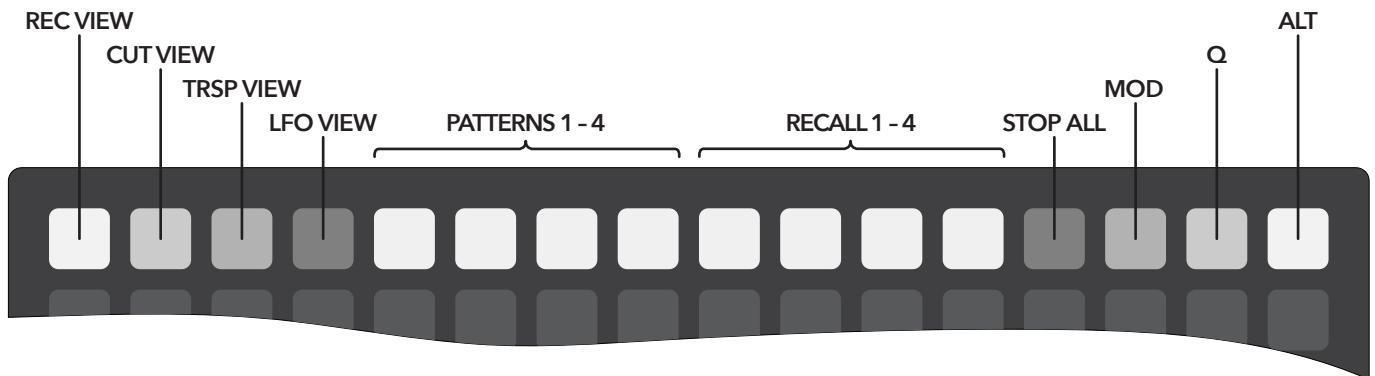## GRID NAVIGATION:

GRID NAVIGATION is referred to as the top row of the grid and is accessible from all pages.

- Press **REC VIEW – LFO VIEW** to change the grid page accordingly.
- Press **STOP ALL** to stop all playing tracks and patterns.
- Press **Q** to toggle *quantization* on/off. When quantization is on grid key presses are quantized according to the *quantization value* is set in **CLIP VIEW**. Quantization is always synced to the system clock.
- **ALT** and **MOD** are modifier keys and used for different button **COMBOS**.

COMBOS:

- Hold **ALT** and press **Q** to enter **CLIP VIEW**.
- Hold **ALT** and press **REC VIEW** to clear the active clip of the **focused** track.
- Hold **ALT** and press **TRSP VIEW** to clear both softcut buffers for **all** tracks.
- Hold **ALT** and press **MOD** to set the playback position of all playing tracks to the first step (loops are cleared).
- Hold **ALT** and press **STOP ALL** to trigger **ALT RUN** (see **REC VIEW**).
- Hold **MOD** and press **ALT** then release **MOD** to lock into **HOLD MODE** (see **CUT VIEW**). Press **MOD** to unlock.

PATTERNS 1 – 4:

Each **PATTERN** slot can store and loop a sequence of key presses. Key presses for **LFO** are not recorded.

- Press an empty **PATTERN slot** to **arm** recording (indicated by a fully lit pad).
- Enter a sequence of key presses. Press the **PATTERN slot** again to enter **PATTERN play** and **loop** the sequence (looping slots are slightly less bright than armed slots).
- Hold **MOD** and press the **PATTERN slot** to enter **overdub** mode (corresponding key flashes). Additional key presses are added to the current looping pattern. Press **PATTERN slot** again to exit overdub mode and continue in **PATTERN play** mode. **NOTE:** Undo is not possible.
- Press **PATTERN slot** again to **stop** loop (inactive **PATTERN slots** are slightly brighter than empty slots).
- Hold **ALT** and press the corresponding pad to clear the slot.

RECALL 1 – 4:

Each **RECALL** slot can **store** specified key states. Key presses for **LFO** are not stored.

- Press an empty **RECALL** slot to **arm** (indicated by a fully lit pad).
- Press keys that you wish to store the state of. Press the **RECALL** slot again to **store** the key states (slots with data are slightly less bright than armed slots).
- Press **RECALL** slot to recall stored key states.
- Hold **ALT** and press the corresponding pad to clear the slot.

