Venom VB-303

User Manual

Bass Line

Contents

INSTALLATION AND SYSTEM REQUIREMENTS

Requirements:

- OS: winXP (or higher)
- CPU with SIMD (SSE, SSE2)
- VST2 Host (DAW)
  - Multiple MIDI channels required for some features.
- 44.1kHz Sampling Rate (or higher)

Installation:

The .zip file contains the main Venom folder. Unzip it into a directory with read/write access, because the plugin needs to "deploy" some modules within that directory, and the sequencer module needs to create configuration files.
Run your DAW, let it scan for new VST plugins, you should see Venom VB-303 in the list of VST instruments.

Do not rename or move the VB-303 DLL, because it will then create a new sub-directory and re-generate the configuration files and re-deploy modules.

The directory structure should look like this:
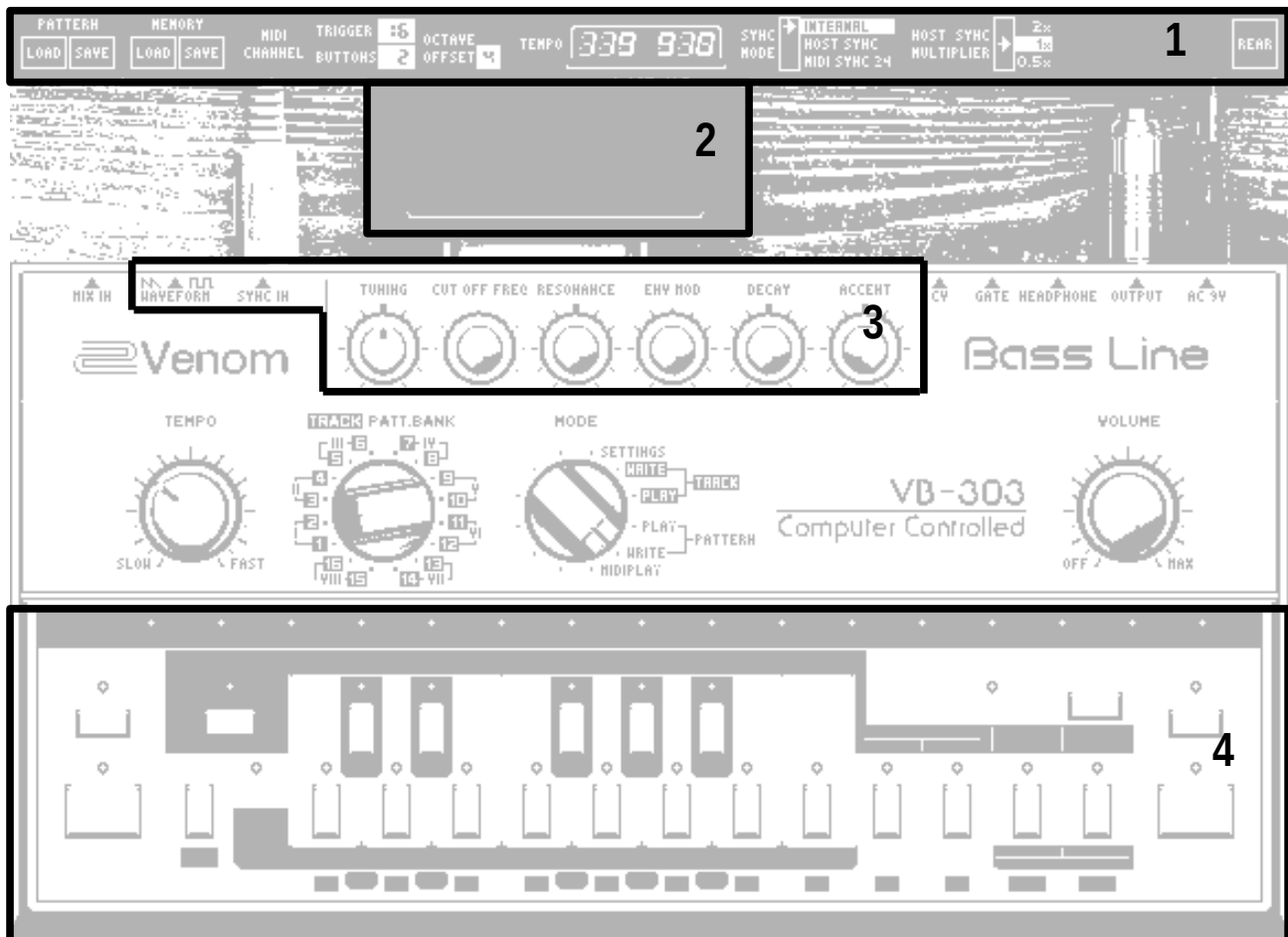
- **Venom**   (main directory)
  - **VB-303.DLL**   (plugin)
  - **VB-303**   (CFG directory)
    - **patterns**   (patterns directory)
    - **N0NS3q_config.cfg**
    - ***.sem modules**

OVERVIEW

Venom VB-303 is an approximation of the classic 303 Bass Line synthesizer.

