

Tanzmaus

User Manual

MFB-Tanzmaus

User Manual



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OVERVIEW

Thank you from us at MFB.
First of all, we would like to thank you for having purchased Tanzmaus. We appreciate your choice very much and hope you will have lots of fun with your new instrument.

What is Tanzmaus ("Dancing Mouse")?

Tanzmaus is a drum computer, featuring a combination of real analog and sample-based sound generation as well as a very sophisticated pattern-based step sequencer. The latter provides individual sound settings of any instrument for every step. This way, you can create very complex-sounding beats pretty easily.

Why Tanzmaus? Well, first of all, it is small and cute (would you have thought...?). And then, in 1950s Germany, this is what a blonde girl with pony-tail and petticoat skirts was called, dancing along to the exciting and infectious new rhythms of rock'n'roll music. History lesson over.

Infectious new rhythms...? Hang on a second...

What exactly is going on inside Tanzmaus? Here is a brief overview of its functions:

Sound generation:

- Seven drum instruments with up to seven tweakable and storable parameters. (five real analog instruments, two sample-based instruments with a total of 32 selectable samples).
- Level pots on all drum instruments plus master volume (not programmable in memory).
- Individual outputs (for bassdrum, snare, clap, tom, and one sample-based instrument).

Sequencer:

- 64 patterns (four banks of sixteen patterns each).
- Nine tracks triggering the drum instruments.
- Five LFO tracks for programming pitch modulation (for bassdrum, clap, tom and sample instrument).
- Combination of step number (1 to 32) and scaling (five settings) allows for almost all kinds of time signatures.
- A/B pattern toggle

- Roll/Flam function (multiple triggering)
- Chain function (chaining patterns - not programmable in memory).
- Track mute function
- Shuffle function (global setting – same for all tracks)

The following functions can be programmed **for each track**:

- Track length (up to sixteen steps resp. up to 32 steps when A/B function is active)

The following functions can be programmed **for each step**:

- Step on/off
- Accent level (four settings)
- Flam (multi trigger = flam, rolls etc.)
- Sound setting of current instrument
- LFO settings for BD, tom, sample 1/2 (modulation depth, wave, and speed)

Operation Modes:

Play Mode

- Pattern selection
- Access to sound parameters via front-panel knobs
- Access to play functions (A/B pattern toggle, chain and mute functions)

Manual Trigger Mode

- Triggering instruments via step buttons and/or MIDI notes (with velocity).
- Access to sound parameters via knobs or MIDI controller.

Record Mode

- Programming a pattern.

Synchronisation:

- MIDI clock

Not bad, huh? Of course, it was not possible to place a dedicated control or button for each function on the front panel. Sometimes, a second function level and pressing some button combinations is required to access all functions. To make sure you and your Tanzmaus will become close friends really soon, we advise you to read this manual carefully. This will be the best and easiest way to explore your Tanzmaus thoroughly - and there is pretty much to be explored. So we beg you: please bother to read (and understand) this f...antastic manual.

CONNECTIONS AND INITIAL OPERATION

Rear panel connectors

Power

Please connect the 12VDC / 500mA wall-wart here. Power up/down your Tanzmaus using the ON/OFF switch – do not simply pull the wall-wart from the socket if you only want to turn off Tanzmaus. Please unplug the power supply from the wall outlet if you do not use your Tanzmaus for an extended period of time as the wall-wart is still drawing current and will eventually run hot in course of time. Don‘t waste energy by not using it..



Please use only the power supply originally included wih your Tanzmaus or one with exactly the same specifications - please do not mess around with other external power supplies which do not (or only half-ways) match our specifications! We cannot be held liable for any damage caused by the use of improper power supplies – don‘t say we didn‘t warn you!

MIDI In / MIDI Out

Please connect MIDI devices here. Via MIDI In, Tanzmaus receives MIDI clock, MIDI notes, and controller data as well as program change data. When connecting a MIDI keyboard or MIDI drum pads here, sounds can be triggered live in realtime. Via MIDI Out, Tanzmaus transmits note data of all tracks, MIDI clock, and song position pointer data as well as program change data. Incoming MIDI information can be putted through to the MIDI Out socket (Thru function).

Audio Outs

Tanzmaus features one main audio out using a 6.3mm (1/4“) stereo jack and five additional instrument outputs. The latter put out individual signals of bassdrum, snare, clap, tom, and sample instrument 1 (e. g. for external processing). These are 3.5mm (1/8“) mono jacks. Rimshot and sample instrument 2 are only available from the master out.

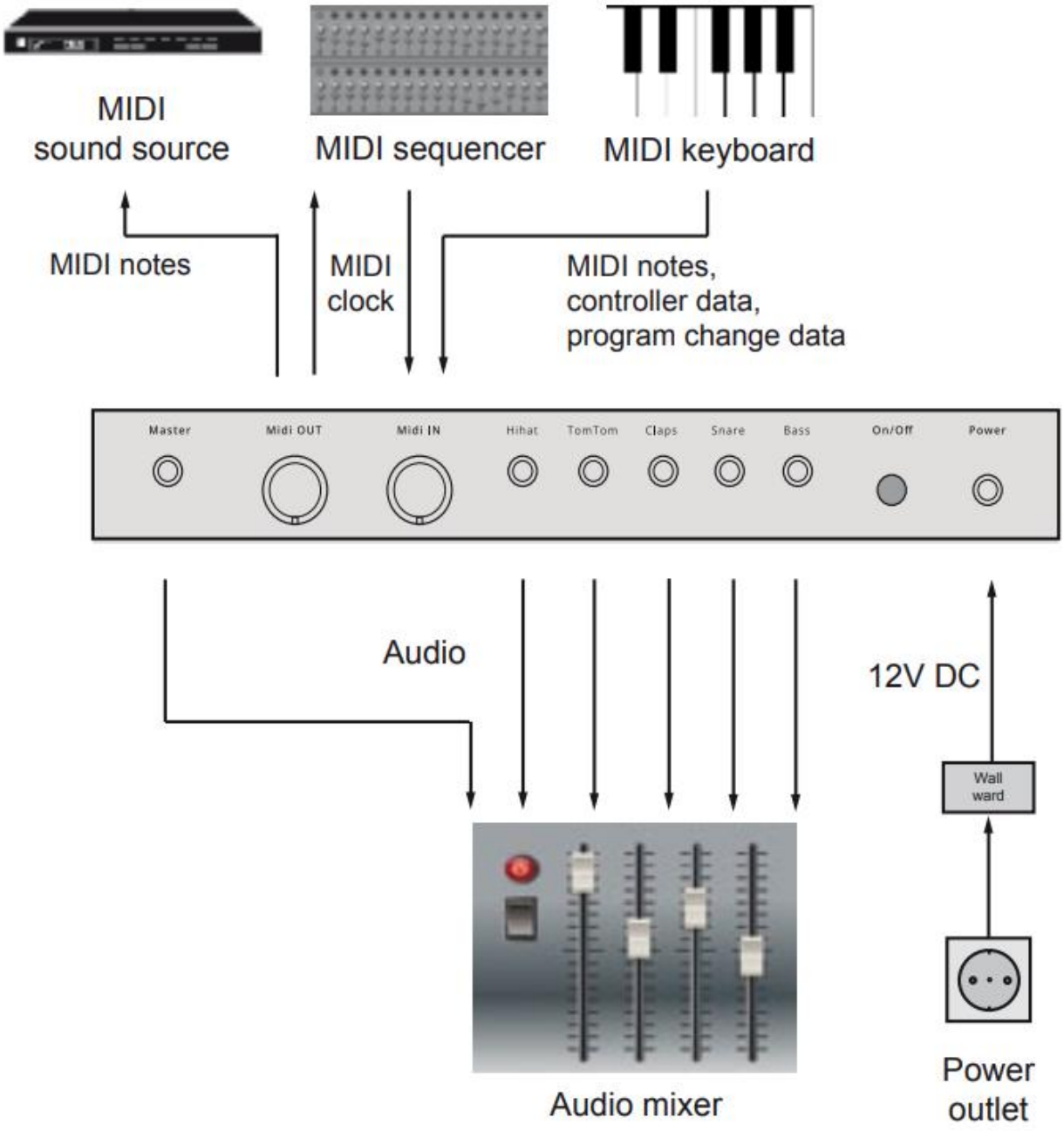
When plugging a cable into an instrument output, this instrument will be disconnected from the main out.

Please connect Tanzmaus‘ main output to an audio mixer, soundcard, or amp before powering up Tanzmaus..



To avoid a cracking or thumping noise, please power up your Tanzmaus first, then your sound system.

Please avoid excessive volume levels – your eardrums and neighbors will be eternally thankful to you.