MAIN SCREEN:

The main screen consists of 3 pages and is displayed on **REC VIEW**, **CUT VIEW** and **TRSP VIEW** and displays the parameters of the **FOCUSED** track (see **REC VIEW**, **CUT VIEW** and **TRSP VIEW**).
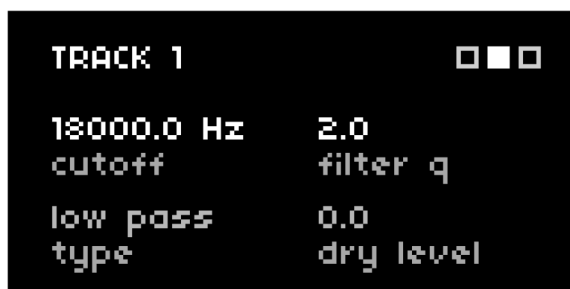
Use **ENC1** to scroll or alternatively **K3** to cycle through the pages. Use **K2** to toggle between the top and bottom row (active row is highlighted) and use **ENC2** and **ENC3** to change the corresponding parameter values.
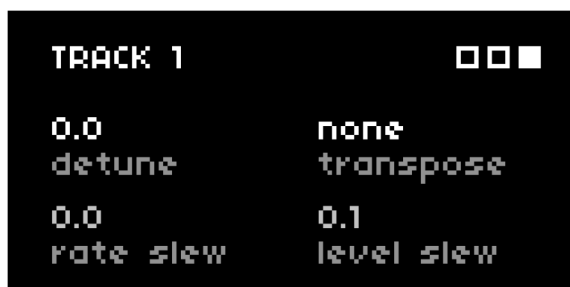
```
TRACK 1              ■□□

1.0              0.0
volume           pan

1.0              0.0
rec level        dub level
```
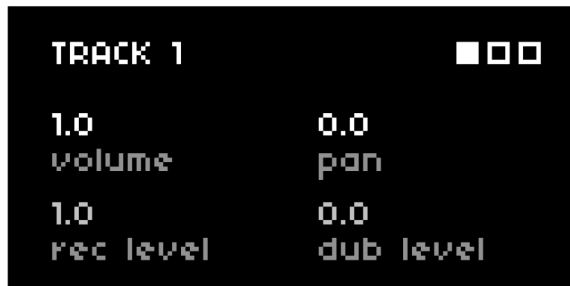
▶ **volume: (0 – 1)**

▶ **pan: (-1 – 1)**

▶ **rec level: (0 – 1)**

▶ **dub level: (0 – 1)** 1 = 100% of the previous recording material is preserved.

If a track is muted (**ALT** + **PLAY**) the screen displays "**[muted]**" instead of "**volume**" for the according track.

Volume, pan and dub level can be mapped to the lfos. **TIPP:** Map a fast s&h lfo to dub level and turn on occasionally for a "degrading loop" effect.

```
TRACK 1              □■□

18000.0 Hz       2.0
cutoff           filter q

low pass         0.0
type             dry level
```

▶ **cutoff: (20 – 18000 Hz)**

▶ **filter q: (0.01 – 4)** higher "resonance" at lower values

▶ **type: (low pass, high pass, band pass, band reject, off)**

▶ **dry level: (0 – 1)** dry signal level (disabled when filter type is set to "off".

```
TRACK 1              □□■

0.0              none
detune           transpose

0.0              0.1
rate slew        level slew
```

▶ **detune: (-1 – 1)** track speed (+/- 1 octave)

▶ **transpose: (15 steps)** center value (8) = no transposition

▶ **rate slew: (0 – 1)** slew of track speed changes

▶ **level slew: (0 – 1)** slew of volume changes

The scale used to transpose the tracks is specified in the global parameters. Scales can added and/or customized in the main script (mlre.lua). See **TRSP VIEW** for details.

GLOBAL PARAMETERS:

In the parameter section for mlre there are three sections: **global**, **tracks** and **modulation**. The parameters for track and modulation are accessible over the grid / main screen interface. Global parameters are only available over the parameter menu. All parameters are midi-mappable.

```
           global
scale              semitones
rec threshold        -12.0 dB
tempo-map mode         resize
MIDI transport            off
auto-randomize            off
settings >
```

▶ **scale: (scales)** transposition scales specified in *mlre.lua*

▶ **rec threshold: (-40 - 6dB)** threshold for *one-shot-recording*

▶ **tempo-map mode (resize, repitch)**

▶ **midi transport: (off, send)** send midi start / stop msg

▶ **auto-randomize (off, on)** see **REC VIEW**

▶ **settings:** set parameters that are affected by "randomize"

Tempo-map mode:

Tracks are **not** tempo mapped by default. All clips are initialized with a 4 second buffer, which corresponds to 1 bar at 60bpm. The length of the clip can be resized according to the clip length settings (see **CLIP VIEW**).

If tempo-map mode is set to "resize" , the clips of tempo mapped tracks will be resized according to the clip length setting. For example if the clip length setting is set to 4/4 (1bar) the clip length will be resized to fit a 1 bar loop at the current system tempo (e.g. 1 bar @ 110bpm = 2.181s). This mode is when you do not want your clip to be re-pitched.

If tempo-map mode is set to "repitch" the speed of the clips of tempo mapped tracks will be set according to the length setting and system tempo. For example if the system tempo is set to 110bpm the playback speed of a 1bar clip will be 1.83 x faster (fit a 4s loop in a 2.181s bar). Whilst in repitch-mode changing the the clip length in **CLIP VIEW** will recalculate the playback speed.

