

# MONOMACHINE

USER'S MANUAL

SFX 6/60





# Monomachine SFX-6/60 USER'S MANUAL Table Of Contents

INTRODUCTION1-1	
CONVENTIONS IN THIS MANUAL.....	1-1
THE PHILOSOPHY OF THE MONOMACHINE.....	1-2
KEEP IN MIND.....	1-2
HIGHLIGHTS.....	1-2
USER INTERFACE AND CONNECTORS.....	1-4
FRONT / MAIN CONTROL PANEL.....	1-4
KEYBOARD INTERFACE, SFX-6.....	1-6
REAR CONNECTORS.....	1-6
ADDITIONAL REAR CONNECTORS, SFX-6.....	1-7
RACK MOUNT KIT (SFX-60 ACCESSORY).....	1-7
RACK MOUNT KIT ASSEMBLY.....	1-7
CONNECTING THE UNIT.....	1-7
CARE INSTRUCTIONS.....	1-8
THE LCD USER INTERFACE.....	1-9
LAYER EDIT AND WINDOWS.....	1-9
QUICK START.....	1-11
SELECTING AND PLAYING A PATTERN.....	1-11
PLAYING IN MULTI TRIG MODE.....	1-12
EXPLORING A PATTERN.....	1-12
RECORDING A PATTERN USING GRID COMPOSING.....	1-13
PATTERN LIVE RECORDING.....	1-13
PARAMETER LOCKS.....	1-14
MONOMACHINE OVERVIEW.....	1-15
CHOOSE YOUR WAY OF WORKING.....	1-15
SIX INDIVIDUAL TRACKS.....	1-15
SIX TRACK SEQUENCING.....	1-15
MIDI SEQUENCING.....	1-15
POLY MODE.....	1-15
MULTI TRIG MODE.....	1-15
MULTI MAP MODE.....	1-15
MONOMACHINE SYNTHESIS ARRANGEMENT.....	1-17
MONOMACHINE KITS.....	1-18
LOADING A KIT.....	1-19
LOADING A CLEAR KIT.....	1-19
SAVING AND NAMING A KIT.....	1-19
UNDO KIT.....	1-20
KIT EDITING.....	1-20
ASSIGN A MACHINE TO A TRACK.....	1-21
SETTING THE MIX BUS.....	1-22
PARAMETER EDITING.....	1-22
TRACK EFFECTS.....	1-25
LEVEL.....	1-25
AMPLIFICATION PAGE.....	1-25
AMPLIFIER ENVELOPE.....	1-25
DISTORTION.....	1-26
TRACK VOLUME.....	1-27
PAN.....	1-27
PORTAMENTO.....	1-27

FILTER PAGE .....	1-28
BASIC FILTER CONTROLS .....	1-28
FILTER TRACKING .....	1-29
EFFECTS PAGE .....	1-30
EQ .....	1-30
DELAY .....	1-31
LOW FREQUENCY OSCILLATORS (LFO's) .....	1-33
LFO CONTROLS .....	1-33
PAGE AND DESTINATION .....	1-33
TRIG MODE .....	1-34
WAVEFORM .....	1-35
SPEED .....	1-35
INTERLACE .....	1-35
DEPTH .....	1-35
ADDITIONAL KIT SETTINGS .....	1-37
ASSIGN .....	1-37
JOYSTICK .....	1-38
VELOCITY .....	1-38
KEY TRACKING .....	1-38
TRIG TRACK SETTINGS .....	1-39
TRIG POS .....	1-39
TRIG PORTAMENTO .....	1-39
LEGATO TRIG MODES .....	1-39
MULTI TRIG .....	1-40
MULTI TRIG ALL TRACK .....	1-40
MULTI TRIG SPLIT MODE .....	1-41
MULTI TRIG SEQUENCER START AND SEQUENCER TRANSPOSE .....	1-41
MULTI ENV .....	1-42
THE PATTERN SEQUENCER .....	1-43
PATTERN SELECTION .....	1-43
COMPOSING A PATTERN .....	1-44
RECORDING PREPARATIONS .....	1-44
GRID COMPOSING .....	1-44
LIVE RECORDING .....	1-46
PARAMETER LOCKS .....	1-46
PARAMETER LOCKS IN GRID COMPOSING MODE .....	1-47
PARAMETER LOCKS IN LIVE RECORDING MODE .....	1-48
ADVANCED SEQUENCER CONTROL .....	1-48
TRIG TRACKS .....	1-48
TRIGLESS TRIGS .....	1-49
PITCHLESS TRIGS .....	1-50
SUMMARY .....	1-51
THE LINK BETWEEN KITS AND PATTERNS .....	1-51
SCALE, PAGES AND TIME SIGNATURES .....	1-51
SCALE SETUP .....	1-51
TEMPO .....	1-52
THE TEMPO SCREEN .....	1-52
TAP TEMPO .....	1-53
EXTERNAL SYNCHRONISATION .....	1-53
PATTERN CHAINING .....	1-53
PATTERN COPY CLEAR PASTE .....	1-54
FULL PATTERN COPY .....	1-54
TRACK COPY .....	1-55
SUPER COPY .....	1-56
NOTE COPY .....	1-57
PAGE COPY .....	1-57

ADDITIONAL SEQUENCER FEATURES .....	1-59
THE ARPEGGIATOR.....	1-59
ARPEGGIATOR BASIC SETTINGS .....	1-59
ARPEGGIATOR MODES IN DEPTH.....	1-60
ARPEGGIATOR ENVELOPE TRIGGERING SWITCHES.....	1-61
ARPEGGIATO RHYTHM AND OFFSET TRACK.....	1-61
TRANPOSE.....	1-62
SWING.....	1-63
THE SWING TRACK .....	1-63
SLIDE .....	1-65
THE MUTE MODE.....	1-66
MINIMISING THE MUTE WINDOW .....	1-67
POLY MODE.....	1-68
THE MIDI SEQUENCER.....	1-69
USING THE MIDI SEQUENCER.....	1-69
THE MAIN MIDI SEQUENCER INTERFACE.....	1-70
COMPARISON WITH THE INTERNAL SEQUENCER.....	1-71
THE SONG SEQUENCER.....	1-73
SONG FILE OPERATIONS .....	1-73
LOAD SONG .....	1-73
SAVE SONG.....	1-74
SONG PLAY .....	1-75
SONG TRANSPORT .....	1-75
SONG EDITING.....	1-76
SONG EDIT TRANSPORT .....	1-77
SONG TRACK TRANPOSE.....	1-78
SONG EXTRA.....	1-78
SONG LOOPS AND JUMPS .....	1-79
MONOMACHINE ROUTING.....	1-81
ADDRESSING THE AUDIO OUTPUTS .....	1-81
THE FX MACHINES .....	1-81
USING THE AUDIO INPUTS.....	1-82
NEIGHBOUR ROUTING .....	1-83
MIX BUS ROUTING .....	1-84
ROUTING MODE AB=MIX.....	1-85
ROUTING MODE 6xMONO .....	1-85
GLOBAL SETTINGS.....	1-87
GLOBAL AUDIO SETTINGS.....	1-87
MASTER TUNE.....	1-88
GLOBAL ROUTING.....	1-88
MONOMACHINE AND MIDI.....	1-89
MIDI CHANNELS.....	1-89
INDIVIDUAL TRACK CHANNELS.....	1-90
MULTI TRIG CHANNEL .....	1-90
MULTI MAP CHANNEL .....	1-90
AUTO TRACK CHANNEL .....	1-90
ALL CHANNELS.....	1-90
MIDI CONTROL DATA.....	1-91
CONTROL OUT1.....	1-91
CONTROL OUT2.....	1-91
CONTROL IN.....	1-92
MULTI MAP.....	1-93
MULTI MAP EDITOR.....	1-93

SYSEX FILE OPERATIONS1-94	
SYSEX SEND .....	1-94
SYSEX RECEIVE .....	1-95
MIDI SEQUENCER SETTINGS.....	1-97
CREDITS.....	1-99
PRODUCT DESIGN AND DEVELOPMENT.....	1-99
INDUSTRIAL DESIGN.....	1-99
ADDITIONAL DESIGN.....	1-99
FACTORY DEFAULT SOUND DESIGN .....	1-99
CONTACT INFORMATION .....	1-100
ELEKTRON SUPPORT .....	1-100
MONOMACHINE WEBSITE .....	1-100
ELEKTRON WEBSITE .....	1-100
POSTAL ADDRESS.....	1-100
PRODUCT UPDATES.....	1-101
Appendix A:	
MACHINE REFERENCE	
SUPERWAVE.....	A-1
SUPERWAVE SAW "SWAVE-SAW" .....	A-1
SUPERWAVE PULSE "SWAVE-PULSE" .....	A-2
SUPERWAVE ENSEMBLE .....	A-3
SID .....	A-4
SID 6581 .....	A-4
DIGIPRO .....	A-5
DIGIPRO WAVE "DPRO-WAVE" .....	A-5
DIGIPRO BEAT BOX "DPRO-BBOX" .....	A-5
FM+ .....	A-7
FM+STATIC "FM+STAT" .....	A-7
FM+PARALLELL "FM+PAR" .....	A-8
FM+DYNAMIC "FM+DYN" .....	A-8
VO .....	A-10
VO-6.....	A-10
FX.....	A-12
THRU .....	A-12
REVERB .....	A-12
CHORUS .....	A-13
DYNAMIX.....	A-13
DYNAMIX TUTORIAL.....	A-14
Appendix B:	
MIDI CONTROL REFERENCE	
MONOMACHINE MIDI SPECIFICATION .....	1-1
NOTE ON & NOTE OFF MESSAGES.....	1-1
CONTROL CHANGE MESSAGES.....	1-2
NRPN MAPPING .....	1-5
OTHER MIDI MESSAGES.....	1-6

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# Monomachine SFX-6/60

## USER'S MANUAL

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### INTRODUCTION

Thank you for choosing the Monomachine SFX-6/60 as your companion in music creation. The SFX-6/60 is a powerful and intuitive tool for creating sounds, melodies and musical compositions of all kinds. We hope you will have a lot of fun while exploring the vast possibilities of the Monomachine. To make the most of the SFX-6/60, we would like you to carefully read the relevant parts of this manual before operating the instrument.

### CONVENTIONS IN THIS MANUAL

In this manual we have used certain conventions for indicating input using knobs and buttons through the user interface. These conventions are listed below.

Keys (buttons) are written in upper case with bold style, and they are enclosed in brackets. For instance, the key "function" on the main panel is written **[FUNCTION]**.

Encoders (knobs) are written in upper case with bold, italic style. For instance, the encoder "level" is written ***LEVEL***.

LED indicators like the record LED are written <RECORD>.

The following symbols are used throughout the manual:



This symbol indicates information that you need to pay attention to.



This symbol indicates a tip that might make it easier interacting with the SFX-6/60.



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## THE PHILOSOPHY OF THE MONOMACHINE

Synthesizers are available in many different types and forms. Nevertheless, for most part they follow the norm how a synthesizer of its era is expected to be. Development for musicians tools generally comes in form of new synthesis techniques or increase in polyphony, memory or other quantitative elements. The advances in the music machine world have brought numerous good inventions for musicians. However, we believe the core of usability is easily lost in the hunt for the highest specifications.

With the Monomachine we have tried creating a synthesizer free from prejudice, and focus on what actually spur creativity and not let the technology stand in your way. We want to inspire you to make sounds and music you didn't even think of when you first sat down.

We have put all our efforts into explore, to the fullest extent, the concept we believe is one of the most creative in the history of synthesizers - the monophonic synthesizer with a tightly integrated sequencer. The Monomachine offers ground breaking sound synthesis machines, divided into five Monosynths, together with dedicated Track Effect engines. The sound synthesis tracks are controlled through the worlds most advanced pattern based sequencer, inspired from the concepts of grid programmed drum machines.

### KEEP IN MIND

The Monomachine is a very multifaceted synthesizer. Depending on how you choose to use it certain aspects of it will be most important to you. We have combined what we have enjoyed most of the traditions of synthesizers with many new creative approaches.

Try to find your own way of working, whether it being using the song sequencer to build complete songs, building patterns for real-time manipulation using the Multi Trig function, or using your favourite sound in poly mode. This users manual will guide you through all the functions, and give some hints on applications, but you will probably appreciate the full capabilities after some time of use.

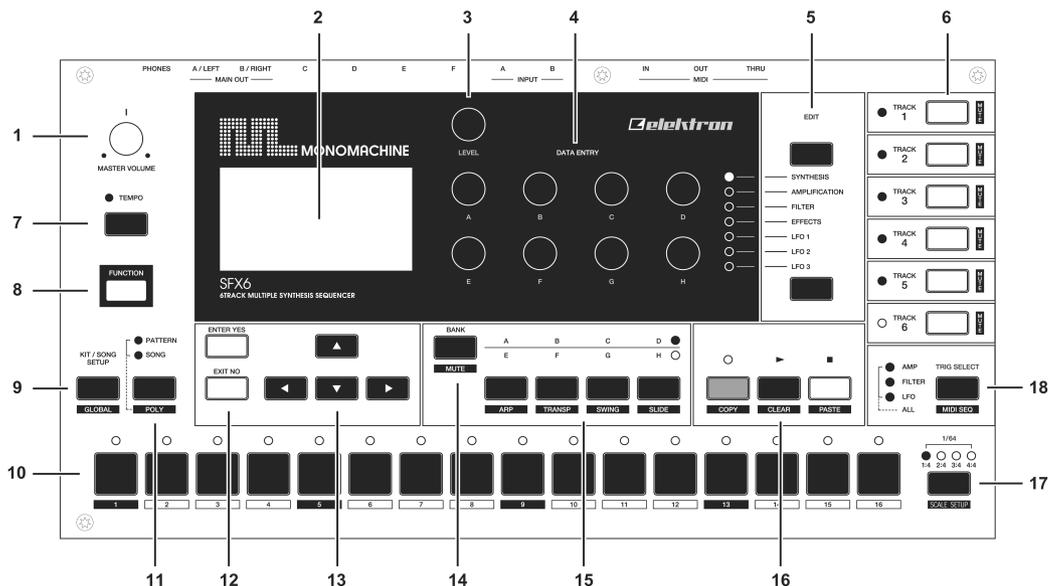
### HIGHLIGHTS

- **6 Track Internal Sequencer with sound synthesis**
- **6 Track External MIDI Sequencer**
- **5x Monosynths: SuperWave, SID, DigiPRO, FM+, VO**
- **6x Tape-style Tempo synced delays**
- **18x Tempo synced LFO's**
- **Full real-time control**
- **Man-Machine potential**



USER INTERFACE AND CONNECTORS

FRONT / MAIN CONTROL PANEL



The Monomachine SFX-6 main control panel / SFX-60 front panel:

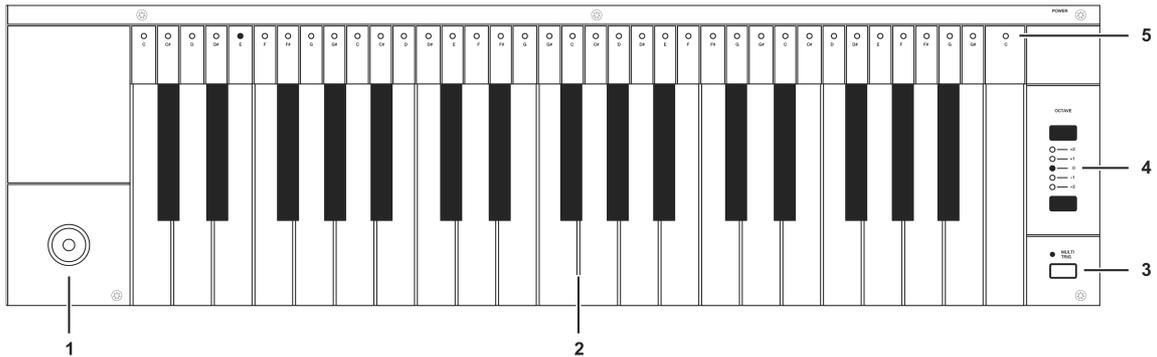
1. Master volume control. Sets the volume for the main output and head-phone jack.
2. The LCD graphical interface display.
3. **LEVEL** encoder. Sets the overall volume level of the track in focus.
4. **DATA ENTRY** encoders. Used for tweaking parameters for the machines and effects.



- The **DATA ENTRY** and **LEVEL** encoders allow accelerated editing by pressing the knob while turning it.
5. **[DATA PAGE]** selection keys. These keys are used for selecting the focus of the **DATA ENTRY** encoders. The current selection is indicated by the <DATA PAGE> LED's to the left of these keys. Press both [DATA PAGE] keys simultaneously to open the Multi Env window.
  6. **[TRACK]** keys 1-6. These keys are used for selecting which track is in focus of editing. The secondary function is to **[MUTE]** or activate the track. The <TRACK> LED's are located to the left of the **[TRACK]** keys. These indicate which tracks are active or muted, and also which track is in the editing focus. The LED colours indicate as follows: Green = Active, Non-lit = Muted, Red = Active in focus, Yellow = Muted in focus
  7. **[TEMPO]** key. Press to bring up the tempo window for adjustment. The current tempo is always indicated by the speed the <TEMPO> LED is flashing. Holding function you can use [TEMPO] for tapping the tempo.

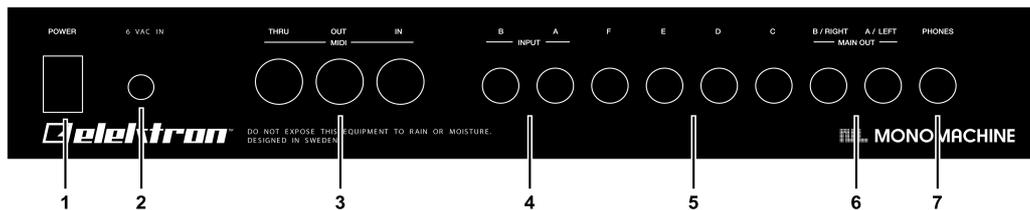
8. **[FUNCTION]** key. Press and hold it for accessing the secondary function of another key.
9. **[KIT/SONG]** key. Calls the kit or the song menu, depending which mode is chosen. The secondary function is calling the **[GLOBAL]** menu.
10. **[TRIG]** keys 1 to 16. Main functions of these keys are as keyboard for triggering notes, and for editing notes in grid edit mode. Also used for choosing pattern, if pressed while holding **[BANK]** keys. When functioning as musical keyboard, the notes are played with velocity 80. Hold **[FUNCTION]** while playing to play with full velocity (127).
11. **[PATTERN/SONG]** key. Switches between pattern and song sequencer mode. The current sequencer mode is indicated by the <PATTERN> and <SONG> LED's. The secondary function is to set the unit in **[POLY]** mode.
12. **[ENTER/YES]** and **[EXIT/NO]** keys. Used for entering and exiting menus and for confirming choices or aborting functions.
13. The **[CURSOR]** keys. Used for menu navigation. The **[CURSOR]** keys are individually named **[UP]**, **[DOWN]**, **[LEFT]** and **[RIGHT]**. When in base pattern edit mode, **[UP]** and **[DOWN]** are used for setting the octave for the **[TRIG]** keys.
14. **[BANK GROUP]** key. Used for switching between bank group A to D and E to H. The <BANK GROUP> LED's to the right indicate the current selection. The secondary function is to enter the dedicated **[MUTE MODE]**.
15. **[A/E]**, **[B/F]**, **[C/G]** and **[D/H]** **[BANK]** keys. Hold one of the **[BANK]** keys and then press one of the **[TRIG]** keys to select the pattern (A01-H16) indicated by the label of the **[BANK]** key and the <BANK GROUP> LED's. The secondary functions are to edit the track settings for **[ARPEGGIATO]**, **[TRANSPOSE]**, **[SWING]** and **[SLIDE]**.
16. **[REC]**, **[PLAY]**, **[STOP]** keys. The **[REC]** key is used for toggling grid edit mode on/off. **[PLAY]** Initiates playback of a pattern or song. Pressing **[PLAY]** a second time pauses playback. Press **[PLAY]** while holding **[REC]** to enter live recording mode. **[STOP]** halts the playback of a pattern or song. Press **[STOP]** twice to rewind the song and turn off all sound and reset various things. In grid edit mode, the <RECORD> LED gives a steady light, while in live recording it flashes. The secondary functions of the keys are **[COPY]**, **[CLEAR]** and **[PASTE]**.
17. **[SCALE]** key. In grid recording mode: switches the trig page focus of the **[TRIG]** keys if the scale length exceed 16. The trig positions are organised in up to four pages with 16 positions in each. The <TRIG PAGE> above the **[SCALE]** key indicate which page is currently being edited or played. The secondary function is calling the **[SCALE SETUP]** menu.
18. **[TRIG SELECT]** key. Switches which trig track is programmed from the **[TRIG]** keys. The <TRIG TRACK> LED's to the left indicate the current Trig Track selection. The secondary function is to enter or exit the **[MIDI SEQ]** mode.

### KEYBOARD INTERFACE, SFX-6



1. **Joystick**, for real-time expression control. The joystick can individually control parameters for all tracks.
2. **Keyboard**, for real-time playing, real-time recording and grid recording.
3. **[MULTI TRIG]** key, used for toggling the Multi Trig mode. The current state of the Multi Trig is indicated by the <MULTI TRIG> LED above. The secondary function is to toggle the **[MULTI MAP]** mode. Multi Map is indicated by the <MULTI TRIG> LED flashing.
4. **[OCTAVE]** keys. Control which octaves the **Keyboard** is playing, and which notes are represented on the <KEYBOARD> LED's.
5. <KEYBOARD> LED's. Shows the notes being played on the active track, or programmed on a step selected in Grid edit mode.

### REAR CONNECTORS



1. Power On/Off switch (SFX-60 only).
2. AC 6 Volt power in (SFX-60 only).



- **Caution!** Use only an Elektron-approved power supply with your Monomachine SFX-60. Tip specifications: 5.5mm outer diameter, 2.5mm inner diameter, Electrical specifications: 6 Volts AC at 2000mA, 50/60Hz. Using the wrong type of adapter may result in damage to your unit. Damage caused by the use of incorrect power supply is not covered by warranty.

3. MIDI Thru/Out/In
4. Audio Input B/A
5. Individual Audio Outputs F/E/D/C
6. Main/Individual Audio Outputs B/A
7. Stereo Headphone Outputs (Amplified copy of output AB)

## ADDITIONAL REAR CONNECTORS, SFX-6



1. AC 115/230V 50/60Hz Input with integrated fuse holder and spare fuse storage.



- **Caution!** Although the Monomachine SFX-6 can accept both 115 and 230 Volts main current, both the voltage selector and the fuse need to be matched to the voltage. The fuse holder has two sections. The inner is the one currently in use.  
For 115V operation the fuse should be specified as 250mA, 125V.  
For 230V operation the fuse should be specified as 125mA, 250V.

2. Power On/Off switch.
3. Voltage selector.



- **Caution!** If you want to change the voltage for the Monomachine, please take notice of the warning of first point of this section.

## RACK MOUNT KIT (SFX-60 ACCESSORY)

The Monomachine SFX-60 can be rack mounted in a standard 19" rack, using the SFX-60/SPS-1 rack mount kit which is ordered separately. When rack mounted, the SFX-60 occupies four standard height units plus additional space needed to accommodate cables plugged into the unit at the back.

### RACK MOUNT KIT ASSEMBLY

Make sure that you use screwdriver of the right size, and is in good condition. Use the included "M3" sized screws to secure the rack mount consoles on each side of the SFX-60. Make sure that all screws are fastened for secure operation of the unit.

## CONNECTING THE UNIT

Follow the basic guide below to power up your unit first time.

1. For SFX-6: Insert the supplied power cord in a grounded wall socket, specified as the voltage selector on the back of your SFX-6.  
For SFX-60: Insert the supplied AC adapter into the wall socket, and connect the small plug into the rear of the unit.
2. Connect the Main Audio Out A/B from the Monomachine to your mixer or amplifier, and/or connect a pair of stereo headphones to the Headphone Output.
3. If MIDI control is desired, connect the MIDI OUT from the Monomachine to the MIDI IN of the device you wish to send data to. Connect the MIDI IN of the Monomachine to the MIDI OUT of device that you wish to receive data from. The MIDI THRU port is "echoing" the data coming in

from the MIDI IN port, so it can be used for daisy chaining other MIDI units.

4. Switch all units on.
5. If you do not have any previous experience of the Monomachine we suggest that you follow the “QUICK START” on page 11.

### **CARE INSTRUCTIONS**

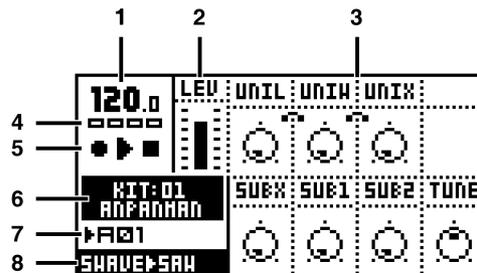
To ensure many years of trouble free operation, please follow the advice below:

- **Never use any aggressive cleaners on the casing or the LCD overlay. Remove dust, dirt and fingerprints with a soft dry cloth. More persistent dirt can be removed with a slightly damp cloth using only water.**
- **Never use sharp objects near the display to avoid scratches or damage. Also avoid applying any pressure to the display itself.**
- **When transporting the Monomachine, try to use the box in which it was originally shipped with the padding supplied, or equivalent packaging. For the SFX-60 we can recommend using the specially designed transportation bag for sale at the Elektron webpage.**
- **Make sure that you place the unit on a stable surface before use. If you mount the unit in a rack, be sure to tighten all four screws in the rack mount holes.**
- **The memory used for storing patches and kits is powered by a battery inside the unit. It will hold data at least 6 years before needing replacement. If the battery needs replacement, the “battery low” message will appear in the display. Contact Elektron support or your nearest repair center.**

---

## THE LCD USER INTERFACE

The center of the Monomachine SFX-6/60 editing is the LCD graphical interface display. The main interface screen for base pattern edit mode is printed below:



1. The current tempo. This will show EXT when synced to external tempo.
2. Level bar showing the overall volume level of the machine on the track in focus.
3. Up to eight Data Entry parameters. At the top are up to four characters which is an abbreviation that indicate their current function. Below the function name is a symbol that display the current value of the parameter. This value will also be displayed in figures as the parameter is altered or the encoder is pressed.
4. Four rectangular boxes showing the playback position in the pattern.
5. The playback/recording status shown by the standard “rec”, “play” and “stop” symbols.
6. Name and number of the current kit.
7. The index of the current pattern, ranging from A01 to H16.
8. Specification of the Mono-synth and machine of the track in focus.

### LAYER EDIT AND WINDOWS

When a function puts a window on top of the base control window, it will change the function of certain keys and/or encoders. The keys that are not used or blocked can still be used to control the layer underneath. For example, when you have called the tempo function it will make use of the **LEVEL** encoder, but you can still use the **DATA ENTRY** knobs to control the Data Entry parameters of the track in focus.

All windows can be closed using the **[EXIT/NO]** key.



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## QUICK START

This quick start will guide you through some of the basic operations get you started using the Monomachine. First connect your unit as described in section “CONNECTING THE UNIT” on page 7.

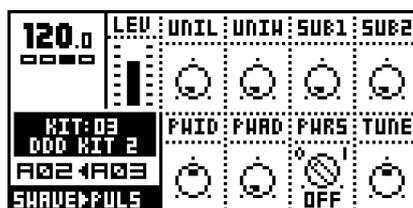


- The **DATA ENTRY** encoders have accelerated editing when pressed. By default, the knobs increase/decrease the parameter value in steps of +1/-1. When pressed, the step length is higher, allowing quicker adjustments.

This guide assumes you have a Monomachine SFX-6 Keyboard or SFX-60 Tabletop with a midi keyboard connected. If you have a SFX-60 you need to take care to set the midi keyboard to play on the correct midi channel. When we refer to play a sound in Multi Trig mode, a MIDI keyboard should be sending on the Multi Trig channel. By default this is set to MIDI channel 7. When playing on a specific track we recommend using the Auto Track channel which will switch focus depending on which track is selected with the **[TRACK]** keys. By default the Auto Channel is assigned to midi channel 9. Please refer to section “MIDI CHANNELS” on page 89 for more information on the MIDI channel assignment of the Monomachine.

## SELECTING AND PLAYING A PATTERN

1. Verify that the <PATTERN> LED is lit and the <SONG LED> is not. If this isn't the case, press the **[PATTERN/SONG]** key.
2. Check the <BANK GROUP> LED to see if bank group A-D or E-H is active. If needed press **[BANK GROUP]** key to toggle the active bank group. For this demonstration use group A-D.
3. To select pattern A01, press and hold the pattern selection key **[A/E]** and then press the **[TRIG]** key 1. You can see the index of the currently selected pattern in the lower left corner of the display. Each pattern automatically loads the kit it was created with. The name of the kit is also shown in the display.
4. To listen to the pattern, press the **[PLAY]** key. The pattern starts playing and loops back to the beginning again when it has reached its end. Pressing **[PLAY]** while playing pauses the playback.