1. Top Bar
2. Display
3. Tone Control Section
4. Sequencer Section
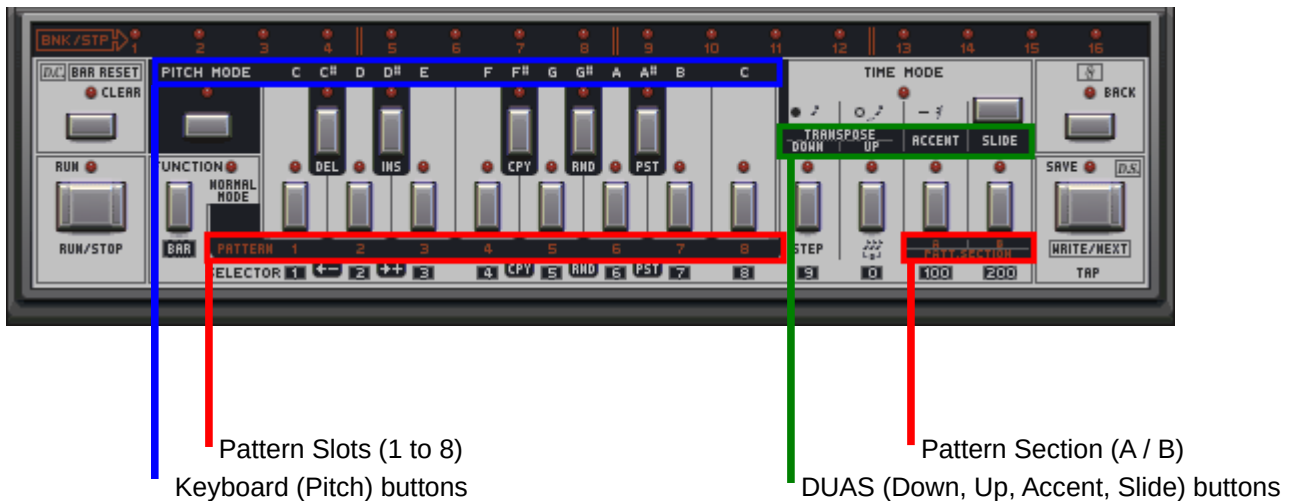
USING THE PATTERN SEQUENCER

The recommended way to use the VB-303 is via the internal Sequencer.
The following pages cover everything you need to know about writing and playing patterns and tracks.

In this section, we will use many of the sequencer functions. Many of these functions are accessible only via button combinations.
Most buttons have alternative meanings.

Here is an illustration of some of the frequently used buttons:

Pattern Slots (1 to 8)
Keyboard (Pitch) buttons

Pattern Section (A / B)
DUAS (Down, Up, Accent, Slide) buttons

Button Mapping

The Sequencer Interface requires a number of button combinations to be used for various tasks.
Pressing the buttons with the mouse is not recommended for three reasons:

1. Only one button can be pressed at a time.
2. the DAW is unaware of this action, and thus it's not recordable as Automation.
3. GUI actions are not sample accurate.

Therefore, the VB-303 Sequencer uses 24 MIDI Notes on a dedicated MIDI Channel, which are mapped to the 24 buttons on the sequencer.
Pressing one of these Notes is interpreted as pressing the corresponding button, thus you can hold one button and press other buttons meanwhile.
This way you can press all of the sequencer buttons via a MIDI Controller (keyboard) or Virtual MIDI keyboard (if your DAW has one) and use the button combinations.
Those MIDI Notes can also be recorded (if your DAW has such functionality) which is similar to automation in a sense.

The dedicated MIDI Channel can be changed from the Top Bar (defaults to 1).
The button mapping can be changed from the CFG file. The default one should be optimal for most cases.
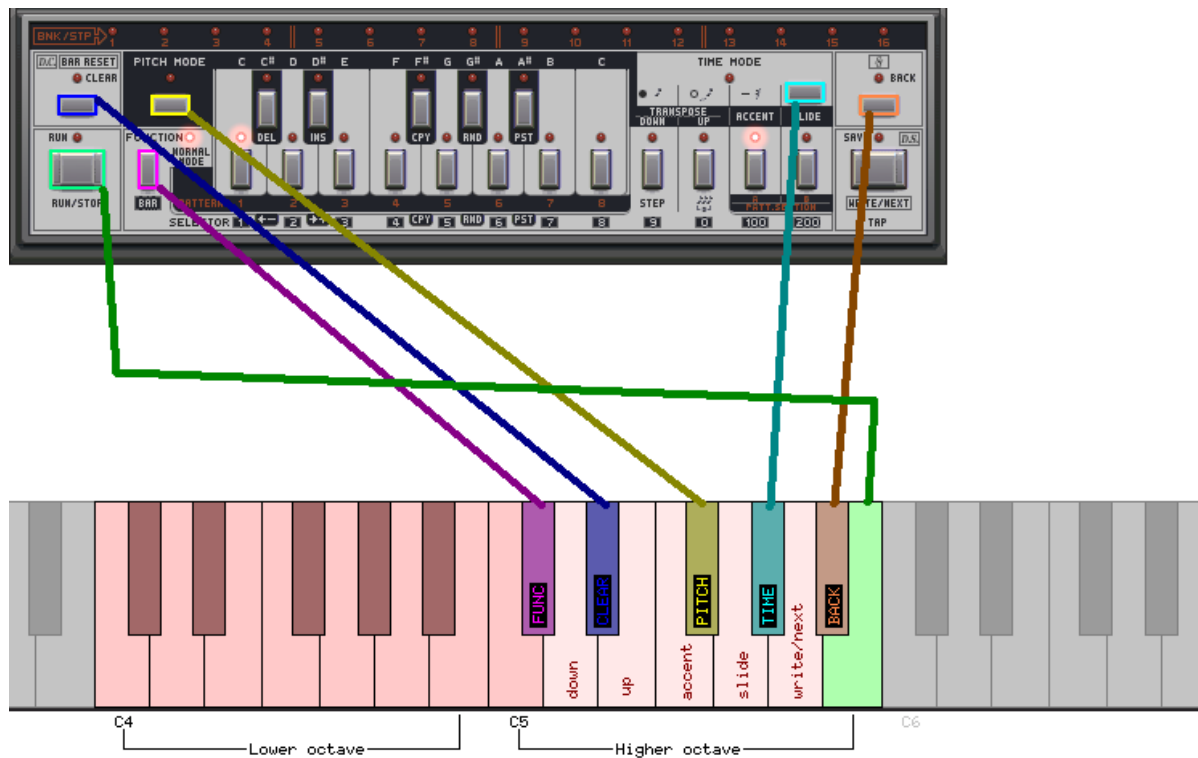
The Keyboard buttons are mapped to the Lower octave.
The remaining buttons are:

C#	Function
D	Down
D#	Clear
E	Up
F	Accent
F#	Pitch Mode
G	Slide
G#	Time Mode
A	Write/Next
A#	Back
B	Run/Stop

The octave offset can be set from the Top Bar.
As an example the picture illustrates the mapping
with the default octave offset of 4.

Sequencer memory and initialization

The VB-303 sequencer has 4608 bytes (4.5kB) memory encoded into text strings and stored in the VST patch memory. This memory is mainly used for the patterns and tracks.

