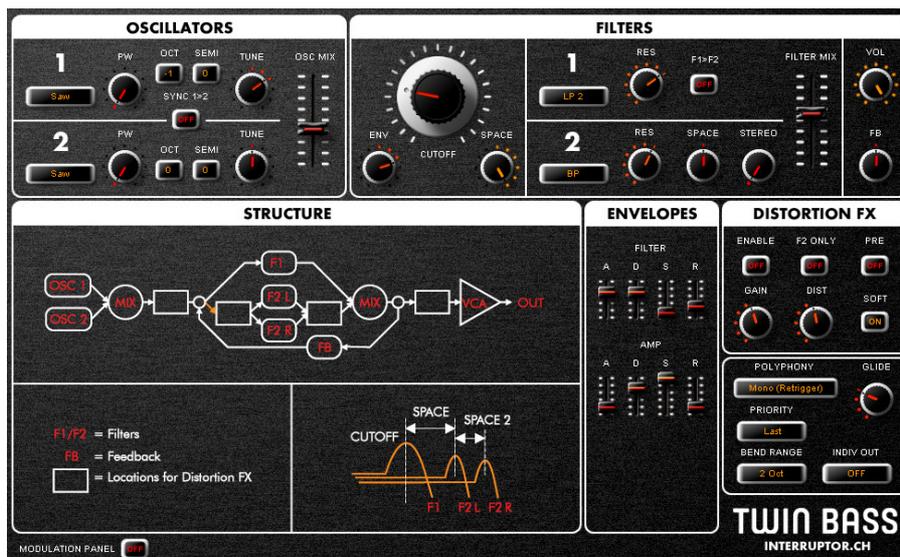


# Twin Bass

rel 1.2, 2012-08-21  
<http://www.interruptor.ch>

VSTi bass synthesizer with dual filter architecture



## Contents

1 Features.....	2
2 System Requirements.....	2
3 Installation.....	3
4 Start of Twin Bass.....	3
5 Screenshots.....	4
6 Parameters.....	5
6.1 OSCILLATORS section.....	5
6.2 FILTERS section.....	5
6.3 STRUCTURE section.....	5
6.4 LFO section.....	6
6.5 MODULATION section.....	6
6.6 ENVELOPES section.....	6
6.7 DISTORTION FX section.....	7
6.8 SYSTEM section.....	7
7 Program History.....	7

# 1 Features

- 2 Oscillators: Sine, Saw, Ramp, Triangle, Pulse, Noise
- 2 Filters operating in parallel (connection in series is also possible).
  - Filter 1: Low pass 2 pole or 4 pole, High pass 2 pole or 4 pole, Bandpass
  - Filter 2: stereo filter with separate cut-off for left and right side  
Low pass 2 pole or 4 pole, High pass 2 pole or 4 pole, Bandpass
- Feedback loop for the entire filter section
- Distortion effect with two modes
  - hard: metallic distortion sound
  - soft: tube-like warm distortion

The distortion effect can be applied pre- or post-filter.  
Also it is possible to distort only the signal in filter 2, thus preserving a clean signal from filter 1. This setup is predestined to generate a sub bass with filter 1 whereas filter 2 can provide interesting mid-range textures in stereo.
- Modulation
  - 3 x LFO, synchronized to host application
  - 3 x ADSR Envelope
  - Matrix: 5 modulation slots connect 12 modulation sources to 26 modulation destinations. Pitch bend, amplifier envelope and filter envelope are pre-wired.
- Process external signals: In Oscillator 2 an external signal can be selected as the waveform.
- MIDI learn: Right-click any control to assign a midi control and automate the parameter from you DAW.
- Monophonic modes with glide
- Polyphonic modes with max. 8 simultaneous notes
- Individual Outs are available for the two Filters. This feature helps to integrate the bass sound in your mix. For example apply additional effects like reverb to the mid range signal from filter 2 while keeping the sub bass from filter 1 clean.
- Structure display: This panel shows the signal flow of the synth as it results from your settings of the filter and FX routings.
- Pop-up hints: While the mouse hovers over a control a hint appears explaining the function of the control.

# 2 System Requirements

- VSTi compatible host software running under Windows 7 / XP / Vista

### 3 Installation

- Extract the zip file to your VST plugins folder. A new folder containing the following files will be created:
  - TwinBass\_v1\_2.dll
  - TwinBass\_FX\_v1\_2.dll
  - license.html
  - User\_Manual\_TwinBass\_v1\_2.pdfIf you don't know where your VST plugins folder is: Look up the path in the Options/Preferences dialog of your VST host application.
- Restart your host application / DAW

### 4 Start of Twin Bass

- Start your host application / DAW
- Start as a VSTi instrument: Load "**Twin Bass**" as an instrument on a track
- Start as a VST effect: This is what you do when you want to use an external signal as Oscillator 2. Load "**Twin Bass FX**" as an insert effect after another instrument or on an audio track. Then select "External" as waveform for Oscillator 2.