MIDI
sound source
MIDI sequencer
MIDI keyboard
MIDI notes
MIDI
clock
MIDI notes,
controller data,
program change data
Master
Midi OUT
Midi IN
Hihat
TomTom
Claps
Snare
Bass
On/Off
Power
Audio
12V DC
Wall
ward
Audio mixer
Power
outlet

THE USER INTERFACE

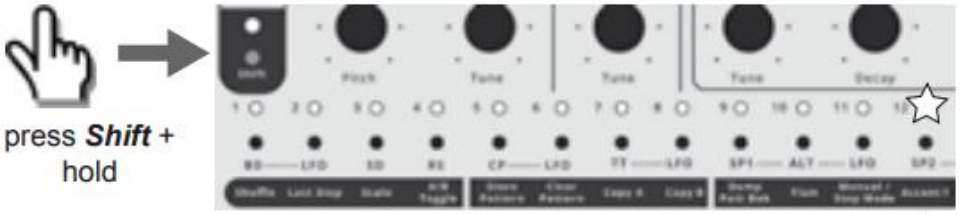
As mentioned already, most of Tanzmaus' buttons cover more than one single function. Depending on the selected mode, the function of the buttons will change.

The main purpose of the **function buttons** (left-hand side) is selecting the operation mode (Play or Record), selecting patterns and banks as well as starting and stopping the sequencer and toggling between the A/B parts of a pattern. These are dual-function keys (except the Select key).

The **Step keys** (lower row) are also dual- or even triple-function keys. Depending on the operation mode, they change their function. In Play mode, they mute tracks and control various playback functions (e.g. shuffle, pattern length, scale, and A/B toggle).
In Record mode, they are used to program the step sequencer. Apart from that, there is an additional sound parameter hidden behind them which cannot be accessed directly via the sound controls. The Step keys are also required when it comes to storing, clearing, and copying patterns.

The **Shift key** (bottom left) accesses the „shift function" resp. second function of the other keys. On the front panel, the shift functions are always labelled in a darker font so make sure you put your glasses on (or turn on the flood lights).
Depending on the dedicated function, the shift function works in two different ways:

When a shift function only has two settings (e.g. on/off), or when all available values can directly be accessed in the next lower level, simply hit the shift key and keep it depressed. Now hit the desired step key to toggle between the two possible settings or enter the desired value. For example, the start/stop function and the selection of the four Accent levels works just this way.



press ***Shift*** + hold



press ***step*** key
(e.g. ***„Accent 1"***)
LED lights up

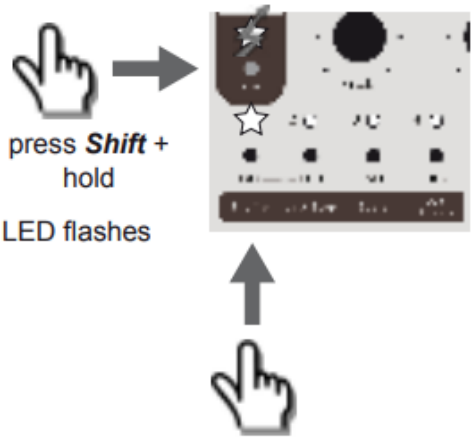
Next, there are shift functions that access another level of possible value settings. It takes an additional function level to access them. They include, for example, the shuffle intensity, the step number of the tracks resp. pattern length („Last Step"), and the scale function. In this case, please select the desired function using both shift and step keys first. Then select the desired parameter value, again using a step key. The example below illustrates the adjustment procedure for the shuffle intensity (Step key 1).

1. Select shift function: Press and hold **Shift** and press **Step key 1**. Shift will be flashing and the step with the current shuffle intensity setting lights up.

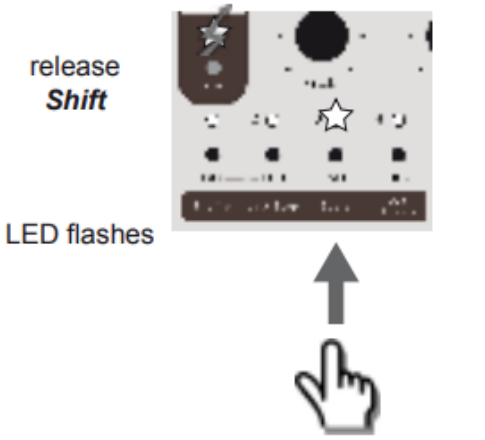
2. Release **Shift** (flashes continuously) and select the desired value by hitting a **step key**. The step keys now correspond to the parameter values 1 - 16.

3. To exit the shift function, simply hit **Shift** again – done.

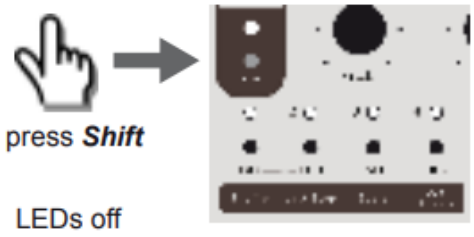
1. Select shift function



2. Select parameter value



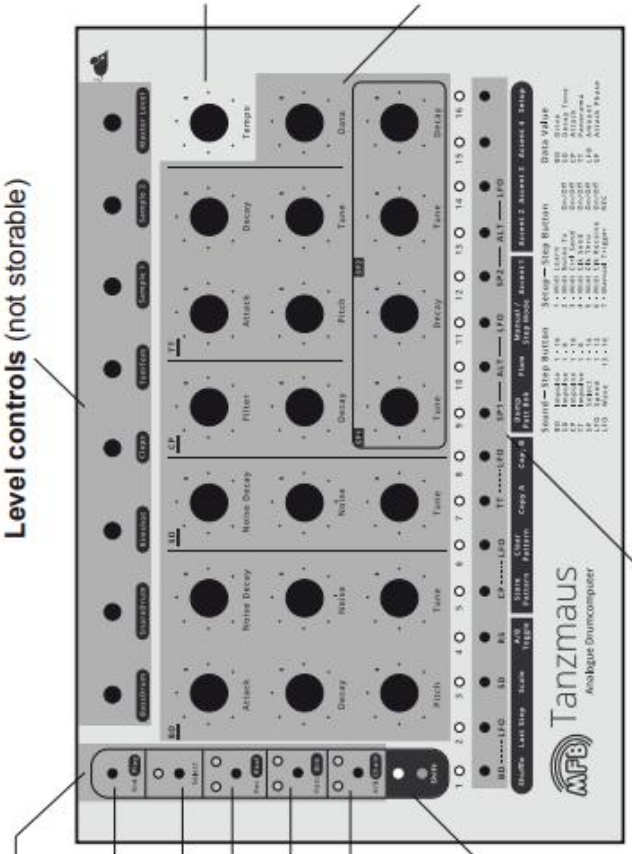
3. Exit shift function



To determine whether the parameter setting/value of a shift function is selected directly or requires an additional step to be selected, the shift LED will either be flashing intermittently or not. In the first case (direct access), the shift LED will stay dark, in the second case (hidden function) it will be flashing.

The following figure will show you which modes and functions are related to specific buttons.

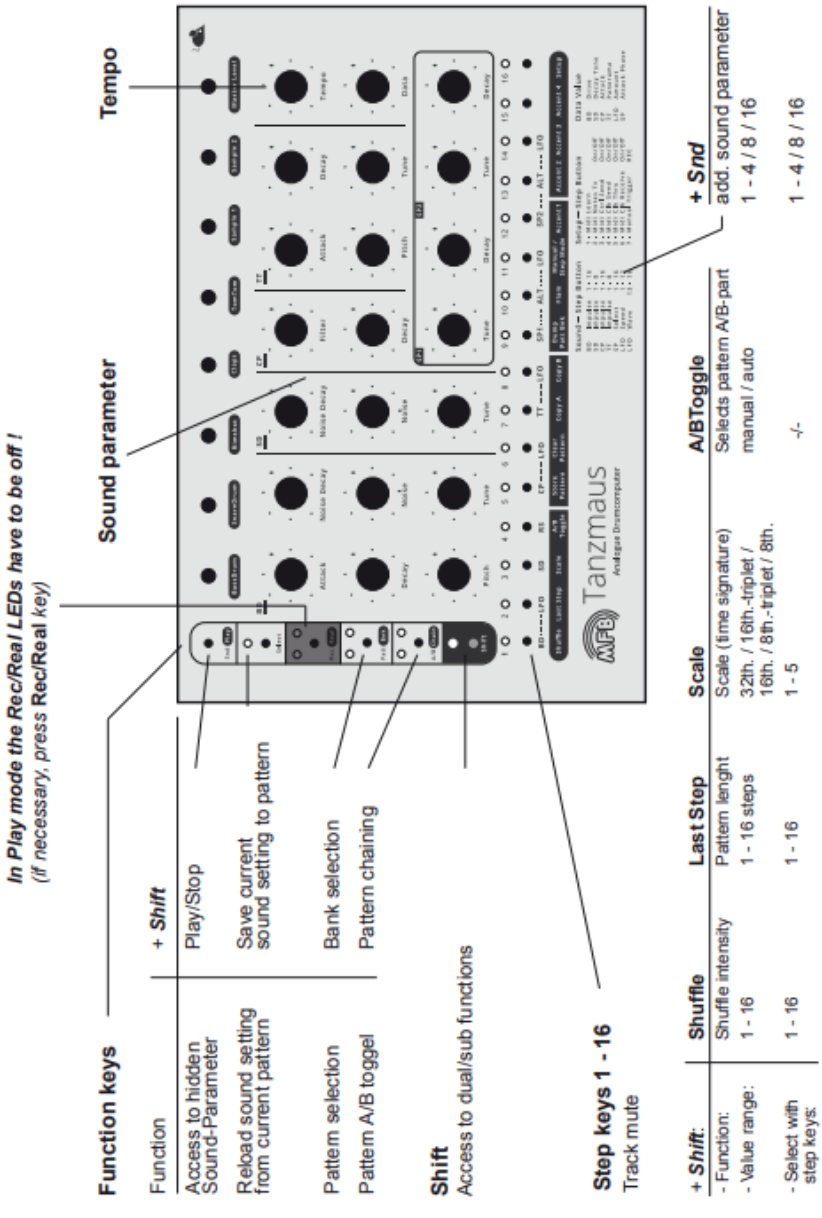
Please note that this is just an overview. You may use it mainly as an orientation or quick programming guide. The complete set of functions and the operating steps necessary will be explained later in the text. Please feel free to read on.