When an instance of the plugin is loaded in the DAW, the sequencer module checks this memory.

- If the text strings are there – everything is normal. This usually happens when the DAW is reloading a previously saved project.

- If the text strings are empty:
  - The sequencer attempts to load "default.nsm" from the same directory where the CFG is located.
  - If "default.nsm" is not present or fails to load – the memory is filled with random data ("battery-out" effect).

In all scenarios, once loaded – the memory is updated to the patch, and the strings will not be empty.

The default preset is set with empty text strings, on purpose. This mechanism makes it possible for the sequencer to distinguish whether the plugin instance is loaded for the very first time, or reloaded with existing patch memory from the DAW.

WARNING: Changing the VST preset is NOT recommended, as it can corrupt the contents of the sequencer memory.

Tip: Use "default.nsm"
- You can use a ".nsm" memory file with your favourite patterns / tracks as a starting point for each instance.
- If you rather like to start each instance "clean" - simply use a .nsm with empty patterns.

Selecting Patterns

The sequencer has 8 pattern banks (I, II, III, IV, V, VI, VII, VIII)
In each bank there are 2 sections (A, B)
Each section contains 8 patterns

To select a pattern:
1. Rotate the **PATT.BANK** selector to the desired bank
2. Select pattern section A or B
3. Press the pattern slot button (1 to 8)

The LED of pattern section A or B will be lit respectively, and the selected pattern slot LED will blink when playing.

Note:
- If sequencer is currently playing, the newly selected pattern will not be activated until the currently playing pattern/chain ends.
- Changing the bank alone does not count as changing a pattern, pressing a pattern slot button does.
- Changing the pattern section (A / B) acts as selecting the same pattern (or chain) from the alternative section, but does not change Pitch Shift.

Pattern Chaining

In addition to selecting a single pattern, multiple patterns can be selected at once.
Up to 4 consecutive patterns can be chained together.
The procedure is identical to the "Selecting Patterns" except the last step.

To select a chain:
1. Rotate the **PATT.BANK** selector to the desired bank
2. Select pattern section A or B
3. Hold the pattern slot button (1 to 8) for the first pattern and press the pattern slot button for the last pattern.

The LED of pattern section A or B will be lit respectively, the pattern slot LEDs for the patterns within the chain will be lit, the slot LED of the currently playing pattern will blink.

Example:
    To chain patterns [1, 2, 3, 4] – Hold the slot button 1 and press slot 4.

Note:
   • Chaining only works for patterns within the same pattern section.
   • When selecting a chain of patterns – press the lower pattern slot number first:
     3 → 6   [3, 4, 5, 6]
     6 → 3   x
   • If a chain is selected, selecting the alternative pattern section (A / B) is equivalent to selecting the same chain of patterns but from that pattern section. Effectively, only the pattern section is changed.

PATTERN EDITING

In this section, we will concentrate on the "Pattern-Write" mode.

A VB-303 pattern stores the following information:

- Time Information (time data)
- Pitch Information (note data)
- Step Mode
- Pattern Length

Time data is an array of steps, each holds one of 3 values:

 Note begin (Gate / ●)

 Note sustain (Tie / O)

 Note rest (Rest / -)

Note data is a list of notes. Notes have the following attributes:

- Key (c, c#, d, d#, e, f, f#, g, g#, a, a#, b, b#, C')
- "DUAS" (on/off flags):
  - Down (transpose -1 octave)
  - Up   (transpose +1 octave)
  - Accent
  - Slide

Step mode can be 4/4 (default) or 3/4 (triplet).

Pattern length can be:
- 1 to 16 steps (when step mode is 4/4)
- 1 to 15 steps (when step mode is 3/4)

Clearing a pattern

- If the sequencer is running – press **RUN/STOP** in order to stop it.
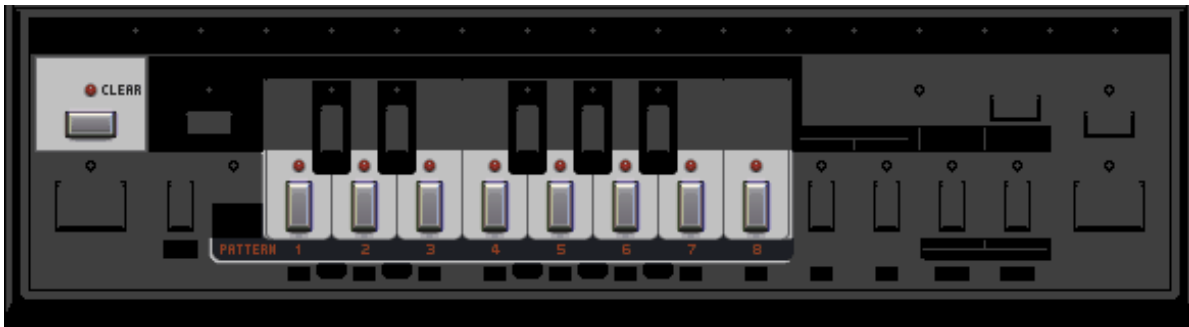
1. Hold **CLEAR**.
2. Press the **SLOT** button(s) of the pattern(s) you wish to clear.

Note:
- When a pattern is cleared, the following changes are made:

  ◦ The time data is replaced with Rests
  ◦ Step Mode is set to 4/4
  ◦ Pattern Length is set to 16
  The pitch data remains unchanged.
- Clear works only with the currently active bank / section.
- Do not press multiple pattern slot buttons simultaneously, press them one at a time.

Setting the step mode of a pattern

- If the sequencer is running – press **RUN/STOP** in order to stop it.

1. Hold **FUNCTION**.
   - If the LED above the **TRIPLET** button is lit – step mode is 3/4.
   - Otherwise step mode is 4/4.
2. Press the **TRIPLET** button to change the step mode.

Setting the length of a pattern

- If the sequencer is running – press **RUN/STOP** in order to stop it.

1. Hold **FUNCTION**.
   - The current pattern length will be shown with the **BANK** LEDs.
2. Press the **STEP** button N times to change the pattern length to N steps.

