

genoQs Machines

# *octopus*

MIDI Control Sequencer

## The Story-Board

Release 2006-01-03

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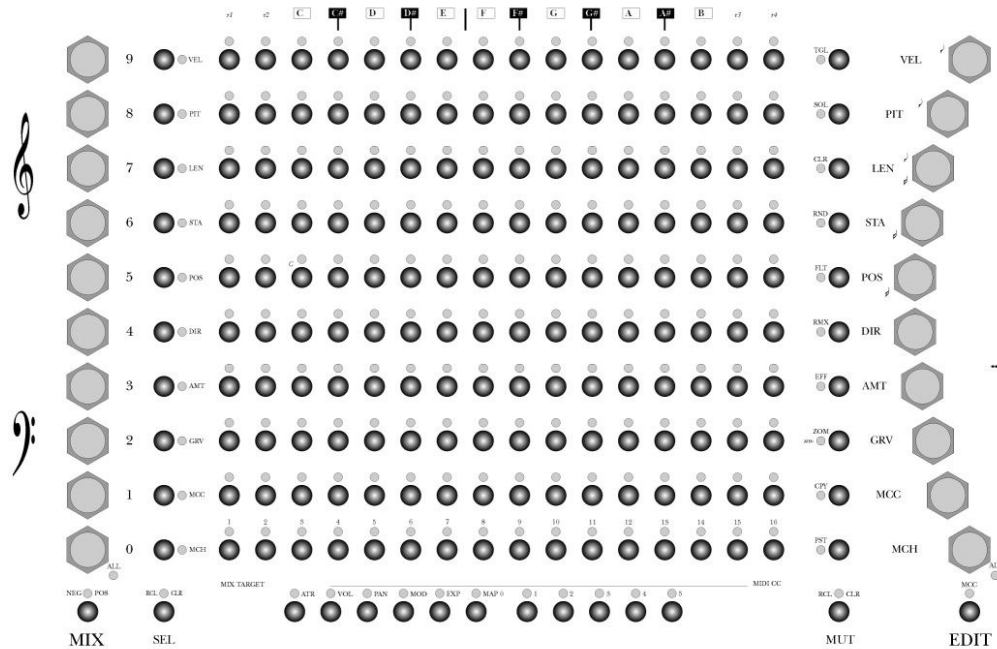
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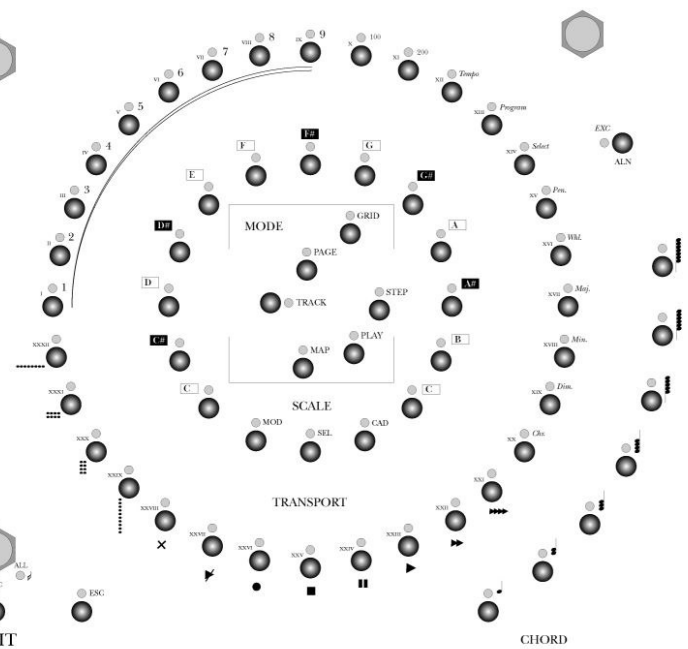
# WELCOME!

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*octopus*  
MIDI Control Sequencer



## WELCOME!

Here it is – the first public functional description of Octopus. We would like to put in your hands by means of digital paper a good impression of what you can do and how you can work with Octopus.

### ABOUT THIS DOCUMENT

This document is describing the capabilities available with Octopus at the time of the writing – January 2006 – it describes the functionality of the currently stable software version (which is v0.9). The depictions are replicas of the device panel as of now. Not-implemented-but-planned functions are not covered here. Please share your thoughts on this document – and otherwise Octopus related – with others and with us over at the forum (<http://forum.genoqs.net>). Later versions of this document may reflect new functional additions and may feature some additional enhancements.

### FRONT PANEL STRUCTURE

You will want to get familiar with the Octopus front panel and the way it is structured in various elements. At that occasion you will see all over the place arguably cryptic abbreviations and some symbols. We have listed the abbreviations here along with some anchors to remember them. Take a look before you dig deeper! Also you may want to follow our advice in the box on the right. Enjoy!

## ABBREVIATIONS

VEL	Velocity
PIT	Pitch
LEN	Length
STA	Start
POS	Position
DIR	Direction
AMT	Amount
GRV	Groove
MCC	MIDI CC
MCH	MIDI Channel
NEG	Negative
POS	Positive
RCL	Recall
CLR	Clear
SEL	Select/ion
ATR	Attribute
VOL	Volume
PAN	Panorama
MOD	Modulation
EXP	Expression
MAP	Mapping
TGL	Toggle
SOL	Solo
CLR	Clear
RND	Randomize

FLT	Fiat
RMX	Remix
EFF	Effect
ZOM	Zoom
CPY	Copy
PST	Paste
MUT	Mutate
ESC	Escape
Pen.	Pentatonic Scale
Whl.	Whole Tone Scale
Maj.	Major Scale
Min.	Minor Scale
Dim.	Diminished Scale
Chr.	Chromatic Scale
MOD	Modulation
SEL	Select/ion
CAD	Cadence
ALN	Align
EXC	Execute

## NAVIGATION

The navigation of Octopus is structured in several modes, where in each mode you will find yourself doing a set of similar or related tasks. In this document the selected mode is always indicated in the MODE block by an orange dot. On the real machine this is a blinking orange LED. Some mode LEDs may light green as well, indicating that those modes may be selected.