5. To change pattern during playback, simply select a pattern the same way as in step 3. The display will show the selected pattern beside the current one, but with an arrow pointing between them. This indicates that once the current pattern has played to its end, the new selected pattern will start playing.

6. To stop the playback of the pattern, press the **[STOP]** key.

### PLAYING IN MULTI TRIG MODE

1. Select a pattern, ranging from A01-D16. All the Monomachine presets are located in this range. Make sure the sequencer is stopped.
2. Enter Multi Trig Mode. On SFX-6 press the **[MULTI TRIG]** key and check that the <MULTI TRIG> LED is lit with a steady light. For SFX-60 select the Multi Trig channel on your midi keyboard.
3. Play some notes!
4. Depending on the trig mode selected in the kit a number of things could happen. Please refer to section "MULTI TRIG" on page 40 for a the full story.



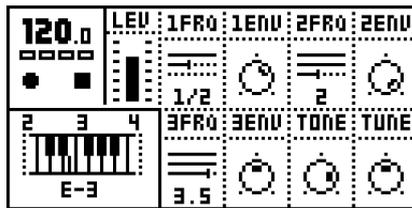
- **All presets of the Monomachine are designed as patterns with associated kits that can be played in Multi Trig mode. To explore the presets, select the patterns between A01 and D16, and play them in Multi Trig mode as described in this section.**

### EXPLORING A PATTERN

1. Select a pattern as described above.
2. Make sure the sequencer is stopped and that Multi Trig Mode is switched off on the SFX-6 (<MULTI TRIG> LED not lit) and that the sequencer is not in grid composing mode (<REC> LED not lit). Use the Auto Channel if using an external MIDI control keyboard.
3. Select one of the six tracks as the active track by pressing a **[TRACK]** key.
4. For each track the machine loaded is displayed in the lower left corner of the display.
5. Play some notes on each of the tracks, either using the keyboard or the **[TRIG]** keys. Note that it's possible that not all tracks will sound, the track can be an FX that needs input from another track or silenced due to the output assigning, machine selection or Track Effect settings.
6. Use the **[DATA PAGE]** keys to navigate between the Data Pages. The <DATA PAGE> LED's will indicate the current selection. Select the Synthesis page.
7. Now, turn any of the **DATA ENTRY** knobs to tweak the machine synthesis parameters on the selected track. You can change any parameters without fear of losing presets or other kits stored, as the changes will not be saved if you do not choose to perform the Kit Save action. The parameters presented on the Synthesis page are specific to the machine loaded. See Appendix: A for information about the parameters and functions of the machines.
8. Continue to the Track Effect pages, named Amplification, Filter and Effects pages and explore the wide range of sound shaping tools available. The parameters on these pages are always placed in the same order to assist the sound creation process. You can find information about the Track Effects on page 25.

### RECORDING A PATTERN USING GRID COMPOSING

1. You can input notes into a pattern of the sequencer, both while it is play and stop mode. First select the pattern you wish to edit. You might want to select an empty pattern, as all changes are made “live” to the pattern. As factory default, patterns E01-H16 are clear.
2. If you wish you can change the kit assigned to the pattern by selecting pressing the **[KIT]** key, then select LOAD in the menu, and select the kit you prefer from the list presented.
3. Press the **[RECORD]** key to enter grid recording mode. The <RECORD> LED should be firmly lit.
4. Select the active track using the **[TRACK]** keys.



5. Press a **[TRIG]** key to add a Note On trig. A Note On trig is indicated by a red <TRIG> LED. To set the pitch of the note, press the corresponding key on the keyboard while the **[TRIG]** button is held. You can also use the **[CURSOR]** keys to edit the programmed pitch. Pressing the same **[TRIG]** key once more removes the Note On.
6. To enter a Note Off trig, press a **[TRIG]** key while holding the **[FUNCTION]** key. To remove a Note Off the same **[TRIG]** key must be pressed twice. A Note Off is indicated by a yellow <TRIG> LED.
7. To change the pitch of a note, press and hold the **[TRIG]** key. You will see a mini keyboard pop up in the lower left corner of the screen. Either press the new note on the keyboard or use the **[CURSOR]** keys to select the new note. When done release the **[TRIG]** key.
8. To edit other tracks, change the active track using the **[TRACK]** keys.

### PATTERN LIVE RECORDING

1. The live recording mode allows you to record notes in real-time while the pattern is playing. To start this mode, press and hold **[RECORD]** and then **[PLAY]**.
2. You can now play notes on the track you want to record. All played notes will be quantised and recorded to the closest trig step.
3. If a note is played on a position where there already was a note programmed the new note will replace the note on that step.
4. To erase notes on live recording mode hold **[EXIT/NO]** while the notes you want to remove are heard.
5. The pattern will loop and be ready for further recording until you press the **[STOP]** key.



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**MONOMACHINE OVERVIEW**

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The sound generating structure of the Monomachine differs in many ways from what is common for contemporary sound synthesizers and sequencers. The SFX-6/60 offers six tracks of audio synthesis/FX, effects and sequencing. All six tracks are fully equipped with a sound generating or sound effecting machine of choice, Track Effect engine including amplifier envelope, LP/BP/HP filter, synchronised tape-style delay, three LFO's and the most refined step sequencer. Please refer to figure "Monomachine sound synthesis overview" on page 16 for an overview of the general structure of the Monomachine.

**CHOOSE YOUR WAY OF WORKING**

The Monomachine offers you many ways of working. The six tracks of synthesis can be approached in several ways. Some suggestions how you could organise your work is described below. All the techniques presented will be discussed in detail later in this manual.

**SIX INDIVIDUAL TRACKS**

Each of the six tracks can be programmed with individual sound generating machines and sound and effects settings. All tracks can be controlled by their dedicated MIDI channel if preferred. Using the Monomachine this way offers you access to six independent tracks of monophonic synthesis.

**SIX TRACK SEQUENCING**

The six tracks can be controlled by the Monomachine sequencer. In addition to the traditional pitch and note on/off commands, it allows direct control over all sound generating parameters and envelope trigs.

**MIDI SEQUENCING**

Six additional tracks of polyphonic MIDI sequencing for controlling external gear are lined up beside the sequencer for the internal sound generating tracks.

**POLY MODE**

By entering *Poly mode* the Monomachine dedicates all six sound generating tracks to offer one track of six-voice polyphonic sound.

**MULTI TRIG MODE**

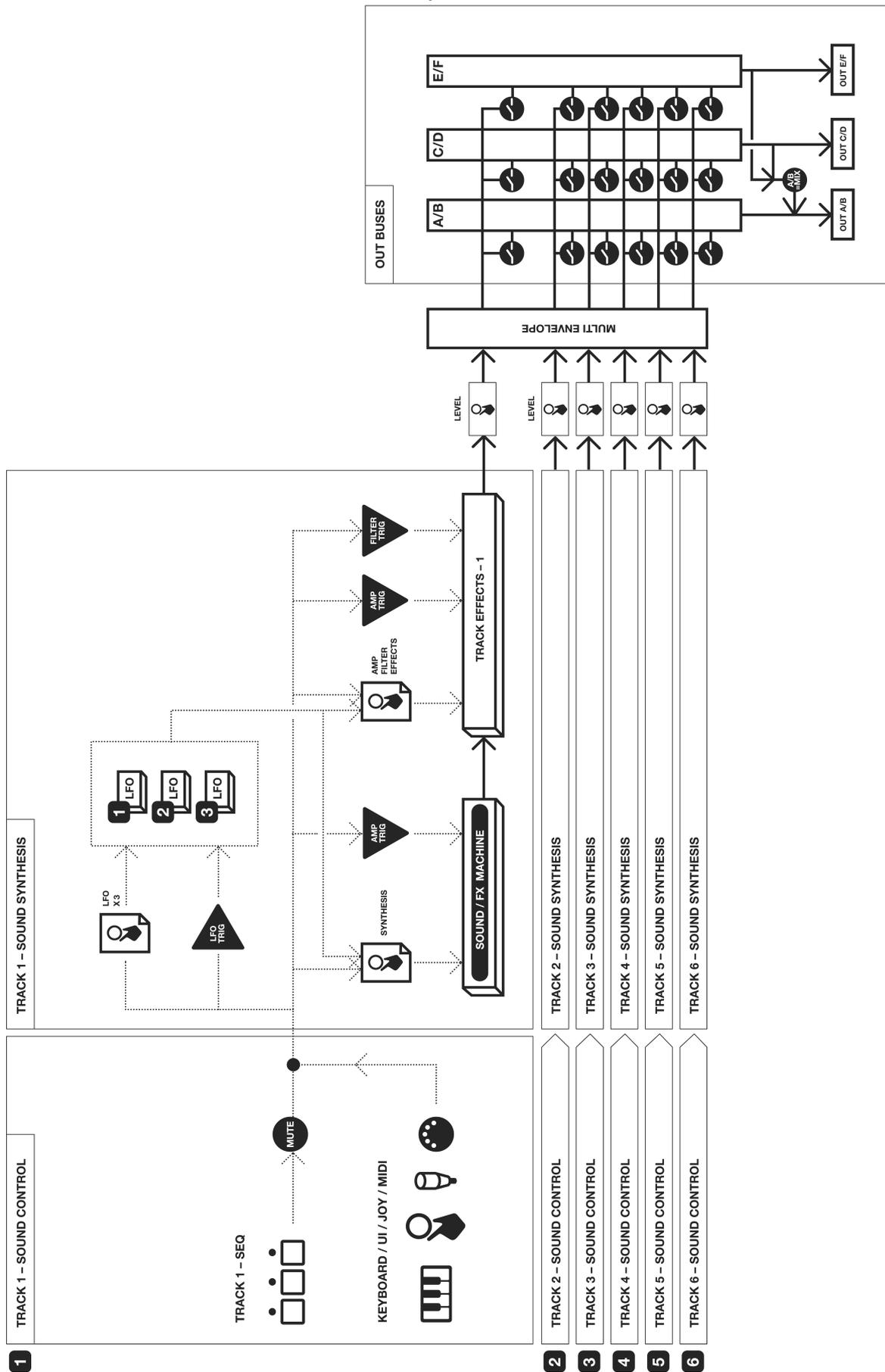
In Multi Trig mode, all six sound generating tracks are controlled from one single control track. The sequencer can be a part of the control, and your sequencers can be transposed in real-time. This way you can construct the most dynamic and complex monophonic super-sounds imaginable. The presets of the Monomachine are designed to be used in this mode.

**MULTI MAP MODE**

Using the Multi Map mode you can lay out your sequences over a keyboard, for live or studio use.

FIGURE 1.

Monomachine sound synthesis overview



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**MONOMACHINE SYNTHESIS ARRANGEMENT**

---

The basic sound generating unit in the Monomachine is a *machine*. Each machine is designed for generating sounds from a specific technique or method, such as analogue style pulse, SID MOS6581 or dynamic FM. The sound generating machines allows you to get many different starting points with varied sound characteristics.

The machines are grouped in so called *Mono-synths*. It can be viewed as if the machines in a Mono-synth belong to the same family. For example, in the FM+ family there are a total of 3 machines for static, parallel and dynamic FM synthesis. Despite the fact that each machine is based on the family synthesis, each machine can have a unique parameter set. The parameters are selected individually to give the user the best control of the machines. There is a special Mono-synth named FX. The machines in this family do not generate sounds, but offers effects for other tracks.

Description of Mono-synths and their parameters are covered in Appendix: A.

Each of the six tracks can have any machine assigned to it. The assignment of machines and their parameter settings are collected in *kits*. Editing the kits is discussed in section "KIT EDITING" on page 20.

All six tracks have their dedicated effect modules. The effect modules are named *Track Effect Systems*. The amplifier envelope generator is detached from the synthesis, and can be found as part of the Track Effect System. Each Track Effect delivers hi/lo/band-pass resonant 24-db filter with envelope and individual Q-control, 1-band eq, sample rate reduction, distortion and tempo synchronised tape-style delay. You will also find controls for left/right-pan and portamento speed among the Track Effects Data Entry pages. The Track Effect System is explained in section "TRACK EFFECTS" on page 25.

Each track offers three powerful Low Frequency Oscillators (LFO's). The three LFO's offer identical functionality, and can be assigned to any machine, Track Effect or LFO parameter. You will find more information about the LFO's on page 33.

## MONOMACHINE KITS

The Monomachine do not arrange sounds in what is commonly referred to as “patches”. The Monomachine equivalence of a “patch” depends on which way you are using it.

- **If you use the six tracks as individual synthesizers, or in poly mode, then you could see the kit as carrying six “patches”. The kit would then be the equivalence to what in common synthesizer terms is referred to as a “performance”.**
- **If you use the Multi Trig mode, then all six tracks would be triggered from the Multi Trig track. A kit would then be the direct equivalence of what is commonly referred to as a “patch”.**
- **If you use the Multi Trig mode and incorporates the sequencer, then your “patch” would incorporate both the kit and the sequencer pattern from which it is linked. This is how and the presets that come with your Monomachine are set up.**

If you are used to the structure of ordinary synthesisers, the Monomachine way of structuring sounds in patterns and kit might be confusing at first. Hopefully, after some time of use you will appreciate the flexibility and ease of use of the Monomachine implementation.

As a reference, Monomachine kits hold the information specified below:

- **The machines selected for each of the 6 tracks**
- **Parameter settings for the 6 machines**
- **Parameter settings for the 6 Track Effects**
- **Parameter settings for the 6x3 LFO’s**
- **Parameter settings for the 6 MIDI sequencer tracks**
- **Input and output routings for the 6 tracks.**
- **Trig track and Multi Trig settings for the 6 tracks.**
- **Parameters for the Multi-env.**
- **The Kit name**

All kits are battery backed and user definable. A total of 128 user kits can be stored in memory.

You access all the parameters that are stored in kits from the Data Entry pages, and in the KIT menu. Open the main kit menu with the **[KIT]** key.



**LOADING A KIT**

1. Open the KIT window.
2. Use the arrow keys to move to the "LOAD" icon. Press **[ENTER/YES]** to call the LOAD KIT menu.



3. The screen presents a list of the kits stored in memory. Use the **[UP]** and **[DOWN]** keys to choose among the 128 kit slots. Press **[ENTER/YES]** to load the kit of your choice.

If you want to exit without loading a kit, press **[EXIT/NO]**.



- The kit currently loaded is indicated by an inverted selection box. The focus, when moved away from the kit currently loaded, is a hollow square box.

**LOADING A CLEAR KIT**

To get a clean kit, open the KIT LOAD window as described above and load a position where no kit was previously saved. The clear positions are indicated with "--" as the kit in the square box focus below.



After loading a clear kit, you will get six tracks loaded with the GND>SIN machine, and all Track Effects and other parameters reset to default values.

**SAVING AND NAMING A KIT**

1. Open the kit window.
2. Use the arrow keys to move to the "SAVE" icon. Press **[ENTER/YES]** to open the *KIT SAVE* menu.



- The screen presents a list of the kits stored in memory. Use the **[UP]** and **[DOWN]** keys to choose from the 128 kit slots. Press **[ENTER/YES]** to select the slot where you want to save your kit.



- The next window appearing will allow you to name the kit. Use the **LEVEL** encoder or the **[UP]** and **[DOWN]** keys to cycle through the letters. The **[LEFT]** and **[RIGHT]** keys move the cursor backwards and forwards on the line. Pressing the **[FUNCTION]** key gives access to the “high score” selection method, in which you see all characters at the same time. Keep the **[FUNCTION]** key held while navigating using the **[CURSOR]** keys. Release the **[FUNCTION]** key, when you have located the letter of your choice.
- When the kit naming procedure is completed, press **[ENTER/YES]** to save it.
- If you want to exit without saving the kit, press **[EXIT/NO]**.



- You can copy paste and clear kits in the Kit load and save windows. Press the **[COPY]**, **[CLEAR]** or **[PASTE]** keys while holding **[FUNCTION]** to perform the preferred action.**

#### UNDO KIT

There is a special kit in the first position of the kit list named the “UNDO KIT”.

When you have made unsaved changes to a kit and a new one is loaded, the unsaved old kit will be stored in the “UNDO KIT” position. When saving a kit over an occupied position in the kit list, the overwritten kit will also be saved in the “UNDO KIT”.

You can load the “UNDO KIT” to restore your most recent unintentionally lost kit. This can be useful when changing pattern and the kit is automatically changed so that your unsaved changes are lost. When you have needed to restore your kit using the undo kit, don’t forget to save it.

#### KIT EDITING

You can either form your kit from scratch from a clear kit, or modify an existing one and then save it to a new position. To load a clear kit, see section “LOADING A CLEAR KIT” on page 19.





- The Mono-synth and the machine currently assigned to the track are indicated by inverted selection boxes. The focus, when moved away from the machine currently loaded, is a hollow square box. When [ENTER/YES] is pressed, the current focus will be assigned, thus changing the square hollow focus to the inverted box.
- From inside the Edit Kit window you can copy clear and paste the machine selection, together with all parameter settings of the Data Entry pages using the [COPY], [CLEAR] and [PASTE] keys while holding [FUNCTION]. See section “SUPER COPY” on page 56 for more information.

**SETTING THE MIX BUS**

The Mix bus settings can be used for directing to which audio outputs the audio of the machine should go. It can also be used for advanced routing using FX machine effects.

When FX machines are not used for any tracks, and the master routing is not changed from the default “3xSTEREO”, the OUT BUS selection in the MIX column only select to which pair(s) of stereo outputs the audio output of the machine will be directed.

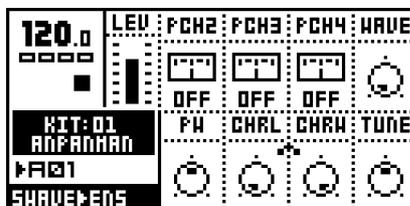
For more information on FX machines and how the Mix bus routing can benefit them, please check section “MONOMACHINE ROUTING” on page 81.

**PARAMETER EDITING**

Each Monomachine track offers 56 parameters for the sound generation and effects. They are divided into seven pages with eight parameters in each.

The sound generating machines forms their sound from one page of up to eight parameters, named the *Synthesis* parameters. The Track Effects are composed from 24 parameters, divided into three pages of *Amplification*, *Filter* and *Effects*. There are also three pages for the *LFO*’s, these brings 24 parameters in total.

First, exit all windows using [EXIT/NO], and see to that you are in the base pattern edit mode (see section “RECORDING PREPARATIONS” on page 44). You should see the base window displayed below. The visual parameter names and symbols will depend on the machine assigned.



Use the [DATA PAGE] keys to control the focus of the **DATA ENTRY** encoders. The <DATA PAGE> LED’s will indicate the current focus and the visual parameters will be updated depending on the focus.

Turn the **DATA ENTRY** encoders. The corresponding visual parameter on the LCD screen should be updated accordingly. Press and turn the **DATA ENTRY** encoders for accelerated editing. Just press it to see the numerical value of the parameter.



- **If you want to keep the changes you have done to the kit, don't forget to save it!**

The TUNE parameter is available for all synthesis machine. It allows fine pitch tuning of 100 cents up or down.

For information about the various Mono-synths, and their respective machines, please see Appendix: A. Here you will find background information about all the Mono-synths, and specifications of the parameters of all machines.

For information about the Track Effects, please refer to section "TRACK EFFECTS" on page 25. For information about the LFO's, please refer to section "LOW FREQUENCY OSCILLATORS (LFO's)" on page 33.



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## TRACK EFFECTS

The Track Effects are independent effects systems, available to the six tracks as extensions to the machine synthesis. This chapter is a reference to all the functions you will find on the Data Entry pages.

The Track Effects are applied to the sound signal in stereo in the order as described in the figure below:



First select a track using the **[TRACK]** keys that you want to alter the Track Effects for. If you want to hear the effect of the EQ or the Filter, it is wise to choose a machine that generates full harmonic contents, such as the SWAVE-SAW. The GND-SIN only contains power in one single frequency, and will not provide a good base for understanding of the EQ and Filter.

Then use the **[DATA PAGE]** keys to locate the relevant Data Entry page. The <DATA ENTRY> LED's indicates which Data Entry page is currently selected, and the **DATA ENTRY** encoders now control the parameters of the Data Entry page selected.

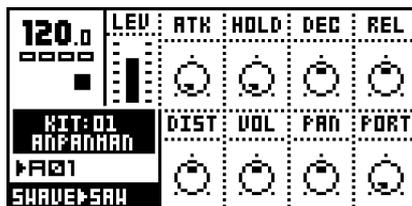
### LEVEL

The **Level** ("LEV") parameter is available from all Data Entry pages. You can always reach it with the dedicated **LEVEL** encoder.

Level controls the overall audio level of the track. It is applied at the end of the audio signal path of the track. The Level is designed as a master level control that can not be locked or assigned as a destination from the LFO's or Assign. If you want to do this, use the Track Volume parameter on the Amplification page. See section "TRACK VOLUME" on page 27 for more information on this parameter.

### AMPLIFICATION PAGE

In the Amplification page you find the controls for the amplifier envelope (AHDR), Distortion, Volume, Pan and Portamento.



### AMPLIFIER ENVELOPE

The amplifier envelope is triggered every time an AMP-trig is received. This normally happens when a key has been pressed on the **Keyboard** or the **[TRIG]** keys, or played from the sequencer or received over MIDI. The

AMP-trig can be controlled individually from the sequencer, see section “TRIG TRACKS” on page 48 for more information.

The amplifier envelope is controlled by the parameters:

- **ATK = ATTACK**
- **HOLD = HOLD**
- **DEC = DECAY**
- **REL = RELEASE**

The Attack parameter controls how long time the envelope takes to reach full level, after the AMP-trig has been received. The full level is then held for the amount of time specified by the Hold parameter. The level then declines down to zero, by the time specified by the Decay parameter.

If the key played is released at any time (in MIDI this event is named NOTE\_OFF), the release phase take over. The level will then decline down to zero by the time specified by the Release parameter.



- **The traditional envelope for synthesizers is in the ADSR (Attack, Decay, Sustain, Release) form. For the Monomachine the Sustain has been exchanged for Hold. The Hold parameter is very handy when using the sequencer, as it allows you to skip setting NOTE\_OFF events in normal use. If you want to simulate ADSR behaviour you can use the ramp and exp shapes of the LFO's, with the VOL as destination parameter.**

#### **DISTORTION**

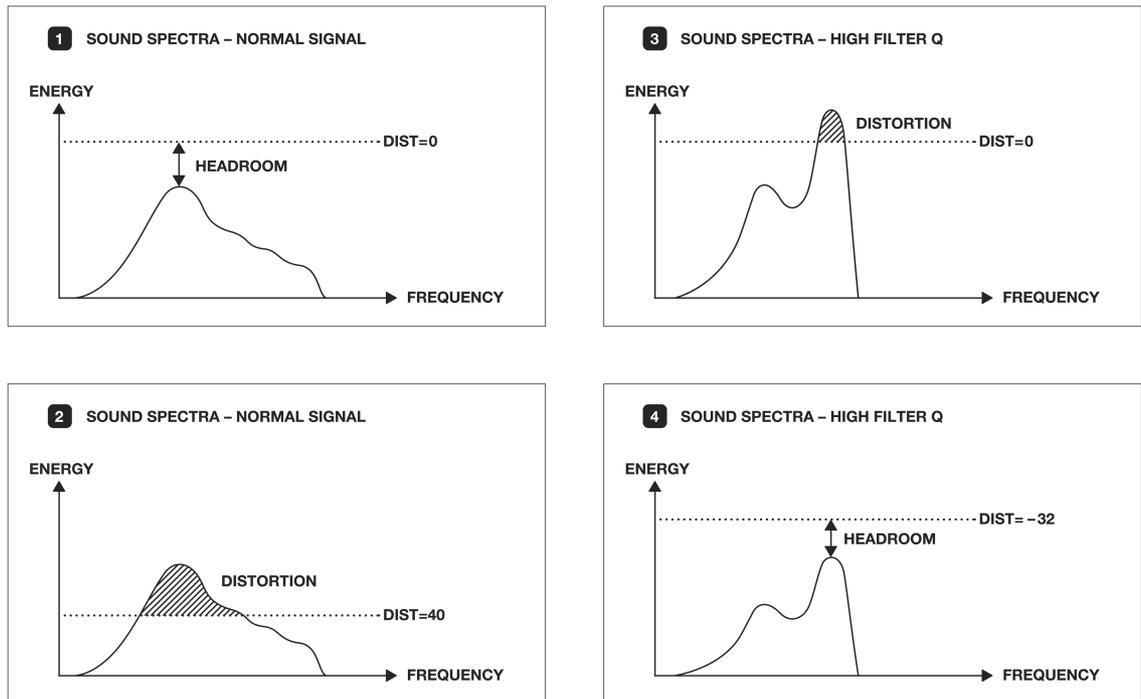
The **Distortion** (“DIST”) parameter controls the signal overload distortion. The distortion is applied as an integrated part of the filter, and controls part of the filter characteristics. It also controls the headroom for the filter and the EQ.

Increasing the distortion parameter from 0 and 64 strengthen the signal overload for the track. If the EQ or filter has been used to enhance the signal, the signal might be distorted even when distortion is set to 0. If you want to remove the overload effect you then need to increase the headroom by decreasing the distortion parameter below zero. You will hear the increase in headroom by the signal level decreasing, and the distortion gradually being removed.



- **The headroom is not automatically added when the filter Q and EQ are used to enhance the signal. This is because increasing the headroom means that the audio level decline, and if the audio level would decrease when Q is raised, it would feel like a loss of bass and a weaker sound. And always leaving full headroom would result in a decreased signal quality, with increased noise. Therefore we allow you to adjust the distortion to allow for the headroom your sound needs.**

FIGURE 2. Simplified visualisation of headroom and distortion



**TRACK VOLUME**

The **Volume** (“VOL”) parameter is a track volume separated from the Level overall gain control. Volume is a track parameter that can be locked to separate notes, and it can be controlled by the LFO system.

**PAN**

The **Pan** parameter controls the stereo panning for the stereo output. It operates in stereo when needed, for example when effecting FX Machines. The default value is center.

**PORTAMENTO**

The **Portamento** (“PORT”) parameter is placed on the Amplification page in lack of a more correct place.

Portamento controls the sliding between two consecutive notes played. A slow portamento speed gives the effect of a slow pitch-bend up to, or down to the next note. The portamento of the Monomachine uses the time specified by the Portamento parameter to slide between any two notes.

See also section “TRIG TRACK SETTINGS” on page 39 for information on the Trig Portamento setting in the KIT>TRIG menu.



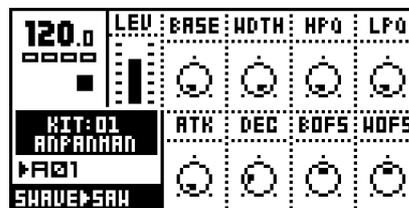
- Use the parameter lock feature in the sequencer to control the portamento speed individually for separate notes.

## FILTER PAGE

In the Filter page you find the controls for the combined resonant 24dB low/band/high-pass filter of the Monomachine, including the filter envelope.

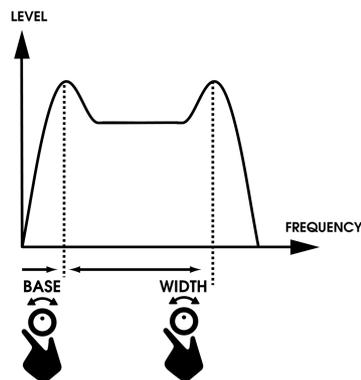
The filter is controlled by the parameters listed below:

- **BASE = FILTER BASE**
- **WIDTH = FILTER WIDTH**
- **HPQ = HIGH PASS FILTER Q**
- **LPQ = LOW PASS FILTER Q**
- **ATK = FILTER ENVELOPE ATTACK**
- **DEC = FILTER ENVELOPE DECAY**
- **BOFS = FILTER BASE ENVELOPE OFFSET**
- **WOFS = FILTER WIDTH ENVELOPE OFFSET**



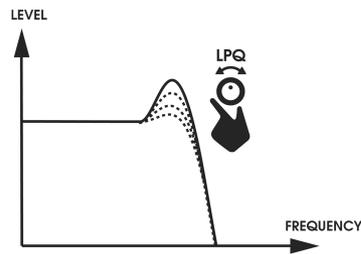
## BASIC FILTER CONTROLS

The Track Effect System offers a resonant 24dB low/high/band-pass filter. The parameters are untraditional, giving the user control of both the low and high filter cut-offs, as well as a variable gap band-pass filter.