## 5 Screenshots

**OSCILLATORS**

1 PW OCT SEMI TUNE OSC MIX  
Saw -1 0 SYNC 1>2 OFF

2 PW OCT SEMI TUNE  
Saw 0 0

**FILTERS**

1 RES F1>F2 FILTER MIX VOL  
LP 2 OFF

2 RES SPACE STEREO FB  
BP

**STRUCTURE**

Diagram showing the signal flow: OSC 1 and OSC 2 are mixed together. The signal then passes through a filter stage with F1, F2 L, and F2 R filters. A feedback loop (FB) is also present. The signal then goes through a VCA and OUT.

Legend:  
F1/F2 = Filters  
FB = Feedback  
[ ] = Locations for Distortion FX

Envelope graph showing CUTOFF, SPACE, and SPACE 2 parameters.

**ENVELOPES**

FILTER A D S R  
AMP A D S R

**DISTORTION FX**

ENABLE F2 ONLY PRE  
OFF OFF OFF

GAIN DIST SOFT  
ON

POLYPHONY GLIDE  
Mono (Retrigger)

PRIORITY  
Last

BEND RANGE INDIV OUT  
2 Oct OFF

**TWIN BASS**  
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MODULATION PANEL OFF

**OSCILLATORS**

1 PW OCT SEMI TUNE OSC MIX  
Saw -1 0 SYNC 1>2 OFF

2 PW OCT SEMI TUNE  
Saw 0 0

**FILTERS**

1 RES F1>F2 FILTER MIX VOL  
LP 2 OFF

2 RES SPACE STEREO FB  
BP

**LFO1 LFO2 LFO3**

Sine Sine Sine  
RATE RATE RATE  
1/8 1 bar 1/4  
SYNC SYNC SYNC  
ON OFF OFF  
PHASE PHASE PHASE

**MODULATION**

SOURCE 1 LEVEL DESTINATION 1  
LFO1 FILTER Cutoff

SOURCE 2 LEVEL DESTINATION 2  
LFO2 FILTER Cutoff

SOURCE 3 LEVEL DESTINATION 3  
VELOCITY FILTER ENV

SOURCE 4 LEVEL DESTINATION 4  
MODWHEEL FILTER Cutoff

SOURCE 5 LEVEL DESTINATION 5  
AFTERTOUCH Mod Level 1

**ENVELOPES**

FILTER A D S R  
AMP A D S R  
AUX A D S R

**DISTORTION FX**

ENABLE F2 ONLY PRE  
OFF OFF OFF

GAIN DIST SOFT  
ON

POLYPHONY GLIDE  
Mono (Retrigger)

PRIORITY  
Last

BEND RANGE INDIV OUT  
2 Oct OFF

**TWIN BASS**  
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MODULATION PANEL ON

## 6 Parameters

### 6.1 OSCILLATORS section

- **Waveform selection for Oscillator 1:** Sine, Saw, Ramp, Triangle, Pulse, Noise
- **Waveform selection for Oscillator 2:** Sine, Saw, Ramp, Triangle, Pulse, Noise, External  
==> Use of external signal source: see chapter 4 "Start of Twin Bass".
- **PW:** pulse width for wave form "Pulse"
- **OCT:** select octave for oscillator
- **SEMI:** select semi tone - 0 means C
- **TUNE:** oscillator fine tuning
- **OSC MIX:** cross fade between oscillator 1 and 2
- **SYNC:** enable to restart osc 2 once per cycle of osc 1

### 6.2 FILTERS section

- **ENV:** Intensity of filter envelope. It can be set to positive or negative values.
- **CUTOFF.** Sets the cutoff frequencies for both filters.
- **SPACE:** offset of cutoff frequency between filter 1 and filter 2  
==> There are two SPACE parameters: The one beside the CUTOFF control sets the offset between filter 1 and filter 2 whereas the other sets the offset between the two stereo sub filters F2L and F2R inside filter 2
- **Filter shape selection:**
  - LP2 = Low Pass 2 pole
  - LP4 = Low Pass 4 pole
  - BP = Band Pass
  - HP2 = High Pass 2 pole
  - HP4 = High Pass 4 pole
- **RES:** Filter Resonance
- **F1>F2:** Enable this button to route Filter 1 and Filter 2 in series. In the OFF position the Filters are routed in parallel.  
You can see the effect of changing the routing in the signal path diagram. (Diagram is only visible when the modulation panel is disabled)
- **STEREO:** sets the stereo width for the two stereo sub filters F2L and F2R inside Filter 2. At maximum setting the F2L is panned hard left and F2R is panned hard right
- **FILTER MIX:** cross fade between Filter 1 and 2
- **VOL:** Main output volume of the synth. For some filter settings it may be necessary to reduce the VOL control in order to prevent unwanted distortion at the output
- **FB:** Feedback level for the filter section. It can be set to positive or negative values. Be very careful with this control because depending on other settings unpleasant distortion or feedback might appear if it is opened to far. When applied sparingly this control can add subtle changes to the timbre.