## ADVICE

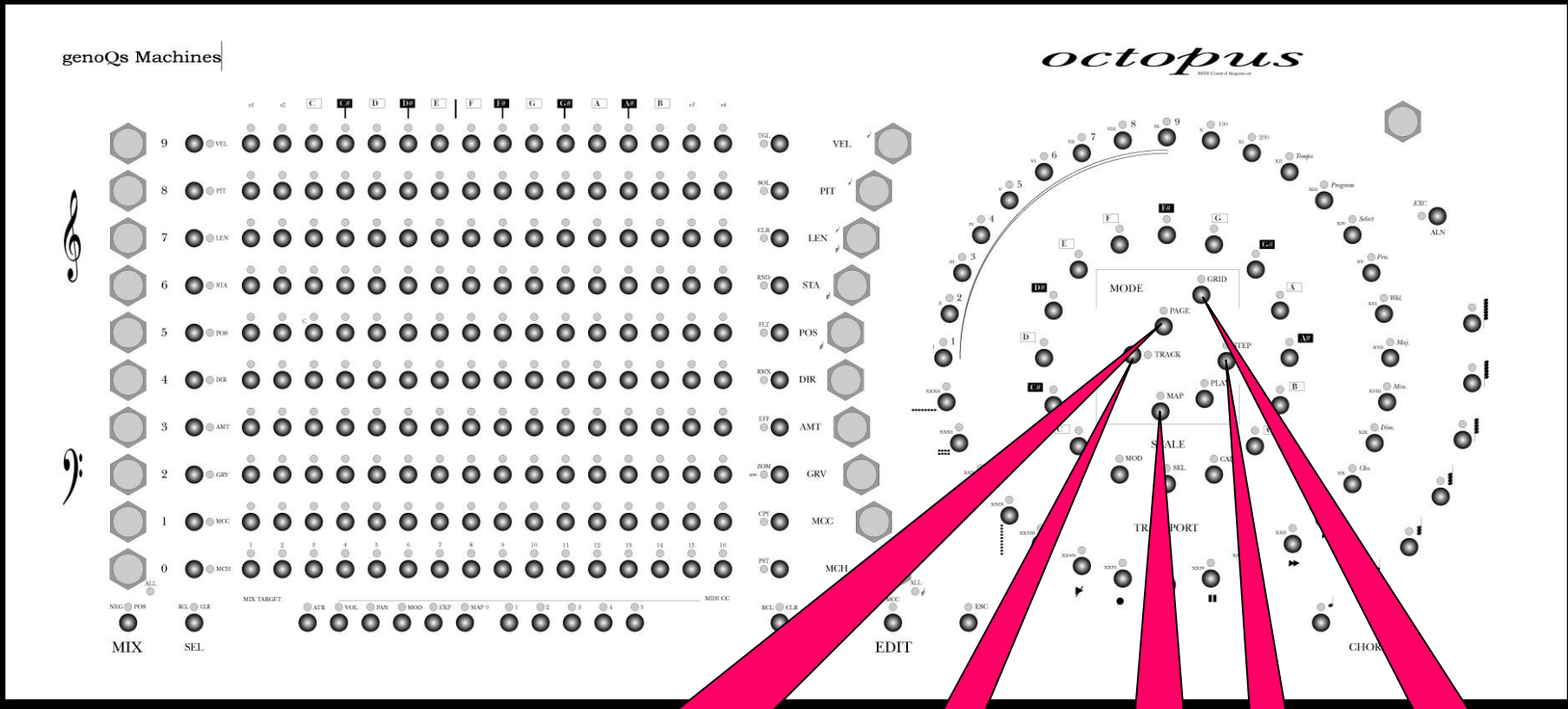
Picture yourself in front of the machine. Upon power-on Octopus is in PAGE Mode. That's why the PAGE MODE is described first. This is the mode you will probably be most familiar with if you have used (step) sequencers before.

Hence one place to start reading this document is definitely the [PAGE Mode sheet](#).

Go to it after getting an overview of the operations modes on the next page and take it from there. You can always flip back and forth to read about the other modes.

# THE OPERATION MODES

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## THE MODE OVERVIEW

Octopus may be operated in more than one MODES and the full power is unleashed when a combination of these modes is applied.

This sheet provides a brief, high-level description of the modes and how they relate, while the rest of the document will describe in more detail the actual operation of the individual modes.

Octopus features a grid of 144 pages (popularly called "patterns"), which contain 10 tracks of 16 steps each. Operation in the various "zoom" modes allows you to work with as much detail as you wish and need, whether you are playing in the studio or performing on stage..

## PAGE MODE

The page mode is the one most users will find themselves immediately familiar with. It is the place where one builds note patterns in the tracks, mutes and unmutes those tracks, modifies their pitches and velocities directly using the MIX Knobs. Once a selection is made (containing tracks or steps) you may edit their parameters as well in a selective manner using the EDIT knobs. It is in the SCALE View where the melodically (as opposed to rhythmically) inclined will find that building and modifying scales is rather easy to do and there is lots to experiment and discover about initially dull sounding material.