The **Base** parameter controls the base filter cut-off frequency. When the Width parameter is set to its maximal value, changing the Base parameter has the function of a high-pass filter.

The **Width** parameter controls the filter gap width, that is the distance between the high pass and low pass cut-off frequencies. When the Base is set to its minimum value, changing the Width parameter has the function of a low-pass filter.



The **HPQ** and **LPQ** parameter controls the filter quality “Q” parameters. The HPQ and LPQ values control how much the volume is boosted around the high-pass and low-pass filter cut off frequencies.

The **ATK** and **DEC** parameters control the Filter Envelope Attack and Delay speeds. The **BOFS** and **WOFS** parameters control how much of the envelop amount will be added to the filter Base and Width parameters.

The filter envelope is triggered every time a FILTER-trig is received. This normally happens when a key has been pressed on the **keyboard** or the **[TRIG]** keys, or played from the sequencer or received over MIDI. The FILTER-trig can be controlled individually from the sequencer, see section “TRIG TRACKS” on page 48 for more information.



- To make a familiar “synth-bass” low pass filter bump each time the note is triggered, set the **WDTH** to around 64, and turn up the **WOFS** to around 32. Then turn the **LPQ** up until you get the amount of Low Pass filter Q you prefer.

#### **FILTER TRACKING**

The Filter normally tracks the pitch of the note played. The high pass filter start cut two octaves under the base pitch when the Base parameter is set to zero.

Both the Base and the Width parameters rise one octave for eight steps. This exact locking of the filter to octaves is useful if you want to use high filter Q settings to be used for pitch.

The filter tracking can be bypassed for the high pass and the low pass filter individually. You find the controls for doing this on the Key assign in the Assign window, see section “KEY TRACKING” on page 38 for more information.



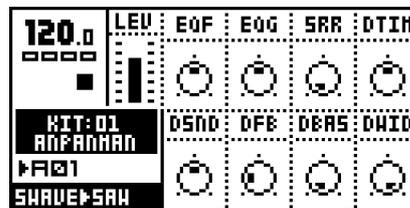
- If you want to use the high pass filter Q as low frequency “loudness” boost, it is good to turn off the filter tracking parameter **HPF**.

## EFFECTS PAGE

In the Effects page you find the controls for the 1-band EQ, Sample Rate Reduction, and the tempo-synchronised tape-style Delay.

The parameters of the effects page are listed below:

- **EQF = EQ FREQUENCY**
- **EQG = EQ GAIN**
- **SRR = SAMPLE RATE REDUCTION**
- **DTIM = DELAY TIME**
- **DSND = DELAY SEND AMOUNT**
- **DFB = DELAY FEEDBACK**
- **DBAS = DELAY FILTER BASE**
- **DWID = DELAY FILTER WIDTH**



### EQ

Using the 1-band parametric EQ, you can boost or reduce a certain frequency band.

The frequency where the EQ will boost or reduce is controlled by the **EQF** parameter.

The **EQG** parameter controls how much the EQ will boost (gain) or reduce the signal around the EQF frequency. Positive values boost the signal and negative reduce up to a maximum of 36dB.



- **If you notice that the signal overload when you boost the signal you might need to increase your headroom by decreasing the DIST parameter on the Amplification page. Please see section “DISTORTION” on page 26 for more information.**

### SAMPLE RATE REDUCTION

The sample rate reduction effect resample the signal at a lower sample rate, introducing alias effects which gives a digital “lo-fi” effect. The **SRR** parameter controls the amount of sample rate reduction down to a lowest of 2.8kHz.

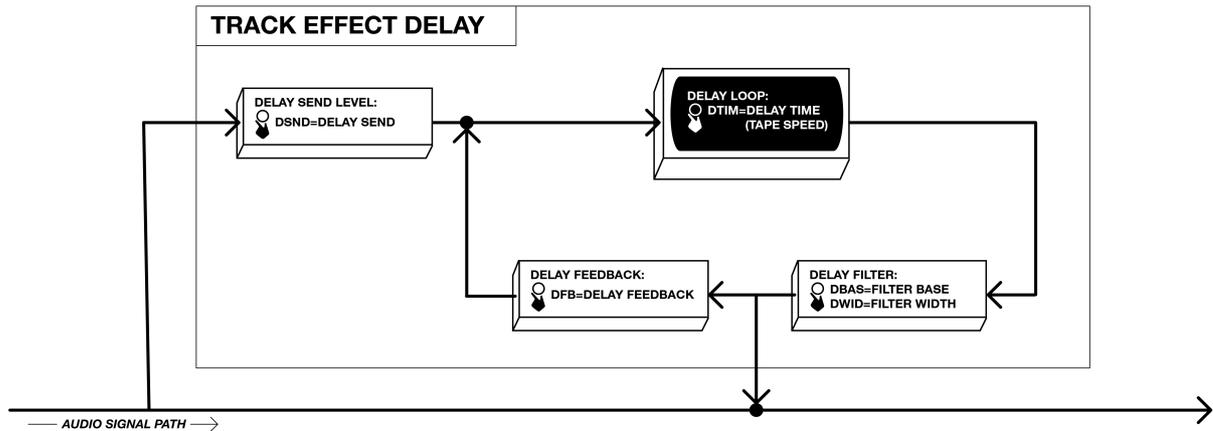


- **The Sample Rate Reduction often gives best effect on signals with some, but not too much, high frequency contents. Sound with too much high frequency information might introduce too much alias, resulting in a very disharmonic signal.**

**DELAY**

The Track Effect delay of the Monomachine is a single tap delay with real-time adjustable delay time. Some of its functionality can resemble tape loops and solid state CCD delays. The delay time is always put in relation to the global tempo setting.

The figure below outlines the function of the delay:



The **Delay Send** (“DSND”) parameter controls how high level of sound will be let in to the delay loop from the audio signal of the track. To start get any effect of the delay you need to first adjust Delay Send to some value other than zero and generate some sound.

Delay send can be set to positive and negative values. For negative values the stereo image of the signal will be preserved and for positive values it will be switched left-right. The feedback loop will also be switched depending if the Delay Send is set to positive or negative values. This means that you should set negative Delay Send values to get delay with preserved stereo image, and positive values for ping-pong delay.

The **Delay Time** (“DTIM”) parameter controls the delay time of the delay loop. The actual delay time is relative to the current tempo, and it is measured in 1/256 notes. For instance, for a one beat delay (four 1/16 notes) Delay Time should be set to 64.

When changing the Delay Time parameter or changing the tempo you will hear the contents in the delay loop speed up or down to adjust to the new tempo set. This behaviour allows the delay time parameter to be changed at any time, without the typical digital crackle or brief silence usually experienced when adjusting delay time of digital delays.



- **Try applying an LFO to the Delay time for interesting speed-modulating effects!**

The **Feedback** (“DFB”) parameter controls how much of the delay output sound will be fed back into the input of the delay. Using the Feedback you can make delays with several or infinite “echoes”.

The **Delay Filter Base** (“DBAS”) and **Delay Filter Width** (“DWID”) parameters control the filter in the delay feedback loop. Using this you can make the delay “echoes” sound sequentially different as the sound goes round the delay loop.



- For using the delay for delay-line style sound sculpturing, try setting a very short Delay Time together with a Feedback above 32. Then play around with the Delay filter settings.



- **Watch your tweeters and ears!** If the Delay Filter is not used to filter the delay feedback signal, then Feedback values below 64 will cause the sound in the delay loop to diminish over time, and values above 64 will cause the sound to grow until maximum audio level is reached and then distort.

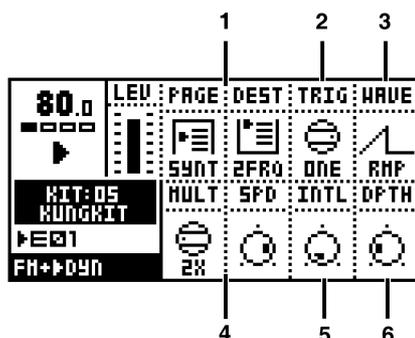
## LOW FREQUENCY OSCILLATORS (LFO's)

Each of the 6 tracks in the Monomachine offers 3 interlaced low frequency oscillators (LFO), which can be used to modulate any track parameter. A typical application of an LFO is to let it sweep a filter cut-off frequency. The 18 interlaced LFO's offer 11 waveforms and 5 trig modes. The LFO's are tied to their specific tracks, and are shared between the internal sequencer and the midi sequencer. The speeds of the LFO's are synchronized to the global tempo.

First select a track using the **[TRACK]** keys that you want to alter the LFO's for. Then use the **[DATA PAGE]** keys to locate one of the three LFO pages. All the three LFO's of the track are identical. The <DATA ENTRY> LED's indicate which Data Entry page is currently selected, and the **DATA ENTRY** encoders control the parameters of the Data Entry page selected.

### LFO CONTROLS

The three LFO's of each track are identical. They can control any parameter of the track for the internal or the MIDI sequencer, as well as the other LFO's. The LFO control interface is printed below:



1. Page and Destination
2. Trig Mode
3. Waveform
4. Multiplier and Speed
5. Interlace
6. Depth

### PAGE AND DESTINATION

The **Page** ("PAGE") and **Destination** ("DEST") parameters control which parameter you wish the LFO to modulate. All seven Data Entry pages, plus the MIDI Sequencer and the special Pitch page are accessible by the LFO. On the Pitch page you will find 8 Destinations offering various ranges to allow for both subtle vibrato and full range frequency sweeps.



- You can create complex modulations by letting an LFO control a parameter of another one.

**TRIG MODE**

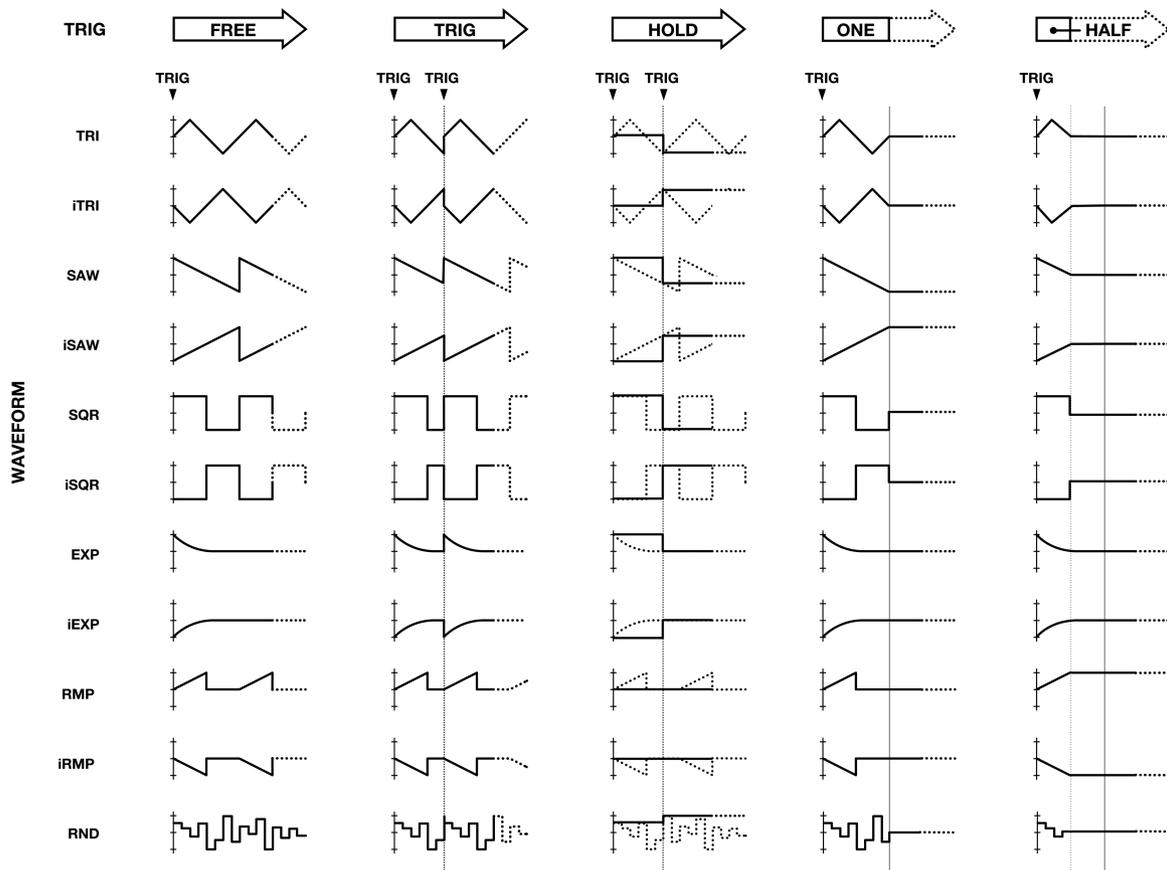
The **Trig mode** switch ("TRIG") is an important parameter for getting the most out of the LFO's. The trig modes are described in the list below, and their function is visualised in combination with the waveforms in Figure 3 on page 32.

- **FREE** = The LFO is running continuously, never restarting or stopping.
- **TRIG** = The waveform is restarted for each LFO-trig, and then runs continuously.
- **HOLD** = The waveform is running free in the background, but the output LFO level is latched for each LFO-trig and held still until the next LFO-trig.
- **ONE** = The waveform is restarted for each LFO-trig, then runs for one cycle and finally stops and holds the last LFO level.
- **HALF** = The waveform is restarted for each LFO-trig, then runs for one half cycle and finally stops and holds the last LFO level.



- In the Monomachine you can sequence LFO-trig separately from other trigs. Check page 48 for more information on the Trig Tracks.

**FIGURE 3.** *Monomachine LFO waveform and Trig modes*



**WAVEFORM**

The **Waveform** selection switch ("WAVE") select waveform for the LFO from the eleven shapes available. There are 5 basic shapes plus mirrored copies of all but the Random ("RND") shape. Select the appropriate waveform with the Waveform switch. The waveform shapes and their start and end LFO levels are carefully selected to give a wide range of shapes in combination with the trig modes. See the figure above for all possible combinations.

- **TRI = Triangular waveform**
- **ITRI = Inverse Triangular waveform**
- **SAW = Saw tooth waveform**
- **ISAW = Inverse Saw tooth waveform**
- **SAW = Saw tooth waveform**
- **ISAW = Inverse Saw tooth waveform**
- **EXP = Exponential Decay**
- **IEXP = Inverse Exponential Decay**
- **RMP = Linear Ramp**
- **IRMP = Inverse Linear Ramp**
- **RND = Random Levels**

**SPEED**

The **Multiplier** ("MULT") and **Speed** ("SPD") parameters sets the LFO speed relative to the master tempo. Speed is a linear controller that sets a base speed that is multiplied with the Multiplier parameter. The use of both a speed controller and a multiplier allows a very wide range of speeds, but still provides a high degree of control. To get the finest resolution keep the Multiplier set as low as possible.

Increasing the Speed values gives shorter LFO cycle times. Each increase of the Multiplier halves the LFO cycle time. For LFO speed synchronised to straight beats, try setting Speed to 16, 32, 64 or 127. For example setting the Multiplier to 2x and Speed to 64 gives a cycle time of sixteen 1/16 notes (one full page).

**INTERLACE**

The **Interlace** (Parameter "INTL") function is taken straight from the SidStation. Interlace is the process of alternating the LFO waveform with zero. The speed of the zero-alternating cycles is controlled by the Interlace parameter. The interlace is switched off when set to zero. Interlace can be particularly interesting to use with triggered ramps with pitch as destination for creating glittery rain-style effects.

**DEPTH**

The **Depth** ("DPTH") is the amount of the LFO output level that is applied to the target parameter. Setting Depth to 127 allows for modulating a parameter to and from any extreme value. For example, if the target parameter is set to 64 a Depth setting of 64 is sufficient for modulating the target value to its minimum (0) and maximum (127).



- If you select the same destination for two different LFO tracks their outputs will be added, making advanced layered LFO's possible.

---

## ADDITIONAL KIT SETTINGS

This chapter deals with all kit settings not covered in the previous chapters.

### ASSIGN

The Kit Assign allows the Joystick, Key velocity and Key position tracking to be assigned to up to two Data Entry parameter of choice. This can allow for a lot of dynamic depth of the sound with little effort.



You find the Assign window in the Kit menu. Press the **[KIT]** key and navigate to the Assign icon using the **[CURSOR]** keys, then press **[ENTER/YES]** to enter the Kit menu.

In the Assign window you will find a minimum of four and a maximum of six tabs. Navigate between the tabs using the **[LEFT]** and **[RIGHT]** keys. Use the **DATA ENTRY** encoders to change settings of the parameters on the tabs.

The Assign settings are applied per track. Select which track you want to edit the assign for with the **[TRACK]** keys.

All tabs have two rows with three parameters in each in common. The **Page** (“PAGE”) and **Destination** (“Destination”) parameters together select the destinations for the assigns. Each of the destinations have an **Add/Depth** (“ADD”) setting, which control how much of the control value that will be applied to the destination parameter.

- The **Page** parameter selects between the seven Data Entry pages, plus the special Pitch destination.
- The **Destination** parameter allows to select one of the eight parameters in the page.
- The **Add/Depth** parameter controls how much of the parameter chosen will affect the destination as maximum. The **Add/Depth** can be set to positive and negative amounts.

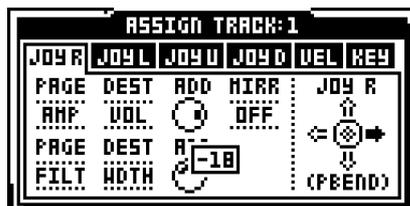


- Setting **Depth** to +64 or -63 allows for modulating a parameter to any extreme value. For example, if the target parameter is set to 64 a **Depth** setting of +32 is sufficient for modulating the target value to its maximum (127). If the target value is set to zero, a **Depth** setting of +64 is needed for the target to be able to reach its maximum value.

- All Assign settings can be copied cleared and pasted using [FUNCTION] + [COPY] [CLEAR] and [PASTE]. All tabs are copied as a whole, for easy transformation to other tracks or kits.

### JOYSTICK

The first two to four tabs contain the parameters for the joystick.



The first tab can control the right or the left, or both right and left directions of the joystick, depending of the value of the **MIRR = Mirror** parameter.

- If Mirror is set to OFF, the right and left directions of the joystick have individual parameter pages named “JOY R” and “JOY L”.
- If Mirror is set to ON, the right and left directions get the same settings. The parameters of the “JOY RL” page are applied to the right direction, and inverted for the left.

The “JOY U/D” tab has the same function as the “JOY R/L” just described, but controls the assign for the up and down directions of the joystick.



- Information for the SFX-60 module, and for controlling the SFX-6 externally: The Joystick is mapped to Pitch bend for left and right directions, Modulation Wheel (CTRL\_CHANGE#1) for upward direction and Breath controller (CTRL\_CHANGE#2) for downward direction.

### VELOCITY

The “VEL” tab controls the assignments for Key velocity. Key velocity is the name for how hard the key is played on the keyboard, or more correctly, the amount of time it takes from the key is pressed until it reaches the base. No parameters additional to the Destination and Add/Depth are found here.



- The key velocity control is mainly for live keyboard playing or sequencing with an external sequencer. The internal sequencer always plays notes with velocity set to 100. Volume and other parameters are instead usually controlled with the parameter locks.

### KEY TRACKING

The “KEY” tab controls the assignment for Key Tracking. The Key Tracking is connected to the note index from the last key pressed. For example, if C-1 was pressed, the Key Tracking value will be low, and if C-8 was pressed it would reach almost its maximum value.

There are two additional parameters on the Key Tracking controlling if the high pass and/or low pass filter should automatically track the pitch.

- **The HPF = High Pass Filter Tracking parameter set to OFF disconnects the standard filter tracking of the high pass filter.**
- **The LPF = Low Pass Filter Tracking parameter set to OFF disconnects the standard filter tracking of the high pass filter.**

See page 28 for more information on the filter.

## TRIG TRACK SETTINGS

The Trig Track Settings is a group of parameters which affect the way certain aspects of the sound in the track are triggered.

You find the Trig track window in the Kit menu. Press the **[KIT]** key and navigate to the TRIG track icon using the **[CURSOR]** keys, then press **[ENTER/YES]** to enter the Trig track menu.

In the Trig track window you will find five parameters. Navigate between the parameters using the **[UP]** and **[DOWN]** keys. Use the **[LEFT]** and **[RIGHT]** keys to adjust the parameter values.



### TRIG POS

The Trig pos parameter allows you to forward the notes being played to the current track to another.

For example, if you edit Trig Pos for “Track 1”, and set it to point to “Track 3”, then Track 3 will also play notes that are sent to Track 1.



- **You can link Trig Pos, so that several tracks can be triggered from one.**

### TRIG PORTAMENTO

The Trig Portamento switch has two options:

- **Always: the portamento will always be active, gliding between all notes played.**
- **Only legato: the portamento is active only when playing overlapped so called legato notes.**

### LEGATO TRIG MODES

The three parameters at the bottom of the window control which of the AMP, FILTER and LFO trigs will be active for notes played legato.

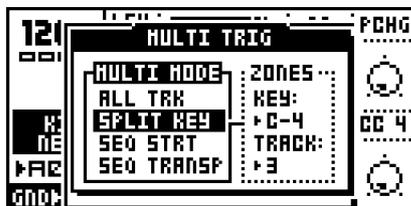


- For a staccato bass sound it is useful for all trigs to be activated, so the sound will sound the same, even if two notes are played overlapped by mistake. But for a lead sound it might be better to not initiate any trigs for notes played legato.

## MULTI TRIG

The Multi Trig is a link between the synthesis and the sequencer of the Monomachine. Using the keyboard Multi Trig mode on the SFX-6, or the Multi Trig MIDI channel (see section “MULTI TRIG CHANNEL” on page 90 for more information) you can make advanced monophonic arrangements. All tracks can unite their efforts in creating one dynamic sound, and the sequencer can be part of the arrangement.

You find the Multi Trig settings window in the Kit menu. Press the **[KIT]** key and navigate to the MULTI trig icon using the **[CURSOR]** keys, then press **[ENTER/YES]** to enter the Multi Trig window.



In the Multi Trig window you will find one main tab named “MULTI MODE” with four options. To the right there is room for an additional context tab with extra settings for some selections of the first tab. Navigate between the tabs, and inside the context tab (when available) using the **[LEFT]** and **[RIGHT]** keys. Use the **[UP]** and **[DOWN]** keys to adjust the parameter values. Selections in the Multi mode tab need to be confirmed with the **[ENTER/YES]** key, whereas the selections in the context tab are effecting immediately.

- **ALL TRK** = All Track
- **SPLIT MODE** = Split Mode
- **SEQ START** = Sequencer Start
- **SEQ TRNSP** = Sequencer Transpose

### MULTI TRIG ALL TRACK

Setting the Multi Trig mode to All Track makes the Multi Trig channel control all six tracks at once. Note events received on the Multi Trig channel will be distributed to all six tracks for parallel mono operation. The joystick controllers, velocity and key tracking will control all tracks simultaneously, as assigned in the Assign window (see page 37). The Multi Env is applied to the All Track Multi Trig mode (see page 42).

There is no context tab for the All Track selection.



- **All arpeggiators of the tracks retain their function in the All Track Multi Trig mode. Interesting results can be yield with different arpeggiator settings and speeds for the tracks that then are activated in parallel from the Multi Trig channel.**

#### **MULTI TRIG SPLIT MODE**

The Split mode allows you to split the keyboard in two zones, each one controlling a part of the tracks by the upper and lower part.

There is an additional tab for the split mode, named “ZONES”. From the Zones tab you control which tracks will be devoted to the upper and the lower part of the keyboard, and where the split point is located on the keyboard.

The **TRACK** parameter controls which will be the first track to be controlled by the upper part of the keyboard. All tracks above this one will be controlled by the upper part and the rest by the lower.

The **KEY** parameter controls which key is the first to control the upper part of the tracks. All keys above this one will be directed to control the upper section of the tracks.

#### **MULTI TRIG SEQUENCER START AND SEQUENCER TRANSPOSE**

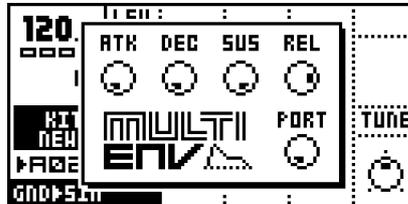
Sequencer Start (“SEQ START”) and Sequencer Transpose (“SEQ TRANSP”) are two modes of the Multi Trig which invoke the sequencer for creating advanced monophonic soundscapes or looped melodies for real-time manipulation.

- **The Sequencer Start mode makes the sequence restart for each note played. The sequence will be transposed based on which note is played. The original pitch will be invoked on C-4. The Multi Env is triggered when notes are played (see page 42).**
- **The Sequencer Transpose mode starts and transposes the sequence for the first note received on the Multi Trig channel. Subsequent notes will only transpose the sequence and trig the Multi Env, so that the sequence loop is never broken.**

The action of the Sequencer Start and Sequencer Transpose modes can be delayed to an even bar of the loop. This is controlled by the context menu named “TIMING”. If you want to stay in the beat, set the Timing parameter to what you prefer. A setting of 16/16 delays the action until a full page of 16 trigs is played (four beats) in single speed mode.

### MULTI ENV

The Multi Env is an additional envelope applied to all the tracks in the Multi Trig modes excluding the Split Mode. You reach it by pressing both the [DATA PAGE] keys simultaneously.



The Multi Env is an envelope that is applied on top of the track envelopes, allowing all the tracks to be treated as one massive monophonic track.

It is a standard **Attack** (“ATK”), **Decay** (“DEC”), **Sustain** (“SUS”), **Release** (“REL”) envelope. An additional **Portamento** (“PORT”) parameter is also available. Control the Multi Env parameters using the **DATA ENTRY** encoders.

Sound played on the individual tracks while the Multi Trig is active will be under the influence of the Multi Env, so the sound level might be lower than usual.

If you prefer to let the effect of the Multi Env be inaudible, apply settings of Attack=0, Decay=127, Sustain=127 and Release=127.

**Note that you will only hear the effects of the Multi Env when sound are played from the Multi Trig channel, and not from the split mode!**

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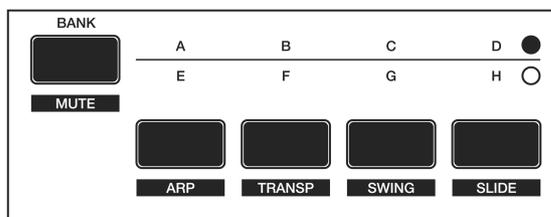
## THE PATTERN SEQUENCER

The pattern step sequencer is a central part of the Monomachine sound. It is designed to be an inspirational tool for pattern based music, or a component in the creation of dynamic multi-track monophonic sounds.

The sequencer is designed both for live and studio use. The patterns can either be triggered individually from the user interface or by MIDI commands or they can be linked together with pattern chaining or in song mode.

The sequencer has several modes of operation, in this chapter we will start by looking at the Pattern mode.

First make sure that the <PATTERN> LED is lit and the <SONG> LED is unlit. If necessary toggle it by pressing the **[PATTERN/SONG]** key. Also check that the <MULTI TRIG> LED is unlit so that you are not in Multi Trig mode. If necessary, toggle it by pressing the **[MULTI TRIG]** key. For external control we recommend using the MIDI *Auto Track Channel* (see section "AUTO TRACK CHANNEL" on page 90). On the SFX-60 you can use an external MIDI keyboard on this channel when we refer to the **Keyboard**.



### PATTERN SELECTION

The Monomachine offers 8 banks with 16 patterns in each. The banks are named by the index A,B,C,D,E,F,G,H. The **[BANK GROUP]** key selects between pattern bank groups A to D and E to H. The <BANK GROUP> LED's indicate the current bank group selection.

To select a pattern, press and hold the bank key while pressing a **[TRIG]** key. For selecting pattern A05, first make sure the bank LED's indicate that bank group A to D are selected, then press and hold key **[A/E]** while pressing **[TRIG]** key 5.

While the **[BANK]** keys are pressed you can tell which patterns are uninitialized by the 16 <TRIG> LED's. LED's that are red indicate that the corresponding pattern contains data.

If pattern selection is done while the sequencer is playing, the selected pattern will not be active until the current pattern has played to its end. You will see the index of the pattern next to be changed to the right of the current pattern. Until it has been switched it is blinking with an arrow pointing to the left.

## COMPOSING A PATTERN

This chapter will take you through the details how to create a pattern in grid composing and live recording mode.

