manuel Odendahl) for his extremely hard work in developing the MiniCommand and the MIDI-Ctrl framework. Allowing musicians to communicate with their midi gear in magical ways.

Special Thanks to Beta Testers: dubathonic