## TRACK MODE

The Track mode is used to edit individual attributes of a track including velocity and pitch offsets, length, startpoint and direction, MIDI channel and groove factor. From here you may enter the track attribute maps, or simply toggle, randomize or clear the track.

## MAP MODE

This mode shows and edits the attribute map of a track. This means, the values of a particular attribute of track steps are shown as a value map, which can be edited and tweaked as needed. The visual representation method varies per attribute as it is always suited to the values to be shown and their meaning.

## STEP MODE

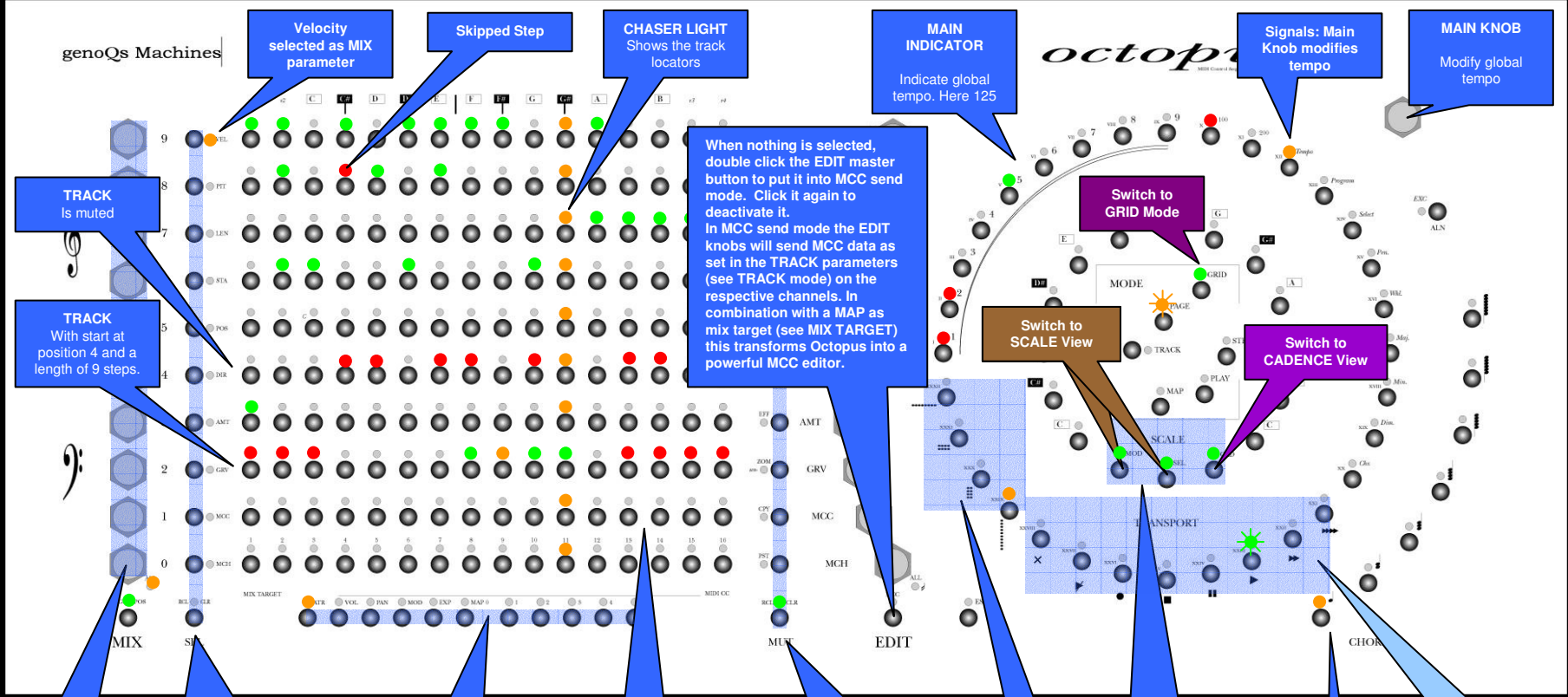
In this mode you will view and edit the parameters of a selected step using the Mutator functions and the EDIT knobs. Important for fine tweaking step parameters such as Start and Length for example

## GRID MODE

This mode will typically be used for performance purposes. Here you may operate on the pages, such as muting, unmuting, selecting, randomizing, clearing, copying, grouping and transposing them. From here you can zoom into any page, make changes as in the PAGE mode, and return to your performance by zooming back out.

# PAGE Mode – MASTERView

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When nothing is selected, double click the EDIT master button to put it into MCC send mode. Click it again to deactivate it. In MCC send mode the EDIT knobs will send MCC data as set in the TRACK parameters (see TRACK mode) on the respective channels. In combination with a MAP as mix target (see MIX TARGET) this transforms Octopus into a powerful MCC editor.

**MIX KNOBS**

They change the parameter lit orange in the selector column, for their respective tracks. In this case you may modify the velocity of every track independently

The change can be NEG or POS as selected by the MIX button at the bottom. For example:

POS: right turn increments the value of the respective track.

NEG: right turn decrements values for all but the respective track.

**SELECTORS**

Press the selector of a track to add it to the track selection. Press it again to remove it from the track selection. The track selection is indicated by orange blinking SEL LEDs (the picture shows no selected tracks). Double click on a Track's SEL button to zoom into that track - i.e. switch to TRACK mode).

With no track selected double click the SEL master button at the bottom to select all ten tracks. With any track selection press the SEL master to deactivate that selection (no tracks selected). Press SEL again to recall the selection.

With no selection (SEL master LED off) select a mutepattern (see MUTATORS) and press the SEL master to import the mute pattern into the selection.

Note that any Selection activates PAGE Mode – Selection View .