- Using the **STEP** button sets the length to 1 and then increments the length on each next press.
  As an alternative, you can instead use the **INS** and **DEL** buttons to increment / decrement the current length without starting from 1.

Writing a pattern

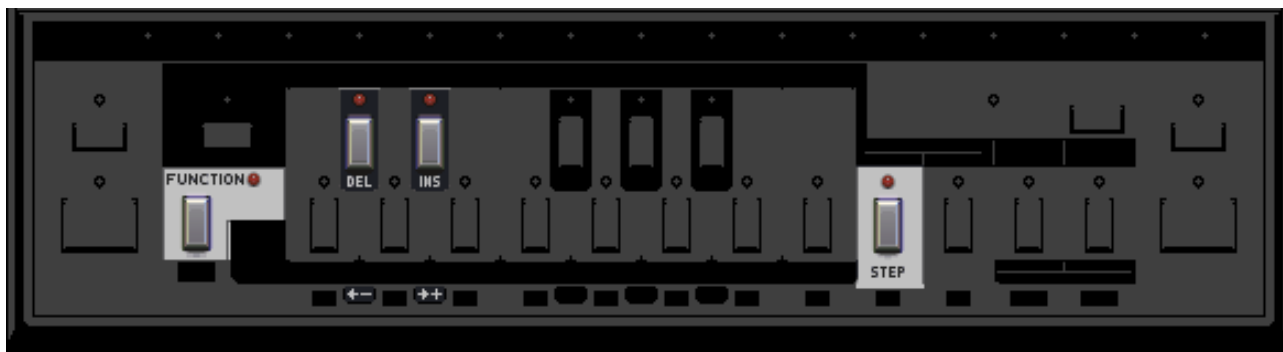To write a new pattern select an unused pattern slot. You might want to clear it.
Make sure the length and step mode of the pattern are as you want, if not – set them so.

Okay, you're ready to write a pattern now.
- If the sequencer is running – press **RUN/STOP** in order to stop it.

1. Press **TIME MODE**.
   - The **TIME MODE** LED will be lit, indicating you're now in Time Mode.

2. Using the ● /O/- buttons (Gate/Tie/Rest) enter the time information for the pattern.
   - Each step of the pattern takes 1 time data value, and once you fill all of them – you will automatically exit Time Mode and the **NORMAL MODE** LED will be lit.

3. Press **PITCH MODE**.
   - The **PITCH MODE** LED will be lit, indicating you're now in Pitch Mode.

4. Using the **KEYBOARD** buttons enter the notes for the pattern.
   - The note will be played by the synthesizer.
   - You can hold the transpose **DOWN** or **UP** buttons before pressing the keyboard buttons in order to transpose the key to a lower or upper octave. You can do this afterwards too.
5. Once you're finished – press **FUNCTION** to exit.

If you need to change a note key or modify the "DUAS" attributes – use the **NEXT** button:

To step through the note list and edit the notes:
1. Press **PITCH MODE**.
   - Even if you were already in Pitch Mode – pressing the **PITCH MODE** button acts like exiting Pitch Mode (thus saving the pattern to memory) and then re-entering Pitch Mode (from the first note in the list).

2. Hold **NEXT**.
   - The next note from the pattern will be played by the synthesizer.
   - While holding the **NEXT** button – you can modify the note.
     - To change the note key – use the **KEYBOARD** buttons.
     - To change the octave – use the transpose **DOWN** / **UP** buttons.
     - To change the Accent attribute – use the **ACCENT** button.
     - To change the Slide attribute – use the **SLIDE** button.
   - Release the **NEXT** button when finished with the current note.
   - Repeat this step as needed.

3. Once you're finished – press **FUNCTION** to exit Pitch Mode.

Example pattern 1:

Time	●	○	●	○	●	○	●	●	○	●	○	●	○	○	○	-
Note	c		e		a#		a# ▲	a		g		d				
Accent							✔					✔				
Slide					✔											

1. Select a pattern and clear it.
   - In this case you don't need to set the length and step mode because they are already set to 16 and 4/4 by default.

2. Press **TIME MODE**.

3. Enter the time information from the table using the Gate/Tie/Rest buttons.

4. Press **PITCH MODE**.

5. Enter the notes from the table using the **KEYBOARD** buttons.
   - The 4th note should be transposed up an octave, hold **UP** before pressing the **a#** button.

6. Press **PITCH MODE** again.

7. Press **NEXT** two times to skip the first two notes.

8. Hold **NEXT** and press **SLIDE**.

9. Hold **NEXT** and press **ACCENT**.

10. Press **NEXT** two times to skip the next two notes.

11. Hold **NEXT** and press **ACCENT**.

12. Press **FUNCTION** to exit Pitch Mode.

That's it!
Press **RUN/STOP** to preview the pattern.

Writing a longer pattern (chain)

Example pattern 2:

Part 1:   Step Mode: 3/4.   Length: 12.

Time	●	○	●	●	○	●	●	○	●	●	○	○
Note	c		c		e		e		g		g		a	

Part 2:   Step Mode: 3/4.   Length: 12.

Time	●	○	●	●	○	●	●	○	●	●	○	○
Note	a#		a#		a		a		g		g		e	

This is a two bar long triplet pattern. Since it's too big to fit into one pattern memory, it's split into 2 separate 12-step patterns.
You can use pattern chaining to write this as one single pattern.

1. Clear two consecutive patterns from the same pattern section (slot 1 and 2 for example).
2. Select the first one and change step mode to 3/4.
   - In this case you don't need to change the length since it's 12 by default for triplet patterns.
3. Repeat the same with the second pattern.
   - Now both patterns are 12-step long with step mode 3/4.
4. Select both patterns as a chain.

5. Press **TIME MODE**.

6. Enter the time information from both tables together.

7. Press **PITCH MODE**.

8. Enter the notes from both tables together.
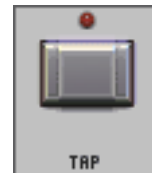
9. Press **FUNCTION** to exit Pitch Mode.

That's it!