Midi transport:

MIDI start/stop messages are sent to the midi device assigned to slot 1 when "MIDI transport" is set to send. When the **STOP ALL** key is pressed a stop message is sent. When playback for any track is started a MIDI start message is sent. Consecutive playback key-presses won't send a start message until **STOP ALL** is pressed again.

Auto randomize:

When "**auto-randomize**" is set to on and "**track select**" for a given track is active specified parameter are randomized after a one-shot cycle is completed. Track parameters can be manually randomized by pressing **ALT** and the center speed key (see **REC VIEW**). Which parameters are randomized is specified under "**settings >**".

The following parameters can be randomized: Transpose, volume, pan, direction, loop-points, octaves (speed) and cutoff frequency. The bounds for octaves and cutoff can be specified. By default direction, loop-points and octaves are set to "on".

REC VIEW:
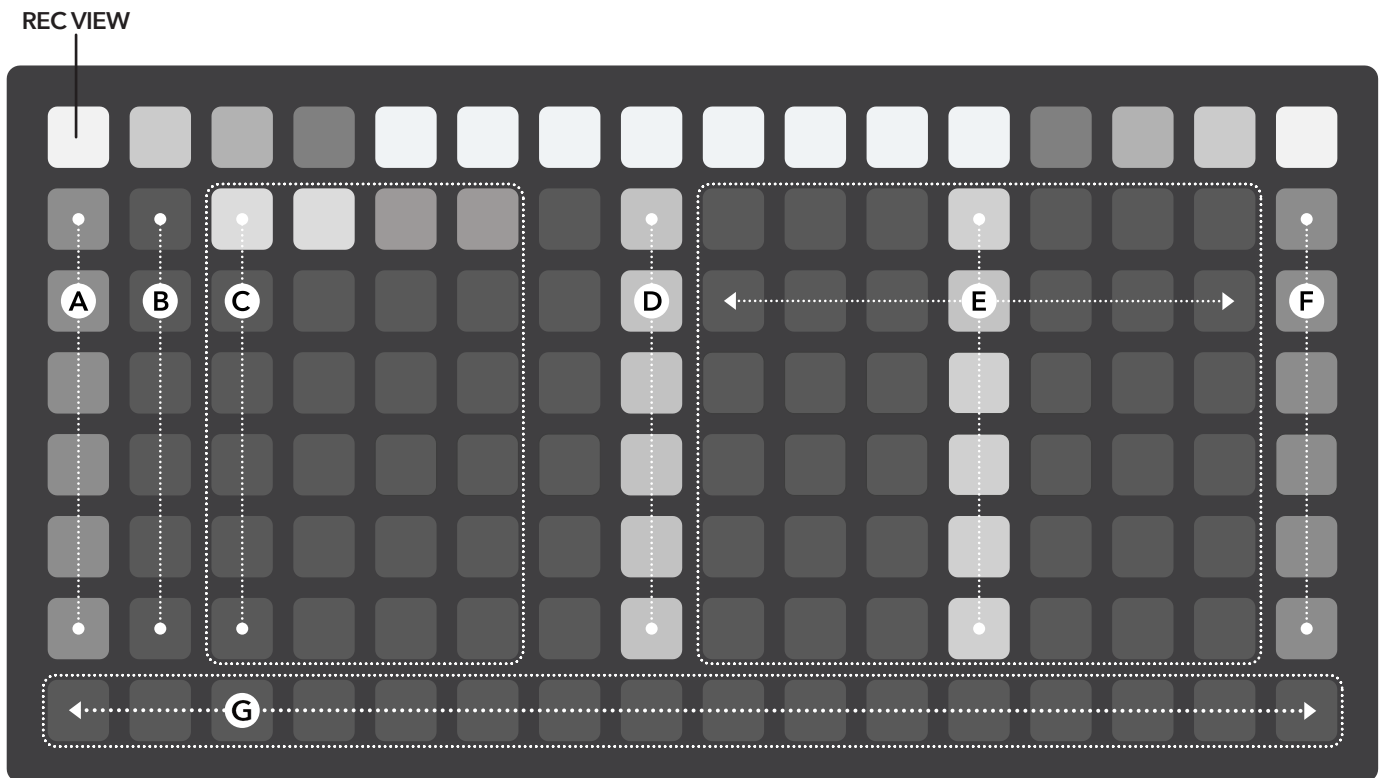
A: Toggle **REC** for tracks 1-6. Hold **ALT** and press the pad of the corresponding track to activate *fade out mode*. When **REC** is off the track will be overwritten with silence according to the "dub level" setting. Higher values result in longer fadeouts as more material is preserved per overwrite.

B: **ARM** track for *one-shot recording*. A flashing key indicates an armed track.