**MIX TARGET**

Press the selected (orange lit) mix target in order to be able adjust it.

Then, when ATR is selected, you may press any of the SEL buttons to select another MIX attribute (see MIX knobs).

When MAP(0-5) is selected you may adjust for each track / mix knob the MIDI CC number,channel and amount that the corresponding mix knob sends. Useful for external control of MIDICC responsive gear.

**MATRIX**

Press an unlit Step button to activate it (lights green). Press an active step (green lit) to deactivate it (light is off).

Double click an inactive step (light is off) to skip it (lights red). Press a skipped (red lit) step to un-skip it (light is off).

Double click an active (green lit) step to select it (blinks green). Click a selected (green blinking) step to unselect it.

Any selection activates PAGE Mode – Selection View.

**MUTATORS**

With no track or step selected, press an unlit track mutator to mute the track (mute button lights red). Press an active mute button (lights red) to unmute the track (light is off).

Double click an unlit track mutator to solo that track.

With no mutepattern (MUT master unlit) double click the MUT master button at the bottom to mute all tracks.

With any number of tracks muted click the MUT master button to deactivate that mute pattern and press it again to recall it.

**SCALE KEYS**

SEL or MOD extract the scale of length and enter SCALE View.. Press CAD to enter Cadence View.

**TRACK CHAIN BUILDER**

Select the chain mode for the page. From the bottom:

- 10x1: ten tracks, each of length 16 (1x matrix width).
- 5x2: five tracks, each of length 32 (2x matrix width)
- 2x4: two tracks, each of length 64 (4x matrix width)
- 1x8: one track of length 128 steps (8x matrix width).

Track chaining is merely grouping tracks for play in a consecutive order. All other settings remain unchanged.

**CHORD**

Press the chord buttons to play all steps in page as chords according to the currently active scale and the selected cardinality which may range between 1 and 7.

**TRANSPORT (left to right)**

CLOCK: Internal only, MTC master, MTC slave

FOLLOW: follow the GRID chain playing or stick to viewing the selected page.

STOP: Stop

PAUSE: Pause

PLAY 1x, 2x, 4x: Play single,double, quad speed of master clock.

**PLAY BUTTON**

When the sequencer is running, pressing PLAY again will align all track locators to the master page locator, bringing them all back in sync – if they were otherwise.

# PAGE Mode – SELECTION View (additional functionality to MASTER)

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**NOTE:**

**FUNCTIONS IN THIS VIEW ARE COMPLEMENTARY TO THOSE OF THE PAGE MASTER VIEW.**

**MUTATORS**

Show the available mutator functions. Press the buttons to invoke the respective functions upon the current selection:

TGL: Toggle status on/off  
 SOL: Solo the selection  
 CLR: Clear the selection  
 RND: Randomize content

ZOM: Zoom into content: if selection is a single track will zoom into that track. Likewise for a single selected step.

CPY: Copy to buffer  
 PST: Paste from buffer

Note that not all buttons are available at any time, but only based on the respective context.

Some buttons may never become active. They are probably not implemented yet.

**EDIT KNOBS**

They are active as indicated by the indicator light at the bottom. Orange means all are active. Red means only the 'marked are active and green 'marked are active. Depends on whether the selection is made up of tracks or of steps. Used to edit the individual attributes of the selection as follows:

VEL: Velocity  
 PIT: Pitch  
 LEN: Length  
 STA: Start  
 POS: Position  
 DIR: Direction  
 AMT: Amount  
 GRV: Groove  
 MCC: Midi CC  
 MCH: MIDI Channel

The effect of the individual attribute changes are documented in the TRACK and STEP Mode.

**ESC BUTTON**

Cancel selection and switch to Page Mode Master View

**EXC BUTTON**

When the sequencer is running press this key to tap in notes real-time into the current track selection. The tapping is recorded using 1/192 default quantization.



# PAGE Mode – SCALE View (addition to MASTER)

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## NOTE:

**FUNCTIONS IN THIS VIEW ARE COMPLEMENTARY TO THOSE OF THE PAGE MASTER VIEW.**

### NOTE KEYS

In SCALE SEL View: Press the note keys to select and remove notes in the scale, hearing the changes immediately.

In SCALE MOD view: modulate the scale by modifying its lead tone. Only notes in the scale may be selected as new leads. The lead is shown in orange while the scale notes are shown in green.

The picture above shows the Cmaj scale selected for the page – low C is the lead tone.

### SCALE MOD

Switch to the MODULATION mode. When in MODULATION mode press MOD again to return to the PAGE Master View.

### SCALE SEL

Switch to the SELECTION mode. When in SEL mode press SEL to return to the PAGE Master View.

### SCALE CAD

Click on CAD to activate playing the stored cadence.

Double click on cad to start recording a cadence for the page (turns red).