Tap-write mode

In the previous section "Writing a pattern", you learned how to write a pattern by first entering the time information, then the notes.
In this section we'll enter the notes first, and then use Tap-Write mode instead of Time Mode.

In Tap-Write mode you can basically program the time information for the pattern just like you do it in Time Mode, but instead of entering each time data value step by step – you "tap" a button while the sequencer is running, and the values are assigned automatically.

1. Select a pattern, clear it.

2. Press **PITCH MODE**, and enter some notes in.

3. Press **FUNCTION** to exit Pitch Mode.

4. Press **RUN/STOP** to run the sequencer.

5. Press **CLEAR**.
   • The pattern time information will be cleared (set to Rest values).
   • You're in Tap-Write mode now.
   • A metronome will start beeping.

6. Use the **TAP** button to "tap" the notes into the pattern.
   • Once you start tapping – you will automatically exit Tap-Write mode when the pattern ends.

Pressing the **TAP** button writes a ● (Gate) on the current step.
Holding the button writes O (Tie) values on the following steps, which simply extends the length of the note.
When the **TAP** button is not pressed – nothing is written and the Rest values remain.

If you're having trouble when tapping-in long notes without Rests between them – hold a pattern slot button (slot 1 for example) while pressing the **TAP** button, this will act as a sustain while the **TAP** button will still write new Gate values.
Or simply slow down the tempo.

If you made a mistake simply press **CLEAR** again and retry.
You can also refine the results in Time Mode.

Note:
   • When you use Pitch Mode first, the notes may not be written to memory. They will however remain in the pitch buffer.
     Once you write the time information (via Time Mode or Tap-Write mode) the used notes will be written to memory.
   • As a simple rule: when you use Pitch Mode first – don't select other patterns as that can overwrite some or all notes which are only hanging in the pitch buffer.
   • Don't confuse this function with clearing the pattern. Here only the time information is cleared, but the pattern length and step mode remain.

Pattern file Load / Save

The VB-303 sequencer lets you export and import patterns. This is very convenient way to backup your favourite patterns or share them between other compatible devices.

Up to 4 patterns can be stored into a single file (depending on the format).

Supported pattern file formats:

FORMAT	Type	Multiple patterns in one file	3/4 mode	Can Load	Can Save	Description
.NSP (n0ns3q)	Binary (RAW)	YES	YES	YES	YES	Default format. This format is also used in c0nb0x.
.NSP (n0nseq - beta1)	Binary	NO	NO	YES	NO	The old version of the NSP format. Import-only for backwards compatability.
.303 (S303FF/P)	Text	YES	YES	YES	YES	Text format suitable for sharing patterns on the internet. Compatible with the 303 pattern writing convention.
.PAT (ABL2 / Freebee)	Text	NO *	YES	YES	YES	Text format of ABL2. Suitable for sharing patterns on the internet.
.SYX (qs303)	Binary	NO	YES	YES	YES	QuickSilver 303 pattern format. Compatible with OS v1.24A and below.

* ABL2 patterns can have a length of 1 to 64 steps. ABL2 patterns with step mode 4/4 can be loaded (they are split into individual patterns). ABL2 patterns with step mode 3/4 are split into individual triplet patterns of up to 15 steps, thus only up to 60 total steps can be loaded. Multiple patterns (up to 4) from the VB-303 can be exported into ABL2 format, as long as they use the same step mode.

To load from a file:

1. Click the **PATTERN LOAD** button (from the Top Bar).
   - A file-select dialog will pop up.

2. Select a pattern file using the dialog.
   - If an error occurs – it will be shown on the Display. You will have to press **BACK** to return back to Normal Mode.
   - If no errors occur – proceed to the following steps.

3. Select the destination slots for the pattern(s) to be written to.
   - You can press **BACK** to abort.

4. Press **WRITE** to confirm.
   - The pattern(s) will be written to memory.

To save to a file:

1. Click the **PATTERN SAVE** button (from the Top Bar).

2. Select which pattern(s) you want to save.
   • You can toggle the pattern slots.
   • The order in which you select the patterns is the order in which they will be written to the file.
   • You can press **BACK** to abort.

3. Press **WRITE** to confirm.
   • A file-select dialog will pop up.

4. Select a file name for the file to be created using the dialog.
   • The pattern file format can be selected from the dialog. The default is NSP.
   • Once you confirm the file name – the file will be created.
   • If an error occurs – it will be shown on the Display. You will have to press **BACK** to return back to Normal Mode.
   • If no errors occur – you will be automatically returned to Normal Mode.

Memory file Load / Save

The VB-303 sequencer lets you export/import the whole (4.5kB) contents of the memory.
This includes all patterns and tracks.

Supported memory file formats:

FORMAT	Type	Number of Patterns	Number of Tracks	Can Load	Can Save	Description
.NSM (n0ns3q)	Binary (RAW)	128	16	YES	YES	Default format.
.NSM (n0nseq - beta1)	Binary	120	-	YES	NO	The old version of the NSM format. Import-only for backwards compatability.

To load memory from a file:

1. Click the **MEMORY LOAD** button (from the Top Bar).
   • A file-select dialog will pop up.

2. Select a memory file using the dialog.
   • Loading memory takes some time, a progress bar will be displayed.
   • If an error occurs – it will be shown on the Display. You will have to press **BACK** to return back to Normal Mode.
   • If no errors occur – you will be automatically returned to Normal Mode.

To save memory to a file:

1. Click the **MEMORY SAVE** button (from the Top Bar).
   • A file-select dialog will pop up.

2. Select a file name for the file to be created using the dialog.
   • Once you confirm the file name – the file will be created.
   • If an error occurs – it will be shown on the Display. You will have to press **BACK** to return back to Normal Mode.
   • If no errors occur – you will be automatically returned to Normal Mode.

PATTERN PLAYING

In this section, we'll quickly cover Pattern Play mode.

Pattern Play mode is very similar to Pattern Write mode, except that there is no pattern editing functionality, and there is a Pitch Shift function.

Selecting patterns and chains of patterns has been covered already. The only difference here is that Pitch Shift is reset (in some conditions) when a new pattern/chain is selected. More on that later.