### RECORDING PREPARATIONS

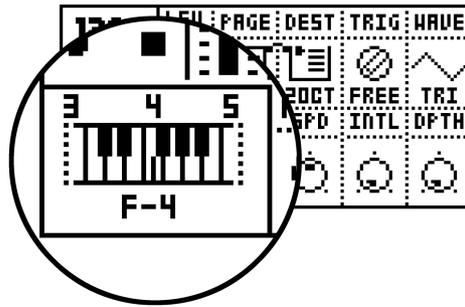
Follow the steps below before continuing with any pattern composing. It will put the Monomachine in base pattern edit mode.

1. Close all windows that might be open using the **[EXIT/NO]** key.
2. For SFX-6: Check that the <MULTI TRIG> LED is unlit. Press the **[MULTI TRIG]** key to switch it off if needed.
3. Check that one and only one of the <DATA ENTRY> LED's are lit. If the four top LED's are lit you need to exit the MIDI Sequencer edit mode by pressing **[MIDI SEQ]** while holding **[FUNCTION]**.
4. Select a pattern as described in section "PATTERN SELECTION" on page 43. We recommend starting with a clear pattern. All patterns in banks E-H are clear as factory default.
5. Select a kit for the pattern as described in section "LOADING A KIT" on page 19.
6. Select the track you wish to edit using the **[TRACK]** keys. Check that the track makes sound by triggering it using either the *Keyboard* or the **[TRIG]** keys.
7. Verify that all the <TRIG TRACK> LED's are lit. Press the **[TRIG SELECT]** key to cycle until all <TRIG TRACK> LED's are lit if needed.

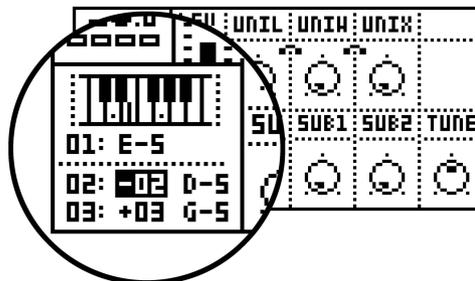
### GRID COMPOSING

Grid composing is a method of percussion composing that first was developed in vintage drum machines. In the Monomachine it has been adapted and extended to fit for intuitive pattern based arrangements of melodies and rhythms. In the default grid composing state, the 16 **[TRIG]** keys represent 1 page of 1/16 notes.

1. Perform the Recording Preparations as described in the previous section.
2. Enter grid composing mode by pressing the **[RECORD]** key. The <RECORD> LED above the key should now be firmly lit.
3. You can press **[PLAY]** if you prefer to listen to the pattern playing while composing. It will loop over and over, until you press **[STOP]** to stop the playback or **[PLAY]** to pause it.
4. Press a **[TRIG]** key to set a note trig for the corresponding step. The <TRIG> LED's indicates which steps contain note trigs. You will see that the LED above the **[TRIG]** key lights up with a red light as you press it. You can remove a note trig by pressing the corresponding **[TRIG]** key one more time. The LED should now be switched off.



5. While holding a **[TRIG]** key you can see a mini-keyboard appearing after a short delay. It is located in the lower left corner of the LCD interface. This mini-keyboard indicates the pitch of the note, both by a marking on the mini-keyboard and printed below. The <KEYBOARD> LED's of the Monomachine also indicate the pitch programmed.
6. There are two methods for adjusting the pitch of a trig. You can either press a key on the **Keyboard** while holding the **[TRIG]** key to set the pitch indicated by the **Keyboard** key. You can also use the **[CURSOR]** keys to adjust the pitch programmed while holding the **[TRIG]** key. Holding **[FUNCTION]** while pressing the **[RIGHT]** or **[LEFT]** key adjusts the pitch one full octave up or down.
7. You can set NOTE\_OFF trigs by pressing the **[TRIG]** key while holding **[FUNCTION]**. NOTE\_OFF trigs are events that tell that the key is lift up, starting the *Release phase* of the Amplitude Envelope (see page 25). NOTE\_OFF are indicated with yellow <TRIG> LED's.



8. Chords can also be programmed. These can be used for Poly mode (see section "POLY MODE" on page 68) and triggering the arpeggiator (see section "THE ARPEGGIATOR" on page 59). If not in Poly mode and if the Arpeggiator is not activated, only the base pitch will sound. You can program chords with the **Keyboard** by pressing more keys while holding the first base pitch key. The mini-keyboard shows chord-notes as dots. A scroll list will appear below the mini-keyboard and the base pitch. This list can also be edited using the **[CURSOR]** keys. Press **[ENTER/YES]** to enter the list if no chord key yet is entered.



- In the Monomachine, you work directly in the pattern memory. There is no need to save patterns. If you wish to keep the pattern intact you will have to copy it to another pattern before you begin editing

it. See section “FULL PATTERN COPY” on page 54 for more information on copying patterns.



- In grid composing mode, pressing keys [LEFT] and [RIGHT] while holding [FUNCTION] rotates the pattern.
- You can avoid general need of NOTE\_OFF trigs by making good use of the Hold parameter (see section “AMPLIFIER ENVELOPE” on page 25).
- Depending on the scale setup, you might have a longer pattern than what is possible to edit with the 16 LED's and [TRIG] keys. In that case, you need to use the [SCALE] key to change between the pages. See section “SCALE, PAGES AND TIME SIGNATURES” on page 51 for more information.

### LIVE RECORDING

The second method of recording notes in the sequencer is by recording them live while playing. You can record both from the *Keyboard* and the [TRIG] keys.

1. Begin with following the instruction in section “RECORDING PREPARATIONS” on page 44.
2. To start recording in live recording mode, hold [RECORD] while pressing [PLAY]. This starts the sequencer recording and the record LED will start flashing.
3. You can now play notes on the *Keyboard* or the [TRIG] keys, and they will be quantised and recorded to the closest trig step in the pattern.
4. If a note is played on a step where there already was a note programmed the new note will replace the old note.
5. Chords can also be recorded in the sequencer. They will only make effect when in Poly mode (see section “POLY MODE” on page 68) or when the Arpeggiator (see section “THE ARPEGGIATOR” on page 59) is active.
6. To erase notes on live recording mode hold [EXIT/NO] while the notes you want to remove are heard.
7. The pattern will loop and be ready for further recording until you press the [STOP] key.



- All live recorded data will be quantised to the current scale resolution (1/16 or 1/32 notes).



- If you want to edit the recorded notes, you can use grid compose as described in section “GRID COMPOSING” on page 44.

### PARAMETER LOCKS

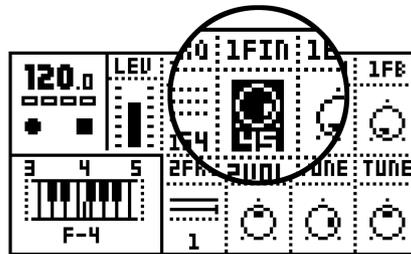
One major advantage of the Monomachine is the straightforward method to lock parameter settings to specific trigs steps. This function is named *Parameter Locks*. Parameter locks can be programmed in both Grid Com-

posing mode and Live Recording mode. All parameters of the Data Entry pages can be locked. Parameter locks are an important tool for creating unique dynamic loops with the Monomachine.

### PARAMETER LOCKS IN GRID COMPOSING MODE

To program parameter locks in grid composing mode, follow the steps below.

1. Begin with following the instruction in section “RECORDING PREPARATIONS” on page 44.
2. Enter grid composing mode by pressing the **[RECORD]** key. The <RECORD> LED above the key should now be firmly lit.
3. Press and hold a **[TRIG]** key for the step where you want to add a lock. Note that if there is a trig already set for the step it is not removed if you keep the **[TRIG]** held down until you see the mini-keyboard.



4. While holding the **[TRIG]** key, you can now tweak the parameter of your choice with the **DATA ENTRY** encoders. You can tell that the parameter has been locked by the parameter being inverted on the LCD. You can also click an unlocked parameter once to lock it to its current value. When the **[TRIG]** key is released, the trig for that step will hold the parameters that you just programmed. The parameter will be held until a new trig is played.
5. If you want to view the current parameter lock settings for a step, hold the **[TRIG]** key until you see the mini-keyboard appear. You can tell which parameters are locked by them being inverted.
6. Remove a single parameter lock by clicking the **DATA ENTRY** key while holding the **[TRIG]** key.
7. To remove all parameter locks for a step, remove the trig by pressing its corresponding **[TRIG]** key. Then insert it again by pressing it again. You can also delete the trigs for the step by holding the **[TRIG]** and press the **[CLEAR]** key.
8. You can copy a trig step, including pitch and all parameter locks. To do this, press and hold the **[TRIG]** key for the step you want to copy, and press the **[COPY]** to perform the note copy. Then hold the **[TRIG]** key for the step you want to paste the trig to, and press **[PASTE]** to perform the paste note operation.



- In grid composing mode, you can verify which steps have parameter locks by looking at the <TRIG> LED's. A firmly lit <TRIG> LED means that the corresponding step has no parameter locked, whereas a rapid interval flash indicates it does have one or many parameter locks.

- **More than one parameter can be locked on a track specific step. Other tracks can have locks on the same step as well. A pattern can have a total of 62 parameter-tracks that carries independent locks.**
- **A lock is a snapshot of a parameter setting. It changes the parameter value from its original value stored in the kit, but only for that note triggering. The parameter will change back to its default state for the next trig if no further parameter locks are made for that note and parameter.**

#### **PARAMETER LOCKS IN LIVE RECORDING MODE**

In live recording mode, you can record parameter locks in real-time. To do this, follow the steps below:

1. Begin with following the instruction in section “RECORDING PREPARATIONS” on page 44
2. To start recording in live recording mode, hold **[RECORD]** while pressing **[PLAY]**. This starts the sequencer recording and the record LED will start flashing.
3. Record parameter locks by adjusting the corresponding **DATA ENTRY** knob while the sequencer is playing and recording. When changing a parameter, the parameter lock will be set to the next trig step played on the track. If a parameter is not changed between two trigs no parameter lock will be recorded for that step.
4. To remove parameter locks you need to enter Grid Composing mode and follow the instructions in “PARAMETER LOCKS IN GRID COMPOSING MODE” on page 47



- **It is often a good idea to edit and fine tune the parameter locks in grid composing mode, after recording them in live recording mode.**

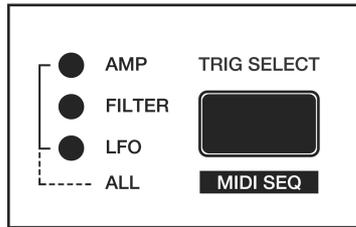
#### **ADVANCED SEQUENCER CONTROL**

For users that seek the most control over the music creation control the Monomachine offer unique sequencer features for fine tuned sequencing. The extended functionality fits into a familiar environment, so it is very possible to use the SFX-6/60 with great reward without mastering the features described here. We do suggest though that you take some time to study this section after you have familiarised yourself with the other aspects of the Monomachine.

#### **TRIG TRACKS**

Monomachine extends the traditional concept of sequencer control. With the SFX-6/60 you can separate pitch sequencing from envelope triggering and parameter locks. For each track you have access to three individual sub

tracks named *Trig Tracks*, offering individual control over Amplitude Envelope, Filter Envelope and LFO trigs.



Traditionally synthesizers retrigger all envelopes when a NOTE\_ON event (a key pressed on the keyboard) is played. In the Monomachine the NOTE\_ON events can be split up, allowing you to trigger the Amplitude envelope (AMP Trig), Filter Envelope (FILTER Trig) and LFO (LFO Trig) at any step of the sequencer you prefer. Please refer to the first two illustrations in figure “Trig Track illustrations” on page 50. The second illustration is the Monomachine equivalence of the traditional pattern in the first one.

The **[TRIG SELECT]** key cycles between which Trig Track is programmed from the **[TRIG]** keys, and the <TRIG TRACK> LED’s indicate the current selection. All three <TRIG TRACK> LED’s lit means the ALL mode, where trigs for all three Trig Tracks are set. The four states are listed below:

- **ALL** - This is the default state where all <TRIG TRACK> LED’s are lit. **[TRIG]** keys pressed add or remove trigs on all three Trig tracks, and a pitch is added as default.
- **AMP** - **[TRIG]** keys pressed only add or remove trigs on the AMP Trig track. No pitch is added as default.
- **FILTER** - **[TRIG]** keys pressed only add or remove trigs on the FILTER Trig track. No pitch is added as default.
- **LFO** - **[TRIG]** keys pressed only add or remove trigs on the LFO Trig track. No pitch is added as default.

When Trig Track AMP, FILTER or LFO is selected, the <TRIG> LED’s are lit red if a trig is set for the corresponding step on the Trig Track selected. The <TRIG> LED’s are green if the trig is not set for the Trig Track selected, but on some other Trig Track (or if it has a *Trigless Trig*, see section “TRIGLESS TRIGS” on page 49).

When Trig Track ALL is selected, the <TRIG> LED’s are lit red if a trig is set on all AMP, FILTER and LFO Trig Tracks. If one or more of them are missing then it is lit green. Steps with NOTE\_OFF events are lit yellow.

#### TRIGLESS TRIGS

It is possible to change pitch or make parameter locks, even without triggering any envelopes. But since pitch and parameter locks are set with a **[TRIG]** key pressed, and trigs are added when the **[TRIG]** key is pressed you need to insert a *Trigless Trig* first.

The quickest way to do this is to press the **[TRIG]** key twice while holding **[FUNCTION]**. The corresponding <TRIG> LED will then first turn yellow (NOTE\_OFF) and then green which indicates it is a Trigless Trig. You can

now hold the **[TRIG]** key and program a pitch or parameter lock as normal, but no envelopes will be triggered. You can add these later using the Trig Track functions as described in the previous section.

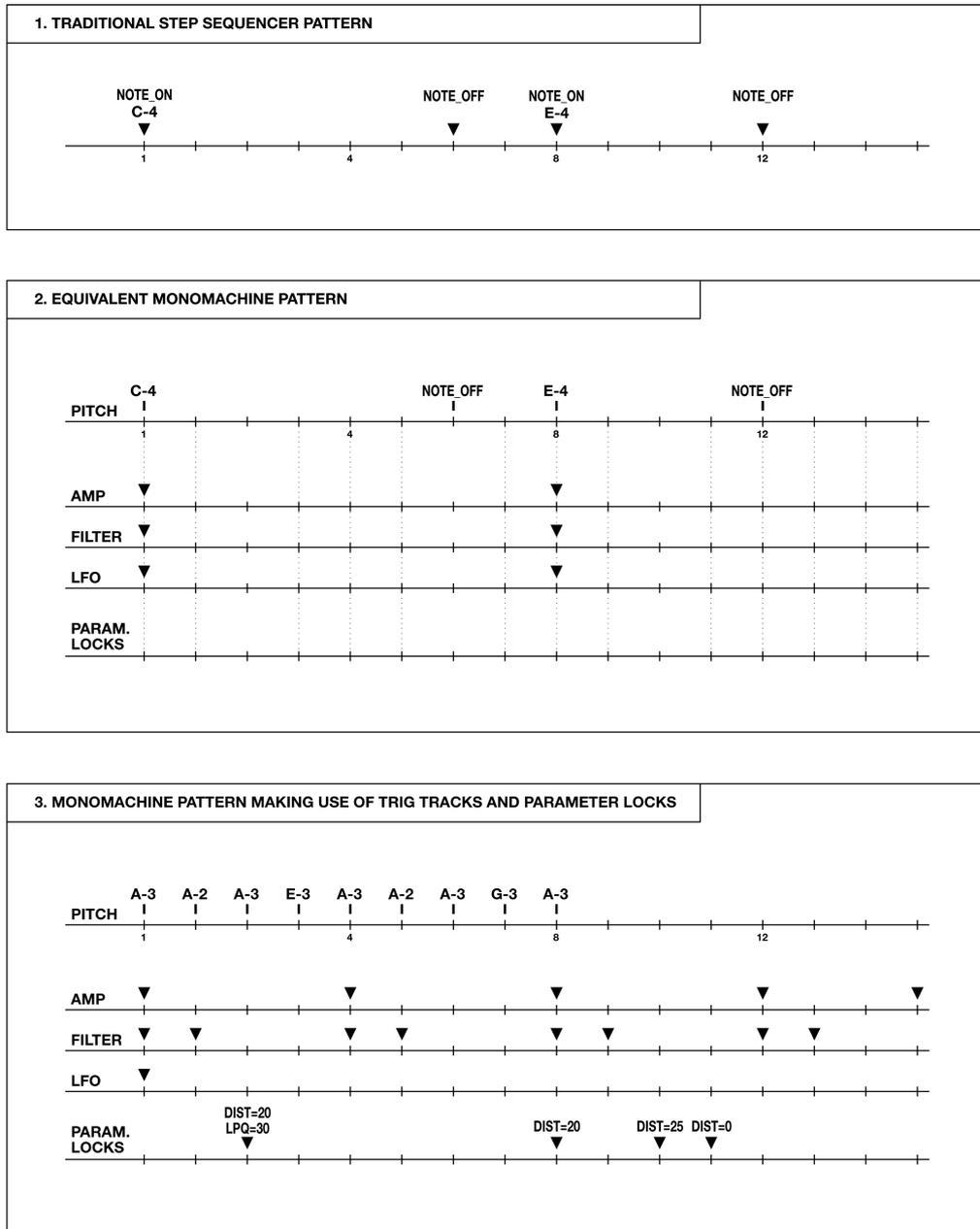
Normal trigs can also be converted into Trigless Trigs by removing the AMP FILTER and LFO trigs manually using the Trig Track functions.

**PITCHLESS TRIGS**

You can easily remove the pitch from a trig by pressing **[EXIT/NO]** while holding the **[TRIG]** key. The pitch from the previous note will then continue to sound for the trig.

FIGURE 4.

*Trig Track illustrations*



### SUMMARY

All the features and methods in this section can be summed up in the conclusions that any pitch programming, Amplitude, Filter and LFO triggering and parameter locks can be performed free at will at any step of the pattern.

Please refer to the third illustration of figure "Trig Track illustrations" for an example of a Monomachine pattern using all the features mentioned in this section. Only the trig on the first step is equivalent to a normal NOTE\_ON.

### THE LINK BETWEEN KITS AND PATTERNS

Each pattern with data is associated with a certain kit, which will be recalled when the pattern is played. This way, you know playing a certain pattern always gives the same result, and that the parameter locks make sense.



- **Be careful to save any changes you have made to your kit that you want to keep. Changing pattern might change kit and then you will lose the old kit settings.**
- **If two patterns use the same kit, the kit will not be reloaded when changing pattern.**

### SCALE, PAGES AND TIME SIGNATURES

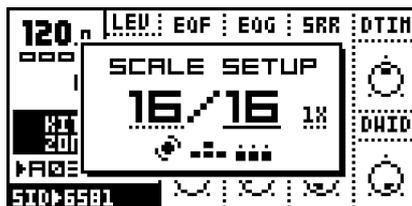
By default the length of a pattern is 4/4 bars, built from 16 steps. 16 steps can be reached from the [TRIG] keys at once. We refer to these 16 steps as one *Page*. A pattern can be extended to up to 64 steps, which forms a maximum of four pages. All tracks share the same scale length, and are always played in sync.

The default scale length is 16 which gives a time signature is 4/4. Setting the scale length to 32 gives the double length of the pattern with 4/4 signature. If you want to use a time signature of 3/4 you need to set the scale length to a division of 12.

In grid composing The [TRIG SELECT] key is used to cycle between the active pages, and the <TRIG PAGE> LED's indicate which one is currently being edited. When not in grid composing mode the LED's for the available pages for the track is lit with a steady light. The LED for the page currently played is flashing.

### SCALE SETUP

Press the [SCALE SETUP] key while holding [FUNCTION] to open the SCALE SETUP window. From here you can set the scale length and playback speed of the pattern currently selected.



There are three parameters available in the SCALE SETUP window. The underlined focus is moved with the [LEFT] and [RIGHT] keys.

1. The first parameter sets the total number of steps of the pattern. When in focus, use [UP] and [DOWN] to increase/decrease the number of steps. The **LEVEL** encoder is also controlling this parameter, and the [TRIG] keys can be used as well to set the end step.
2. The second parameter sets the scale length in divisions of 16 (one full page). If the scale length is higher than 16 the [SCALE] key need to be used in grid composing mode to toggle the focus of the [TRIG] keys between the pages.
3. The third parameter is the tempo multiplier. It allows a pattern to be played back 200% of the global tempo. This is for increasing the step resolution to 1/32 notes. There are two possible settings, "1X" and "2X".



- Even though you set a pattern to have a certain length using scale setup, you can change this row by row in the song editor. See section "THE SONG SEQUENCER" on page 73 for more information.
- The [SCALE] key offers a quick way to cycle the scale length in steps of 16.
- When changing the scale length so more pages come in use, lower pages will automatically be copied to higher, but only if nothing so far has been programmed on the pages added. Pages can also be manually copied, see section "PAGE COPY" on page 57.

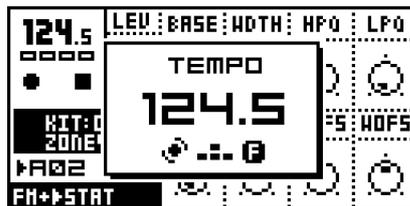
### TEMPO

The tempo in the Monomachine is a global parameter. It is however not stored in the Global slots (see page 87). The tempo will naturally control the playback speed of the patterns, but also control various parameters in the Monomachine, such as the Hold parameter, the Delay and LFO speeds and some machine parameters.

The tempo is controlled from the Tempo screen, and can also be set in the Song Sequencer.

### THE TEMPO SCREEN

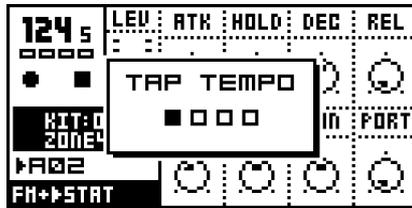
The tempo screen is called by pressing the [TEMPO] key.



From here you can use the **LEVEL** encoder to change the current tempo in integer steps. The [UP] and [DOWN] arrow keys change the decimal part of the tempo. Holding [FUNCTION] while editing the tempo will delay the change of tempo until you release the [FUNCTION] key.

### TAP TEMPO

To tap a tempo, hold the **[FUNCTION]** key and tap the **[TEMPO]** key at a steady rhythm.



After four consecutive taps the average tempo of the taps will be set as the current tempo and it will be showed in the tap tempo window. You can continue taping the **[TEMPO]** key, and the taps will be used for refine the average tempo. A maximum of 16 tempo taps are considered.

### EXTERNAL SYNCHRONISATION

The Monomachine can be set to either internal or external synchronisation. When in internal clock mode the SFX-6/60 outputs a high quality MIDI clock on the MIDI OUT port. This can be used for keeping external gear in sync with the Monomachine.

When in external midi clock synchronisation mode the Monomachine will stay in sync with an external MIDI clock if present. When in external clock mode the tempo in the upper left corner of the base LCD screen will show "EXT" for external synchronisation. The tempo screen will show the current average tempo. The tempo displayed in the tempo screen is only an average calculation. Even though it might appear to vary the Monomachine is tightly locked to each MIDI clock signal received.

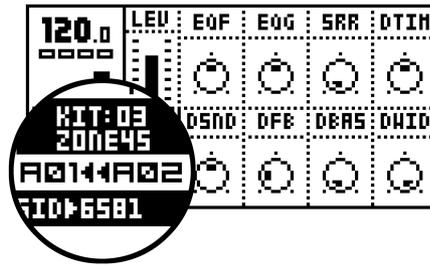
Read more about how to set the external synchronisation of the Monomachine in section "CONTROL IN" on page 92.



- **The tempo is not stored in patterns or kits. However, songs can store tempo changes.**

### PATTERN CHAINING

You can use pattern chaining to cue up patterns to be played after each others in a loop, like a simple live sequencer for patterns. In pattern mode, hold a **[BANK]** button and then press the **[TRIG]** key for the pattern you want to be first in the chain. As long as you keep the first **[TRIG]** key down, subsequent **[TRIG]** keys pressed will add patterns to the end of the chain. It is only possible to chain patterns from one bank, and each pattern may only be chained once.



Chaining is indicated by a double arrow between the current and the next pattern.

[STOP] will reset the pattern chain to the beginning. Pressing [STOP] twice will exit the pattern chaining and return to normal operation. Selecting a new pattern exits pattern chaining as well.

### PATTERN COPY CLEAR PASTE

Copy, clear and paste is a vital part of song composing, and it is important to have the right function close at hand. The Monomachine offers many types of copy, clear and paste functions through the [FUNCTION] + [COPY], [CLEAR] and [PASTE] keys. This section will deal with the copy, clear and paste functions in pattern mode.

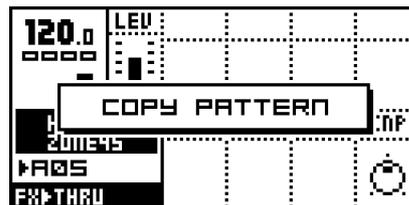


- All clear and paste operations can be undone if the clear or paste function is repeated immediately after it was first performed.

#### FULL PATTERN COPY

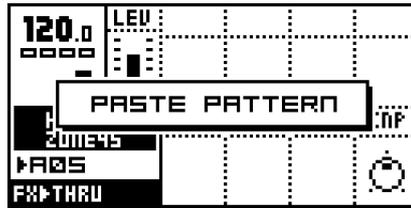
To copy the contents of a full pattern to another, follow the steps below.

1. Make sure that the “RECORD” LED is **not** lit, so you are **not** in grid composing mode.

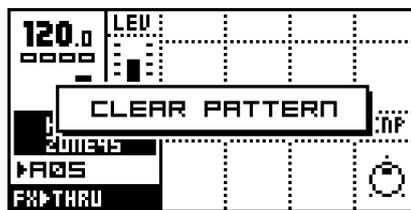


2. Select the source pattern. Hold [FUNCTION] and then press [COPY]. A message “COPY PATTERN” will be shown in the display.

3. Change pattern to the destination where you wish to paste your pattern data.



4. Paste the data by holding **[FUNCTION]** and then pressing the **[PASTE]** key. A message “PASTE PATTERN” will be shown in the display.



5. The pattern can also be cleared by holding **[FUNCTION]** and then pressing **[CLEAR]**. A message “CLEAR PATTERN” will be shown in the display.



- Pasting data into a pattern overwrites any previous data in the pattern.
- The pattern data that is copied consists of notes, parameter locks, the kit association, MIDI sequencer notes and Arpeggiato, Transpose, Swing and Slide settings for all six tracks.
- Pattern clear clears everything mentioned above, but the kit association.

#### TRACK COPY

In grid composing mode, it is possible to copy the contents of one track to another.

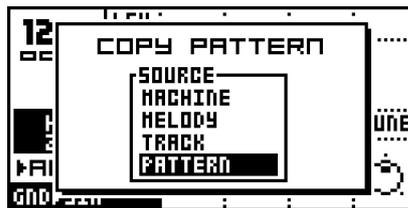
1. Make sure the “RECORD” LED is steady lit, so you really are in grid composing mode. Select the source track using the **[TRACK]** keys.
2. Hold **[FUNCTION]** and press **[COPY]** to copy the data of the track. A message “COPY TRACK” will be shown in the display.
3. Select another destination pattern if preferred, and select track using the **[TRACK]** keys.
4. Paste the data into the new track by pressing and holding **[FUNCTION]** and then pressing the **[PASTE]** key. A message “PASTE TRACK” will be shown in the display.
5. The track can also be cleared by holding **[FUNCTION]** and then pressing **[CLEAR]**. A message “CLEAR TRACK” will be shown in the display.



- Pasting data into a track overwrites any previous data.
- The track data copied consists of notes, parameter locks, the machine selection, Data Entry pages and Arpeggiato, Transpose, Swing and Slide settings. Note that track copy alters the kit.

#### SUPER COPY

For Track, Pattern and Machine copy/clear/paste, the default action can be exchanged. Hold the **[FUNCTION]** and **[COPY]** for around a second and the default message-box will expand to a larger one including a selection box.



You can now release function while holding **[COPY]**. While still holding **[COPY]**, use the **[UP]** and **[DOWN]** keys to manoeuvre the inverted selection box. When **[COPY]** is released the selected copy action will be performed.

- The Track and Pattern selections are known from the previous sections.
- Melody copy is a special copy function which copies all pitch data from the track, but excludes parameter locks and machine selection and settings. Use this to transport a melody between tracks you are using different machines for.
- The machine selection is a shortcut for copying the machine selection and all Data Entry pages, which is normally performed from the EDIT KIT window.

Paste works analogue to the copy just described. Note that you can only reach the super copy selections from Pattern, Track and Machine copy.

The Super Clear function works analogue to the copy and paste, with the difference that Melody is exchanged for Clear Locks. Selecting Clear Locks will erase all Parameter locks for the track.