C: Select **FOCUS** for tracks 1-6. Hold **ALT** and press to *tempo map* the corresponding track to system clock. The rightmost key is bright if track is tempo mapped. Hold **MOD** and press to *switch buffer*. The two center keys indicate if buffer 1 (left) or buffer 2 (right) is active.

D: Toggle **REVERSE** playback for tracks 1-6.

E: Select **SPEED** for tracks 1-6 (+/- 3 octaves). Press **ALT** + **center key** to randomize parameters (specified in the global menu. See **GLOBAL PARAMETERS** > auto randomize).

F: Toggle **PLAYBACK** for tracks 1-6. Hold **ALT** and press pad to **mute** the track. Hold **MOD** and press pad toggle *track select mode* for the corresponding track.

**G:** **CUT VIEW** of focused track.

One-shot recording:

When *one-shot recording* is activated for a track, recording starts when the threshold specified in the global parameters "**rec threshold**" is reached. If the track is not playing, the recording will start at the first step. If a track is playing, the recording will start wherever the play-head is. Recording is deactivated after one cycle. If **REC** is pressed before the end-of-cycle the recorded material is automatically looped.

Track select mode:

When a track is in *track select mode* the corresponding LED is slightly brighter than the others. These tracks respond to two additional functions:

- Alt Run Combo (**ALT** + **STOP ALL**): playing tracks will stop and stopped tracks will play.
- If "*auto-randomize*" is turned on in the global settings, specified parameters are randomized after a one-shot cycle ends. See **GLOBAL PARAMETERS** > auto randomize.

CUT VIEW:

CUT VIEW

MOD + TRACK POSITION = HOLD

LOOP

TRANSPOSE DOWN

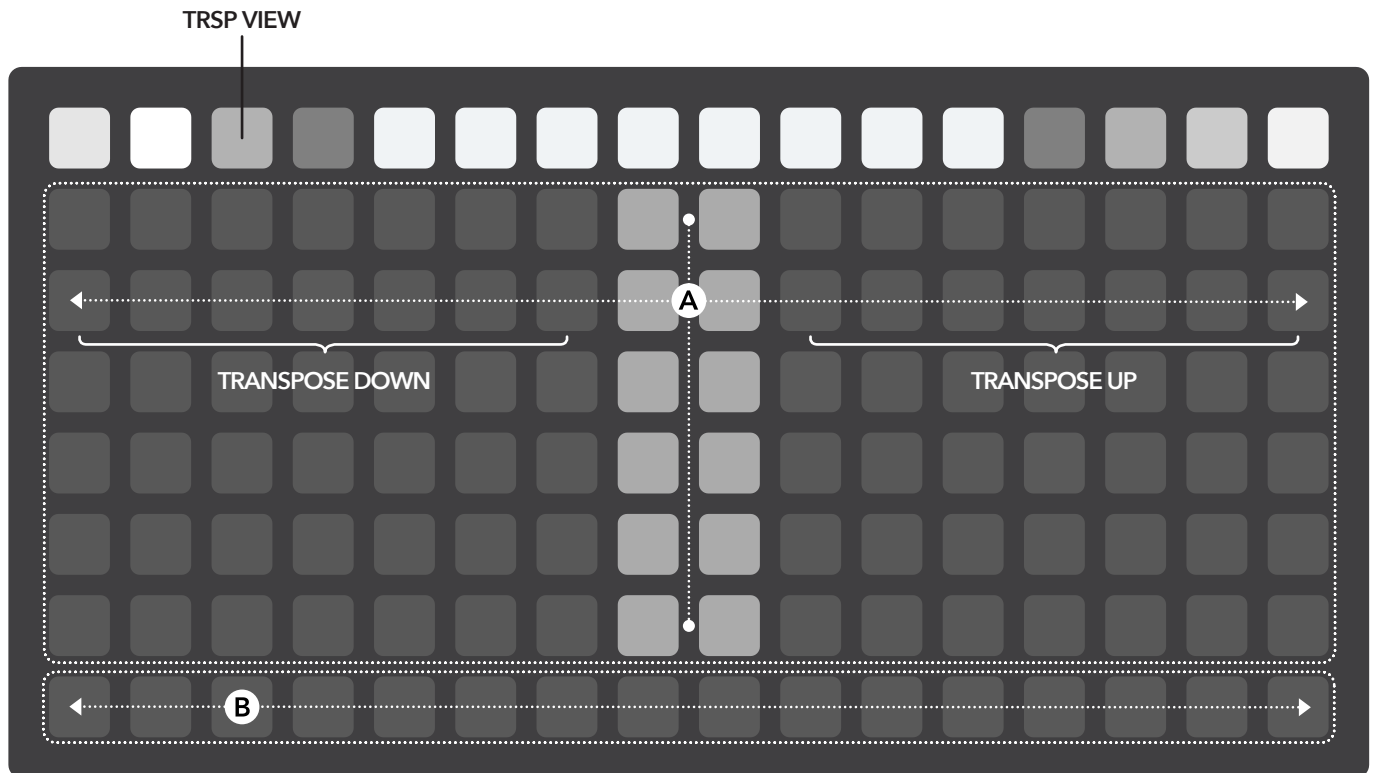TRANSPOSE UP
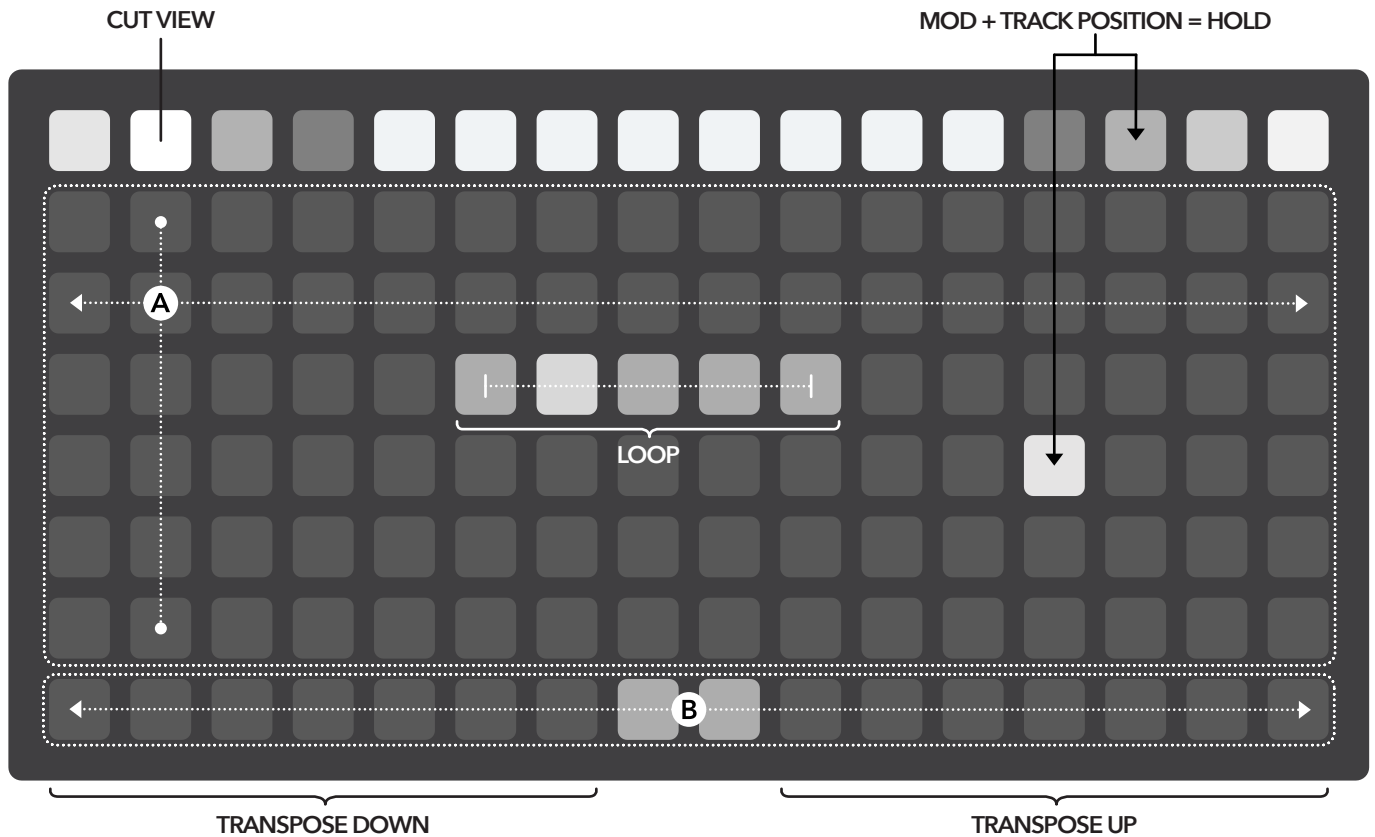
A: Set playhead position for tracks 1-6.

- **CUT:** Press any pad (1-16) of a track row to jump to that position.
- **LOOP:** Press and hold any pad (1-16) of a track row to set start position. Press any other pad within the track row to set the loop.
- **HOLD:** Hold **MOD** and press any pad (1-16) to set a one-pad-loop (aka **HOLD**). To lock into **HOLD MODE** hold **MOD** and press **ALT**, then release **MOD** before releasing **ALT**. Press **MOD** to unlock.

B: TRANSPOSE FOCUSED TRACK (see **TRSP VIEW**).

START/STOP: Hold **ALT** and press any pad (1-16) of a track row to start/stop the corresponding track.

FOCUS: Press any pad (1-16) of a track row to **FOCUS** the corresponding track.