### 6.3 STRUCTURE section

Note: This section is visible only if the MODULATION PANEL button is in the **OFF** position (button is located at the bottom left of the user interface).

There are no controls in this section. Apart from giving you an overview of the signal path the structure diagram also supplies a visual feedback on your routing settings for the Filters (button F1>F2) and the distortion effects (buttons ENABLE, F2 ONLY, PRE)

## 6.4 LFO section

Note: This section is visible only if the MODULATION PANEL button is in the **ON** position (button is located at the bottom left of the user interface).

- **Waveform selection for LFO:** Sine, Saw, Ramp, Triangle, Pulse, Noise
- **RATE:** select the note value relative to the host tempo. For example 1/4 means that the LFO cycles once during a quarter note
- **RATE fine:** sets the fine tuning for the LFO rate.
  - In the middle position (quarter note symbol) there is no change to the note value set by the RATE parameter
  - turn the control fully counterclockwise for a triplet timing (triplet symbol)
  - turn the control fully clockwise for a dotted note timing (dotted note symbol)
- **SYNC:** With this switch enabled the LFO is set to its start position when a note key is pressed
- **PHASE:** Sets the start position for the LFO. This has no effect if SYNC is OFF

## 6.5 MODULATION section

Note: This section is visible only if the MODULATION PANEL button is in the **ON** position (button is located at the bottom left of the user interface).

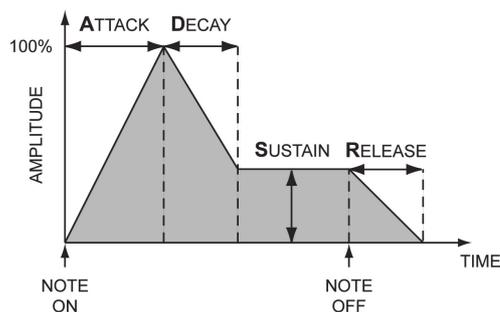
- **SOURCE:** Selects one of the modulation sources
- **LEVEL:** Sets a positive or negative amount of modulation
- **DESTINATION:** Selects one of the modulation destinations

## 6.6 ENVELOPES section

- **FILTER envelope:**

Allows to program a movement of the CUTOFF control over time which is triggered by pressing a note key.  
The peak value of the Filter envelope is set by the ENV Parameter in the FILTERS section.  
Therefore no effect of this envelope is heard unless the ENV parameter is off it's center position

**A:** Attack  
**D:** Decay  
**S:** Sustain  
**R:** Release



- **AMP envelope:**

The amplifier envelope defines the development of the signal loudness while a note key is pressed.
- **AUX envelope** (visible only if the MODULATION PANEL is ON):

The auxiliary envelope can be used to modulate any parameter via the modulation matrix. Therefore changes to this envelope can only be heard if the envelope is assigned to a SOURCE in the modulation panel and the corresponding LEVEL control is off it's center position.

## 6.7 DISTORTION FX section

- **ENABLE:** Enables the effects section
- **F2 only:** Apply effects to Filter 2 only.  
See this change reflected in the signal path diagram (visible only when the modulation panel is disabled)
- **PRE:** If enabled effects are applied previous to the filters in the signal path. If the button is not enabled the signal is first filtered and then sent to the effect section  
See this change reflected in the signal path diagram (visible only when the modulation panel is disabled)
- **GAIN:** amplifier gain of the distortion effect
- **DIST:** defines the amount of distortion applied to the signal
- **SOFT:** If enabled a tube-like distortion algorithm is applied which results in a less aggressive harmonic content of the signal

## 6.8 SYSTEM section

- **POLYPHONY:** On bass instruments generally only one note at a time is played. However you can choose from a variety of monophonic and polyphonic modes here (Polyphony is 8 notes if enabled).
- **GLIDE:** If enabling the GLIDE parameter note pitch will transition gradually from one note to the next instead of immediately. (Works in monophonic modes only)
- **PRIORITY:** Choose what happens when playing more than one note at a time in monophonic modes
- **BEND RANGE:** Select how many half notes the note pitch will be shifted by the pitch bend lever
- **INDIV OUT:** Enables the individual outs for Filter 1 and Filter 2
  - OFF : individual outs are muted
  - DIRECT : The filter signals are sent to the outputs at full volume.
  - MIX LEVEL : The position of the FILTER MIX parameter is applied to the filtered signals before sending them to the individual outputs. This is helpful if you dynamically change the FILTER MIX parameter (via the modulation matrix or by host automation). With this setting your modulation will be audible at the individual outs.

## 7 Program History

rel 1.2, 2012-08-21, VST ID: "JCp2" and "JCX2"

- Created a separate version "Twin Bass FX" for use as a VST effect. This is needed when processing external signals.

rel 1.1, 2012-08-19, VST ID: "JCp1"

- fixed unexpected behaviour under host Reaper: No sound on left channel unless routed for individual outs at startup.

rel 1.0, 2012-08-11, VST ID: "JCpL"

- initial release