Pitch Shift

Pitch Shift is a way to transpose the whole pattern/chain.
It's not saved to memory, it doesn't modify the patterns either.

It's available in the following modes:
  • Track Write
  • Track Play (automatic)
  • Pattern Play

To Pitch Shift a pattern:

1. Hold **PITCH MODE**.
   • The currently active Pitch Shift is indicated on the Keyboard LEDs.

2. Press a note key button from the Keyboard.
   • The new Pitch Shift value will be indicated on the Keyboard LEDs.
   • If the sequencer is playing – the new Pitch Shift value will take effect after the current pattern/chain ends. Otherwise immediately.

TRACKS

From a single pattern to a chain of patterns – next comes the track.

Using the track features, the VB-303 sequencer can play more complicated sequences of patterns.

A track is essentially a list of bars, where each bar points to a pattern. When a track is played – the sequencer automatically changes the patterns, and pitch-shifts them.

A VB-303 track stores the following information:

- Array of Bars
  Each bar holds:
  - Pattern section and slot
  - Pitch Shift
- Track Length (D.C.)
- Track Sign

Bars:
- A track Bar is actually a pattern pointer. The length of a Bar is the length of the pattern it points to.
- There are 64 bars for each track.
- Each track uses a fixed pattern bank. In other words a track can use the patterns from one bank (16). See the table below:

TRACK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PATT.BANK	I		II		III		IV		V		VI		VII		VIII	

Track Length:
- The number of Bars the track uses. It can be 1 to 64 in normal conditions, or up to 256 if extended.

  Extending a track beyond 64 bars simply overwrites the bars of the following track(s). If track 1 is extended to 80 bars – you should not modify track 2 because it's part of track 1 then.

  The maximum length of each track can be:

TRACK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Max Length	256	256	256	256	256	256	256	256	256	256	256	256	256	192	128	64

Track Sign:
- This is a unique pointer which points to a bar within the track. When playing the track it's possible to jump and continue from the Bar pointed to by the Sign.

Selecting a track

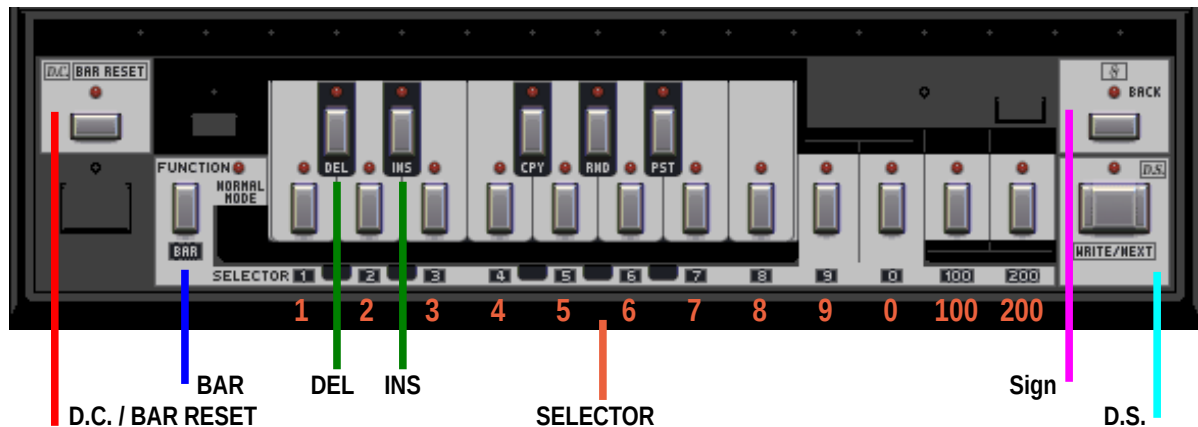To select a track rotate the **TRACK** selector to the desired track number.

Note:
- If the sequencer is currently playing – the track may not change immediately.
- Selecting tracks is only possible in Track-Write and Track-Play modes.

Writing a track

Here's a overview of the buttons which are used when dealing with tracks:

- Select Track Write with the **MODE** selector.

  In Track Write mode, you can change the track only when the sequencer is stopped.

Let's write a simple track using just one pattern.

First, lets make sure we start from Bar 1:

1. Press **RUN/STOP** in order to stop the sequencer.

2. Press **BAR RESET**.
   - This resets the current bar position to bar 1.

3. Press **RUN/STOP** to play the sequencer.

Most of the track editing operations are done while the sequencer plays.

Now you're on Bar 1.
Bar 1 points to some pattern, thus the sequencer will play that pattern repeatedly.

Here you have the same functionality as in Pattern Play mode:
- To select patterns or chains
- To Pitch Shift

Let's continue with writing the actual Bars:

1. Select a pattern.
    - The pattern you wish to be on Bar 1.

2. Apply pitch-shift (or leave it as it is).

3. Press **WRITE/NEXT**.
    - This writes the currently selected pattern and pitch-shift to the current Bar memory, and advances to the next Bar.
    - Repeat steps 1, 2, and 3 for each Bar.

4. On the last Bar of the track – you have to set the D.C. marker. Before step 3 – press the **D.C.** button – the **D.C.** LED will light up, continue to step 3 then (pressing **WRITE/NEXT**) and do not modify any bars beyond the last bar.

If you select multiple patterns (chain) pressing **WRITE/NEXT** would write each pattern from the chain into subsequent bars and advance forward (equivalent to selecting each pattern individually and writing it to subsequent bars).

Playing a track

- Select the track.
- Select Track Play with the **MODE** selector.

- The playing position is not reset automatically, you have to reset it manually in order to start playing from Bar 1 (press **BAR RESET**).

1. Press **RUN/STOP** to play the sequencer.

- When the track reaches the end – the playing position will automatically be set to Bar 1.

More on Track Write mode

There are a few more things you can do in Track Write mode which must be mentioned.

Check Bar number

To check the current Bar:

1. Hold **BAR**.
   • The current Bar will be displayed.

To check the D.C. Bar:

1. Hold **BAR**.

2. Press the **D.C.** Button.
   • The bar number will be displayed (it's equal to the track length).

To check the Sign Bar:

1. Hold **BAR**.

2. Press the **Sign** button.
   • The bar number to which the Sign marker points to will be displayed.

Go to Bar

While writing a track, you can jump to a specific bar.
1. Hold **BAR**.
   • This also shows the current Bar number.