PLAY MODE

First of all, let´s have a go at some demo patterns to give you an idea of what Tanzmaus can do. At the same time, we will learn how to ”perform“ on the Tanzmaus – that is, how to play back patterns, modify them, and how to tweak sounds.
To play back and tweak pre-programmed sounds and patterns, we need to go into PLAY MODE.
The following figure shows an overview of the Play Mode and its functions.

Please bear in mind this is just an overview. You may use it mainly as an orientation – all the necessary operating steps are covered in detail in the following text – please read on carefully.





To enable Play mode, please hit the **Rec/Real** key. Both LEDs above should be idle now.

In Play mode, you can play back patterns. The following functions are available:



- select patterns
- start / stop the sequencer
- adjust tempo
- mute tracks
- tweak the sound settings using the associated controls
- set the shuffle intensity
- select pattern length („Last Step“)
- select scaling – only available when sequencer is stopped
- toggle between pattern parts A and B

Selecting patterns

Tanzmaus offers four pattern banks with 16 patterns each – 64 patterns in total.
Bank 1 contains great beats created by Berlin-based techno wizard Yapacc. If desired, the content of Bank 1 can be overwritten (for example when you believe your beats to be smarter). Banks 2, 3, and 4 are waiting for great creations of your own.

The following figure shows how to select banks and patterns:

Select bank:	**Select preset:**	
hold ***Shift*** + press ***Patt/Bnk***	hold ***Patt/Bnk*** + press ***Step 1-16***	
Patt/Bnk LEDs:		
○ ○ Bank 1	Pattern 1 to Pattern 16	(MFB-presets by Yapacc)
☆ ○ Bank 2	Pattern 1 to Pattern 16	
○ ☆ Bank 3	Pattern 1 to Pattern 16	
☆ ☆ Bank 4	Pattern 1 to Pattern 16	

Starting / stopping the sequencer

- Hold **Shift** + press **Play**. The sequencer will start.
- Hold **Shift** + press **Play** again. The sequencer will stop.

Adjusting tempo

- Turn **Tempo** control.

There is no tempo readout on Tanzmaus. The value range of the control covers approx. 30 BPM to 180 BPM.

Muting tracks

- Press **Step** keys.

When in Play mode, the tracks are directly muted using the corresponding step keys, meaning Step 1 = bassdrum, Step 5 = clap etc. LFO tracks can also be muted. In this case, the pitch of the corresponding instrument will not be modulated anymore. The LED of a muted track will glow at reduced brightness.



You can decide whether mutes will be stored in a pattern or not when using the Save Pattern function for permanent saving. Please use the Setup function #8, described on page 34 of this manual.

Tweaking sounds

- Turn **sound parameter** controls.

By moving the 19 sound parameter controls, you can tweak the sounds of the seven instruments in realtime just as you fancy (BD - bassdrum, SD - snare, CP - clap / rimshot, TT - tom, SP1 / 2 - sample instruments 1 and 2).

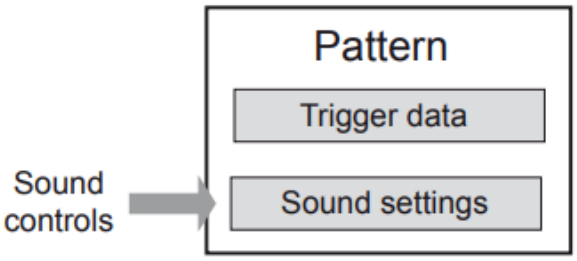
- Press **Select** to reload the sound settings stored in the current pattern.
- Hold **Shift** + press **Select** to store all edits of a sound in the current pattern.
  Attention: The sound settings previously stored in the patterns will be overwritten. There is no undo function so you better think twice!

We will have a closer look at the sound parameters in the next chapter – stay tuned (no pun intended).

Step Mode and Manual Mode

It is about time to try out a very interesting feature of your Tanzmaus: As you may have noticed when playing back patterns, all steps of each instrument can have individual sound settings. In other words, you can program individual sound settings for each step of the sequencer. We will find out later how to operate sounds for individual steps. However, this feature also effects the Play mode – that is why we do not want to keep it secret any longer.

Basically, trigger data (the active steps) and sound settings are stored separately in each pattern. Using the sound controls, you can tweak the sounds at any time without overwriting the stored settings or tampering with the trigger data of the pattern. This opens up two different programming options that we call „Step mode“ and „Manual mode“.



To toggle between Step mode and Manual mode, please use **Shift** and **Step key 11**. When holding down Shift and Step key 11 lights up, Tanzmaus will be in Step mode. Step mode is the default setting.



Manual Mode or **Step Mode** (default setting)

Step Mode

In Step mode, each step of a pattern can have its own individual sound setting. Step mode is the default factory setting. When loading a pattern (page 12), you will hear its sound settings the way they are stored in memory.
Now you can tweak the sounds any time, using the front panel controls. Of course, they will now lose their individual sound settings per step.

- To reload the sound settings stored within the current pattern, simply press **Select**.
- To store the tweaked sound setting in the current pattern, hold **Shift** + press **Select.**



Attention: The sound settings previously stored in the patterns will be over-written. There is NO UNDO! Don‘t say we didn‘t warn you.

Alternatively, you can store the entire pattern (trigger and sound settings) permanently any time, using the Store Pattern function. Please see page 34.

Manual Mode

When loading a pattern in Manual mode, only its trigger data will be loaded. The sound settings are matching the current settings of the front panel controls. That means, when playing back the same pattern in Manual mode, you will not hear individual sounds per step but the sound that matches the current front panel control settings across the entire pattern length.
Of course you can tweak the sound settings again as you feel and store the new creation permanently in the current pattern by using the Store Pattern function (please see page 34).

The following chart compares the options of Manual- and Step mode:

	Manual Mode	**Step Mode** (defaul setting)
Sound-settings:	Sound per pattern	Sounds per step
When Pattern is loaded, you hear:	Sound complies with the current control settings	Sounds comply with the setting stored in current pattern
Pattern store options:	• Store pattern (triggers + sound) with **Store Pattern** function	• Store pattern (triggers + step-sounds) with **Store Pattern** function • Set „live tweaked" sounds back to pattern setting with **Select** • Store „live tweaked" sounds in pattern with **Shift+Select.**



Again: The key shortcut **Shift** + **Select** *only exits the currently selected sound-editing process and prevents unintentionally overwriting the sound with your new sound setting.*
To store the entire pattern (trigger and sound settings) permanently, you need to use the Store Pattern function. Please see page 34.

Shuffle

This function alters the shuffle ratio of a pattern. This is a global parameter, all tracks will be given the same degree of shuffle intensity.

- Hold **Shift** + press **Shuffle (Step 1)** to access the shuffle function.
  Shift LED is flashing, the Step key representing the shuffle intensity value currently active will light up.
- Press **Step 1 - 16** to select one of 16 available shuffle intensities.
  Shift LED is flashing, the newly selected Step key will light up.
- Press **Shift** to exit the shuffle function.

Last Step

This function determines the pattern length resp. its number of steps.

- Hold **Shift** + press **Last Step (Step 2)** to select the Last Step function.
  Shift LED is flashing, the Step key representing the currently active Last Step setting will light up.
- Press **Step 1 - 16** to select the last step of the pattern resp. the pattern length.
  Shift LED is flashing, the newly selected Step key will light up.
- Press **Shift** to exit the Last Step function.



Using this function while the sequencer is running can produce interesting results. Please keep in mind that, in this case, the sequencer will be unable to locate the original downbeat resp. the first note of the pattern. This might cause sync problems when using multiple sequencers, rhythm units, or DAWs.

Scale

Through this function, you can select the scaling of a pattern or, in other words, the note values and the directly related maximum number of steps per pattern. The step keys 1 - 5 provide the following values:

- Step 1: 32th note (32 steps, spread across pattern parts A and B)
- Step 2: 16th note triplets (24 steps, spread across pattern parts A and B)
- Step 3: 16th note (16 steps, default / standard setting)
- Step 4: 8th note triplets (twelve steps)
- Step 5: 8th note (eight steps)

This is how to operate the scale function:

- Hold **Shift** + press **Scale (Step 3)** to select the Scale function.
  Shift LED is flashing, the Step key representing the currently active scaling will light up.
- Press **Step 1 - 5** to select the desired new scaling.
  Shift LED is flashing, the newly selected Step key will light up.
- Press **Shift** to exit the Scale function.