- All Super Copy functions are delayed until the **[COPY]**, **[CLEAR]** or **[PASTE]** key is released. So even if you get the message "PATTERN CLEAR" it is not performed until the **[COPY]**, **[CLEAR]** or **[PASTE]** key is released, so that you get the chance to change the default action in the selection box. This delay is only valid for Copy/Clear/Paste for Pattern, Track and Machine, which will invoke super copy.
- You can cancel Super Copy/Clear/Paste with **[EXIT/NO]**.

**NOTE COPY**

Individual note steps, including chords and parameter locks, can be copied and pasted. Hold the **[TRIG]** key for the step you want to copy and press **[COPY]**. Release the keys and then hold the **[TRIG]** key for the step you want to paste the note to and press **[PASTE]**.

If you hold a **[TRIG]** and press **[CLEAR]** all parameter locks will be cleared.

**PAGE COPY**

In Grid Composing mode you can copy, clear and paste individual track pages of 16 steps each. This can be handy when working with scale lengths above 16. See section "SCALE, PAGES AND TIME SIGNATURES" on page 51 for more information on how to set Scale length and more information about pages.

To perform Page Copy, make sure you are in Grid composing mode, and press **[COPY]** while holding **[SCALE]**. The current page (the 16 steps accessible by the **[TRIG]** keys) will be copied into the Page copy buffer. Use the **[SCALE]** key to cycle to the destination page and then press **[PASTE]** while holding **[SCALE]**. Page clear is performed analogue by pressing **[CLEAR]** while holding **[SCALE]**.

Page Copy operates on trigs, pitches and parameter locks.



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## ADDITIONAL SEQUENCER FEATURES

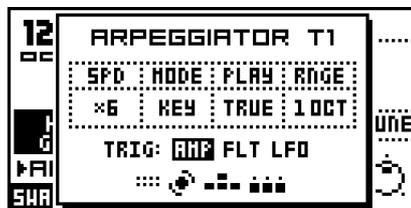
### THE ARPEGGIATOR

Each track of the Monomachine (including the MIDI sequencer tracks) offers an advanced arpeggiator. The arpeggiator is a note processor that generates rhythmic note patterns that is generated from the arpeggiator settings and the notes pressed. Most commonly arpeggiators are used for making automated real-time monophonic cycled notes based on the chord played.

Each pattern offers 12 arpeggiators, one per track. The arpeggiator window is called by pressing **[ARP]** while holding **[FUNCTION]**. Select which track you want to edit the arpeggiator for using the **[TRACK]** keys. Use **[MIDI SEQ]** while holding **[FUNCTION]** to edit the MIDI sequencer arpeggiators (see page 59 for more information on the MIDI sequencer).

#### ARPEGGIATOR BASIC SETTINGS

The main Arpeggiator interface is printed below:



The top four parameters are controlled using the four upper **DATA ENTRY** encoders.

- **SPD = SPEED**
- **MODE = MODE**
- **PLAY = PLAY DIRECTION**
- **RNGE = OCTAVE RANGE**

Assuming you start with a uninitialised arpeggiator, you need to change the *Mode* from the default “OFF” setting to activate it.

The **Speed** parameter controls the speed the notes are played by the arpeggiator, or more precisely the delay between two consecutive notes. A Speed setting of 6 equals one 1/16 note, 12 equals 1/8 and so on.

The **Mode** parameter selects between four modes:

- **OFF** - Inactivates the arpeggiator.
- **KEY** - The arpeggiator operates on the keys currently played.
- **SID** - Keys stay in the arpeggiator even after NOTE\_OFF. Single keys do not activate the arpeggiator.
- **ADD** - Keys are added into the arpeggiator as long as at least one key is pressed.

See section “ARPEGGIATOR MODES IN DEPTH” for more information on the arpeggiator play modes.

The **Play Direction** parameter selects between five modes:

- **TRUE** - The arpeggiator plays the notes in the same order they were played.
- **UP** - The arpeggiator sorts the notes and plays them upwards, in rising order.
- **DOWN** - The arpeggiator sorts the notes and plays them downwards, in descending order.
- **CYCLE** - The arpeggiator sorts the notes and plays them cycling first upwards then downwards.
- **RND** - The arpeggiator plays the notes in random order.

If the **Range** parameter is set higher than the default “1 OCT”, the arpeggiator will repeat the cycles in higher octaves repeatedly up to the setting of the setting specified by the Range parameter.



- **To activate the arpeggiator from the sequencer, enter chords!**

#### **ARPEGGIATOR MODES IN DEPTH**

This section gives some examples on how the different arpeggiator modes can be used.

**MODE KEY** - This is the way arpeggiator traditionally work. When the first note is pressed the arpeggiator is activated and start playing the note repeatedly with the timing specified by the Speed parameter. When more notes are added the arpeggiator cycles between playing them. When keys are released they are removed from the arpeggiator cycle. When all keys are released the arpeggiator stops.

**MODE SID** - This mode replicates the operation of the arpeggiator of the SidStation synthesizer. When only one key is pressed the arpeggiator is not activated. When more than one key is pressed the arpeggiator is activated and start playing the notes in cycle. When keys are released they are not removed from the cycle, but continue being played. The notes stay in the cycle until a new note is pressed. This way an arpeggiated chord can be held without keys being pressed down, while preparing for another chord. Stop the arpeggiato by pressing one single key or press **[STOP]**.

**MODE ADD** - In mode Add no notes are removed from the arpeggiator cycle until all keys are released. The arpeggiator start when the first key is pressed, and more notes can be added to the cycle by pressing and releasing keys while still at least one key is pressed. This way you can build up large note-cycles quickly in auto-play sequencer style. The arpeggiator stops when all keys are released.



- To activate the arpeggiator on the SFX-60 module without an external MIDI keyboard added, you can hold [FUNCTION] while pressing the [TRIG] keys.
- The arpeggiato settings can be copy cleared and pasted using [FUNCTION]+[COPY]/[CLEAR]/[PASTE]
- To create computer-game-like arpeggiato chords, set Speed to a low value, select mode SID and turn off AMP FLT and LFO triggering as described in the section below.

#### ARPEGGIATOR ENVELOPE TRIGGERING SWITCHES

You will find three switches that control the envelope triggering of the arpeggiator below the four parameters described in “ARPEGGIATOR BASIC SETTINGS“. You move the inverted focus square to the right of the “TRIG:” label with the [LEFT] and [RIGHT] keys, and adjust the settings with [UP] and [DOWN].

- **AMP = AMPLITUDE ENVELOPE**
- **FLT = FILTER ENVELOPE**
- **LFO = LFO ENVELOPE**

If the label is displayed the envelope triggering connection is switched ON, and if “---” is printed it is switched OFF. If the triggering connection is ON for an envelope, it will be triggered for each note played by the arpeggiator. All envelopes are always triggered when the first note of the arpeggiato is played.



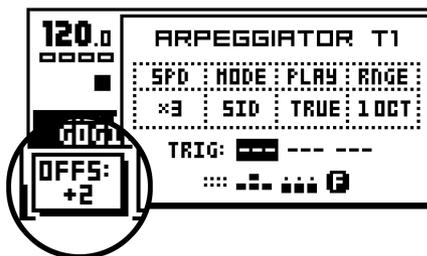
- It can be useful to turn all envelope triggering off for fast arpeggiato speeds, and allow the envelopes to give the impression of the arpeggiated chord as one sound.
- If you are using a triggered LFO for a slow modulation of a parameter it can be useful to turn off LFO Envelope Triggering in the arpeggiator to let the LFO modulate without being restarted for each note.
- The envelope triggering switches are not available in the MIDI sequencer arpeggiators, as MIDI do not allow for such type of extended control.

#### ARPEGGIATO RHYTHM AND OFFSET TRACK

The arpeggiator offers a Rhythm and Offset Track of up to sixteen steps. This can be used to make rhythmic arpeggiator patterns, one-finger melodies or very wild out of control arpeggiator patterns.

By default the Rhythm and Offset Track is eight steps of length. The **LEVEL** encoder is used for adjusting the length of the track. The length is indicated by the <TRACK> LED’s being lit up.

**Green LED’s** indicate that the arpeggiator is active for the step. **Red LED’s** will be skipped. Use the [TRIG] keys for switching the steps.



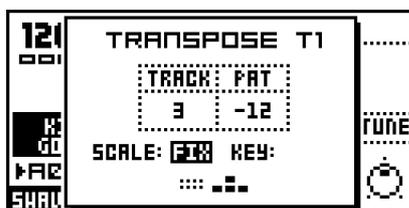
By holding a **[TRIG]** key and using the **[UP]** and **[DOWN]** keys, you can adjust the note offsets for the active steps. The current offset is displayed while the **[TRIG]** key is held in a small popup-window in the lower left corner of the LCD screen.

### TRANSCOPE

Each track of the Monomachine (including the MIDI sequencer tracks) offer transpose settings. Transposing notes means to move them to higher or lower notes. Transposing in the Monomachine is made real-time and the pattern data programmed is not affected.

The transpose window is called by pressing **[TRANSCOPE]** while holding **[FUNCTION]**. Select which track you want to edit the transpose settings for using the **[TRACK]** keys.

The transpose window is printed below:



- **TRACK = TRACK TRANSCOPE**
- **PAT = PATTERN TRANSCOPE**

The **Track Transpose** parameter is controlled with the upper left **DATA ENTRY** encoder. It sets the individual track transpose for the track selected.

The **Pattern Transpose** parameter is controlled with the second **DATA ENTRY** encoder on the first row. It controls the transpose setting for the full pattern. This parameter is the same for all tracks.

On the row below you will find two labels named “SCALE” and “KEY”. Move the inverted focus square with the **[LEFT]** and **[RIGHT]** keys, and adjust the settings with **[UP]** and **[DOWN]**. The Key parameter is only available for certain selections of Scale, see below.

The Scale modes are set per track, and are listed below:

- --- - The notes are transposed the exact amount of notes specified by the sum of the Track, Pattern, Song and Multi Trig transpose. This is the normal mode. No Key value can be set.
- FIX - Only the Track transpose is used for transposing. No Key value can be set.
- MAJ - The transposed notes are kept within the Major scale specified by the Key value.
- MIN - The transposed notes are kept within the Minor scale specified by the Key value.



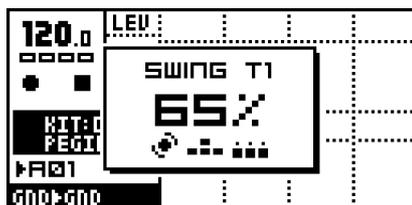
- It is useful to set Scale mode FIX for tracks playing percussive sounds. If the track is transposed in Song or Multi Trig the percussion will then keep its default sound while the melodies are transposed.

### SWING

Swing can be used for adding rhythmic “shuffle” swing, or other sub-step rhythmic adjustments to a pattern. The Swing settings are saved as part of the pattern.

The swing window is called by pressing **[SWING]** while holding **[FUNCTION]**. Select which track you want to edit the transpose settings for using the **[TRACK]** keys.

The swing window is printed below:



The **Swing Amount** is printed in large figures in the middle of the window. Use the **LEVEL** encoder to control the Swing Amount parameter. The Swing Amount is set between 50% and 80%. 50% is the default value which makes the pattern unaffected by Swing, and the maximal value is 80%. The Swing amount parameter is common for all the tracks of the pattern.

Each track however have their own **Swing Track**. The <TRIG> LED's indicate which steps will be time-shifted by the Swing, and the **[TRIG]** keys are used to switch their state. If your pattern is longer than 16 steps, use the **[SCALE]** key to cycle between the pages.

### THE SWING TRACK

As default, the swing is programmed to shift every second 1/16 note, starting on step 2. This is how the swing pattern will be restored after a Pattern Clear (see section “FULL PATTERN COPY” on page 54) and Swing clear operation. This swing pattern setup gives the traditional “shuffle”-style swing

for a 4/4 single speed pattern. If you are not quite sure what you are doing, you are probably best off leaving the swing step settings at the default and just change the swing amount.

When changing to double speed mode in scale setup (see page 51) you need to modify the swing pattern to get the same result as was given by the default swing pattern in single speed mode. In double speed mode, activate swing for every fourth note, starting with the third note.

Please check figure "Swing example" below for example on the swing effect with different Swing Amount and Swing Track settings. The first eight steps use the default "shuffle" setting, and the later eight use an edited Swing Track setting.



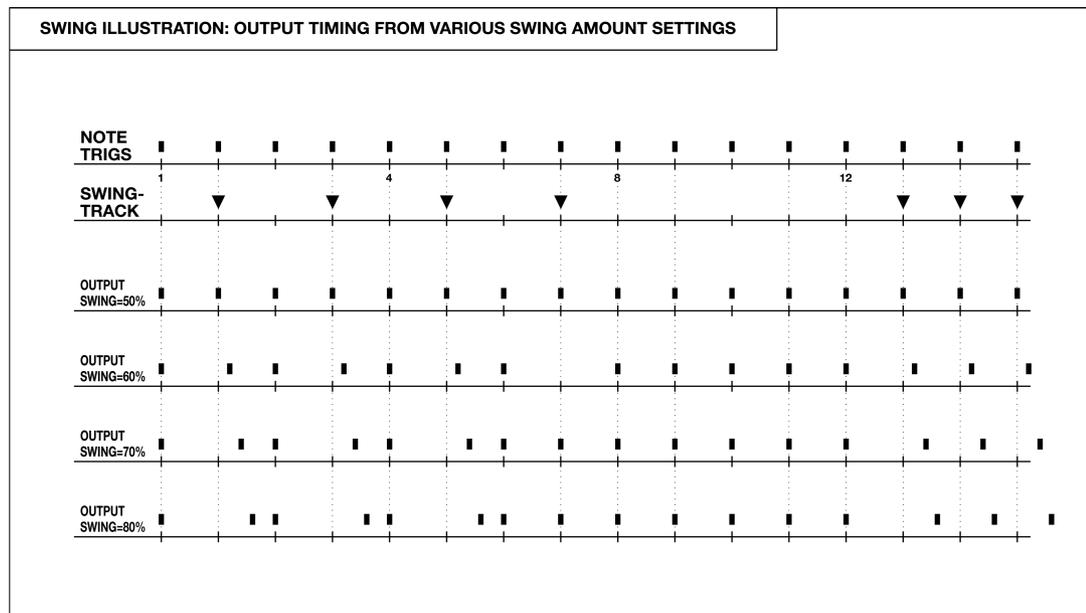
- When the Monomachine is locked to external MIDI clock, the swing amount will be quantised to the resolution of the MIDI clock, rendering only four swing amount zones.



- The Swing Track can be copy cleared and pasted using [FUNCTION]+[COPY]/[CLEAR]/[PASTE]

FIGURE 5.

Swing example

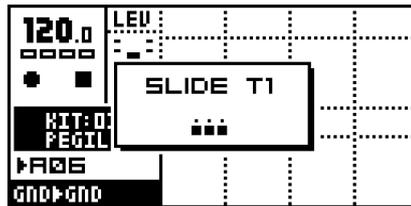


## SLIDE

The default behaviour for parameter locks is that the value changes exactly when the step is played. By using the **Slide Tracks**, the parameter value changes made by parameter locks can be slidden smoothly between the start and end lock value. The Slide Tracks are saved as part of the pattern.

The Slide window is called by pressing **[SLIDE]** while holding **[FUNCTION]**. Select which track you want to edit the Slide Track for using the **[TRACK]** keys.

The slide window is printed below:



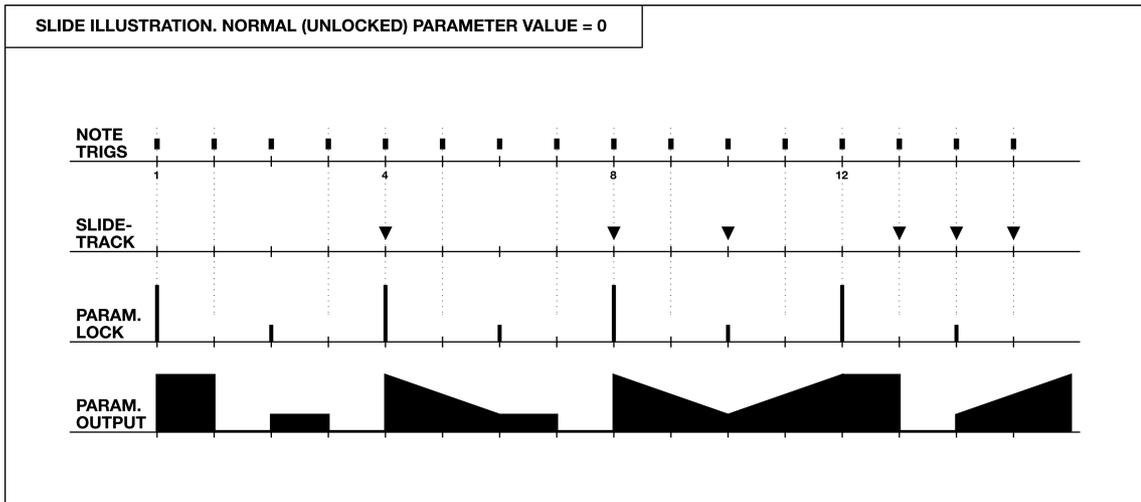
The <TRIG> LED's indicate which steps will be slidden, and the **[TRIG]** keys are used to switch their state. If your pattern is longer than 16 steps, use the **[SCALE]** key to cycle between the pages.

For a parameter to be slidden it need to be locked at two steps. If the Slide Track is set for the same step as there is a parameter lock, the parameter will slide to the next value it is locked to on a later step. The speed of the slide is relative to the current tempo. The slide is always completed exactly when the next step with the same parameter locked is reached.

- **Only parameters locked on the steps selected in the Slide Track, and on a later step, will slide. Parameters that are unlocked, or only locked at one step will not slide.**
- **If there are trigs in between the two locked parameter where the parameter is not locked, the parameter will slide between the two locked positions and is not interrupted by the unlocked trig in the middle.**

The figure "Slide illustration" below show an example on how the Slide Track influence a parameter locked. The first *Slide Trig* makes the parameter slide to the next locked parameter value. Even though there is a trig in the middle it does not interrupt the slide. When the destination is reached the locked value is held and not slidden, as there is no Slide Trig for that position. For the last three Slide Trigs, it is only the middle one that is causing any slide, as the other Slide Trigs do not have any parameter locked at the same step.

FIGURE 6. Slide illustration



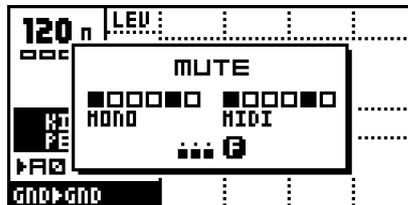
- The Slide Track can be copy cleared and pasted using [FUNCTION]+[COPY]/[CLEAR]/[PASTE]

### THE MUTE MODE

Track muting is normally performed by pressing the [TRACK] keys while holding [FUNCTION]. The Monomachine offers an additional interface for controlling the track muting. When one hand operation is preferred, or when you want simultaneous access to both the internal and the MIDI sequencer tracks at once, the *Mute Mode* is the solution.

Call the Mute Mode window by pressing [MUTE] while holding [FUNCTION]. Note that early Monomachine series do not have MUTE printed on this key, which is the same as the [BANK] key.

The Mute Mode window is printed below:



The six first boxes refer to the six internal Monomachine tracks. In screen above all tracks are un-muted. The six last boxes refer to the six MIDI sequencer tracks. Toggle the Monomachine tracks between muted and un-muted using [TRIG] keys 1-6. The MIDI sequencer tracks are reached

through the [TRIG] keys 9-14. The corresponding <TRIG> LED indicate the Mute-state of the track.



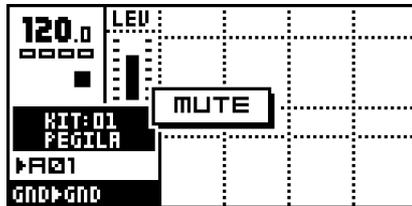
In addition to the <TRIG> LED's, the Mute-state is also indicated in the Mute window. Boxes means that the track is un-muted, and a dash means it is muted. The <TRACK> LED's will also be updated.



If you press the [TRIG] keys while holding [FUNCTION] the mute change is held until [FUNCTION] is released. A track that is currently muted but will be un-muted when [FUNCTION] is released is displayed as a “+” sign. A track that is currently not muted but will be muted when [FUNCTION] is released is displayed as an “X” sign.

**MINIMISING THE MUTE WINDOW**

While working in Mute Mode, the Mute window hides large parts of the main interface screen. This can be disturbing if you want to work with mutes at the same time as accessing the sound parameters.



Therefore the Mute window can be transformed to a small centered window. To make it do this, move any of the **DATA ENTRY** knobs. To return to the big Mute-window, press [ENTER/YES].



- The mute works on note level. That means that sounds already triggered will continue sound, but further trigs will be masked. This allows sounds to fade out in a natural way.



- The Track Mutes are true Global parameters, just like the Tempo. A muted track remains muted, even when the pattern is changed or song mode is entered or exited.

## **POLY MODE**

In normal operation the Monomachine offers six tracks of multi timbral monophonic sound synthesis. The *SuperWAVE Ensemble* machine (see Appendix: A for more information) can be used to make up to four notes chords using only one track, but for using the other machines polyphonically you need to enter the **Poly Mode**.

Press **[POLY]** while holding **[FUNCTION]** to enter Poly Mode. The Poly mode is indicated by both the <PATTERN> and <SONG> LED's being lit.

In Poly Mode all six Monomachine sound generating engines are dedicated to generate sounds from only one track. All tracks beside the one currently selected with the **[TRACK]** keys are disabled. The currently selected track instead offers six notes of polyphony.



- **In Poly Mode, the internal sequencer operates in polyphonically. You can use chords to generate polyphonic chords. Just remember that all other tracks than the currently selected are disabled while in Poly Mode.**

---

## THE MIDI SEQUENCER

Each of the six internal sequencer tracks of the Monomachine sequencer is doubled with a MIDI sequencer for controlling external MIDI gear. The six MIDI sequencer tracks are part of each pattern, and operate individually, with a few connections with the internal tracks. The LFO's are shared between the internal tracks and the MIDI sequencer tracks. The MIDI tracks are always played simultaneously and synchronised with their internal counterparts.

Switch between internal sequencer and MIDI sequencer editing by pressing **[MIDI SEQ]** while holding **[FUNCTION]**. MIDI track editing is indicated by all the <TRIG TRACK> LED's unlit, and the four uppermost <DATA PAGE> LED's lit.

### USING THE MIDI SEQUENCER

The Monomachine MIDI Sequencer is used almost identical with the internal sequencer. The main difference being that no internal sound is generated, data is only transmitted on the MIDI OUT port, for controlling external MIDI gear.

Use the **[TRACK]** keys to select the focus of the MIDI track you wish to edit. Note that MIDI tracks are muted separately from the internal tracks with the **[TRACK]** keys while holding **[FUNCTION]**, or through the special Mute Mode interface (see section "THE MUTE MODE" on page 66).

To get any sound out of the MIDI sequencer you need to connect the MIDI IN port of another MIDI device to the MIDI OUT port of the Monomachine. The external MIDI device need to listen to the MIDI channel of the Monomachine MIDI track in focus. The *Keyboard*, **[TRACK]** keys and MIDI sequencer output of the track is now directed to the MIDI channel selected in the Global "MIDI SEQUENCER SETTINGS" menu page (see section "MIDI SEQUENCER SETTINGS" on page 97 for more information).

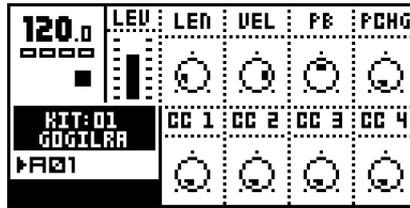
Please refer to sections "GRID COMPOSING" on page 44 and "LIVE RECORDING" on page 46 for information on how to input notes in the sequencer.



- **Chords can be entered in the MIDI sequencer, but all notes of the chord need to be the same length. If you want to play true polyphonic notes you need to make use of several tracks and direct the output to the same MIDI channel.**

**THE MAIN MIDI SEQUENCER INTERFACE**

The main MIDI sequencer interface screen is printed below:



The parameters of the main MIDI interface is listed below:

- **LEN = NOTE LENGTH**
- **VEL = VELOCITY**
- **PB = PITCH BEND**
- **PCHG = PROGRAM CHANGE**
- **CC 1-4 = CONTROL CHANGE 1-4**

The **Note Length** parameter set the maximum time the note will be played until a NOTE\_OFF is sent. Notes can also be interrupted with NOTE\_OFF trigs (set by pressing a [TRIG] key while holding [FUNCTION]). If you prefer to stop notes with only NOTE\_OFF trigs, set Note Length to its maximum value to make it infinite of length. Use Parameter Locks to set different note lengths for different notes.

The **Velocity** parameter control the MIDI velocity sent for each note. Use Parameter Locks to set different velocity for different notes.

The **Pitch Bend** parameter control the MIDI pitch bend setting.

The **Program Change** parameter can be used for outputting MIDI program change commands, to change the patch of the external MIDI device. The program change parameter only transmits data when used for Parameter Locks. It is not possible to slide the Program Change parameter.

The **CC 1-4** parameters sets the control change parameter values. Which parameters that are used is set in the Global "MIDI SEQUENCER SETTINGS" menu page (see page 97 for more information).

The settings of the main MIDI sequencer interface is stored as part of the kit. If you make changes to the parameters you need to save the kit in order to keep them.

### COMPARISON WITH THE INTERNAL SEQUENCER

The MIDI sequencer tracks function to some degree like their internal counterparts. Below is a list of similarities and differences:

- The MIDI sequencer tracks do not offer any Trig Tracks, since MIDI do not allow for such type of extended control.
- The MIDI sequencer offers six additional arpeggiators with individual settings, but they do not offer any envelope triggering switches for the same reason as mentioned above.
- The MIDI sequencer tracks offer individual swing and slide tracks, but the swing amount is a common parameter for the pattern.
- The MIDI sequencer offers individual Track transpose, but the Pattern transpose is a common parameter for the pattern.
- The MIDI sequencer tracks share the LFO's with their equally numbered internal sequence tracks.



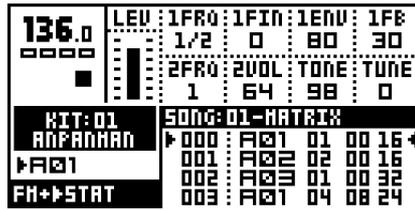
- The internal sequencer can also transmit MIDI. If you want more tracks for controlling external MIDI gear you can mute the audio output of internal tracks, enable the MIDI output of them and use them only for controlling external gear, extending the six MIDI sequencer tracks. Read more about how to configure the MIDI output of the internal sequencer in section “CONTROL OUT1” on page 91.
- The Monomachine makes distinction between MIDI sent out of the unit and MIDI received. Even if the same MIDI channel is selected for one track of the MIDI sequencer and the one track of the internal sequencer, the MIDI sequencer will not control the internal sounds, as the MIDI sequencer data is only going out through the MIDI OUT.
- As the MIDI sequencer tracks are part of the pattern, they will also be played as part of the Multi Trig, Sequence start. This can allow tight integration of external MIDI gear in the Monomachine performance.



## THE SONG SEQUENCER

The Monomachine Song Sequencer is a tool for setting up sequences of patterns, with possibilities for setting selected parameters such as pattern offset, length, repeats and transposes per song row. The Song can be used for making a fully arranged song or setting up looped sets of patterns for live use.

Enter song mode by pressing the **[PATTERN/SONG]** key, so that the <SONG> LED is lit. The screen will change to make room for the song list:



## SONG FILE OPERATIONS

First we will go through the file operations of how to load and save songs. You will find these operations in the Song menu, which you reach by pressing the **[KIT/SONG]** key while in Song mode.



Use the **[LEFT]** and **[RIGHT]** keys to select the icon of the operation, and press **[ENTER/YES]** to enter the selection.

### LOAD SONG

The Load song window is printed below:



Use the **[UP]** and **[DOWN]** keys to select the song you want to load, and press **[ENTER/YES]** to perform the Song load operation.



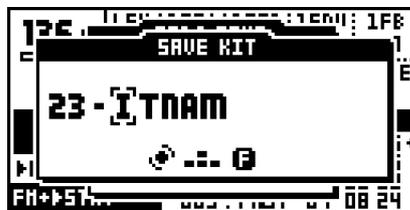
- Loading a song will destroy any possible unsaved changes to the current song. Make sure to store unsaved work you wish to keep before loading a new song.

#### SAVE SONG

The Save song window is printed below:



Use the **[UP]** and **[DOWN]** keys to select one of the 24 positions you want to save your song to and then press **[ENTER/YES]** to enter the naming window.