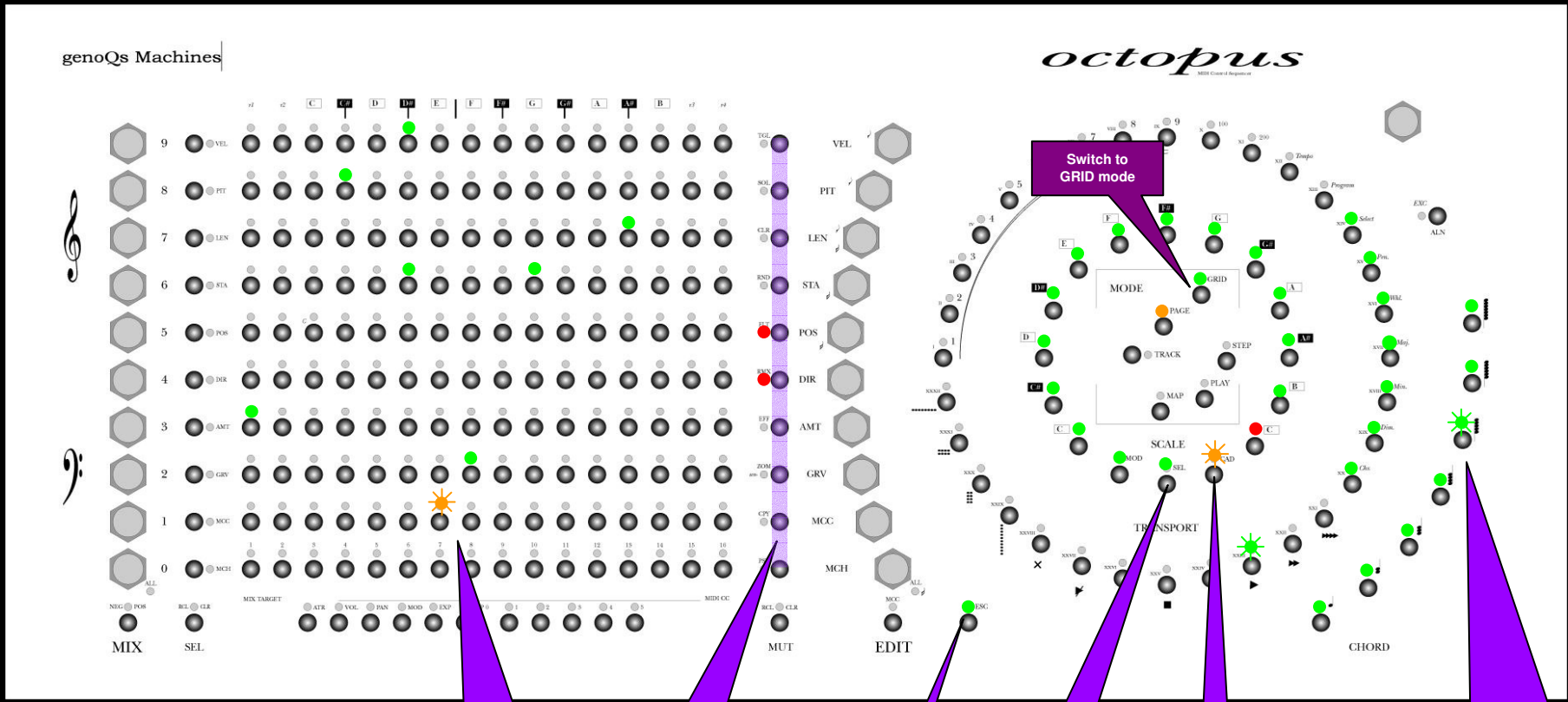
When the cadence is recording, press CAD again to stop recording and set it to play mode.

To record a cadence means to remember the note keys, scale selectors and MOD/SEL keys pressed in their order and interval over a time of 160 steps. Playing the cadence reconstructs those key presses.

### SCALE SELECTORS

Select any of the preset scales or the last custom one created by the user (under Selection)

The available scales are Selection (user made), Pentatonic, Whole, Major, Minor, Diminished, and Chromatic.



**NOTE:**

**FUNCTIONS IN THIS VIEW ARE COMPLEMENTARY TO THOSE OF THE PAGE MASTER VIEW.**

**MATRIX**

There is a cadence cursor in the matrix, blinking orange.

When the cadence is playing the cursor advances step by step as driven by the global locator. Once it reaches the end of a track it will jump to the first step of the next (unmuted) track.

The contents (key presses) stored at each position are played accordingly, as if they were pressed by the user.

A green matrix led indicates that a key press is stored at a particular position. Locating the cursor at that position shows which key is stored there, as the stored key will start blinking green in the recordable area.

**MUTATORS**

Press the mutators to mute or unmute the lines that the cadence cursor is running on. Used to play cadences that are shorter than the maximum length of 160 steps.

Shown are two muted tracks – 4 and 5 – which will be jumped over by the cadence cursor when it is moving.

**ESC BUTTON**

Exit to PAGE View

**SCALE SEL**

Switch to the SEL mode. When in SEL mode press SEL to return to the PAGE Master View.

**SCALE CAD**

Click on CAD exit to PAGE View

**RECORDABLE AREA**

The recordable area consists of the following: All keys in the inner circle except for CAD and upper C, all key selector keys, all chord selector keys.