A/B Toggle

As you have just learned from the scale function, a pattern can have a maximum number of up to 32 steps. In order not to waste precious studio space, we have equipped your neat little Tanzmaus with just 16 step keys. Thus, a pattern consists of two halves „A“ and „B“. The A/B Toggle function determines how both halves of the patterns are played back. You have the following options:

- Auto: The entire pattern will be played back, Tanzmaus automatically toggles between part A and part B.
- Manual: Part A or part B will be played back optionally. The selection is done manually using the A/B key.

Both LEDs of the A/B key show the pattern part that is currently being played back. The left LED of the A/B key represents part A, the right one part B.

This is how to operate the A/B Toggle function:

- Hit **A/B chain** key to toggle between the played back pattern halves. The respective LED will light up.

To change the A/B toggle mode:

- Hold **Shift** + press **A/B Toggle (Step 4)** to select between the two available A/B Toggle modes:
  - Auto: A/B Toggle (Step 4) will light up.
  - Manual: A/B Toggle (Step 4) will stay dark.

Chain

Through this function, you can daisy-chain up to sixteen patterns to form a longer sequence. Any pattern order is allowed. The pattern chain cannot be stored permanently, so the function is intended to be used in a live situation. Programming can be done while the sequencer is running. This is how to operate the Chain function:

- Hold **A/B Chain** key + and press up to 16 step keys in any order to program the desired pattern sequence.
- Release **A/B Chain** key.
- Hold **Shift** + press **A/B Chain**.

The pattern sequence that has just been entered is now being played back as an infinite loop.

To stop the playback of the pattern chain,

- again hold **Shift** + press **A/B Chain**.

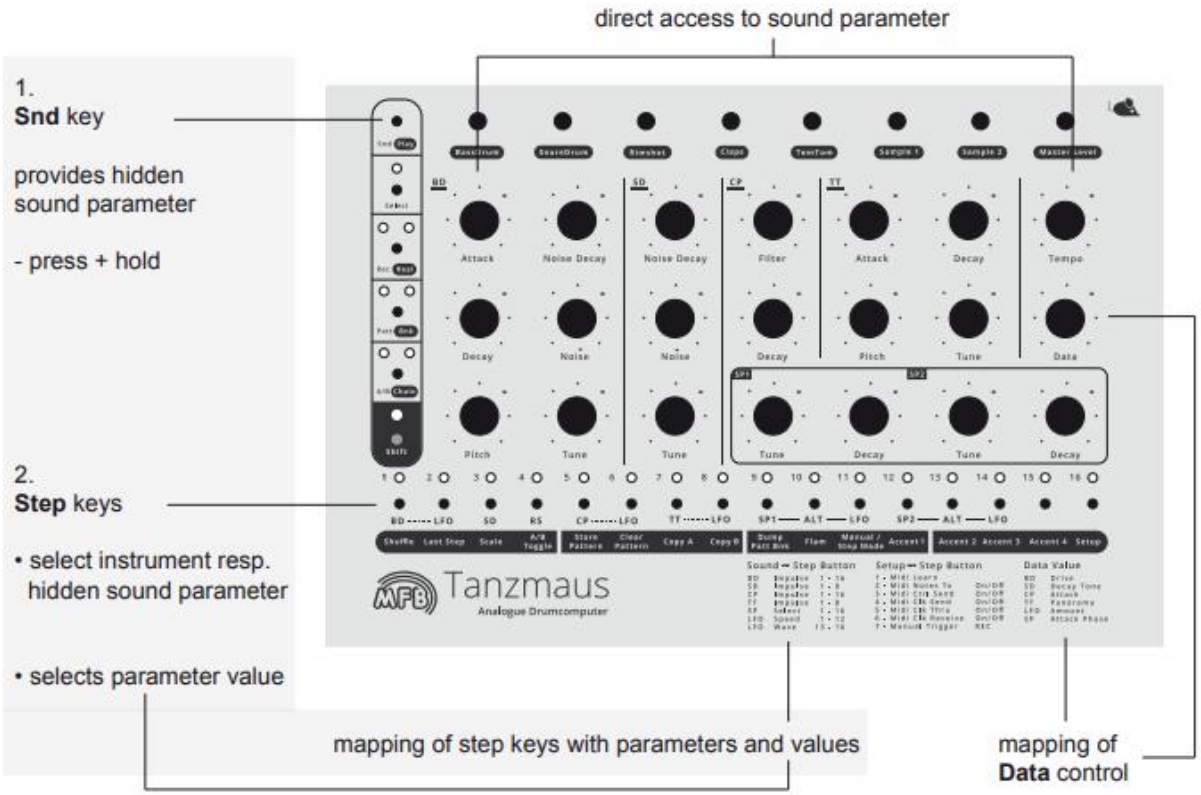
The sequencer will now play back the last pattern selected. You do not need to stop the sequencer playback to access the chain function.

SOUND GENERATION

In this chapter, we are going to introduce the sound generation and its parameters.

Instruments

Tanzmaus offers seven different instruments. Bassdrum, snare, rimshot, clap, and tom use real analog sound generation. Next, you will find two sample-based instruments („SP 1“ and „SP 2“). The latter exist as two different parameter settings each („ALT“). This way, the sequencer provides a total number of nine instruments (sounds) at a time.
Bassdrum, clap, tom as well as both sample instruments, are assigned to LFO tracks which allow for pitch- or tone colour modulation of the respective instrument. All LFO tracks can be edited and muted individually.
The instruments can be edited directly using the controls on the front panel. Apart from that, all instruments offer two additional parameters that can be accessed and edited using the **Data** control resp. the function key „**Snd**“ and a corresponding **step** key.



Snd key and Data control

The Data control offers an additional sound parameter for each instrument (listed as „Data Value“ on the front panel). This is how the sound parameter is accessed:

When the sequencer is idle and the Manual Trigger Mode is active (press **Rec** key – the left LED above the Rec key will light up), the alterations will be immediately audible when triggering an instrument, using its corresponding step key and turning the Data control.

When the sequencer is active, you first have to assign the Data control to the desired instrument (sequencer is running in Play mode):

- Hold **Snd** key.
- Additionally press **step** key to select the desired instrument.
- Release **Snd** key.
- Turn the **Data** control. It has now been permanently assigned to the selected instrument and alters the parameter labelled on the front panel („Data Value“).

Snd keys and Step keys

Through the Sound key (Snd) you can access a hidden sound parameter for some instruments (listed as „Sound – Step Button“ on the front panel). This is how the hidden sound parameter can be accessed:

- Hold **Snd** key.
- Additionally press **step** key to select the desired instrument (depending on the number of available parameter values, several step key LEDs will light up).
  In Record mode, this selection is not required since there is an instrument selected all the time.
- Press **step** key again (while still holding **Snd**) to enter the desired parameter value, e.g. between 1 and 16. You may press several step keys consecutively to try out different settings. The last step key selected will light up permanently.
- Release **Snd** key.

Here you will find a list of all available sound parameters of all instruments:

BD (Bassdrum)

- Attack — controls level of the attack transients
- Decay — controls decay time
- Pitch — controls duration and intensity of the pitch envelope
- Tune — controls pitch (modulation via LFO possible)
- Noise — controls level of the noise signal
- Noise Decay — controls decay time of the noise signal
- Data — controls intensity of the saturation/distortion effect („Drive“)
- Snd+BD+Step — selects between sixteen different attack transients

SD (Snaredrum)

- Tune — controls pitch
- Noise — controls level of the noise signal
- Noise Decay — controls decay time of the noise signal
- Snd+SD+Data — controls intensity of the pitch envelope
- Snd+SD+Step — selects between eight different attack transients

CP (Clap)

- Decay — controls decay time
- Filter — controls tone color of the sound (modulation via LFO possible)
- Snd+CP+Data — controls level of the attack transients
- Snd+CP+Step — selects between sixteen different attack transients

TT (Tomtom)

- Tune — controls pitch (modulation via LFO possible)
- Pitch — controls duration and intensity of the pitch envelope
- Attack — controls level of the attack transients
- Decay — controls decay time (up to infinite tone)
- Snd+TT+Data — controls panorama position (only audible when stereo master out is used)
- Snd+TT+Step — selects between eight different attack-transients

SP1 and SP2 (sample instruments 1 and 2)

- Tune — controls pitch (modulation via LFO possible)
- Decay — controls decay time
- Snd+SP1/2+Data — controls the attack phase of the sample („Sample Attack Phase“)
- Snd+SP1/2+Step — selects between sixteen different samples („Sample Select“). You will find the samples available listed on the MFB website (http://mfberlin.de).

Both sound variations named „ALT“ feature the same set of parameters.