Select the characters using the **LEVEL** encoder or the **[UP]** and **[DOWN]** keys. Use the **[RIGHT]** and **[LEFT]** keys to move the cursor. Press and hold **[FUNCTION]** to use the “high score” selection method. While holding **[FUNCTION]** use the **[CURSOR]** keys to select the characters and then release the **[FUNCTION]** key.

When you are done naming the song, press **[ENTER/YES]** to save it. Until this point you can abort the Save song operation using **[EXIT/NO]**.

6. Once you are done naming the song, press **[ENTER/YES]** to save it.
7. If you want to exit without saving a song, press **[EXIT/NO]**.



- Saving a song on a position with a previously saved song will destroy the old song. If you want to save the old song you should select another position.
- The song only holds the information on which patterns should be played in sequence. Accurate playback of a previous song depends on the patterns it uses being unchanged since saving. Otherwise, the song might sound different.

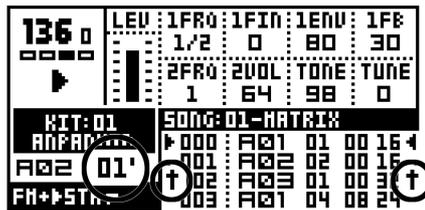
### SONG PLAY

To start replaying a song, make sure that you are in song mode, and that a song is presently loaded or created. Start the playback of the song by pressing **[PLAY]**. Pressing **[PLAY]** again pauses the playback. To stop the playback, press **[STOP]**.

At any time you may switch back and forth between the song and the pattern mode by pressing the **[PATTERN/SONG]** key. The song pointer will be held until **[STOP]** is pressed. This way you can hold the song replaying, looping a pattern in pattern mode, until returning to song mode, continuing replaying the song at the position you left it.

### SONG TRANSPORT

The **[UP]** and **[DOWN]** keys can be used for moving two song pointer position indicators at the left and right of the new song list. Press **[ENTER/YES]** to move the song pointer to the position of the arrows.



When playing the song the arrows flashes and alternate between flashing toward the row and in the direction of the current song position. When song rows are repeated the number of repeats left to perform is flashing to the right of the current pattern index.

In song mode **[STOP]** stops the playback, but holds the song pointer position. A second **[STOP]** moves the song pointer position to the beginning of the song.



- The song is played to its end and then it stops. Of course, infinite loops can make songs to never end.
- If the song has tempo adjustments programmed the current global tempo will be changed.



- Monomachine sends and recognises MIDI Song Pointer Position. This means that you can control the position in the song list from an external sequencer, and you can control an external sequencer from the Monomachine.

### SONG EDITING

The Monomachine song editor is a tool for arranging patterns into a song. A song is basically a list of patterns which will be played in sequence. Each step in a song can have its own settings for pattern start position, length, pattern and individual track transpose, tempo and number of repeats. The repeat function is used to make a pattern repeat a specified number of times without the need of using several song rows. Loops are offered for improved song organisation. A song can have up to 200 rows, and there are 24 song slots.

Select the EDIT icon from the Song menu and press **[ENTER/YES]** to enter the Edit Song window:

ROW	PAT	REP	TRN	OF LN	XTRA
000	A01	-	---	00:16	-
001	A02	02	T	00:16	E 4
002	A03	-	---	00:32	H
003	A01	04	-02	08:16	E H
004	LOOP: 001 / 02				

In the Edit Song window you find a list of patterns and song row settings. This is where patterns are arranged into songs. You can edit the list while the song is playing. The two filled arrows on each side of one of the song rows is the song position pointer. They indicate which song step the sequencer is currently playing. In the right part of the title bar the current song pointer position is displayed in bars and beats.

Use the **[UP]** and **[DOWN]** keys to select the song step that you wish to edit. The **[LEFT]** and **[RIGHT]** keys allow you to move the focus between the pattern, repeat, transpose, offset, length and Song Extra columns.

- **ROW = SONG ROW INDEX**
- **PAT = PATTERN**
- **REP = REPEATS**
- **TRN = TRANSPOSE**
- **OF = OFFSET**
- **LN = LENGTH**
- **XTRA = SONG EXTRA SETTINGS**

In the **Pattern** column, set the pattern you want to be played for the position using the **LEVEL** encoder, or by pressing the appropriate **[BANK]+[TRIG]** keys. You can also program loops in this column. See section “SONG LOOPS AND JUMPS” on page 79 for more information on this. “END” marks can also be set from this column. It can be found as the first item in the list of patterns, and marks the end of the song, where the sequencer will be stopped.

The **Repeat** column controls how many times the song row will be repeated. Use the **LEVEL** encoder to control the setting.

The **Transpose** column sets a pattern transpose for the song row. Use the **LEVEL** encoder to control the value. By pressing **[ENTER/YES]** you enter the *Song Track Transpose* window, where individual transpose can be set for the tracks. If any individual Song Track Transposes is set for the row, it is indicated by a bold "T" in the Transpose column. You then need to enter the Song Track Transpose window to see both the pattern and the individual track transpose. See section "SONG TRACK TRANSPOSE" on page 78 for more information on Song Track Transpose.

The **Offset** and **Length** columns can be used to override the default start offset and length settings for the pattern of the row. The default start offset of a pattern is always zero as this means to start replaying from the beginning. The default length is set from scale setup (see section "SCALE, PAGES AND TIME SIGNATURES" on page 51). The song row offset and length functions can be used to build complex rhythm structures. It can also be used for exchanging certain parts of a pattern for certain song rows, to add for example a fill in to the end of a pattern. Use the **LEVEL** encoder to control the settings.

The **Song Extra** column can be used for setting Song Row Mutes and Song Row BPM. If any Song Row Mute is set for the row, it is indicated by a bold "M" in the Song Extra column. If any Song Row BPM is set for the row, it is indicated by a bold "B" in the Song Extra column. Press **[ENTER/YES]** to enter the Song Extra interface. Please see section "SONG EXTRA" on page 78 for information on the Song Extra interface.



- To insert a step in the song, use **[FUNCTION]** together with the **[DOWN]** key.
- To remove a step in the song, use **[FUNCTION]** together with the **[UP]** key.
- **Copy and Paste** functions are available in the song edit where they operate on rows.

#### SONG EDIT TRANSPORT

In song edit mode it is possible to select a row to start replaying from, or to set as the next position for the song sequencer to continue replaying at after the current pattern. Do this by pressing **[ENTER/YES]** on the row you want to move the song pointer position to. If not in play mode, you will see the two filled arrows moving directly to the new position indicating the new song pointer position.

EDIT SONG 026:02						
ROW	PAT	REP	TRN	OF LN	EXTRA	
▶005	A01	-	---	00:16	-	◀
006	A02	-	---	00:16	-	
▶007	<b>A01</b>	-	---	00:16	-	◀
008	A03	-	---	00:16	-	
009	A01	-	---	00:16	-	

If the song is currently playing you will first get two hollow arrows on each side of the row, indicating that the row is the next one in line.

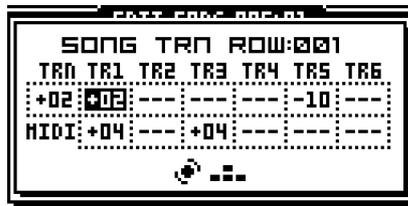
In the right part of the title bar the current song pointer position is displayed in bars and beats. This is also updated when a new song pointer is set with **[ENTER/YES]**. This information can be used for synchronising the Monomachine song construction with the song of another sequencer.



- Use Song transport or Song Edit transport together with song loops for creating a live setup! See section “SONG LOOPS AND JUMPS“ for more information.

**SONG TRACK TRANSPOSE**

By pressing **[ENTER/YES]** in the transpose column of the Edit Song window you reach the Song Track Transpose interface:



Use the **[RIGHT]** and **[LEFT]** keys to move between the columns, and also to reach the lower row. Use **LEVEL** to update the parameter values. Use the **[UP]** and **[DOWN]** keys to move between the song rows. Press **[EXIT/NO]** to exit the Song Transpose window.

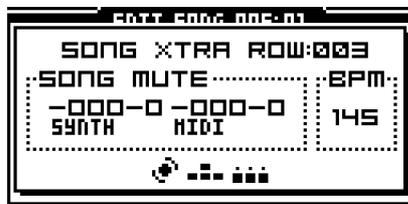
The TRN parameter control the pattern transpose, and the TR1..6 parameters of the first row controls the individual Track Transpose for the six internal Monomachine tracks. The six parameter on the second row control Track Transpose for the six MIDI sequencer tracks.

The Track Transpose settings set are only valid for the row they are set for.

If individual Track Transposes are set for a row, the transpose value in the Song Edit window is exchanged for a bold “T”. You then need to enter the Song Track Transpose window to check the settings.

**SONG EXTRA**

The Song Extra window is the interface for controlling Song Row Mutes and Song Row BPM settings. Reach it by pressing **[ENTER/YES]** in the Song Extra column in the Edit Song window.



Use the **[UP]** and **[DOWN]** keys to move between the song rows.

From here you can set the Song Row Mute mask for the song row. Use the **[TRIG]** keys 1 to 6 to update the current Song Row Mute mask for the internal tracks, and **[TRIG]** keys 9 to 14 for the MIDI sequencer tracks.

Tempo adjustments can be programmed by setting a BPM value. Use the **LEVEL** encoder to update the BPM setting. You need to start by increasing the BPM-value to set it. To remove the BPM value, turn the **LEVEL** encoder so that the lowest possible value is selected and “-” is printed in the BPM tab.

If no BPM value is set for the step, the current tempo is used. If a song does not have any tempo settings, the current tempo is used for the full song.

If a Song Row Mute mask is set for the row, it is indicated in the Song Extra column with a bold “**M**”. If a Song Row BPM value is set, it is indicated in the Song Extra column with a bold “**B**”.



- The global mutes applies as well as the Song Row Mutes. Tracks muted in the either the global mutes as described in section “THE MUTE MODE” on page 66 and the Song Row Mute mask will be muted for the row.

**SONG LOOPS AND JUMPS**

Song loops and jumps are useful tools in composing the song structure.

EDIT SONG 028:01						
ROW	PAT	REF	TRN	OF LN	%TRR	
005	A01	-	---	00:16	-	
006	A02	-	---	00:16	-	
007	LOOP: 005		03			
008	A03	-	---	00:16	-	
009	A01	-	---	00:16	-	

To select a loop/jump, turn the **LEVEL** encoder in the Pattern column to let the parameter value right before the A01-pattern, after the END indicator. When a loop is selected the second edit column controls which row to loop from. Use the **LEVEL** encoder to change what row to loop to. The third row selects how many times the loop should be performed. Use the **LEVEL** encoder to select the number of loops. The loop count can also be set to infinity. Loops can be nested.

EDIT SONG 028:01						
ROW	PAT	REF	TRN	OF LN	%TRR	
005	A01	-	---	00:16	-	
006	A02	-	---	00:16	-	
007	JUMP: 010					
008	A03	-	---	00:16	-	
009	A01	-	---	00:16	-	

You can change the loop to be to a reference further on in the song. The loop then becomes a jump and no loop count column is available.

EDIT SONG 028:01					
ROW	PAT	REP	TRN	OF LN	XTRA
005	P01	-	---	00:16	-
006	P02	-	---	00:16	-
007	HALT:	007			
008	P03	-	---	00:16	-
009	P01	-	---	00:16	-

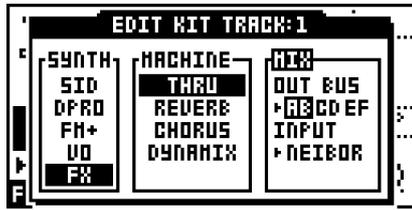
If you set the loop to loop to the current row it will change to a halt statement. When the song player reaches a halt statement it will pause the playback. You then need to use song edit transport as described on page 77 to select a new position to start from, and press **[PLAY]**.

Loops can be used for speeding up song construction, for example looping a pattern set for the refrain. It can also be used to set up pattern loops to extend the Monomachine limit of maximum 64 steps per pattern. For this, use the infinity loop. A set of infinity loops could be used for a live setting where the song transport functions can be used to jump between the looping patterns.

## MONOMACHINE ROUTING

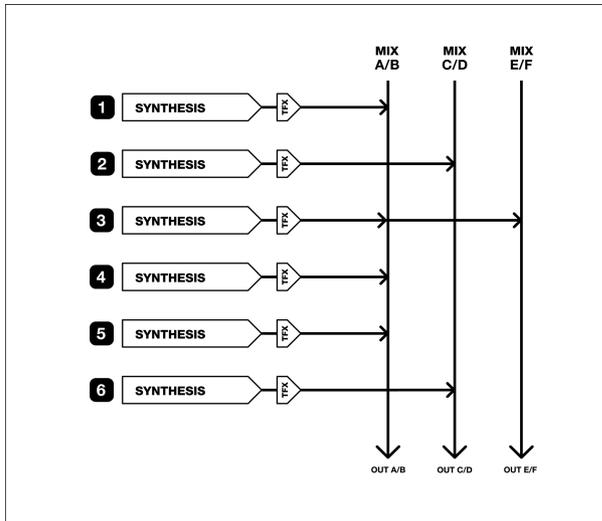
The Monomachine offers a flexible routing system for addressing the audio outputs, using the audio inputs and routing between the synthesis and FX Machines.

Most of the routing is controlled from the EDIT KIT window. Please check section "ASSIGN A MACHINE TO A TRACK" on page 21 for information on how to find, open and manoeuvre it.



### ADDRESSING THE AUDIO OUTPUTS

The **OUT BUS** parameter in the MIX tab is available for all machines. It selects which *Mix Bus* the track will be sent to. The Monomachine offers three stereo Mix Buses named AB, CD and EF. At the end of the Mix Bus the sound by default is sent to the Audio Output pairs AB CD and EF.



If no FX Machines are used the MIX Bus selection simply selects the audio stereo output(s) the track will be sent to. In the example above the synthesis tracks are sent to different audio outputs, so further external audio processing is possible for the individual tracks. The third track is sent to two outputs.

### THE FX MACHINES

All Monomachine machines generating sounds are named *Synthesis Machines*. There is another type of machines named *FX Machines*. The FX Machines do not generate any sound themselves; they need to take their

source sound externally. The source can either be the Audio Inputs, the sound of the previous track or the audio of one of the Mix Buses.

The various uses of the FX Machines in combination with Synthesis Machines are discussed in the following sections.

**USING THE AUDIO INPUTS**

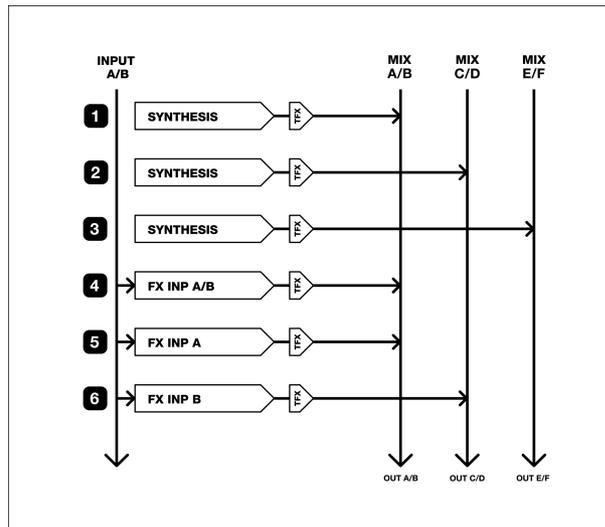
The Audio inputs are reached through the FX Machines found in the Monosynth named "FX". You will find it in the end of the Monosynth list in the SYNTH tab of the EDIT KIT window. The "Thru" machine is a good starting point as it will just let the audio from the source selected through without other processing but a signal amplifier and of course the Track Effects.

After selecting the Through machine for a track, go to the INPUT parameter and select INP A, INP B or INP AB. Please note that the INPUT parameter field does not appear until an FX machine is selected with **[ENTER/YES]**.

- **INP A - Monophonic audio is used from Audio Input A.**
- **INP B - Monophonic audio is used from Audio Input B.**
- **INP AB - Stereo audio is used from Audio Input A and B.**

Before any sound is heard from the audio input you need to trig the track so the machine is activated. Play any note for the track; the pitch of the key is ignored by the Through machine.

The output of the tracks always pass through the Track Effects, in which the Amplifier Envelope is part. If you want the audio to pass through without decaying you need to set Decay and Release to their maximum levels (127) and retrigger the machine.



In the routing example above Synthesis Machines are mixed with FX Machines with input taken from the Audio Inputs. The Audio Inputs are always available, but only printed explicitly in this example.

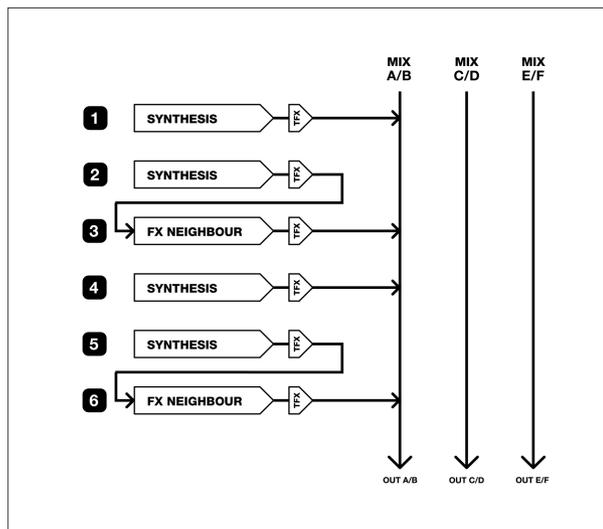


- **All Track Effects, the LFO's and the sequencer are still at your hands when using the audio inputs! Set up six tracks with various Track Effect settings, LFO settings and use the sequencer, and you have a unique and powerful effects processor.**

### NEIGHBOUR ROUTING

The FX machines can also take their inputs from internal Monomachine sound. One of the modes for this is the *Neighbour mode*. To use this mode, set track number two or higher to use an FX machine, and set INPUT to "NEIBOR".

In Neighbour mode, the output of the previous track is used directly, and feed into the input of the FX machine of the current track. Only the input of one track is used for the input, but the neighbour FX machines can be chained.



In the example above all audio outputs are set to the main AB mix bus. Track 2 and 6 use a Track Effect set to neighbour mode, and the input is taken directly from the previous track. All outputs are turned off for track 2 and 5 to make it an *insert effect*.

Neighbour is good for quick FX routing, when no more than one track need to be feed into the FX.



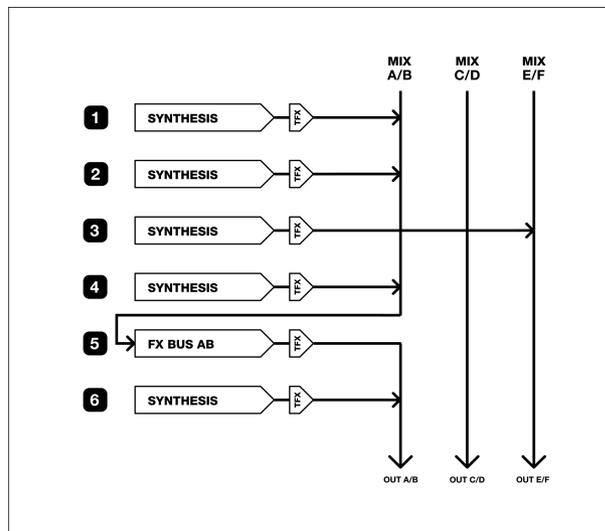
- **Use the neighbour FX to get access to an additional Track Effect! If you rather want the distortion to be applied after all other effects, you can assign a Through FX machine in neighbour mode to the track after, and all the Track Effects of the second track will be applied after the first one. Just remember to turn off the outputs of the first track!**

**MIX BUS ROUTING**

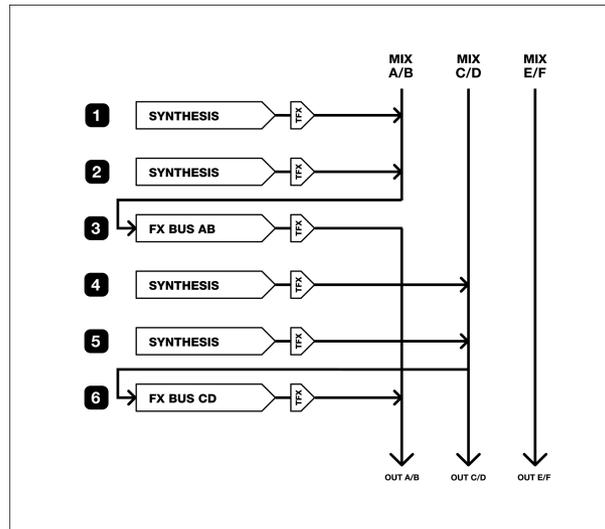
For applying an effect to two or more mixed tracks you need to use the mix buses as input for the FX machine. To use this mode, set track number two or higher to use an FX machine, and set INPUT to "BUS XX", where XX is the mix bus AB, CD or EF.

When the output of a track in the Monomachine is set to AB, CD or EF, it is feed to one of the three mix buses, which by default end in the audio outputs with the same names. The tracks are mixed in the same order as their index, with track 1 first.

The contents of the mix bus can be used as input for the FX machines at any time. If the same bus is used for input and output, the FX is applied as *Insert*. If another bus is used to output the FX output is mixed into the track normally, just like synthesis machines.



In the example above all tracks but the third is assigned to the AB mix bus. Track 5 is a FX machine, with INPUT and OUTPUT set to MIX AB. As the output is the same as the input the FX is applied as *Insert*. What will happen is that track 1, 2 and 4 will be mixed and effected by track 5. The output of the effect will then be mixed with track 6 and sent to the AB outputs. Track 3 is sent by itself to the EF outputs, non-effected.



In the example above the two first tracks are sent on the AB bus, and effected by the FX machine on track 3. Track 4 and 5 are sent to the CD mix bus. Track 6 is an FX machine with input taken from the CD Mix bus, which now contain the mixed signal of track 4 and 5. The output of the FX machine on track 6 is set to bus AB with differs from the input CD. Therefore the effected track 4 and 5 is effected and sent to mix bus AB, where they are mixed with the Track 1 and 2 effected by track 3.

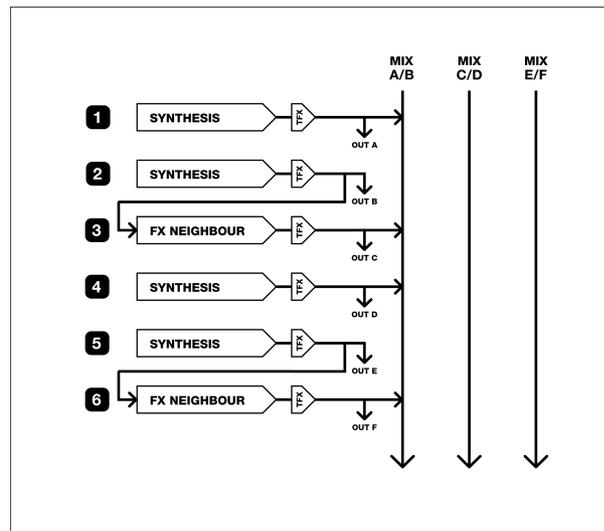
#### **ROUTING MODE AB=MIX**

By default the mix buses are sent to the Audio Outputs with the same names. If you are using only the main AB stereo outputs, or the headphones which carry the same signal, you will not hear what is sent to the CD and EF outputs. By setting the Global Routing mode (see section “GLOBAL ROUTING” on page 88) to “3xSTEREO + AB=MIX” the CD and EF buses will be mixed also onto the stereo main AB/headphone outputs.

#### **ROUTING MODE 6xMONO**

By setting the Global Routing mode (see section “GLOBAL ROUTING” on page 88) to “6xMONO”, the AB, CD and EF mix buses will not be sent to the audio outputs. Instead, each of the stereo outputs of the six Monomachine tracks are mixed to mono, and feed to an individual output. The mix buses can still be used, but the final output of them will not be sent to the AB, CD and EF outputs.

Using this mode makes it possible to get the output of each of the Monomachine tracks sent to an individual output, but the stereo effects and panning are lost.



The example above visualises how Global Routing mode 6xMONO configures the outputs.



- Like all machines, the FX machines need to be triggered before they make any sound. The Track Effects are active as always, so if you want the sound to go through without decaying you need to set the Decay and Release parameters to their maximum values (127).

---

## GLOBAL SETTINGS

The Monomachine offers 8 individual Global slots. The multiple Global slots are useful for using the unit in more than one typical setup. You can have one setup for studio use and another for the live set, or maybe several different setups for different parts of the live set.

The items listed below are available in the Global menus.

- **Master Tune**
- **Audio Routing options**
- **MIDI Channel setup**
- **MIDI Control settings**
- **Multi Map Editor**
- **SYSEX send/receive**
- **MIDI Sequencer settings**



Press **[FUNCTION]** and then **[PATTERN/SONG]** to call the Global slot selection menu. Use the **[CURSOR]** keys for navigating to the Global slot you wish to use, and press **[ENTER/YES]** to select it. If it was already selected you have now also entered the Global menu for the slot. If not, press **[ENTER/YES]** one more time to enter it.

## GLOBAL AUDIO SETTINGS

The Global Audio settings are found in the "AUDIO" Global menu:



**MASTER TUNE**

The Global Master Tune can be set in this menu. Use **[UP]/[DOWN]** keys to set the integer part, and **[RIGHT]/[LEFT]** keys to set the fraction.



**GLOBAL ROUTING**

In this menu one of three Audio Routing selections can be set. Use **[UP]** and **[DOWN]** keys to move the focus, and confirm with **[ENTER/YES]**.



The **3xSTEREO** is the default configuration, where the three internal stereo mix buses AB, CD and EF are sent to the audio outputs A/B, C/D and E/F.

Mode **3xSTEREO + AB=MIX**, has the same function as mode 3xSTEREO described above, but the CD and EF buses are mixed also to the A/B outputs, to supply for users only using the A/B main stereo outputs, or headphones.

Mode **6xMONO** mix the stereo output of each of the six Monomachine tracks to mono, and send each of the outputs directly to each of the audio outputs. Track 1 is sent to output A, Track 2 to B and so on.

Please see section “MONOMACHINE ROUTING” on page 81 for detailed information on the Monomachine routing possibilities.

## MONOMACHINE AND MIDI

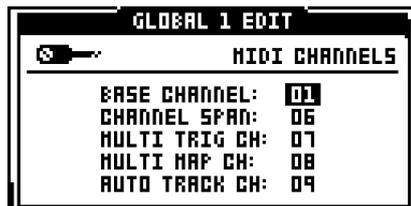
The Monomachine is designed to fit well into a MIDI environment. It is well equipped for controlling other units through the MIDI Sequencer, the MIDI real-time messages (Timing clock, Start, Stop) and Song Pointer Position. It is also ready for a large number of control methods to fit in a wide range of environments.

The MIDI settings are found in the Global menu "CONTROL". Open the Global menu by pressing **[GLOBAL]** while holding **[FUNCTION]**. The following sections will go through all the Global menus dealing with MIDI, and discuss some general Monomachine MIDI issues.



## MIDI CHANNELS

The MIDI channel setup of the Monomachine is found in the CONTROL>MIDI CHANNELS menu as printed below:



Navigate between the parameters using the **[UP]** and **[DOWN]** keys. Change the parameter values using **[LEFT]** and **[RIGHT]**.

By default the Monomachine responds to 9 MIDI channels. The first channel used is the **Base Channel**. The Base channel can become one of the channels listed below depending on which are activated. If all channels are disabled the Monomachine use no MIDI channels at all, only real-time data and SYSEX.

- **The first six channels directly control each of the six Monomachine tracks and are named the Individual Track Channels**
- **One Multi Trig channel**
- **One Multi Map channel**
- **One Auto Track channel**

The number of MIDI channels used for Individual Track Channels is set by the **Channel Span** parameter. The Individual Track Channels is mainly useful if you are using the Monomachine as a sound module. If you use the Monomachine in Pattern, Song, Multi Trig or Multi Map mode, and you do not have the MIDI-channels to spare, you can disable the Individual Track Channels by reducing Channel Span to zero. You will see the channel-

number of the channels above decline down to the Base Channel as you reduce the Channel Span.

#### **INDIVIDUAL TRACK CHANNELS**

If the Individual Track Channels are activated they will transmit and accept note data control for the six Monomachine tracks. The internal sequencer, the Data Entry pages, the **Keyboard** and **Joystick** (SFX-6 only) send note and control data on the Individual track channels. This control data is also accepted on the same channels.