2. Using the **SELECTOR** buttons – dial-in the bar number.
   • Use the digit buttons (0 to 9) like on a calculator.

3. Release the **BAR** button.
   • The current position is changed to that Bar.

Using the Sign marker

The Sign marker can be used as a jump-to location when playing a track.

Setting the sign marker is similar to setting the D.C. marker:
- In Track Write mode, while the sequencer is playing
1. On the desired bar – press the **Sign** button.
2. Press **WRITE/NEXT** to write the bar to memory.

Jumping to the Bar pointed-to by the Sign marker:
- In Track Play mode, while the sequencer is playing
1. Press the **D.S.** Button.
   - When the current bar ends – the playing position will be set to where the Sign marker points to, and the sequencer will continue from there.

Note:
- There is only one Sign marker for the track. This applies to extended tracks too.

Delete Bar

To delete the current bar:

1. Hold **BAR**.

2. Press **DEL**.
   - The current bar will be deleted. The following bars will be shifted (including the D.C. marker).
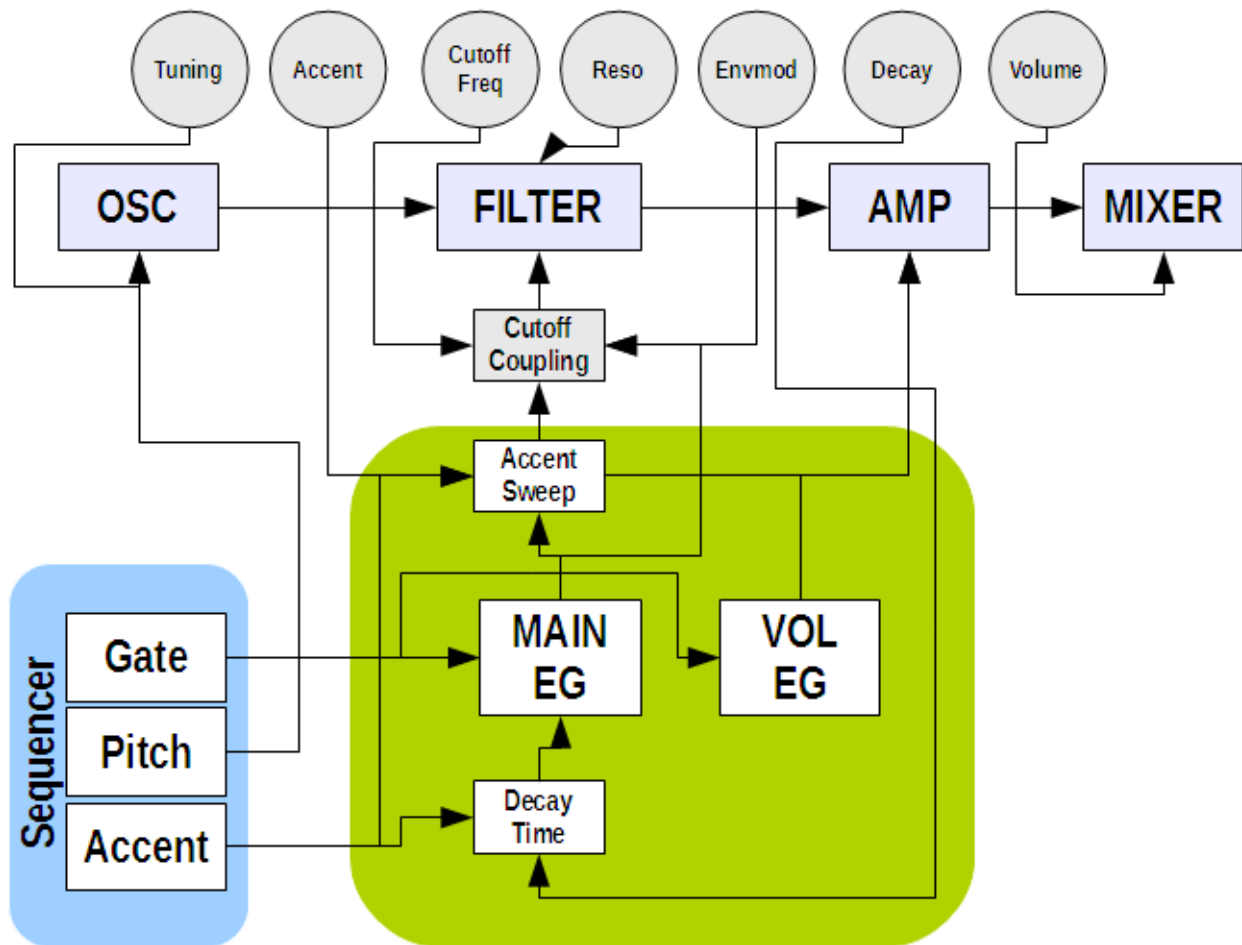
Insert Bar

To insert a bar at the current position:

1. Hold **BAR**.

2. Press **INS**.
   - The current bar and all following bars will be shifted (including the D.C. marker).

THE SYNTHESIZER

Here is a rough overview of how the VB-303 synthesizer is organised:

The VB-303 Synthesizer has a very simple single-voice structure.
The Sequencer controls the Synthesizer using 3 signals: Gate / Pitch / Accent.

There are some unique features about this:

- The "Square" waveform of the oscillator is not really a pure square.
  It can be described as a asymmetric pulse-like waveform, which morphs depending on the frequency.
    - At low frequencies the pulse-width is below 50% and the middle edge is very soft.
    - At high frequencies the pulse-width is above 50% and the middle edge is sharper.

- Accented notes are different than normal notes:
    - The decay time for the MAIN EG becomes shorter. It's equivalent as if the DECAY control is set to minimum.
    - Some portion of the main envelope passes through the "Accent Sweep" depending on the ACCENT control. This in turn modulates the filter Cutoff and adds to the Volume envelope.

Tone control

The VB-303 tone control section modifies the sound of the synthesizer.