LFO (modulation tracks for BD, CP, TT, SP1, SP2)

- Snd+LFO+Data — controls modulation amount („Amount“)
- Snd+LFO+Step 1-12 — controls LFO speed („Speed“)
- Snd+LFO+Step 13-16 — selects LFO waveshape („Waves“): saw up / down, sine up / down

In addition to the parameters listed above, each instrument comes with a dedicated level control that cannot be programmed / stored. Same thing goes for the Master Volume control. We thought we should point this out in case you were wondering.

RECORD MODE – PROGRAMMING PATTERNS

It is about time now to create your own patterns – please stay tuned.

The different record modes

As you (hopefully) will have learned in the Play mode section, you can program individual sound settings for each sequencer step. Patterns programmed that way can sound much more interesting than you would expect from a drumcomputer with only seven instruments. Still, you might not want to use this cool feature all the time. Sometimes, it can make sense when every beat of a pattern sounds exactly the same across the entire pattern length. Or maybe you feel like tweaking the sound in realtime while the sequencer is running? This is all possible.
Apart from that, you can play Tanzmaus „live“ via step keys or external MIDI devices such as a keyboard, or drum pads. You can even program your pattern in realtime by recording these steps into the sequencer. To provide you with all these features, Tanzmaus uses several different record modes that will be discussed right now (sweaty hands already).

Step Record Mode (page 22)
In this mode, you can set steps, program accent and flam settings as well as sound settings for each step individually, or in groups.

Realtime Record Mode (page 28)
Here, you can tweak the sound settings using the frontpanel controls and record them into an existing pattern in realtime.

Manual Trigger Record (page 29)
In this mode, you can record steps via step keys or external MIDI devices such as a keyboard, or drum pads in realtime. The sounds can be tweaked (but not recorded) via frontpanel controls or MIDI controller in realtime.

Pattern length and scaling (Last Step and Scale)
No matter which mode you select – it makes perfect sense to select specific scaling and pattern length first. This goes for Record mode as well as for Play mode – with one important difference: in Record mode, each track can have an individual length (resp. number of steps). The functions „Last Step“ and „Scale“ are described on page 16 in section „Play Mode“.

Step Record Mode

1. Enabling Step Record mode / select track / select track length



To enable Step Record mode and select the desired track (resp. the instrument) at the same time, please

- hold the **Rec** key + press a **Track** key.

+ Track



When releasing the keys, the right LED above the Rec key will light up. If the selected track contains any steps, their LEDs will light up as well.

You may now (or after any other programming step) determine the length resp. the step number of the selected track using the shift-function „Last Step“ (page 16).



Please note: In Record mode, each track may have an individual number of steps while in Play mode, „Last Step“ is a global parameter. „Scale“ is always applied globally.

2. Setting Steps

- Press **Step** key(s). Their LED(s) will be flashing.

When pressing a step key once, its associated LED will be flashing, telling you that the step is „set“ and puts out a trigger. At the same time, the step is „selected“, waiting for further editing, e.g. sound, accent, and flam settings.
Pressing the step one more time will erase the step from the sequence (LED off).



The tracks SP1/ALT resp. SP2/ALT cannot have identical steps. Setting e.g. step 1 on track SP1 erases a previously setted step 1 from its connected ALT-track and vice versa. The same goes for the tracks SP2/ALT.

3. Editing sounds per step

- Turn **sound** controls (and perhaps the **Data** control) of the selected track/instrument.

All steps previously set / selected will now feature the new sound setting you have just dialled in. Any further step(s) you are entering right now will also be flashing and feature this sound setting.



*If one (or more) step is to feature individual sound settings – the actual purpose of the Step Record mode –, the steps previously selected first have to be „locked“ before other steps can be set and/or selected for further sound editing. The process of „selecting“ and „locking“ sequencer steps is described in the section Programming steps **7** and **8** on pages 24/25. This way, you can set steps and provide them with individual sound settings without having to stop the sequencer.*

You may also proceed with further editing of the steps set previously. The following functions are available:

4. Programming Accents

You can assign one out of five different accent levels to each selected step. This is done using the shift function.

Let's pretend a track has been selected and the Record mode enabled (see programming step ***1***). The selected track features some steps (see programming step ***2***), which – if necessary – have to be selected to be edited (Hold **Select** + press **step(s)** – their LEDs will start flashing). Please now proceed as follows:

- Hold **Shift** + press **Step key 12 – 15 („Accent 1 – 4“).** This will determine the accent level of the selected step(s). The Step key in question will light up.

All steps selected previously (flashing) will now receive the current accent setting. Every further steps you set will also receive this setting. To change these settings again, first „lock“ (see programming step ***7***) and re-select (see step programming ***8***) the desired steps before you enter new values.

5. Programming Flams

Flams are double or multiple drumhits. Drummers use these to make their performance sound more sophisticated, and to attract girl-friends. Tanzmaus provides the option of assigning sixteen different flam patterns to each sequencer step. This is also done by using the shift function.

Again, let's pretend a track has been selected and the Record mode enabled (see programming step ***1***). The selected track features some steps (see programming step ***2***), which – if necessary – have to be selected in order to be edited (Hold **Select** + press **step(s)** – their LEDs will start flashing). Please now proceed as follows:

- Hold **Shift** + press **Step key 10 („Flam“)**. Shift and all sixteen step keys will be flashing, telling you that a shift function has been enabled (flam, in this case) and sixteen different parameter values are up for selection using the step keys.
- Press a **Step key 1 - 16** to select a flam pattern.
  You may press several step keys consecutively to try out different settings. The step key selected last will light up permanently.
- Press **Shift** to exit the shift function. The shift LED will go dark again.

All steps previously selected (flashing) will now receive the current flam setting. All further steps you set will also receive this setting. To change these settings again, first „lock“ (see programming step ***7***) and re-select (see programming step ***8***) the desired steps before you enter new values.

6. Impuls parameter and sample selection

Bassdrum, snare, clap, and toms feature an additional sound parameter that can be

accessed via the shift function („Impuls“). Also, the sample selection for the sample instruments SP1 and SP2 works this way („Sample Select 1 - 16“).

Again, let‘s pretend a track has been selected and the Record mode enabled (see programming step ***1***). The selected track (BD, SD, CP or TT for Impulse parameter, SP1 or SP2 for sample selection) features some steps (see programming step ***2***) which – if necessary – have to be selected in order to be edited (Hold **Select** + press **step(s)** – their corresponding LEDs will start flashing). Please now proceed as follows:

- Hold **Snd**. Depending on the previously selected track, the step keys 1-16 (for BD, CP, SP1, SP2) or 1-8 (for SD, TT) will be flashing, telling you that a parameter value between 1 and 16 resp. 1 and 8 can be selected using corresponding step keys.
- Keep on holding **Snd** + press **step keys 1-16** or **1-8** to select a sample resp. an Impulse setting.
  You may press several step keys consecutively to try out different samples and Impulse settings. The step key selected last will light up permanently.
- Release **Snd** to exit Shift mode. The selected steps will start flashing again.

All steps selected previously (flashing again) will now receive the current Impulse setting resp. sample selection. All further steps you set will also receive this setting. To change these settings again, first „lock“ (see programming step ***7***) and re-select (see programming step ***8***) the desired steps before you enter new values.

7. „Locking“ already programmed steps

Do you like the track you have come up with? That‘s cool – please

- Press **Select**.

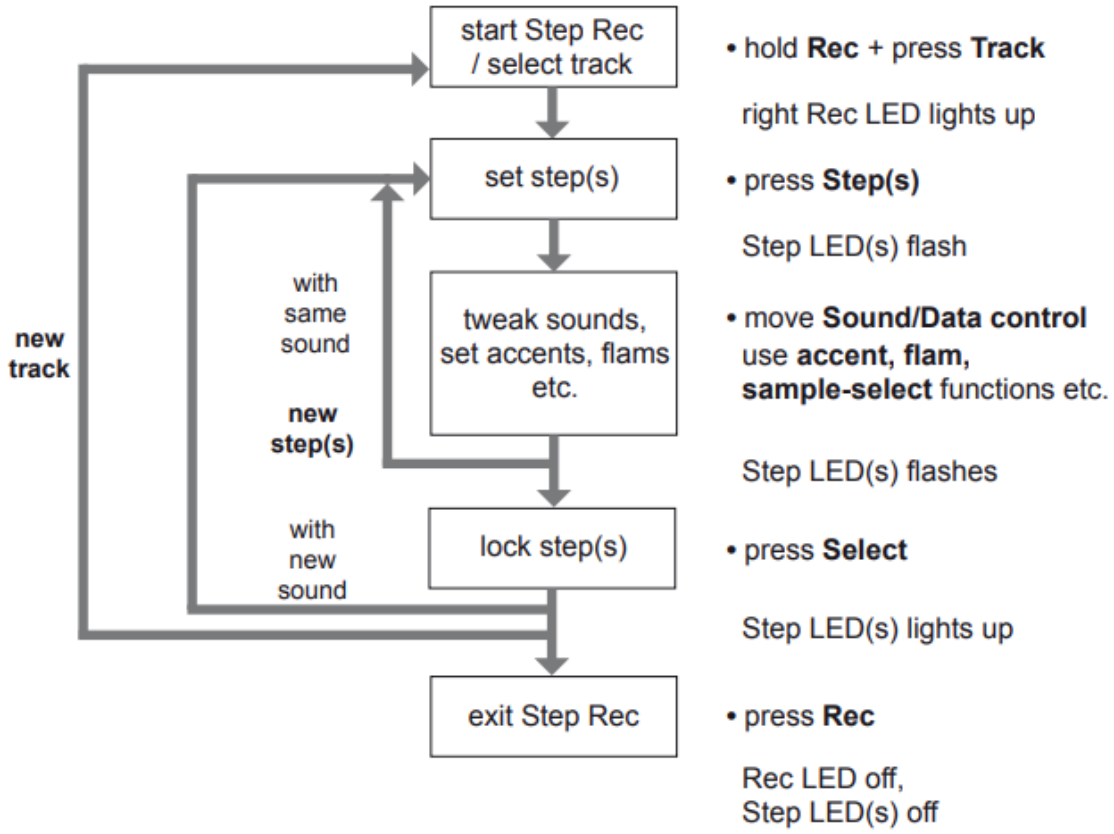
The steps that have previously been flashing will now light up permanently. This is to tell you that the steps have been set and un-selected, i. e. the editing process of these steps has been completed for the time being. Their parameter settings are now protected against overwriting them unintentionally – in other words, they are firmly „locked“ away.