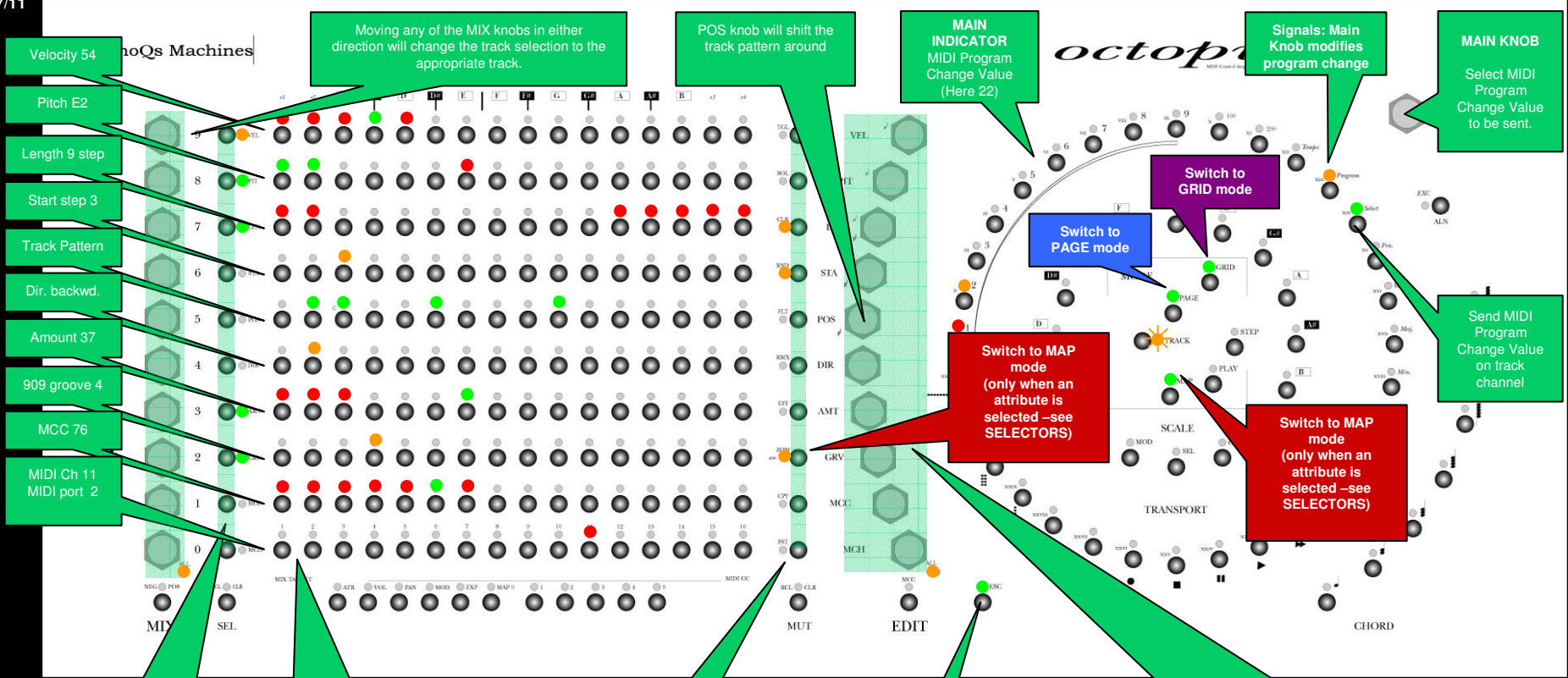
Pressing keys in the recordable area toggles their status in the cadence.

Place the cursor over an empty step. Press now a recordable key (lit green), it will select it into the cadence (blinks green). At the same time the upper C LED turns red.

Press another green key to modify your entry. Pressing the red upper C key will empty the step and the blinking will stop, with the upper C key turning off.

# TRACK Mode

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## SELECTORS

Click on one of the green lit attribute buttons to select that attribute for the track. The selected attribute will blink orange. Click it again to unselect it.

Selecting an attribute is useful for things such as to ZOM into its attribute map (which can also be done by double-clicking the attribute button), clear or randomize it.

## MATRIX

The Matrix shows the values of the attributes according to their rows. The values are represented using the Matrix LED's as follows:

- VEL / AMT / MCC: a red bar represents the tens in the number and a green dot represents the ones.
- PIT: a green bar represents the number of octaves from pitch 0 and a red dot in the range C-B will point to the respective note.
- LEN: the row shows the play area as unlit, with the blocked range shown as a red bar.
- STA: An orange dot shows the start point of the track
- POS: The track pattern is shown here. Row buttons toggle the status of their steps.
- DIR / MCH: an orange dot indicates the selected number.

Description of the values is included in the bubbles on the left hand side.

## MUTATORS

The MUT buttons are used to invoke functions upon the selected track.

If any of its attributes are selected (see SELECTORS), the applicable functions will become available.

When no attribute is selected ZOM will light red, indicating that un-zoom is available. Un-zoom will switch back to the PAGE view.

When an attribute is selected and the attribute has a MAP, zoom will lead to that attribute's map. See MAP Mode.

## ESC BUTTON

Exit to PAGE View . All changes are kept.

## EDIT KNOBS

Used to edit the individual attributes in each row for the selected track.

- VEL: Velocity. Velocity offset for all steps in the track.
- PIT: Pitch. Pitch offset for all steps in the track.
- LEN: Length of the playing track. When in chained mode, once the end of the track is reached, the first step of the next track will be played.
- STA: Start. This can only be edited when LEN is less than maximum (which is 16)
- POS: Position. Shift the pattern left or right, wrapping around the natural line boundaries (16 steps), regardless of start and length
- DIR: Direction. Can be one of the following: Regular, Reverse, Return, Random 2/3 (2/3 probability to move to the next step, 1/3 to move to the previous step), Random full (jump to steps randomly).
- AMT: Amount. Enter the CC amount to be sent out by the track's CC control
- GRV: Groove. Selects the degree (0-16) to which the Roland TR 909-like groove factor is applied to the track. Means that each even step is delayed by a certain amount of time.
- MCC: Midi CC selected for the track - to be sent
- MCH: MIDI Channel. The selected channel is indicated by a lit dot in the row (1-16). The green 16-dot is followed by the red 1-dot: the green channels are those of the MIDI OUT 1 port, the red channels belong to the MIDI OUT 2 port.