TRANSPOSE VIEW:

A: TRANSPOSE TRACK 1-6

- Pads 7-1 **TRANSPOSE** the track speed **down** and pads 10-16 **TRANSPOSE** the track speed **up**, specified by the scale settings of the global parameter menu. Scales can be easily modified (see **custom scales**).
- **START/STOP:** Hold **ALT** and press a center pad of a track row to start/stop the playhead.
- **FOCUS:** Press any pad (1-16) of a track row to **FOCUS** the corresponding track.

B: CUT VIEW of **FOCUSED TRACK** (see **CUT VIEW**)

CUSTOM SCALES:

Scales can be easily modified in the *mlre.lua* script. Transposition steps are defined as cents in the **trsp_scale** table. The values displayed on the screen don't affect the transposition function and can be set to anything. The values are set in the **trsp_id** table. The number of scales specified is "unlimited", however, the format must be kept. The index of the scale name specified in the **scale_options** table points to index of the **trsp_id** and **trsp_scale**. All scales consist of 15 steps (center reference = index 8).

```
--scale names
local scale_options = {"semitones", "minor", "major", "custom"}

--transposition step id
local trsp_id = {
{"-P5","-d5","-P4","-M3","-m3","-M2","-m2","P1","m2","M2","m3","M3","P4","d5","P5"},
{"-P8","-m7","-m6","-P5","-P4","-m3","-M2","P1","M2","m3","P4","P5","m6","m7","P8"},
{"-P8","-M7","-M6","-P5","-P4","-M3","-M2","P1","M2","M3","P4","P5","M6","M7","P8"},
{"-here","-notation","-own","-your","-type","-can",""
you","none","you","can","type","your","own","notation","here"},}

--steps in cents
local trsp_scale = {
{-700, -600, -500, -400, -300, -200, -100, 0, 100, 200, 300, 400, 500, 600, 700},
{-1200, -1000, -800, -700, -500, -300, -200, 0, 200, 300, 500, 700, 800, 1000, 1200},
{-1200, -1100, -900, -700, -500, -400, -200, 0, 200, 400, 500, 700, 900, 1100, 1200},
{-3100, -2400, -1900, -1700, -1200, -700, -500, 0, 500, 700, 1200, 1700, 1900, 2400, 3100},}
```

LFO VIEW:

LFO VIEW

A

B

100%

0%

C D E

CLEAR LFO MAPPING
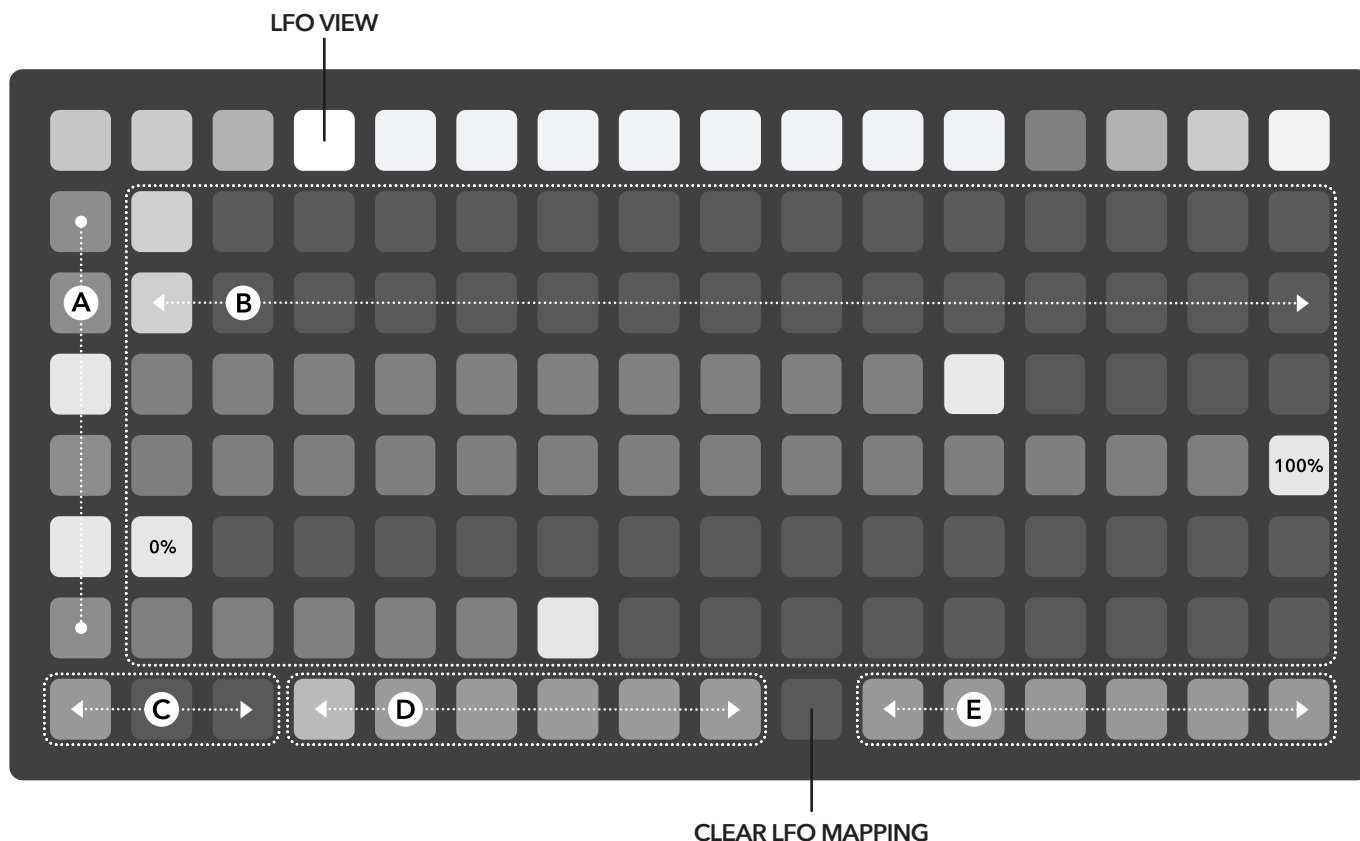
Norns screen displays which LFO is currently in **FOCUS**. Use **ENC1** to scroll or **K3** to step through the LFOs 1-6. Alternatively press any pad within the LFO rows to **select** an LFO. Use **K2** to toggle between the top and bottom row (active row is highlighted) and use **ENC2** and **ENC3** to change the corresponding parameter values. The parameters "**TARGET**" and "**SHAPE**" can be accessed via grid for quick **LFO mapping**.