/ lock any steps at any time during the programming procedure described above.

> *Please note: The currently „locked“ settings are now only protected against getting overwritten unintentionally but they have not yet been stored permanently in the pattern itself. If you were to change the pattern now (or decide to power down your Tanzmaus because of your neighbors complaining), the step settings that had just been programmed would be lost forever. To store them permanently, you need to use the „Store Pattern“ function which will be discussed on page 34.*

The following diagram shows a slightly simplified programming sequence of a track. To simplify matters, all step edits (sound, accent, flams etc. – see programming steps ***3-6***) are summed up in one single programming step.



8. Continuing programming process

Still not satisfied with your track? No problem – you can proceed with your track programming work any time and set / edit / erase steps or edit already existing ones, no matter whether individually or in groups.

To re-select and edit already set steps, please

- Hold **Select** + press **step** key(s).

The LEDs of the selected step will flash again, showing you that these steps have now been selected and are ready to be edited. The process continues from programming step ***3***.

To create / edit another track, start again at programming step ***1***. That way you can create an entire pattern track by track.

9. Copying sound setting to other steps

You are lucky – you do not need to perform the entire programming procedure for every new step all over again. Tanzmaus features a copy function that copies the sound, accent, and flam settings to other steps very easily, as well as the impulse and sample selection of any step. Please

- Hold **Select** + press the **source step key**. Its associated LED will start flashing.

- Release **Select**.
- Press **new step keys** to set new sequence steps. These steps will automatically adopt the sound, accent, and flam settings as well as the impulse and sample selection of the source step.

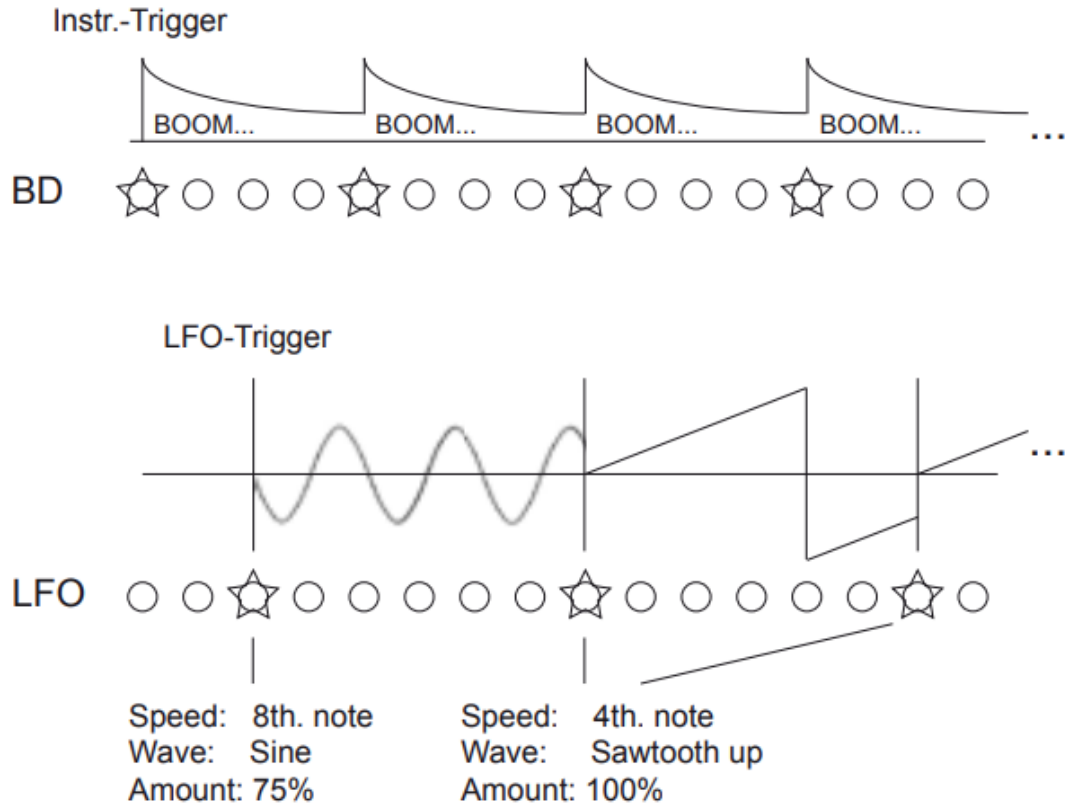


Please note: In this operation mode, the sound controls only access selected (flashing) steps.

10. Programming LFOs

An LFO – low frequency oscillator – provides a continuously sweeping control voltage at a low frequency (usually in sub-audio range). In other words, a slowly rising and falling voltage that is used to modulate sound parameters. This is exactly what is happening inside your Tanzmaus: Bass drum, clap, toms, and both sampling instruments use dedicated LFO tracks to control their respective pitch (tone colour of the clap) – in sync with the beat of your patterns! If so desired, you can also program individual parameter settings for each LFO step.

Instrument track and related LFO track work independently from each other. Whereas steps on an instrument track trigger sounds, a set step on an LFO track triggers a modulation waveform. This waveform oscillates at the selected „speed“, „wave“, and „amount“ settings until the next step set has been reached. Here, it will be triggered again, if desired with different „speed“, „wave“, and „amount“ settings. The following chart shows the relation between Instrument and LFO tracks:



All five LFO tracks are identical. In our example, we will focus on the bassdrum LFO track.

Programming the LFOs is done in a fairly similar fashion as setting the Impulse parameter and the sample selection (please see above). It is done using the shift function.

Let‘s pretend a bassdrum track has already been programmed completely. The BD-LFO track has been selected and the Step Record mode enabled (see page 22, programming step ***1***). Please now proceed as follows:

- Press **step** key(s). The steps set will start flashing and tell you that they have been activated for further editing.
- Turn the **Data** control („LFO Amount“) clockwise. This increases the modulation depth and the effect will become audible.
- Hold **Snd**. The step keys 1-13 resp. 14-16 will start flashing, showing you that parameter values between 1 to 13 („LFO Speed“) or 14 to 16 („LFO Wave“) are now available.
- Keep **Snd** pressed + press **step key 1-13** resp. **14-16** to select LFO speed and wave. The selected step key will light up permanently.
  You may press several step keys consecutively to try out different settings.
  The step key selected last will light up permanently.
  Please keep in mind to dial in a sufficient LFO amount to make the modulation effect audible.
- Release **Snd**. The step key set last will be flashing. Now you can select more steps using Snd + Step(s) in order to assign different LFO settings to them.
- Press **Select**. The edited steps will now be de-selected and the parameter settings „locked“ (when in doubt, please refer to page 25, programming step ***8***).

The key assignment for the LFO parameters works as follows:

Step 1	whole note	Step 7	1/16th. triplet	Step 13	sine up
Step 2	1/2th. note	Step 8	1/16th. note	Step 14	sine down
Step 3	1/4th. triplet	Step 9	1/32th. triplet	Step 15	saw up
Step 4	1/4th. note	Step 10	1/32th. note	Step 16	saw down
Step 5	1/8th. triplet	Step 11	1/64th. triplet		
Step 6	1/8th. note	Step 12	1/64th. note		

11. Shuffle

You can assign some shuffle to you pattern (i. e. delaying one note by a certain factor, shifting the focus of the rhythm a bit – real drummers tend to do this all the time, but not always in musically meaningful ways). To accomplish that, you do not need to exit Record mode or even stop the sequencer. Please note that shuffle is a global parameter which affects all tracks in the same way.
You already know the programming procedure of the shuffle function from the Play mode section. Please refer to page 16 when in doubt. In Record mode, it works exactly the same way.

12. Saving patterns



To save your pattern permanently, you need to use the „Store Pattern“ function, described on page 34.

Programming patterns containing more than sixteen steps.