- **Parameter locks of the internal tracks are not transmitted over MIDI, because the data transfer rate of the MIDI standard is too low for delivering large number of control data in time.**



- **If the Individual Track Channels are disabled you can still control the individual tracks using the NRPN interface. See section “Some MIDI commands are accepted on all active channels:” for more information.**

#### **MULTI TRIG CHANNEL**

The Multi Trig channel directly control the Multi Trig monophonic super-synth functionality of the Monomachine. Please see section “MULTI TRIG” on page 40 for more information.

Output data on this channel can only be generated on the SFX-6, from the keyboard when Multi Trig Mode is selected.

#### **MULTI MAP CHANNEL**

The Multi Map channel directly control the Multi Map functionality as described in section “MULTI TRIG” on page 40.

Output data on this channel can only be generated from the keyboard of the SFX-6 when Multi Map Mode is selected.

#### **AUTO TRACK CHANNEL**

The Auto Track channel is a control channel that follow the track selected as active on the Monomachine interface. It is very useful for the SFX-60 tabletop module, as an external MIDI-keyboard assigned to this channel can be used for the functionality of the **Keyboard** of the SFX-6. It saves the work of switching the channel on the external keyboard when changing track focus of the SFX-60.

Monomachine **Joystick** control is accepted as pitch-bend for right and left directions, CTRL\_CHANGE #1 (mod wheel) for upward direction and CTRL\_CHANGE #2 (breath control) for downward direction.

No output data is generated for the Auto Track channel

#### **ALL CHANNELS**

Some MIDI commands are accepted on all active channels:

- **NRPN data is accepted to control the individual internal tracks**
- **PROGRAM\_CHANGE can be used for changing pattern**

The NRPN interface doubles with the normal CTRL\_CHANGE interface of the Individual Track Channels, and provide the same functionality. It is only accepted, never transmitted. See Appendix: B for full MIDI specifications of the NRPN interface.

The PROGRAM\_CHANGE can be disabled for MIDI input and output. See section "CONTROL OUT2" on page 91 for more information.

### MIDI CONTROL DATA

The Global menus CONTROL OUT1, CONTROL OUT2 and CONTROL IN contain the parameters that control how the Monomachine sends and accepts MIDI control data. Navigate between the parameters using the [UP] and [DOWN] keys. Change the parameter values using [LEFT] and [RIGHT].

#### CONTROL OUT1

The CONTROL OUT1 window is printed below:



The parameter in this window control where data should be sent from the internal Sequencer, the Arpeggiator and the **Keyboard** (only functional on the SFX-6). Joystick control is included in the Keyboard parameter. The available selections are:

- **INT - Only internal control, no external MIDI data will be sent.**
- **OUT - No internal control, only external MIDI data will be sent.**
- **INT+OUT - Internal control, and MIDI data will be sent.**

Note that if internal control is shut off the Monomachine might appear non-functional if MIDI data is not echoed back from an external sequencer. Also note that Parameter Locks will not be heard when echoed externally as they are not transmitted over MIDI.

#### CONTROL OUT2

The CONTROL OUT2 window is printed below:



**Transport** controls if MIDI Start, Stop and Song Pointer Position will be sent.

**MIDI clock** controls if the Monomachine should transmit MIDI clock.

**PRG CHANGE** controls if MIDI PRG\_CHANGE will be transmitted for each pattern change.

**CONTROL IN**

The CONTROL IN window is printed below:



The tempo can be generated either internally or taken from an external MIDI clock. The Monomachine gives best timing performance when set to internal synchronisation. It transmits a very high precision MIDI clock on the MIDI OUT port so that you can synchronise other devices to the Monomachine.

When the **Tempo Sync** parameter is set to EXTERNAL, the Monomachine tempo is slaved to incoming MIDI time clocks. The timing is locked to the external source, and the precision is limited to the precision of the unit transmitting the MIDI clocks. When locked to external clock the BPM indicator on the front screen tells "EXT". If no timing clocks are received for a few seconds the Monomachine falls back to internal source until MIDI clock is recognised.

**Transport** controls if the Monomachine should react to MIDI Start, Stop and Song Pointer Position.

When the Transport parameter is set to ACCEPT, MIDI Start, Stop and Song Pointer Position messages are recognized for synchronised song operations. In pattern mode midi song pointer position is recognised for starting the pattern from the correct note.

When the Transport parameter is set to IGNORE, MIDI start, stop and Song Pointer Positions are ignored. This is useful when you want the Monomachine to be connected in your setup with the tempo synchronised, but do not want the pattern to start each time you press play on your sequencer. Instead you might want to use the Multi Trig or Multi Map functions. Or you might want to use the Monomachine as a sound module, but still have the tempo synchronised for the LFO's and the delays.

**PRG CHANGE** controls if PRG\_CHANGE received should change pattern of the Monomachine or not.



- **When the Monomachine is locked to external MIDI clock messages, and MIDI clocks are no longer detected it will fall back to internal sync. However, it will not change the sync source in the Global set-**

tings. This means that once the MIDI clock message stream is correct, it will again be synchronised to external clock.



- The Monomachine always transmits a very high precision MIDI clock. It is often a good idea to use the Monomachine as master instead of slave, as the timing of other MIDI equipment including many setups with well-known Windows and Mac sequencers is not always reliable.

## MULTI MAP

The Multi Map Mode provides a fully configurable keymap for triggering patterns.

On the SFX-6 you can enter Multi Map mode by pressing **[MULTI TRIG]** while holding **[FUNCTION]**. The Multi Map mode is indicated by the <MULTI TRIG> LED is flashing. You can also use the dedicated MIDI channel for the Multi Map as described in section “MIDI CHANNELS” on page 89.

The keyboard now trigs patterns as set up in the Multi Map editor.

## MULTI MAP EDITOR

You find the editor for the Multi Map keymap in the CONTROL>MULTIMAP EDIT Global menu:

RANGE	PAT	OFS	LEN	TRN	TIM
C-1-E-1	AD1	----		+24	16..
C-2-E-2	AD2	.....		+12	16..
C-3-E-3	AD2	00-08		---	DIR
C-4-E-4	AD3	----		---	DIR

Each row represents one range of the keymap named *Keymap Range* where one selected pattern will be triggered according to the settings on the row.

Navigate in the keymap using the **[CURSOR]** keys. Adjust the settings using the **LEVEL** encoder.

- **RANGE = RANGE**
- **PAT = PATTERN**
- **OFS = OFFSET**
- **LEN = LENGTH**
- **TRN = TRANSPOSE**
- **TIM = TIMING**

The **Range** column control the upper and lower key range limits for the Keymap Range. Only the upper range limit can be set. The lower range limit is set one key higher than the previous Keymap Range. Adjusting the upper range limit will update the lower range limit for the next range Limit. Keymap Ranges can be inserted using **[FUNCTION]+[DOWN]** and deleted using

**[FUNCTION]+[UP]**. When inserting new Keymap Ranges there need to be room in the current Keymap Range. If the range is to and from the same note no new range can inserted for that position.

The **Pattern** column selects which pattern will be triggered for the Keymap Range. The first pattern named "CUR" is the Current pattern. If Current is selected the Keymap Range settings will be applied to the pattern currently selected when the range is played.

The **Offset** column can set a start offset for the pattern to begin play and loop at for the Keymap Range.

The **Length** column can set a maximum length after which the pattern will loop for the Keymap Range. The Offset need to be set for the Length parameter to be accessible.

The **Transpose** column allows a transpose to be set for the pattern that will be played for the Keymap Range.

The **Timing** column allows the pattern change to be delayed for the pattern that will be played for the Keymap range. It has the same function as the Timing parameter for Multi Trig (please refer to section "MULTI TRIG SEQUENCER START AND SEQUENCER TRANSPOSE" on page 41).

## SYSEX FILE OPERATIONS

In the Global menus FILE>SYSEX SEND and FILE>SYSEX RECV you can save and reload all Monomachine data and settings. You can handle Patterns, Songs, Kits and Global slots individually or in combinations. It is also possible to save the whole memory so you can restore the state of the unit exactly at a later time.

### SYSEX SEND

The SYSEX Send function is used for sending all or part of the patterns, songs, kits and Global slots. The data is sent in the SYSEX format to the MIDI OUT port, and you need to set up a device to listen and store the data sent. This is normally an external computer with a SYSEX utility or a SYSEX enabled sequencer.

You will find the SYSEX Send menu in GLOBAL>FILE>SYSEX SEND. Use the **[RIGHT]** and **[LEFT]** keys to move between the Selection and Range tabs, and inside the Range tab if sub selections are available for the Selection. Use the **[UP]** and **[DOWN]** keys to update the parameters. The **LEVEL** encoder can also be used for setting the ranges.



The **Selection** tab offers the following selections:

- **ALL** - All Monomachine data (Patterns, Kits and Global data). This can be used for making a full backup of all the Monomachine memory data.
- **KIT** - The selected Kits.
- **PAT+KIT** - The selected Patterns and their associated Kits
- **SONG+PAT+KITS** - The selected songs, the Patterns used in them, and their associated Kits.

For all but the “ALL” selections a range can be set using the **[UP]** and **[DOWN]** keys or the **LEVEL** encoder. For “PAT+KIT” you can set the range limits also with the **[BANK]+[TRIG]** keys.

Before transmitting the data, make sure the device connected to the MIDI OUT of the Monomachine is ready and waiting for data. Then perform the data transfer by pressing **[ENTER/YES]**. A SYSEX data counter will be displayed on the bottom of the window, counting until it reaches the number to the right, which indicates the total number of SYSEX messages to be sent.

After the counter has stopped you can exit the window by pressing **[EXIT/NO]**. Don't forget to save the data on the device you recorded it to. At any time during the transfer you can also interrupt the transfer by pressing **[EXIT/NO]**.



- **SYSEX Send mode “ALL” may take several minutes to complete, because of the large amount of data transmitted.**



- **To ensure that your data was received and stored correctly, use the SYSEX verify function in SYSEX receive as described in the section below!**

#### **SYSEX RECEIVE**

The SYSEX receive function makes it possible to restore previously transmitted data back into the Monomachine. There are two methods for receiving incoming SYSEX data named *Original Place* and *Specific Place*. There is also an additional method named *Verify*, which do not alter any information in the Monomachine, only verifies that the messages received are correct.

You will find the SYSEX Receive menu in GLOBAL>FILE>SYSEX SEND. Use the **[RIGHT]** and **[LEFT]** keys to move between the Selection and Range tabs, and inside the Range tab if sub selections are available for the

Selection. Use the **[UP]** and **[DOWN]** keys to update the parameters. The **LEVEL** encoder can also be used for setting the ranges.



First select one of the receive methods from the MODE tab:

- **ORIG** - The Kits, Patterns, Songs and Global slot data received will be placed on the original positions they were located as they were transmitted.
- **SPEC** - You may specify the start positions where you want the Kits, Patterns, Songs and Global slots to be stored.
- **VERF** - The SYSEX data received is only verified so they are correct, they are not stored in memory.

For SYSEX receive mode Original and Verify no further settings can be made, and the “WRITE POS FROM” tab can not be entered.

In SYSEX receive mode Specific the data received can be relocated. The starting positions for each category of data can be specified. Since the Monomachine does not know in advance what kind of, and how much data it will receive, all you can specify is that the data will be placed starting on the positions you specify. If you specify KIT 03 and receive four kits, positions 3 to 7 will be written over no matter where the kits received originally were placed.

After selecting mode “SPEC” in the MODE tab, enter the “WRITE POS FROM” tab using the **[RIGHT]** key, then use **[RIGHT]** and **[LEFT]** key to move between the parameters. Adjust the start positions parameters using the **[UP]** and **[DOWN]** keys or the **LEVEL** encoder.

To set the Monomachine in the mode to receive data dumps, press **[ENTER/YES]**. The message “WAITING...” will be displayed at the bottom of the window.

Now initiate the data send from the sending device. A message is displayed for each chunk of data received.



- Received data will overwrite any previous data in the memory in the positions where it is placed. Make sure you have backed up any important data using SYSEX send.
- Receiving SYSEX data may take a while, depending on the amount of the transmitted data.
- Monomachine only accepts SYSEX data dumps while SYSEX receive is selected and “WAITING...” is displayed on screen.

### MIDI SEQUENCER SETTINGS

The MIDI channels and CTRL-change parameters used per channel is set globally. You find the editor for the Multi Map keymap in the CONTROL>MIDI SEQ SETTINGS Global menu:

TRK	CH	CL1	CL2	CL3	CL4
#1	10	001	002	AFT	004
#2	11	001	002	018	019
#3	12	001	002	016	017
#4	13	001	002	016	017

Use the [CURSOR] keys for navigating in the window. Use **LEVEL** to update the parameters.

The rows control which MIDI channels and CTRL\_CHANGE parameters are used by the six MIDI sequencer tracks.

- **TRK = TRACK**
- **CH = MIDI CHANNEL**
- **CL1-4 = CTRL\_CHANGE 1-4**

In addition to CTRL\_CHANGE 0-127, After Touch (“AFT”) can be selected in the CTRL\_CHANGE columns.



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## CREDITS

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## CREDITS

### PRODUCT DESIGN AND DEVELOPMENT

Anders Andersson  
Anders Gärder  
Daniel Hansson  
David Möllerstedt  
Henrik Sallander  
Fredrik Åhfeldt

### INDUSTRIAL DESIGN

Jesper Kouthoofd

### ADDITIONAL DESIGN

Göran Finnberg  
Charlie Storm

### FACTORY DEFAULT SOUND DESIGN

A01, A03-A16 Erase  
A02, B01-B05 Jesper Kouthoofd  
B06 Gerald Stevens  
B07-B08 Andrew Denyes  
B09-B12 Roonan  
B13-B16 Daren Ager  
C01 John Kimble II  
C02 Ravi Ivan Sharma  
C03 Daniel Hansson  
C05-C16 Charles Storm



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**CONTACT INFORMATION**

**ELEKTRON SUPPORT**

support@elektron.se

**MONOMACHINE WEBSITE**

<http://www.monomachine.com>

**ELEKTRON WEBSITE**

<http://www.elektron.se>

**POSTAL ADDRESS**

Elektron ESI AB  
Erik Dahlbergsgatan 3  
411 26 Gothenburg  
Sweden

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## PRODUCT UPDATES

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## PRODUCT UPDATES

Keep an eye on the support page of the Monomachine website for possible Monomachine OS updates!



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# Appendix A: MACHINE REFERENCE

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In this section all the Mono-synths of the Monomachine are introduced, including specifications for individual machines.



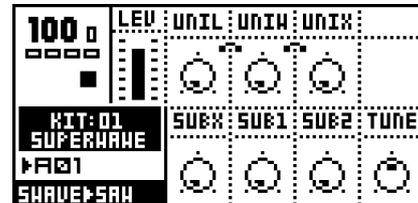
## SUPERWAVE

SuperWave takes its inspiration from the analogue world. It gives warm and thick sounds made from unique algorithms that bring sounds free from all artefacts normally associated with digital processing. The SuperWave Saw and Pulse is a paradise of oscillators and sub oscillators. The Ensemble is specialised in creating polyphonic textures, chords and harmonies.

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### SUPERWAVE SAW "SWAVE-SAW"

The SuperWave Saw machine offers eight analogue style oscillators, organised to bring thick sounds with relevant controls.



- UNIL - Unison Level
- UNIW - Unison Width
- UNIX - Unison Extended Level
- SUBX - Sub Oscillator 1oct, Square
- SUB1 - Sub Oscillator, 1oct, Sine
- SUB2 - Sub Oscillator, 2oct, Sine
- TUNE - 100 cent fine tune up/down

The core of the sound is made up from one base saw tooth oscillator. Setting all parameters to their lowest value leaves only the base saw tooth.

The **Unison Level (UNIL)** parameter controls the *Unison Oscillators* pair of saw tooth oscillators, located over and under the base pitch. The distance from these Unison Oscillators to the base pitch is controlled by the **Unison Width (UNIW)** parameter.

Two additional *Unison Extended Oscillators* (saw tooth) are located over and under the base pitch, at double the Unison Width. Their level is controlled with the **Unison Extended Level (UNIX)** parameter. Unison Extended Level is limited by the Unison Level, so to get any effect from the Unison Extended Level, Unison Level has to be increased first.

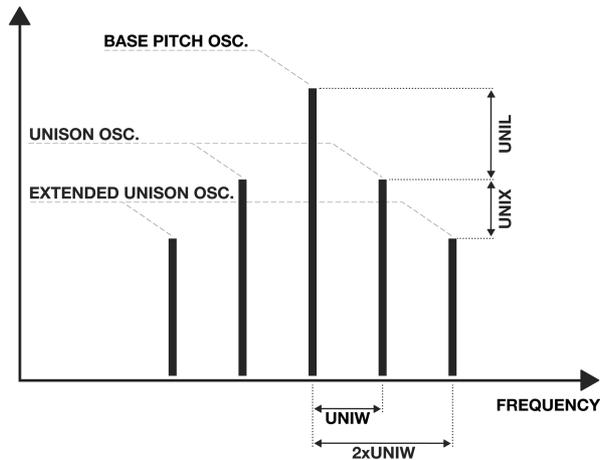
SuperWave Saw offers three sub oscillators:

The **SUBX** parameter controls a Square sub oscillator, located one octave below the base pitch.

The **SUB1** parameter controls a Sine sub oscillator, located one octave below the base pitch.

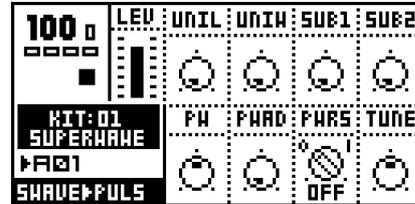
The **SUB2** parameter controls a Sine sub oscillator, located two octaves below the base pitch.

#### SUPERWAVE SAW ILLUSTRATION



#### SUPERWAVE PULSE “SWAVE-PULSE”

The SuperWave Pulse machine offers five analogue style oscillators, three of which offer Pulse Width Modulation.



- UNIL - Unison Level
- UNIW - Unison Width
- SUB1 - Sub Oscillator, 1oct, Sine
- SUB2 - Sub Oscillator, 2oct, Sine
- PW - Pulse Width
- PWAD - Pulse Width Add (sweep)
- PWRS - Pulse Width sweep note-on ReStart

The core of the sound is made up from one base pulse oscillator.

The **Unison Level (UNIL)** parameter controls the *Unison Oscillators* pair of pulse oscillators, located over and under the base pitch. The distance from these Unison Oscillators to the base pitch is controlled by the **Unison Width (UNIW)** parameter.

The *Pulse Width* of the base oscillator and the two Unison Oscillators can be controlled with the **Pulse Width (PW)** parameter. The center value (0) of the Pulse Width gives a square form, and the higher and lower settings turn the waveform towards spike form.

The Pulse Width can be swept between square and spike forms using the **Pulse Width Add (PWAD)** parameter. Setting the PWAD parameter to zero turns off the pulse sweep. The pulse sweep speed increases with higher settings of PWAD.

If **Pulse Width ReStart PWRS** is activated, the pulse sweep controlled with the PWAD parameter will restart from the PW position each time a note-on is played.

The **SUB1** parameter controls a Sine sub oscillator, located one octave below the base pitch.

The **SUB2** parameter controls a Sine sub oscillator, located two octaves below the base pitch.

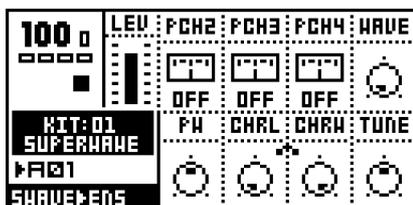
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## SUPERWAVE ENSEMBLE

The SuperWave Ensemble machine offers eight analogue style oscillators, set up with special controls to create up to four note chords with only one machine.

To change chord inside a pattern, use parameter locks!



PCH2 - Pitch 2

PCH3 - Pitch 3

PCH4 - Pitch 4

WAVE - Waveform

PW - Pulse Width

CHRL - Chorus Level

CHRW - Chorus Width

The Ensemble machine generates one single oscillator, single pitch sound with the default settings. The **Pitch 2-4** parameters (**PCH2**, **PCH3**, **PCH4**), when set to a value other than OFF, adds an oscillator offset from the base pitch the number of note steps set. For example, for PCH2=4, PCH3=7, PCH4=OFF a major chord is generated. If C-4 is played, the notes C-4, E-4 and G-4 will sound.

The Pitch 2-4 can also be set to the exact octave intervals 6/5, 5/4, 4/3 and 3/2 for creating *Just Intonated* (cleaner sounding) chords.

The Ensemble waveforms are constructed from two saw tooth oscillators, which can unite to create a set of waveforms ranging from saw tooth through square to spikes.

If the **Pulse Width** (PW) parameter is set to its center value (0), the **Waveform** (WAVE) takes the sound from Saw to Square one octave below base pitch. Adjusting the Pulse Width will mutate the sound, giving various results depending on the Waveform settings. We suggest you to experiment.

The Ensemble also offers a Chorus with **Chorus Level (CHRL)** and **Chorus Width (CHRW)** controls for making sweet string pads.

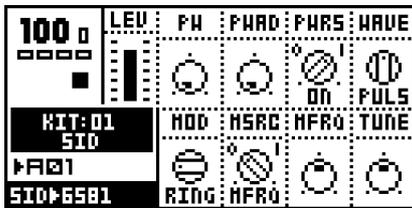
# SID

## SID

The Mono-synth SID is based on the synthesis of the legendary SID chip, from the Commodore 64. The SID-chip was used in the first Elektron synth, the SidStation.

### SID 6581

The SID 6581 machine offers one oscillator of high quality MOS 6581 synthesis, complete with ringmod and sync. Just like the original the oscillators are derived from an extremely fast main counter, giving the crisp highly recognisable sound.



- PW - Pulse Width
- PWAD - Pulse Width Add (sweep)
- PWRS - Pulse Width sweep note-on ReStart
- WAVE - Waveform
- MOD - Modulation Select
- MSRC - Modulation Source
- MFRQ - Modulation Frequency

First select the basic waveform with the **Waveform (WAVE)** parameter. The Waveforms available are:

- TRI - TRIANGLE
- SAW - SAW TOOTH
- PULS - PULSE
- MIX - MIXED
- NOIS - NOISE

Waveforms differing to the standard definitions are MIXED, which is a special digital SID waveform, and NOISE, which gives different sound depending on the pitch it is played with.

The **Pulse Width (PW)** controls the sound of the PULSE waveform, and to some degree also the MIXED waveform. The **Pulse Width Add (PWAD)** and the **Pulse Width ReStart**

control the pulse sweep as described for SuperWave Pulse.

The **Modulation (MOD)** parameter controls the type of modulation to be used. The available selections are:

- OFF - No modulation
- RING - Ring Modulation
- SYNC - Hard Sync
- R+S - Ring Modulation and Hard Sync

All of the Modulations need a second frequency for their operation. The **Modulation Source (MSRC)** parameter controls from where the second frequency is taken.

The first selection is MFRQ, which directs the SID to take the modulation frequency from the **Modulation Frequency (MFRQ)** parameter right next to it.

The second selection is PRCH. PRCH stands for Previous Channel, which directs the SID to look at the frequency played at the track one index less than the one it is placed on. So if MFRQ is set to PRCH for track 2 the SID will take its modulation frequency from the pitch played on track 1. This allows two tracks to simultaneously influence the SID sound.

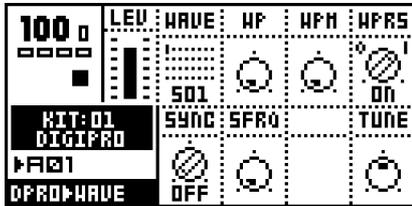
# DigiPRO

## DIGIPRO

DigiPRO offers raw digital waveforms, which can be put into animated life. The BeatBox, which is a part of DigiPRO, offers a percussive toolbox shaped in the traditions of the Machinedrum E12 synth.

### DIGIPRO WAVE “DPRO-WAVE”

The sounds of DigiPRO WAVE are harsh and electrical and stand out in the mix. DigiPRO WAVE is a crunchy waveform based synthesizer, proud of its digital heritage. Often it comes to its best when tamed with a filter.



- WAVE - Waveform
- WP - Wave Phase
- WPM - Wave Phase Modulation (sweep)
- WPRS - Wave Phase sweep note-on ReStart
- SYNC - Hard Sync
- SFRQ - Hard Sync Frequency

The **Waveform (WAVE)** parameter selects from the 32 original 512-byte 12-bit waveforms.

The **Wave Phase (WP)** parameter can transform between the Waveform currently selected, and the next one. The 128 steps between can offer a wealth of new sounds.

The **Wave Phase Modulation (WPM)** parameter can offer continuous sweeps over the Wave Phase range. When WPM is set to zero the sweep is turned off. Higher WPM settings increase the speed of the Wave Phase sweep.

If **Wave Phase ReStart (WPRS)** is activated, the Wave Phase sweep controlled with the WPM parameter will restart from the WP position each time a note-on is played.

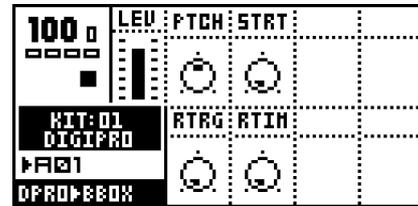
The **Hard Sync (SYNC)** offers the following selections:

- OFF - Hard Sync is turned Off
- SFRQ - Hard Sync is active, frequency from SFRQ
- PRCH - H.Sync is active, frq from Previous Channel

If SYNC is set to SFRQ, the source frequency is taken from the **Hard Sync Frequency (SFRQ)** parameter. If it is set to **Previous Channel (PRCH)**, the source frequency is taken from the track with the index one lower than the current track.

### DIGIPRO BEAT BOX “DPRO-BBOX”

The DigiPRO BeatBox offers a percussive toolbox, with carefully processed 12-bit samples. Unlike the other machines, different sounds are generated depending on which key is played.



- PTCH - Coarse Pitch
- STRT - Sample Start Position
- RTRG - Retrigger
- RTIM - Retrig Timing

A total of 24 percussive sounds are available in the BeatBox. The sounds fill two octaves starting at C-3.

- C-3 - Bass Drum 1
- C#3 - Snare Drum 1
- D-3 - Tom 1
- D#3 - Tom 2
- E-3 - Bongo Congo
- F-3 - Clap
- F#3 - Rim Shot
- G-3 - Cow Bell
- G#3 - Closed HiHat
- A-3 - Open HiHat
- A#3 - Ride Cymbal
- H-3 - Crash Cymbal



- C-4 - Bass Drum 2
- C#4 - Snare Drum 2
- D-4 - Timbale
- D#4 - Aggobell
- E-4 - Timpani
- F-4 - Snap
- F#4 - Wood
- G-4 - Triangle
- G#4 - Shaker
- A-4 - Maracas
- A#4 - Whistle
- H-4 - Blipp

The sounds are repeated for the octaves above and under with adjusted pitch.

All parameters control all the percussive sounds simultaneously. If you want different settings for different steps of a pattern, use parameter locks.

The **Pitch (PTCH)** parameter controls the general coarse pitch.

The **Sample Start Position (START)** parameter can adjust the position where to start playing the sample. This can be used to avoid sharp transients at the beginning of the samples. Setting START to 127 makes the sample start playing at half the sample length.

The **Retrig (RTRG)** parameter can make the sample restart several times. The Retrig parameter sets how many times the sample will restart. Setting Retrig to zero disables the Retrig function, and setting Retrig to 127 gives infinite retrigs.

The **Retrig Timing (RTIM)** parameter sets the time between the retrigs. If RTIM is set low the retrigs will create a pitch, allowing the BeatBox sounds to be used as base for melodic sounds.

# FM+

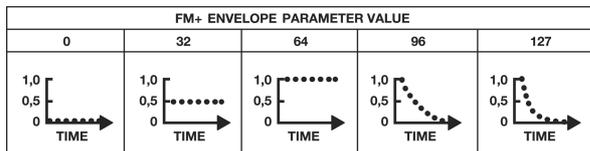
## FM+

FM+ is 21st century FM synthesis. It implements world class frequency modulation algorithms that address the complexity problem normally associated with FM.

All three FM+ machines are based around a number of custom made FM blocks. The machines have then been handcrafted, each with its own personality.

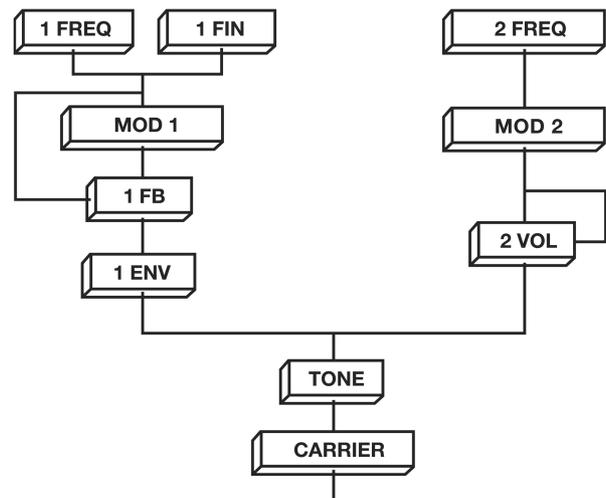
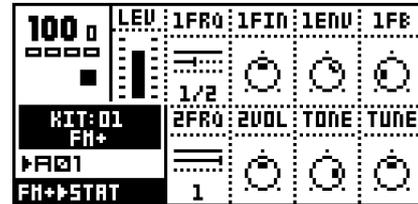
It is not necessary to understand the detailed machine descriptions of the FM+ machines. Good results should be possible to attain only by trying out the effects of the parameters and get a good “feeling” for them.