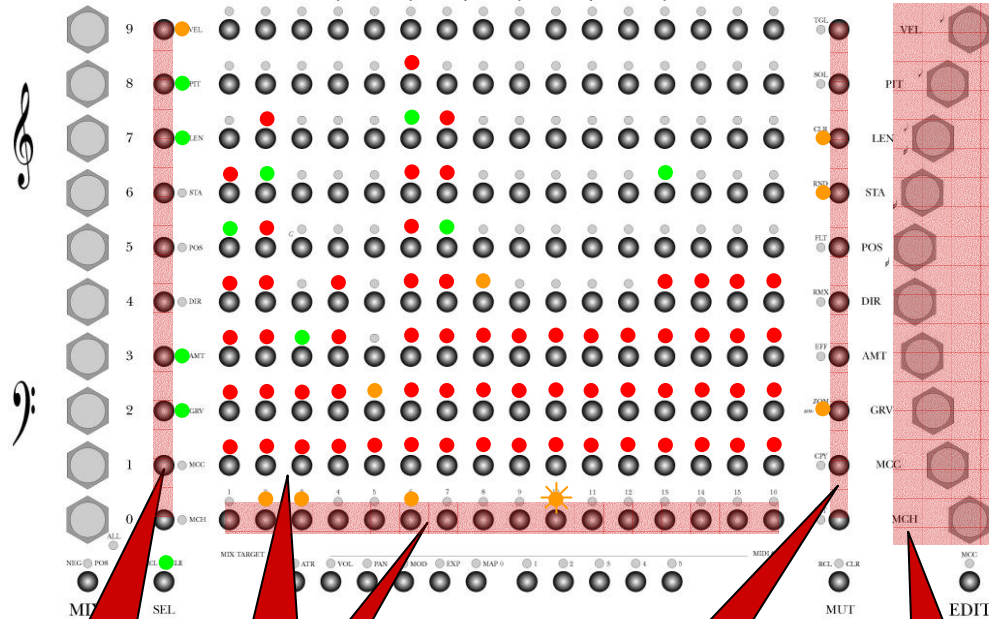


# MAP Mode

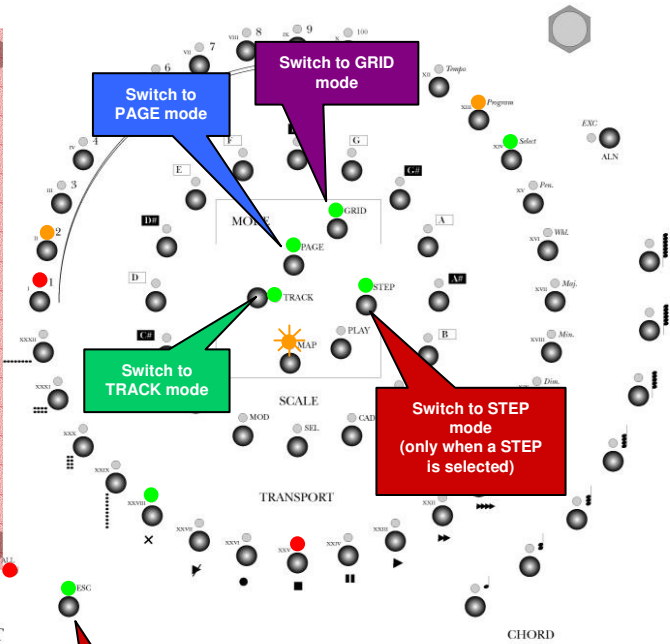
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**MAP VALUES**  
 Values shown in this sample map for VEL are as follows: (from left to right)  
 65, 76, 23, 40, 22, 87, 75, 44, 30, 30, 30, 30, 40, 40, 40.



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## SELECTORS

The blinking attribute indicates that its map is currently showing.

The green lit buttons may be pressed to switch to their respective maps.

## MATRIX

Rows 1-9 show the attribute values for the individual steps as number bars. Fly with the finger over the buttons to modify the value map.

Row 0 shows the active steps of the currently selected track. Press one of the active steps to select it. Press it again to unselect it.

## MUTATORS

When no steps are selected you see the available functions for the entire map. Particularly UN-ZOM (lit red) will take you back to the TRACK mode.

When a step is selected (in Row 0 of the matrix) its relevant functions may be called here.

In particular, when a step is selected, pressing ZOM will switch to the STEP

## EDIT KNOBS

If no step is selected in Row 0 of the matrix, turn the POS knob to shift the map around.

If a step is selected use the EDIT knobs to edit the respective attributes. The view will always switch to the attribute map that is being edited.

## ESC BUTTON

Exit to PAGE View

# STEP Mode

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## MATRIX

The Matrix shows the values of the attributes according to their rows. VEL, PIT, LEN and STA are the relevant ones. See explaining fields on the left.

The step currently being edited (zoom) is shown blinking green.

Pressing a button in the matrix will select another step for edit, showing its attribute values.

## POS row

The POS row shows the activity pattern of the row which the currently selected STEP is a part of.

Selecting a STEP in a different row (via the Matrix) will also update the pattern displayed here.

## MUTATORS

The MUT buttons are used to invoke functions upon the selected step.

Un-ZOM will take you back to TRACK mode or PAGE selection mode, depending on where you came from.

## EDIT KNOBS

Used to edit the individual attributes in each row for the selected step. Not all are active – only the marked ones.

VEL: Velocity for the step in the range 0..127 shown as numeric bar.

PIT: Pitch of the step in the range 0..127 shown as note/octave representation.

LEN: Length of step can be at least 1/192 and at most 1/2, with increments of 1/192. The value following the maximum length value sets the step in LEGATO mode. That means that there will be no note off played for that step.

STA: Start. This is the start value of the step. It indicates the start point with regard to the first matrix column. The step may start before or after the default bar. The step can be pushed or pulled by a total of 1/32 (in each respective direction) using 1/192 increments.