As you already know, you can program patterns with a length of more than sixteen steps. In the section „Play Mode“ on pages 16 and 17 you have learned about the functions „Last Step“, „Scale“, and „A/B Toggle“ and the way they interact. These functions are also available in Record mode and work the same way here.

Please use the A/B key to toggle betwen both pattern sections „A“ and „B“. This way, you can play back only the section you are currently working on (don‘t complain, the 808 you sold for peanuts ages ago did that in a similar fashion). To use the toggle function, please set the „A/B Toggle“ mode to „Manual“:

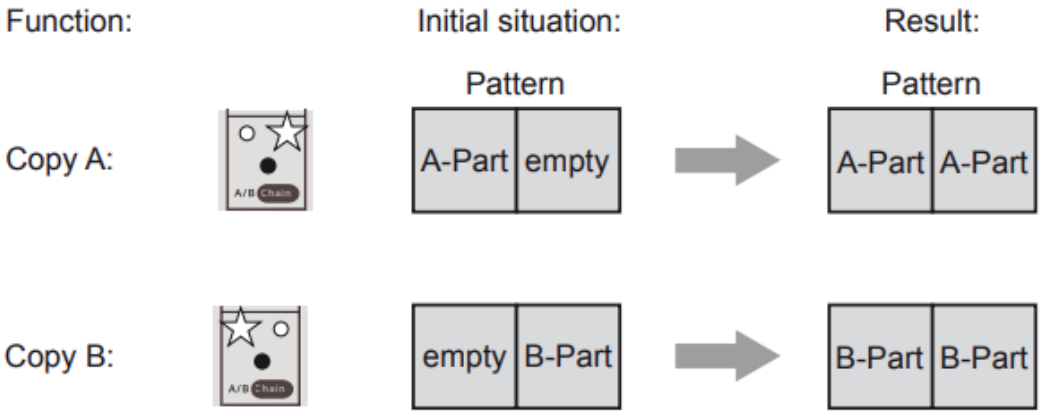
- Hold **Shift** + press **A/B Toggle (Step 4)** to select the A/B Toggle function.
  If the LED of step key 4 stays dark, the function is set to „Manual“.
  Now you can toggle between the pattern sections A and B manually:

- Press **A/B** key to select the pattern section that is to be played back.
  The corresponding LED will light up.

Copy A / Copy B functions

These two copy functions are pretty useful for creating several variations of an existing A/B pattern easily and instantly. Depending on the function („Copy A“ / „Copy B“), the first or second section of the pattern will be copied to the respective other section. It can be used as a starting point for variations.

The following figure shows the different modes of operation of these two functions:



This is how to operate the Copy A / Copy B functions:
Load or create a pattern. This is how to use the copy functions:

- If required, press **A/B** key to select the target section (to copy section „A“ to the empty section „B“, first you have to select „B“ with the A/B key and vice versa – please see figure above).
- Hold **Shift** + press **Step 7** resp. **8 (Copy A / Copy B)**.

Please note:
• In Record mode, these functions will affect the selected track.
• In Play mode, these functions will affect all tracks, resp. the entire pattern.

Clearing Pattern

This function is closely related to the copy functions explained above. You can optionally clear the entire pattern or only the section currently selected.

This is how to clear the currently selected section:

- Hold **Shift** + press **Step 6 (Clear Pattern).**

This is how to clear the entire pattern:

- Hold **Shift** + press **Step 6 (Clear Pattern)** two times.

Please note:
• In Record mode, these functions will affect the selected track.
• In Play mode, these functions will affect all tracks, resp. the entire pattern.

***Attention: There is no undo!** Please think (!!!) twice before using the Clear Pattern function.*

Realtime Record mode

Instead of programming the sound parameters stepwise, you can record parameter changes in realtime. In other words, you can tweak the sound controls of an instrument and record these tweakings into the sequencer. This is how it works:

1. Enabling Record mode / select track



To enable the Record mode and select the desired track (resp. the instrument) at the same time, please

- hold the Rec key + press a Track key.

+ Track



When releasing the keys, the right LED above the Rec key will light up. If the selected track contains any steps, their LEDs will also light up.
To record parameter changes in Realtime Record mode, it obviously is recommended that the selected track contains a certain number of steps. Setting steps works as described on page 22.

2. Enable Realtime Record mode

Shift
+

- Hold **Shift** + press **Rec**. Then release both keys.



For the selected track, the Realtime Record mode has now been enabled. When the sequencer reaches the next downbeat (resp. step 1), the record function will automatically become active and wait for your input.



3. Recording parameter changes

- Move **sound** controls and/or **Data** control.

Over the duration of one pattern, Tanzmaus will record all control tweaks you are now performing on the selected instrument. As soon as the end of the pattern has been reached, the record function will automatically be disabled. If the pattern uses an A and B section, the recording will take place across both sections.
In case you are not happy with the result, simply enable the Realtime Record mode again (programming step ***2***) and repeat the recording process. Feel free to „fine-tune“ your parameter recordings later in Step Record mode. To make things easier, it can be helpful to reduce the tempo while recording.

4. Saving Patterns



To save your pattern permanently, you need to use the Store Pattern function, described on page 34.

Manual Trigger mode / Manual Trigger Record

You can trigger Tanzmaus' instruments in realtime – by hitting step keys or via MIDI, using a suitable MIDI device such as a keyboard, or drum pads. At the same time, you can tweak the sounds of the steps played back in realtime, either using the controls on Tanzmaus' frontpanel or via MIDI controllers. In this operation mode, Tanzmaus will act just like a MIDI expander. We call it „Manual Trigger mode".

Apart from that, the „Manual Trigger Record" function provides recording of steps played ‚live' (but not sound parameter changes).

Triggering and recording instruments in realtime

1. Enable Manual Trigger function



- Press **Rec** key. Its left LED should light up.

The Manual Trigger function has now been enabled. You can trigger all instruments via step buttons and „play along" to a running pattern (you may also sing along if you feel so inclined). Please keep in mind that nothing will be recorded at this point (speaking of which, this might not be too bad when it comes to your singing).



Using the sound controls, you can tweak all instruments in realtime.



Please note that these tweaks only affect the sound of those steps that have just been played live – not of those that might already be a part of the existing pattern.

2. Enabling Manual Trigger Record

To record your „live-performance" resp. steps played in realtime, you need to enable the Manual Trigger Record function. This is done by setup function # 7.

To perform that, please open the setup menu first:

- Hold **Shift** + press **Setup (Step 16)**. The Shift LED will start flashing.

Enabling „Manual Trigger REC" (setup function #7):

- Press **Step key 7**.
  If the Manual Trigger Record function is „on", step LED 7 will light up.

Exit setup function:

- Press **Shift** key.



Please note: The setting „Enable Manual Trigger REC“ is a global function which is permanent, even when you change operation modes or power down Tanzmaus. Through this function you can basically determine whether steps played „live“ will be recorded or not as soon as you enable the „Manual Trigger“ function.

3. Recording / erasing steps in realtime

- Please start the sequencer.
- Press **step** keys. As soon as you hit step keys, these steps will be recorded into the current pattern. The quantisation corresponds to the setting of the Scale parameter.

  To erase steps quickly without stopping the sequencer, please
- hold **Select** + press **Track** key.

While holding both keys, the steps set previously will be deleted as soon as the running sequencer reaches their position. You can enter new steps immediately.

4. Tweaking sound settings

- Turn **Sound** controls and/or **Data** control.

As soon as you turn a Sound control and/or the Data control, the sound of the corresponding instrument will change.



Please note that these tweaks only affect the sound of those steps that have just been entered „live“ on the fly, not of those that might already be part of the existing pattern. This „performance at the controls“ will not be recorded! To record parameter changes, you need to use the Realtime Record mode (please see page 30).

Please also bear in mind that these tweaks will only affect the sound of steps entered live and on the fly, not of those that might already be part of the existing pattern.

5. Storing patterns

To store the new pattern permanently, you need to use the Store Pattern function which will be discussed on page 34.

Manual Trigger Recording via MIDI

As mentioned above, you can record steps via MIDI – e.g. using a MIDI keyboard, or MIDI drumpads. Sounds can also be tweaked „live“ via MIDI controller (but not recorded). Step recording in the Manual Trigger Record function via MIDI works the same way as with step keys.

However, you have to adjust some of Tanzmaus' MIDI functions first. To do that, please use Tanzmaus' MIDI learn function (smart mouse, eh?). The MIDI learn function is used to assign MIDI note numbers and MIDI channels (1 - 9) to drum instruments. The MIDI learn function is to be found in the setup menu.

Please open the setup menu first:

- Hold **Shift** + press **Setup (Step 16)**. The Shift LED will be flashing.

Select „MIDI learn" (setup function #1):

- Press **Step key 1**.

Executing MIDI learn function:

- As soon as the MIDI learn function is enabled, the instrument LEDs will light up successively – starting from step 1 (BD) –, waiting for a MIDI note (and the channel #). As soon as you send a MIDI note to Tanzmaus, it will be assigned to the first instrument (the one with its LED flashing). Now Tanzmaus will automatically switch to the next instrument and wait for input of the next MIDI note (and channel).
  When all instruments have been assigned to MIDI notes, the LED of the Select key will start flashing.
  Now hit **Select** to confirm the assignment and exit the MIDI learn function.