A: Toggle **LFO STATE** (on/off) for LFOs 1-6.

B: Set **LFO DEPTH** for LFOs 1-6.

C: Set **LFO SHAPE** for **selected LFO**.

**D:** Select **TRACK** of destination (1-6)

E: Select **TARGET** of the **selected LFO**.

LFO MAPPING:

1. Select **LFO [focus or ENC1 or K3]**
2. Select the **TRACK [D]**
3. Select the **TARGET [E]**
4. Adjust **LFO DEPTH [B]** and turn on **[A]**

▶ **TIPP:**
If you set LFO depth back to zero before turning the LFO off, the modulated parameter will return to its initial state. If you turn it off while depth is > 0% then the parameter value will the one at the moment of deactivation.

```
LFO 1

0.1          0.0
freq         offset

none         sine
lfo target   shape
```
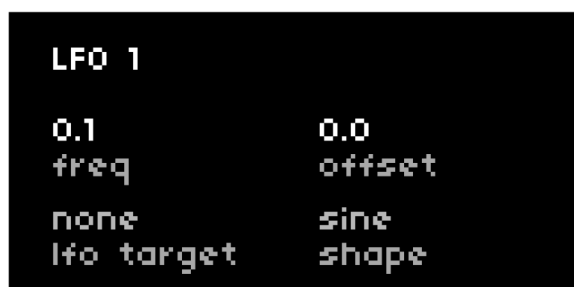
▶ **freq: (0.1 – 10)** LFO frequency

▶ **offset: (-1 – 1)**

▶ **lfo target: (vol, pan, dub, transpose, rate_slew, cutoff)**

▶ **shape: (sine, square, s&h)** LFO shapes

CLIP VIEW:

L&R   L IN   R IN   OFF   ADC   TAPE
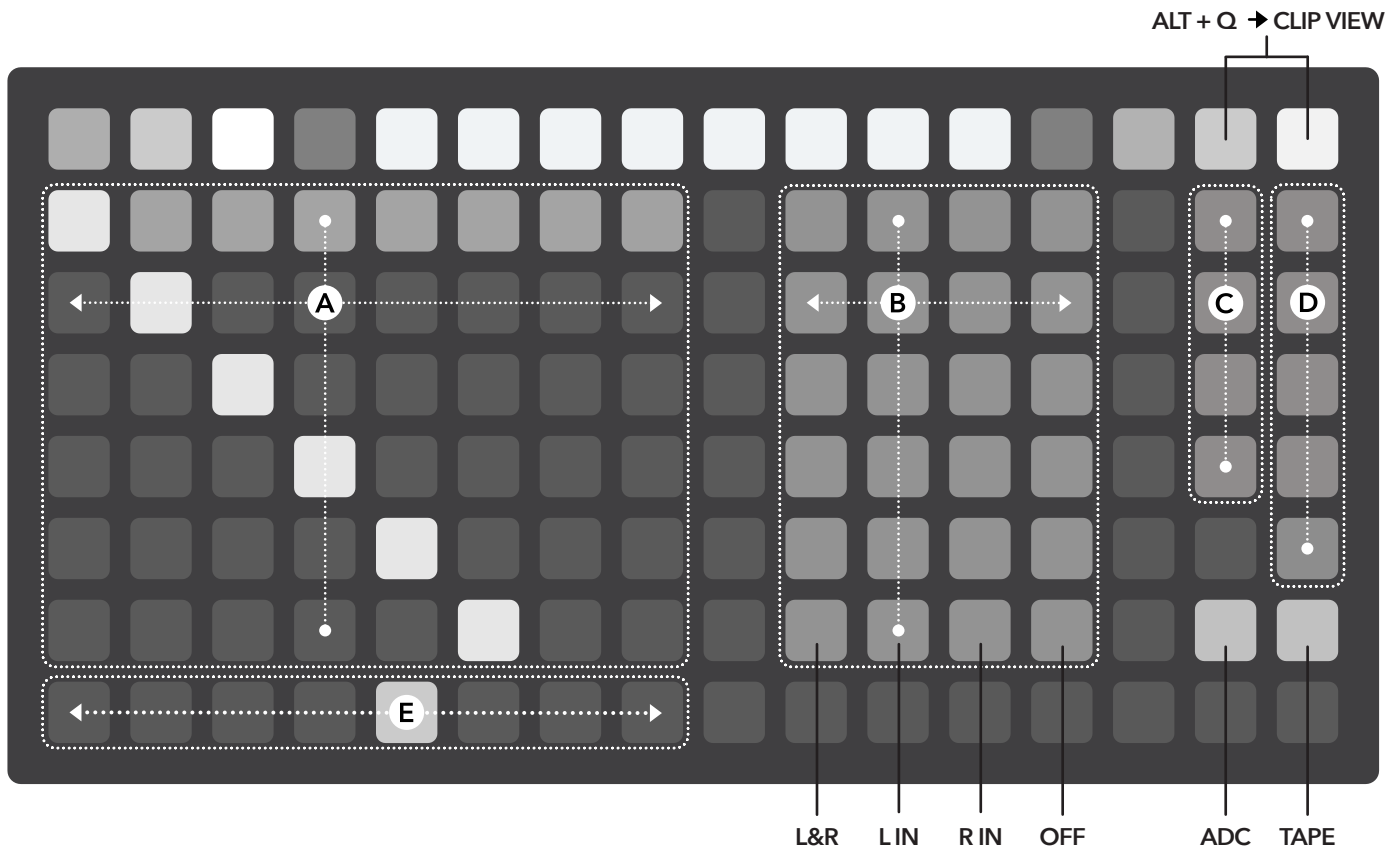
A: Set **CLIP** (1-8) of the corresponding track 1-6.

**B:** Set **INPUT SOURCE** for tracks 1-6.

C: Toggle **"ROUTE** to **TRACK 5"** to internally route tracks 1-4 to track 5.

D: Toggle **"ROUTE** to **TRACK 6"** to internally route tracks 1-5 to track 6.

E: Set **QUANTIZATION** (1bar, 1/2, 1/3, 1/4, 1/6, 1/8, 1/16, 1/32). Quantization is synced to the system clock.

ADC: Press to toggle ADC to softcut on/off (on by default)

TAPE: Press to toggle TAPE to softcut on/off (off by default)


```
TRACK 1              1/16 Q

>> -

    -- length: 4.00s --

CLIP 1 load     4/4 length
```
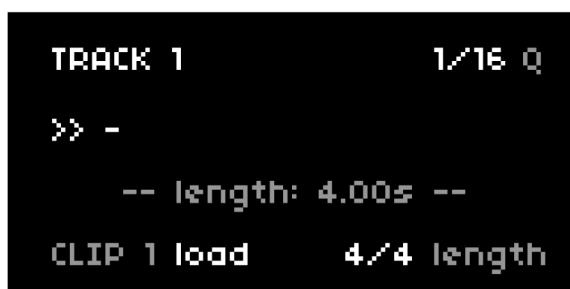
▶ Use **ENC2** to scroll through the clip actions (*load*, *clear*, *save, reset*) and press **K2** to trigger the clip action. **>>** displays the currently loaded clip file.

▶ Use **ENC 3** to scroll through the clip length options and press **K3** to resize the clip.

▶ The **QUANTIZATION** set by **(E)** is displayed by "Q".

Clip load: Load audio file (mono, 48kHz, max. 42s length)

Clip clear: Allocated buffer of the selected clip is cleared and clip resized according to the length setting.

Clip save: Save recorded audio file.

Clip reset: initial clip length is restored.

Resize: Tracks which are not tempo-mapped have a default clip length of 4s (1bar at 60bpm). Set the length of the clip (values displayed as quarter notes: 4/4 = 1bar) and press **K3** to resize the clip. If tempo-map mode is set to repitch the bpm of the clip is recalculated according to the time signature value.