1. WAVEFORM
    •   Switch – Sawtooth / Square.

2. TUNING
    • $\pm$ 7 semitones.

3. CUT OFF FREQ
    •   Filter cutoff frequency.

4. RESONANCE
    •   Filter resonance.

5. ENV MOD
    •   Envelope modulation to the Filter.

6. DECAY
    •   Decay time of the Filter Envelope.

7. ACCENT
    •   Accent amount.

SYNCHRONIZATION

The sync settings are located in the Top Bar.

When using the VB-303 sequencer, there are 3 synchronization modes available:

1. **INTERNAL**   (Internal, Master mode)
   - In this sync mode the VB-303 generates its own clock, and the tempo can be adjusted with the **TEMPO** controller.
   - This is the recommended mode for while learning the Sequencer, because it's the easiest.

2. **HOST SYNC**   (External, Slave mode)
   - In this mode, the VB-303 sequencer is slaved.
   - The sequencer will synchronize to the DAW tempo.
   - The sequencer uses a MIDI Note (any) on the Trigger channel as a RUN/STOP trigger.
   - The "Host Sync Multiplier" can be used to make the VB-303 run twice faster or slower.

3. **MIDI SYNC 24** (External, Slave mode)
   - In this mode, the VB-303 sequencer is slaved.
   - The sequencer will listen for MIDI CLOCK / START / STOP messages.
   - The sequencer uses the MIDI_START / MIDI_STOP messages to RUN/STOP.

In both Slave modes – the **RUN/STOP** button does not work.

EXTERNAL SEQUENCING (MIDI PLAY)

It's possible to bypass the pattern sequencer and use the VB-303 as a monophonic synthesizer.
In this case, the sequencer simply listens for MIDI notes on the Trigger channel.

Slide:
- To create a slide – overlap two notes.

Accent:
- For an accented note – use notes with Velocity of 100 or more.

REAR PANEL

To switch between the front/rear panels – click the **REAR** button located in the Top Bar.

There are a few controls on the rear panel.

Calibration:

- **TM3** – Filter cutoff offset.

- **TM4** – Oscillator pitch offset.

- **TM5** – Oscillator pitch width.

Modz:

- **RESO BOOST** – Filter feedback boost.
  - "R97" 8K to 10K (lower means more feedback).

- **DC-CLICK BE GONE** – Removes the small DC offset between the Filter and Amplifier.
  - 0 to 100.

- **SLIDE TIME** – Adjusts the Slide speed.
  - 50 is default, 0 is twice slower, 100 is twice faster.

At the end of the Synthesizer audio chain, there is a Multi-Distortion unit (bypassable) and a 1st order HP filter with a downsampling FIR filter which mimics an usual audio interface ADC.

- **Distortion unit** – more on this later.

- **ADC DC-BLOCK** – adjusts the cutoff frequency of the DC-blocking filter (HPF).

- **AA-FIR SIZE** – adjusts the size of the downsampling FIR filter.
  - Windowed-Sinc filter – larger value means more cpu usage.
  - This is mostly useful when the Distortion is used aggressively, otherwise leave it to the default setting.

Distortion unit

The VB-303 comes with an internal Distortion unit.
It has a number of algorithms and each has adjustable parameters.

The Distortion unit is bypassed by default.

Use the **TYPE** selector to change the distortion type.
The small display will indicate the meaning of the parameters (the three controls under the display).

The **LEVEL** control adjusts the input gain.

SETTINGS

To access the Settings mode – use the **MODE** selector.

Caution: use the Settings mode carefully, there are button combinations which can overwrite files or corrupt the sequencer memory.

- To save the current contents of the sequencer memory to default.nsm:
  - Click the **MEMORY SAVE** button located in the Top Bar
    The file (default.nsm located in the CFG directory) will be overwritten.

- To check the CFG directory:
  - Hold **FUNCTION** and press **CLEAR**.
    The CFG directory will be printed on the Display.

SPECIFICATIONS

<u>Plugin I/O:</u>

```
MIDI Input...............: Yes
Audio Output.............: 1
```

<u>Virtual Analog Synthesizer:</u>

```
Voices...................: 1 (monophonic)
Oscillator...............: Sawtooth / Square
Filter...................: Diode Ladder
Audio Output.............: 1 (monaural)
Internal Oversampling....: 4x (Osc, Filter, Dist)
```

<u>Sequencer:</u>

```
Patterns.................: 128 (8x2x8)
Tracks...................: 16
Total memory.............: 4.5kB
Master sync..............: Internal Sync
Slave sync...............: Host Sync / MIDI Sync 24
External sequencing......: MIDI Play
```

Note:
- Specifications are subject to change without notice.

TECHNICAL INFORMATION

Pattern file formats:

NSP – N0NS3q/P

NAME	Size	Description
Magic String	8	"N0NS3q/P" (not null-terminated)
Time Data	4	16 time steps, 2 bits per step
Pitch Data	16	16 notes - 0xASUDKKKK
Pattern Header	1	Triplet, Length - 0x000TLLLL
Pattern Header2	3	Not used, zero.

The "Magic String" is written first.
The remaining data (24 bytes) is one raw pattern.
After the Magic String, there is at least one pattern, or up to 4 (written continuously).
Time Step values: 0=REST, 1=TIE, 2=GATE.
Pitch Data: KKKK is the note Key – low c to high C (0 to 12). There must be valid notes on those positions where there is GATE values in the Time Data.
Pattern Header: LLLL is the pattern length (0 to 15 means 1 to 16). T is the triplet flag.

Memory file formats:

NSM – N0NS3q/M

NAME	Size	Description
Magic String	8	"N0NS3q/M" (not null-terminated)
Patterns	3072	128x24 (in raw NSP format)
Track Data1	1024	16x64 – bars
Track Data2	32	16x2 – D.C./Sign
Unused	480	Not used, zero.

The "Magic String" is written first.
The remaining data (4608 bytes) is the raw contents of the Sequencer memory.
Patterns are stored in the order: starting from Bank 1, Section A (8 slots) then Section B (8 slots) ...

ABOUT

Bass Line

Venom VB-303

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