All the FM+ machines use a special combined amplitude and envelop controller. This is visualised by the figure below:



## FM+STATIC “FM+STAT”

FM+STATIC is the most versatile of the FM+ machines, and the best bet for successful FM synthesis.



- 1FRQ - Modulator 1 Listed Frequency
- 1FIN - Modulator 1 Frequency Fine Tune
- 1ENV - Modulator 1 Volume & Envelope
- 1FB - Modulator 1 Feedback
- 2FRQ - Modulator 2 Listed Frequency
- 2VOL - Modulator 2 Volume & Feedback
- TONE - Harmonics Control

**Modulator 1** offers both fine and coarse frequency tuning. The **1FRQ** parameter controls the coarse frequency from a choice of *Listed Frequencies*, selected for yielding good results for FM synthesis.

The **1FIN** parameter controls the fine frequency tuning for precise adjustments.

The **1FB** parameter controls the Modulator 1 feedback.

The **1ENV** parameter controls the final output volume of the first FM block, as described by the FM+ Envelope figure.

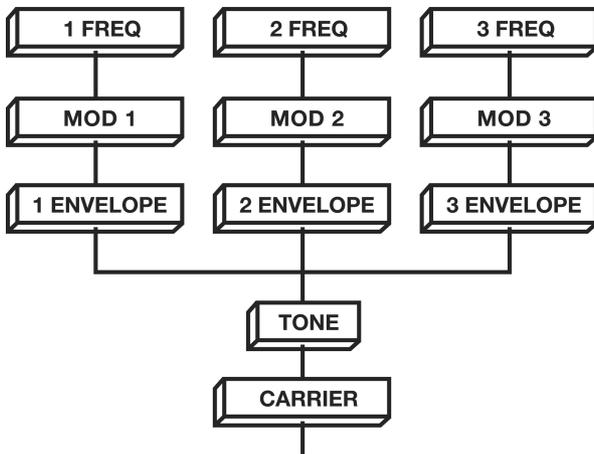
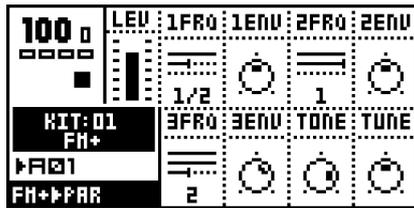
**Modulator 2** frequency is controlled by the **2FRQ** parameter by Listed Frequencies.

The **2VOL** parameter controls the final output volume of the second FM block. For high 2VOL settings amplitude feedback is introduced to emphasize the effect on the carrier.

The **TONE** controller is a general controller for the FM frequencies generated in the system. High TONE settings introduce more high frequency harmonic contents.

### FM+PARALLELL “FM+PAR”

FM+PARALLELL is the bombastic FM+ machine. It brings three exact copies of the most efficient FM+ structure.



- 1FRQ - Modulator 1 Listed Frequency
- 1ENV - Modulator 1 Volume & Envelope
- 2FRQ - Modulator 2 Listed Frequency
- 2ENV - Modulator 2 Volume & Envelope
- 3FRQ - Modulator 3 Listed Frequency
- 3ENV - Modulator 3 Volume & Envelope
- TONE - Harmonics Control

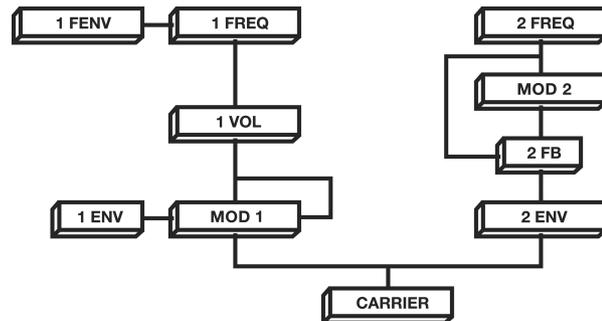
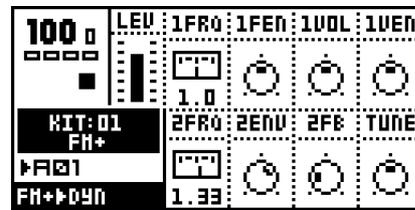
**1-3FRQ** parameters set the Listed Frequencies for **Modulator 1-3**.

The **1-3ENV** parameters control the final output volume of the FM blocks, as described by the FM+ Envelope Figure.

The **TONE** controller is a general controller for the FM frequencies generated in the system. High TONE settings introduce more high frequency harmonic contents.

### FM+DYNAMIC “FM+DYN”

FM+DYNAMIC is the wildest of the FM+ machines, where the frequencies are set continuously instead of using the Listed Frequency.



- 1FRQ - Modulator 1 Linear Frequency
- 1FEN - Modulator 1 Frequency Envelope
- 1VOL - Modulator 1 Volume & Feedback
- 1VEN - Modulator 1 Volume Envelope
- 2FRQ - Modulator 2 Exponential Frequency
- 2ENV - Modulator 2 Volume & Envelope
- 2FB - Modulator 2 Feedback

**Modulator 1** offers linear continuous frequency control through the **1FRQ**.

An exponential envelope, triggered for all note-on's played is added to the Modulator 1 frequency. The speed and depth of the envelope is controlled with the **1FEN** parameter.

The **1VOL** parameter controls the final output volume of the first FM block. For high 1VOL settings amplitude feedback is introduced to emphasize the effect on the carrier.

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An exponential envelope, triggered for all note-on's played is added to the output volume block of Modulator 1. The speed and depth of the envelope is controlled with the **1VEN** parameter.

**Modulator 2** offers exponential continuous frequency control through the **2FRQ**.

The **2ENV** parameter controls the final output volume of the second FM block, as described by the FM+ Envelope Figure.

The **2FB** parameter controls the Modulator 2 feedback.

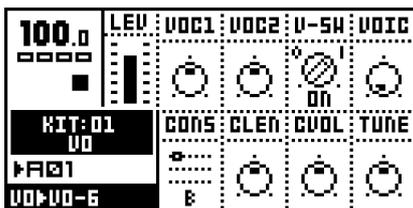
# VO

## VO

VO is inspired by classic voice modelling methods using formant synthesis. The goal has not been to recreate any existing voice or speech synthesizer, but to create a new way of building and controlling a synthetic voice in a way that suits musicians.

## VO-6

VO-6 is the VO incarnation in the Monomachine. It is based around a voicing source, user controllable gradually between pulse or white noise, formant filters and a set of internal envelopes which combines to create a predefined set of consonants and consonant-like sounds.



- VOC1 - Vocal Frequency 1
- VOC2 - Vocal Frequency 2
- V-SW - Vocal Switch
- VOIC - Voice Type
- CONS - Consonant Selector
- CLEN - Consonant Length
- CVOL - Consonant Volume

A trig of VO-6 consists of a consonant and a vowel. It starts with the selected consonant, if any.

Which vowel to be pronounced is controlled with the **VOC1** and **VOC2** Vocal Frequency formant parameters. All vowels can be reproduced in the ranges of VOC1 and VOC2.

If only a consonant and no vowel is preferred, it is possible to turn off the vowel with the **Vowel Switch (V-SW)** parameter. This is good for ending words that end on consonants. If no consonant is selected the vowel will be played regardless of the V-SW setting.

The voice can be adjusted continuously from normal to whisper with the **Voice (VOIC)** parameter.

Using the **Consonant (CONS)** parameter a consonant, or consonant-like sound, can be selected to start the sound. If "-" is selected the sound starts directly with a vowel.

The **Consonant Length (CLEN)** parameter controls how long the selected consonant will be pronounced.

The **Consonant Volume (CVOL)** parameter controls the volume of the consonant. Using this parameter it is possible to change the dynamics of the speech, for instance making the programmed words sound more or less emotional.

Not all consonants are affected by the CLEN and the CVOL parameters; see the table below for reference on which consonants are affected.

CONS	CLEN	CVOL
- (NONE)	-	-
B	-	-
D	-	x
F	x	x
G	-	x
H	x	x
J	x	-
K	-	x
L	x	-
M	x	-
N	x	-
P	-	x
R	x	-
RR	x	-
S	x	x
SJ	x	x
T	-	x
TJ	x	x
TH	x	x
V	x	-
Z	x	x

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## VO-6 TUTORIAL

Getting words out of the VO-6 is pretty straight forward once you get to know it. In this section we offer a short tutorial to get you started. It will make a Monomachine track fitted with the VO-6 spell out the word "Monomachine".

Start with loading the VO-6 machine on one of the Monomachine tracks, and verify that it makes sound as you play it on the Keyboard. Be sure to start with a clear pattern, set the tempo to 120 and make sure that the V-SW encoder in the VO page is set to 1 (on).

You then need to adjust the Amplitude Envelope to make the VO-6 respond the way we want. Set Attack=0, Decay=127 and Release=0. The VO-6 now responds quickly, holds for as long as the note is held, and quiets quickly when we let the note go.

Now we can start with the actual programming. Our method will be to work in four steps for each syllable of the word:

1. Find the right vowel by turning the VOC1 and VOC2 encoders while playing on the keyboard.
2. Choose the right consonant with the CONS encoder and adjust its sound with the CLEN and CVOL encoders. Remember that when you look for the correct consonant you should seek a consonant that makes the sound you want rather than how the word is spelled. For example, if you want to say "cat" you should start with a "k".
3. Now enter grid composing mode. Put a trig on the step where you want it.
4. Press and hold this trig and push each encoder you used in step 1 and 2 to lock the parameters. You might want to lock the VOC1, VOC2, CONS and CLEN parameters.

To program the VO-6 to spell out "Monomachine" we need to set 5 trigs with the sounds "mo"+"no"+"ma"+"shi"+"n". You will find the right vowel for "mo" by setting VOC1=35 and VOC2=5. Trig the machine and it should say "o".

Now select "M" with the CONS encoder, and set CLEN to 5. Now it is time to set the first trig. In grid composing mode, set a trig on

step 1. Hold it while clicking the encoders for VOC1, VOC2, CONS and CLEN, so that these parameters get locked. Also adjust the pitch of this trig by pressing [LEFT] and [RIGHT] while holding the trig. Choose pitch "F-2". Now we are ready with the first trig, time to set the second one.

Make sure the VOC1 and VOC2 encoders are still in the same position as for the first trig, as the vowel for "no" is the same as for "mo". Turn the CONS encoder to "N", set CLEN=5. Set this trig on step number 4. Press and hold it and push the VOC1, VOC2, CONS and CLEN encoders to lock them.

To make a more natural sound, set a note-off trig on step 6 by pressing the [TRIG] key while holding [FUNCTION].

For the third trig we want to say "ma". Set VOC1=127, VOC2=60, CONS="M" and CLEN=5. Set a trig on step 7 and lock the parameters mentioned above.

The fourth trig should say "shi". Adjust the parameters to VOC1=40, VOC2=110, CONS="SJ" and CLEN=0. Set a trig on step number 10 and lock the parameters mentioned above.

If you press play now, the pattern should say "monomachiiii". The last thing we need to do is to end the track with an "n". Make sure that VOC1 and VOC2 retain the settings from last trig. Set CONS="N" with the CONS encoder. Set a trig on step number 13, and lock VOC1, VOC2, CONS and CLEN. This time we also want to lock the V-SW encoder to 0 in order to make it say "n" and then stop. Do this by holding the trig while turning the V-SW to 0.

Now press play and the Monomachine should spell out "monomachine" when you press play.

You can continue exploring the possibilities by adjusting the Track Effect filter, adjust the sample rate reduction or other effects you might think of. You can lock the effects on individual steps to get different effects for the syllables. Use Multi Trig mode to control the pitch of the words in real-time.

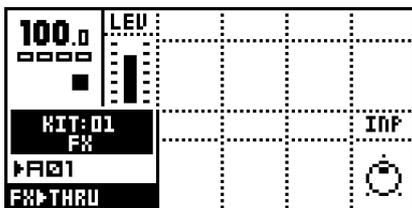
## FX

The FX machine group differs from the other machines of the Monomachine in that they do not generate any sound by themselves. They need to be supplied an audio signal from another source, either internal Monomachine audio, or external audio fed into the Audio inputs. Please refer to section , “USING THE AUDIO INPUTS,” on page 82 for instruction on how to configure the audio input of the FX machines.

Don't forget that also the FX machines need to be triggered to make any sound, and that their output is fed through the Track Effects, of which the Amplification Envelope is part. If you want to let the sound pass through without decaying you should set Attack=0, Decay=127 and Release=127 and retrigger the machine.

## THRU

The Thru machine does not process the audio other than through a signal amplifier, to let you adjust the audio level. It is a good starting point for processing external audio and let it pass through the Track Effects.



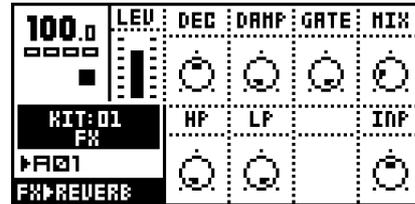
INP - Input Signal Amplification

Adjust the **Input Signal Amplification (INP)** to suit the signal input. Remember you can use the Amplitude Envelope and the rest of the Track Effects, together with the sequencer if you prefer.

The Input Signal Amplificator is available for all FX machines, but only described here.

## REVERB

The Reverb Machine is a specially designed version of the Elektron Gate Space reverb. It offers characteristic gated reverb known from the Machinedrum.



- DEC - Decay
- DAMP - Damping
- GATE - Gate Sensitivity
- MIX - Dry / Wet Signal Mix
- HP - High Pass Filter
- LP - Low Pass Filter
- INP - Input Signal Amplification

The **Decay (DEC)** parameter controls the Reverb Decay time, i.e. how long time the reverberated will stay around before dying out.

The **Damping (DAMP)** parameter can introduce reverb damping, which is the effect of “soft walls”. The higher Damping set the faster the sound will die out. Damping differs from Decay in the way that certain frequencies disappearing quicker.

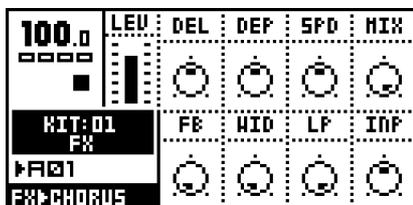
The **Gate Sensitivity (GATE)** controls the amount of time from “low reverb signal level” the Gate will mute all further sound until the input to the reverb once again reach “high signal level”. Setting Gate to 127 keeps the gate always open.

**Signal Mix (MIX)** adjusts the output between the original “dry” signal and the reverberated “wet” signal.

The **HP** and **LP** parameters control the output High Pass and Low Pass filters.

## CHORUS

The Chorus machine implements a 2 x 3 tap stereo chorus.



- DEL - Delay
- DEP - Depth
- SPD - Speed
- MIX - Dry / Wet Signal Mix
- FB - Feedback
- WID - Stereo Width
- LP - Low Pass Feedback Filter
- INP - Input Signal Amplification

The **Delay (DEL)** parameter controls the Chorus taps delay time.

The **Depth (DEP)** parameter sets the depth of the modulation of the Chorus taps.

The **Speed (SPD)** parameter sets the low frequency modulation speed of the taps.

**Signal Mix (MIX)** adjusts the output between the original “dry” signal and the chorused “wet” signal. The best settings are often found in the middle, where the Chorus interacts with the original signal.

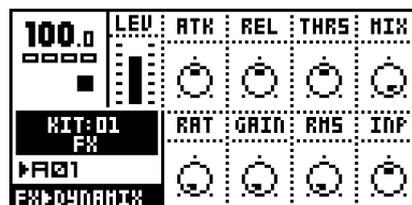
The **Feedback (FB)** parameter controls the Chorus delay taps feedback.

The **Stereo Width (WID)** parameter controls the Stereo Width output of the Chorus.

The **LP** parameter controls the feedback low pass filter.

## DYNAMIX

The Dynamix dynamics processor can be used for increasing the overall sound level of a track or pattern. It can also be used to enhance or reduce transients.



- ATK - Attack
- REL - Release
- THRS - Threshold
- MIX - Dry / Wet Signal Mix
- RAT - Ratio
- GAIN - Makeup Gain
- RMS - RMS Measure Speed
- INP - Input Signal Amplification

The **Attack (ATK)** parameter sets the attack time from 0.5 ms to 100 ms.

The **Release (REL)** parameter sets the release time from 50 ms to 5 s.

The **Threshold (THRS)** parameter controls the compressor knee threshold.

**Signal Mix (MIX)** adjusts the output between the original “dry” signal and the “wet” signal.

The **Ratio (RAT)** parameter sets the compression ratio between 1:1 and 1:255.

The **Makeup Gain (GAIN)** parameter can be used to adjust the output level of the Dynamix.

The **RMS Measure Speed (RMS)** parameter adjusts the sensitivity for very quick changes in the signal. High RMS values make Dynamix less influenced by very quick signal changes. Setting RMS to zero gives a peak detector and a higher RMS makes dynamix look more at the over-all energy level of the signal.

## DYNAMIX TUTORIAL

This is just a general overview of one way you can approach the Dynamix processor. No exact parameter values can be given as they depend on the signal processed.

1. Turn up Ratio. Setting Ratio to zero (1:1) means that the signal will pass straight through. Setting Ratio to its full value 127 (1:255) makes it a so called *limiter*.
2. Turn Threshold down. The peaks of the input signal should now be reduced.
3. Increase the RMS parameter if the incoming waveform is low in overall volume but have high signal peaks.
4. Adjust Attack and Release to match the input signal. Too slow attack will cause overshoots (pumping) in the out signal.
5. Increase Gain to compensate for loss of volume.

# Appendix B: MIDI CONTROL REFERENCE

All Data Entry parameters of the Monomachine are accessible by both MIDI control change messages and NRPN MIDI messages. This appendix lists the full MIDI implementation of the Monomachine, except SYSEX messages.

## MONOMACHINE MIDI SPECIFICATION

The Monomachine uses up to 6 midi channels starting from the Base channel for the internal sequencer and to control the six tracks of sound generation. This is set in the Global slot->Control->Midichanls.

In addition to that one or none channel can be allocated to each of Multi Trig, Multi Map and the Auto Channel.

The MIDI sequencer can additionally use 6 MIDI channels set in Global slot->Midi seq->Midiseq set.

When receiving midi the Midi sequencer channels are not possible to reach if overlapped by any other channel assignment. It is possible to overlap when sending midi.

By setting the span to 0 and turning Multi Trig, Multi Map and the Auto Channel off, no midi is sent from the Monomachine except if the midi sequencer is used.

Legend:  
X - Acknowledged  
K - Only sent from the Keyboard version SFX-6  
B - Only received on the MIDI Base Channel

## NOTE ON & NOTE OFF MESSAGES

NOTE	MIDI Channel	Track	Action	Trn	Rec
ON	Basechannel+0	1	Trig amp, filter & lfo	X	X
OFF	Basechannel+0	1	Amp in release phase	X	X
ON	Basechannel+1	2	Trig amp, filter & lfo	X	X
OFF	Basechannel+1	2	Amp in release phase	X	X
ON	Basechannel+2	3	Trig amp, filter & lfo	X	X
OFF	Basechannel+2	3	Amp in release phase	X	X
ON	Basechannel+3	4	Trig amp, filter & lfo	X	X
OFF	Basechannel+3	4	Amp in release phase	X	X
ON	Basechannel+4	5	Trig amp, filter & lfo	X	X
OFF	Basechannel+4	5	Amp in release phase	X	X
ON	Basechannel+5	6	Trig amp, filter & lfo	X	X
OFF	Basechannel+5	6	Amp in release phase	X	X



NOTE	MIDI Channel	Mode	Action		
ON	Multi Trig	All Track	Distributed to track 1-6	X	X
OFF	Multi Trig	All Track	Distributed to track 1-6	X	X
ON	Multi Trig	Split Key	Distributed according to split setting.	X	X
OFF	Multi Trig	Split Key	Distributed according to split setting.	X	X
ON	Multi Trig	Seq Start	Pattern player start or if in play restart. Multi ENV in attack phase. pattern transpose relative MIDI-C4	X	X
OFF	Multi Trig	Seq Start	Multi ENV in release phase.	X	X
ON	Multi Trig	Seq Transp.	Pattern player start only if in stop. Multi ENV in attack phase. Pattern transpose relative MIDI-C4	X	X
OFF	Multi Trig	Seq Transp.	Multi ENV in release phase.	X	X
ON	Multi Map		Action based on settings in global-multimap	X	X
OFF	Multi Map		Action based on settings in global-multimap	X	X
ON	Auto Channel		Distr. to active track		X
OFF	Auto Channel		Distr. to active track		X

## CONTROL CHANGE MESSAGES

MIDI base channel + 0:

Hex Dec	CTRL Parameter	Trn	Rec
01 01	Track 1 - ModWheelUp	K	X
02 02	Track 1 - ModWheelDown	K	X
03 03	Track 1 - Mute		X
06 06	NRPN Parameter Val		B
07 07	Track 1 - Level	X	X
0a 10	Track 1 - Amp Pan		X
30 48	Track 1 - Synthesis parameter 1	X	X
31 49	Track 1 - Synthesis parameter 2	X	X
32 50	Track 1 - Synthesis parameter 3	X	X
33 51	Track 1 - Synthesis parameter 4	X	X
34 52	Track 1 - Synthesis parameter 5	X	X
35 53	Track 1 - Synthesis parameter 6	X	X
36 54	Track 1 - Synthesis parameter 7	X	X
37 55	Track 1 - Synthesis parameter 8	X	X
38 56	Track 1 - Amp Attack	X	X
39 57	Track 1 - Amp Hold	X	X
3a 58	Track 1 - Amp Decay	X	X
3b 59	Track 1 - Amp Release	X	X
3c 60	Track 1 - Amp Dist	X	X

3d	61	Track 1 - Amp Vol	X	X
3e	62	Track 1 - Amp Pan	X	X
3f	63	Track 1 - Amp Portamento	X	X
48	72	Track 1 - Filter Base	X	X
49	73	Track 1 - Filter Width	X	X
4a	74	Track 1 - Filter HPQ	X	X
4b	75	Track 1 - Filter LPQ	X	X
4c	76	Track 1 - Filter Attack	X	X
4d	77	Track 1 - Filter Decay	X	X
4e	78	Track 1 - Filter Base Offset	X	X
4f	79	Track 1 - Filter Width Offset	X	X
50	80	Track 1 - Effects EQ Freq	X	X
51	81	Track 1 - Effects EQ Gain	X	X
52	82	Track 1 - Effects SRR	X	X
53	83	Track 1 - Effects Delay Time	X	X
54	84	Track 1 - Effects Delay Send	X	X
55	85	Track 1 - Effects Delay Feedback	X	X
56	86	Track 1 - Effects Delay Filter Base	X	X
57	87	Track 1 - Effects Delay Filter Width	X	X
58	88	Track 1 - LFO 1 Page	X	X
59	89	Track 1 - LFO 1 Dest	X	X
5a	90	Track 1 - LFO 1 Trig	X	X
5b	91	Track 1 - LFO 1 Wave	X	X
5c	92	Track 1 - LFO 1 Multiplier	X	X
5d	93	Track 1 - LFO 1 Speed	X	X
5e	94	Track 1 - LFO 1 Interlace	X	X
5f	95	Track 1 - LFO 1 Depth	X	X
62	98	NRPN Parameter Lo (Parameter)		B
63	99	NRPN Parameter Hi (Track num)		B
68	104	Track 1 - LFO 2 Page	X	X
69	105	Track 1 - LFO 2 Dest	X	X
6a	106	Track 1 - LFO 2 Trig	X	X
6b	107	Track 1 - LFO 2 Wave	X	X
6c	108	Track 1 - LFO 2 Multiplier	X	X
6d	109	Track 1 - LFO 2 Speed	X	X
6e	110	Track 1 - LFO 2 Interlace	X	X
6f	111	Track 1 - LFO 2 Depth	X	X
70	112	Track 1 - LFO 3 Page	X	X
71	113	Track 1 - LFO 3 Dest	X	X
72	114	Track 1 - LFO 3 Trig	X	X
73	115	Track 1 - LFO 3 Wave	X	X
74	116	Track 1 - LFO 3 Multiplier	X	X
75	117	Track 1 - LFO 3 Speed	X	X
76	118	Track 1 - LFO 3 Interlace	X	X
77	119	Track 1 - LFO 3 Depth	X	X
7b	120	Track 1 - All Notes Off	X	X



MIDI base channel + 1:					
Same as MIDI Base Channel + 0,   but exchange Track 1 to Track 2					
MIDI base channel + 2:					
Same as MIDI Base Channel + 0,   but exchange Track 1 to Track 3					
MIDI base channel + 3:					
Same as MIDI Base Channel + 0,   but exchange Track 1 to Track 4					
MIDI base channel + 4:					
Same as MIDI Base Channel + 0,   but exchange Track 1 to Track 5					
MIDI base channel + 5:					
Same as MIDI Base Channel + 0,   but exchange Track 1 to Track 6					
MIDI Multi Trig channel:					
01	01	ModWeelUp - Resent to track 1-6	K	X	
02	02	ModWeelDown - Resent to track 1-6	K	X	
MIDI Multi Map channel:					
01	01	ModWeelUp - Resent to track 1-6	K	X	
02	02	ModWeelDown - Resent to track 1-6	K	X	
MIDI Auto Track channel:					
All data resent to active track				X	

## NRPN MAPPING

NRPN Received on MIDI base channel + 0:

Hi	Lo	Val	Parameter	Trn	Rec
00	00	YY	ZZ	Track 1 CTRL-parameter YY to val ZZ	X
01	01	YY	ZZ	Track 2 CTRL-parameter YY to val ZZ	X
02	02	YY	ZZ	Track 3 CTRL-parameter YY to val ZZ	X
03	03	YY	ZZ	Track 4 CTRL-parameter YY to val ZZ	X
04	04	YY	ZZ	Track 5 CTRL-parameter YY to val ZZ	X
05	05	YY	ZZ	Track 6 CTRL-parameter YY to val ZZ	X
70	112	%XXXXXXX	Pitch XXXXXXX for Track 1	X	X
71	113	%XXXXXXX	Pitch XXXXXXX for Track 2	X	X
72	114	%XXXXXXX	Pitch XXXXXXX for Track 3	X	X
73	115	%XXXXXXX	Pitch XXXXXXX for Track 4	X	X
74	116	%XXXXXXX	Pitch XXXXXXX for Track 5	X	X
75	117	%XXXXXXX	Pitch XXXXXXX for Track 6	X	X
7e	126	%XXXXXXX	Amp in release phase on Track X equal to a Note Off on Track X	X	X
7f	127	%XXXXALF	Trig Track X with A=Amp L=LFO F=Filter	X	X

NRPN CTRL-parameter YY mapping:

Range	Destination
00 ... 1f	Synth, Amp, Filter, Effect
20 ... 37	LFO 1, LFO 2, LFO
38 ... 3f	MIDI sequencer
40 ... 45	Multi ENV
127	Level



## OTHER MIDI MESSAGES

### PITCH BEND MESSAGES

MIDI base channel + 0:		
Track 1 - Pitchbend	K	X

MIDI base channel + 1:		
Track 2 - Pitchbend	K	X

MIDI base channel + 2:		
Track 3 - Pitchbend	K	X

MIDI base channel + 3:		
Track 4 - Pitchbend	K	X

MIDI base channel + 4:		
Track 5 - Pitchbend	K	X

MIDI base channel + 5:		
Track 6 - Pitchbend	K	X

MIDI Multi Trig channel:		
Pitchbend - Resent to track 1-6	K	X

MIDI Multi Map channel:		
Pitchbend - Resent to track 1-6	K	X

MIDI Auto Track channel:		
Pitchbend resent to active track		X

### PROGRAM CHANGE MESSAGES

Customizable in the global slot.

XX	Change pattern XX	B	X
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### SYSTEM COMMON MESSAGES

Customizable in the global slot.

F2 242	Song Pointer Position	X	X
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### SYSTEM REALTIME MESSAGES

Customizable in the global slot.

F8 248	Timing Clock	X	X
FA 250	Start	X	X
FB 251	Continue	X	X
FC 252	Stop	X	X