## ESC BUTTON

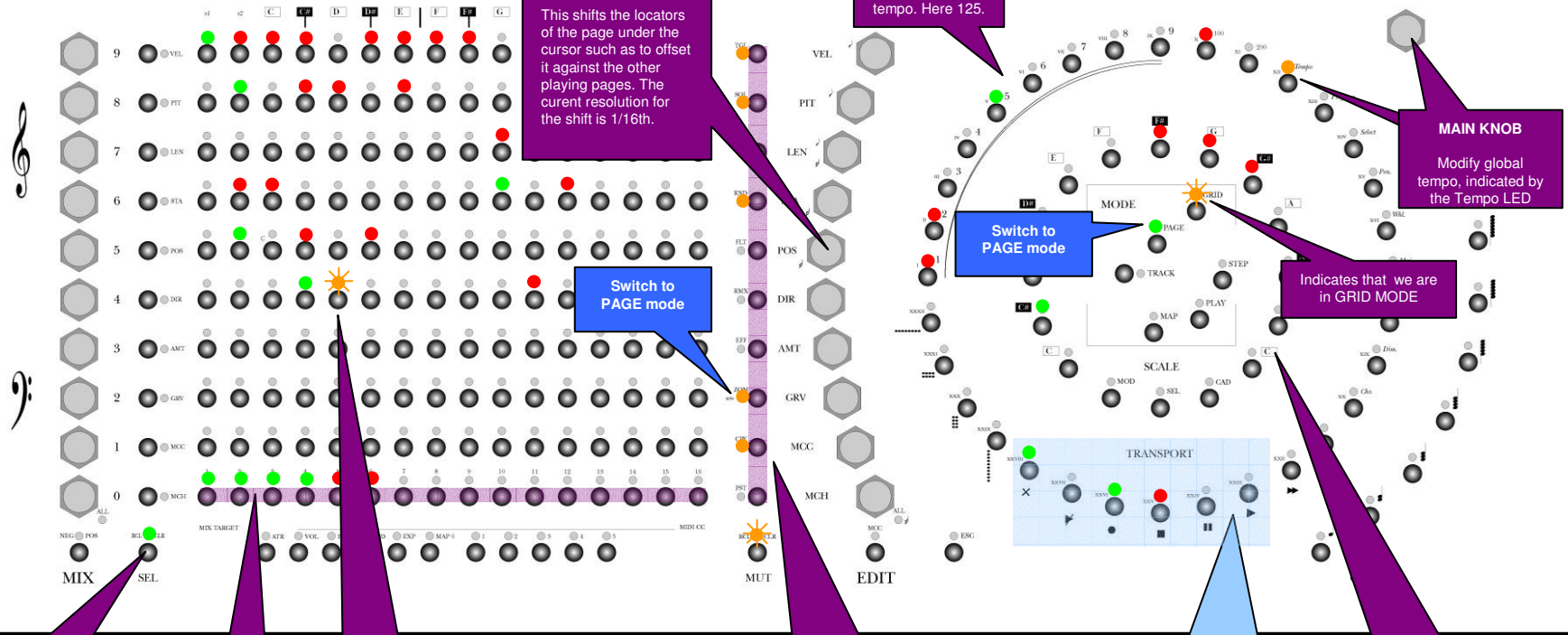
Exit to PAGE View keeping all modifications.

# GRID Mode – MUTATION View

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**SEL BUTTON**  
Switch to GRID SELECTION View

**ROW ZERO**  
Select play count of page under cursor. This is the number of repetitions a page is played in a page chain before the switch to the next page occurs.  
  
The complete bar shows the number of times the page is repeated. Red counts the repetitions played, green counts the repetitions left to be played.

**MATRIX**  
This view has the notion of a cursor. The cursor position is shown by a blinking orange light over one of the page buttons.  
  
The page under the cursor can be operated upon by the functions that become available in the MUT section, depending on whether the page is empty or has some content.  
  
The cursor may be moved by simply clicking a page in the matrix.  
  
Double-clicking a page button regardless of its state will take you to the PAGE mode showing that page (see PAGE mode sheet).

**MUTATORS**  
The page under the cursor (see MATRIX) can be operated upon by the available mutators\* which are lit orange:  
  
TGGL: Toggle page play status  
SOL: Solo the page  
CLR: Clear the page (erase content)  
RND: Fill page with random content  
ZOM: Zoom into page (jumps to PAGE Mode)  
CPY: Copy page into copy buffer  
PST: Paste copy buffer into the page (assuming the copy buffer has some content)  
  
\*Availability is conditioned by page status

**TRANSPORT**  
Depending on whether the sequencer is running or is stopped, there may be several buttons available in the transport field. The picture shows the STOP state and the following keys (left to right):  
  
-CLOCK: Internal only (default, green lit), click to select MTC master (orange lit), click again to select MTC slave (red lit).  
-FOLLOW: used to choose between "following" the move of the sequencer through Pages or tracks (better editing capability)  
- REC: State operations:  
->Save (EXC key turns red and may be pressed) or  
->Recall (ESC key turns green and may be pressed).  
The full memory content is saved or recalled en-bloc. The save progress is shown by inner circle LEDs. The other buttons are STOP, PAUSE and PLAY.  
Pressing PLAY will align all playing pages to the Global locator.

**NOTE KEYS**  
Press any note key to transpose the pitch of the page under the cursor. There are no scale restrictions, as this is a mathematical (as opposed to musical) transposition.  
  
Starting from the position where low C is selected (no transposition), pressing the other note keys transposes the entire page by the respective amount of half-steps.  
  
Pressing the upper C key transposes up by one octave.  
  
When the transpose flag is on lower C, pressing the low C key transposes down by one octave.  
  
The picture shows that the page under the cursor is transposed up by two octaves and a semitone – the F# LED indicates the center, i.e. no octave transposition.