After that, you will need to exit the setup menu:

- Press **Shift** key.

Tanzmaus' sound controls and the Data control will receive MIDI controller data on the MIDI channels that have just been assigned and/or pre-selected.
In the setup menu you can determine whether Tanzmaus is to send MIDI notes and controller data.



Please note: Aside from the Step Record mode, Tanzmaus receives MIDI notes and controller data in all operation modes. This way, you can trigger steps via MIDI notes and tweak sound parameters via MIDI controllers without setting any functions previously. Only recording steps via MIDI notes needs to be activated first by enabling the Manual-Trigger-Record function. This is done via setup function # 7.

MEMORY FUNCTIONS

To enjoy your newly created or edited patterns forever, you have to save them permanently – would you have guessed?



Please note: The so-called „locking" of one or more edited sequencer steps in Step Record mode only prevents overwriting of parameter settings unintentionally by further editing. To save a pattern permanently and in its entirety – individual steps and the sounds assigned to them –, you have to use the Store Pattern function.

The following section describes how to store and erase patterns permanently.

Storing patterns

You can save the current pattern in any pattern memory location. To do so, please

- (If necessary hold **Shift** + press **Patt/Bank** key to change the current preset bank.)
- Hold **Shift** + press **Step 5 (Store Pattern)**.
  All sixteen step LEDs will start flashing.
- Release **Shift**.
- Press **Step** key to save the current preset in the corresponding memory location.
- If necessary, press **Shift** any time to abort the Store Pattern function.



***Attention: There is no undo!** Please think (yes, insert multiple exclamation marks here) twice before you overwrite an existing pattern which was to be used with your million-selling hit record!*

Clearing Pattern

If desired, you can erase resp. initialise the current pattern. To do so, please

- Hold **Shift** + press **Step 6 (Clear Pattern)** two times.

The current pattern has now been erased from memory permanently.

Patterns with more than sixteen steps in length allow for alternatively erasing either their A or B section.

- Press **Patt** key to select the desired pattern section.
- Hold **Shift** + press **Step 6 (Clear Pattern)**.



***Attention: There is also no undo!** Please think (no kidding here this time around) twice before you erase the current pattern or its individual sections! The consequences might be dreadful.*

SETUP / MIDI FUNCTIONS

The setup menu is hidden behind step key # 16 and makes use of eight step keys there, each of them assigned to a sub-function. Here you will find Tanzmaus' MIDI functions in the first place. Also, you can enable the „Manual Trigger Record" function (please see page 31) and determine whether the „Store Pattern" function is to store muted instruments within the current pattern or not (please refer to page 13).
All setup functions are global settings that will be retained after powering Tanzmaus down.

To open the setup menu, please

- Hold **Shift** + press **Setup (Step 16)**. The Shift LED will start flashing.

To edit setup functions:

- Press **Step key 1-8**. The corresponding setup function (please see below) will be set to on/off or toggle between two available settings.

To exit / abort a setup function:

- Press **Shift** key.

The following setup functions are available:

Step key 1: MIDI learn
The MIDI learn function assigns MIDI note numbers and MIDI channels (1 - 9) to Tanzmaus' drum instruments. This is how to operate the MIDI learn function:

As soon as the MIDI learn function has been enabled, the instrument-LEDs will be flashing successively, starting at step 1 (BD) and waiting for a MIDI note (and the channel #) to be entered. As soon as you send a MIDI note to Tanzmaus, it will be assigned to the first instrument (the one whose LED is flashing). Now Tanzmaus will automatically switch to the next instrument and wait for input of the next MIDI note (and channel). When all instruments have been assigned to MIDI notes, the LED of the Select key will be flashing. Now hit Select to confirm the assignment procedure and exit the MIDI learn function.

Step key 2: MIDI note send on/off
Selects whether Tanzmaus will transmit MIDI note numbers while the sequencer is running.
Default setting = on

Step key 3: MIDI Ctrl send on/off
Selects whether Tanzmaus' front panel controls will transmit MIDI controller data or not.
Default setting = off

Step key 4: MIDI Clk send ***on/off***
Selects whether Tanzmaus transmits MIDI clock data while the sequencer is running.
Default setting = on

Step key 5: MIDI Clk Thru ***on/off***
Selects whether Tanzmaus transmits incoming MIDI clock data to its MIDI out socket or not.
Default setting = off

Step key 6: MIDI Clk Receive ***on/off***
Selects whether Tanzmaus receives MIDI clock data or not.
Default setting = on

Step key 7: Manual Trigger REC
This function determines whether steps set „live“ in Manual Trigger mode (by step keys, or received via MIDI) will be recorded into the current pattern or not. In other words: You can enable the Manual Trigger function through this setting. If this setting has been disabled, instruments can be triggered via step keys or MIDI notes but the steps will not be recorded.
Default setting = off

Step key 8: Saving track mutes
This function determines whether track mutes (please see page 13) will be saved into the current pattern when using the „Store Pattern“ function. The function is active when step LED #8 lights up.
Please note that this function is not labelled on Tanzmaus‘ frontpanel.
Default setting = off

Step key 16: Firmware version display
This function shows Tanzmaus‘ firmware version. Two Step LEDs will light up and show the version number like this:

- Step LEDs 1 - 6: Pre-decimal place
- Step LEDs 7 - 16: Post-decimal place

E.g. Step 1 and Step 7 = version 1.0

MIDI dump functions

Tanzmaus allows for transmitting the current pattern bank as a MIDI SysEx datafile. Apart from that, a pattern bank, sent from a suitably equipped MIDI device, can be received by your Tanzmaus.



These functions are only available in Play mode (see page 11). The sequencer must be inactive.

Sending pattern bank

By using the shift function you can send the current pattern bank to a suitable MIDI device. e.g. your DAW.

- Hold **Shift** + press **Step key 9 (Dump Patt Bank)**.

The LEDs of the step keys visualize the progress of the data upload: The LED of the corresponding pattern that is currently being transmitted is flashing. As soon as the data transmission has been completed, the function will exit automatically.

Receive pattern banks

As long as the sequencer is inactive, Tanzmaus will always be ready to receive a pattern bank as SysEx datafile. You do not need to enable any additional functions. The LEDs of the step keys will again tell you about the progress of data transmission.



Attention: When receiving a bank dump, the pattern bank currently selected will be overwritten. There is no undo! So please think (…) twice if you really want to send a bank dump to your Tanzmaus!

MIDI Implementation

MIDI Controller assignment

MIDI_CC_BD_ATT	2
MIDI_CC_BD_DECAY	64
MIDI_CC_BD_PITCH	65
MIDI_CC_BD_TUNE	3
MIDI_CC_BD_NOISE	4
MIDI_CC_BD_NOISE_DEC	5
MIDI_CC_BD_DIST	6
MIDI_CC_BD_TRIGGER	66
MIDI_CC_SD_TUNE	11
MIDI_CC_SD_NOISE	13
MIDI_CC_SD_NOISE_DEC	67
MIDI_CC_SD_TRIGGER	70
MIDI_CC_SD_DECAY_TONE	71
MIDI_CC_CP_DECAY	75
MIDI_CC_CP_FILTER	18
MIDI_CC_CP_ATTACK	76
MIDI_CC_CP_TRIGGER	77
MIDI_CC_TT_TUNE	19
MIDI_CC_TT_DECAY	20
MIDI_CC_TT_TRIGGER	78
MIDI_CC_TT_ATTACK	79
MIDI_CC_TT_PITCH	82
MIDI_CC_TT_PAN	73

MIDI_CC_SAMPLE1_TUNE	84
MIDI_CC_SAMPLE1_DECAY	85
MIDI_CC_SAMPLE1_SAMPLE_SELECT1	86
MIDI_CC_SAMPLE1_SAMPLE_SELECT2	87
MIDI_CC_SAMPLE1_ATTACK	88
MIDI_CC_SAMPLE2_TUNE	89
MIDI_CC_SAMPLE2_DECAY	90
MIDI_CC_SAMPLE2_SAMPLE_SELECT1	91
MIDI_CC_SAMPLE2_SAMPLE_SELECT2	92
MIDI_CC_SAMPLE2_ATTACK	93

The MIDI channel for controller data transfer is always the same as the channel of the corresponding instrument. It is selected with the MIDI Learn function.

Tanzmaus responds to the following MIDI data:

MIDI_CLOCK
MIDI_START
MIDI_CONTINUE
MIDI_STOP
MIDI_NOTE_OFF
MIDI_NOTE_ON
MIDI_CONTROLLER
MIDI_PROG_CHANGE: 0...63
MIDI_SYSEX
MIDI_SONG_POSITION_POINTER

Sample selection

You will find the samples available for the sample instruments 1 and 2 listed on the MFB website (**http://mfberlin.de**).

Service and terms of warranty

Concerning service and warranty conditions, please refer to our terms of business.

Imprint

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Tanzmaus