

Bittersweet Pro

FLUX:: Immersive

2/6/23

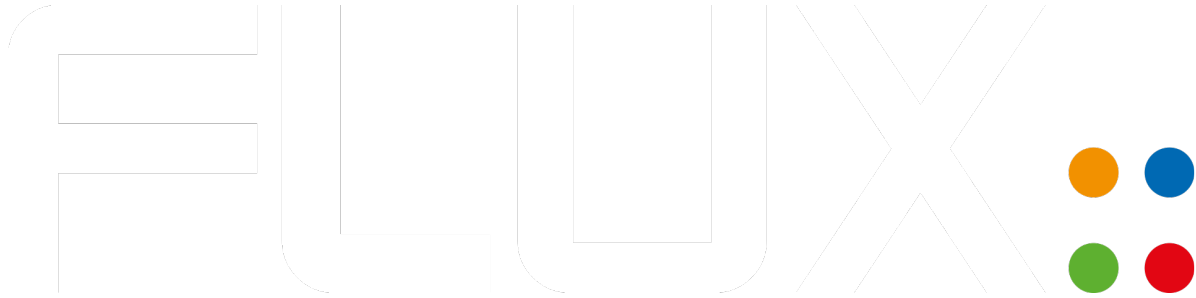
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1 BitterSweet Pro User Manual

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1.1 The Ultimate Frequency Dependent Transient Designer

BitterSweet Pro, Frequency Dependent Transient Designer, is built around a new improved design of the algorithm found in Flux:: acclaimed freeware transient processor, BitterSweet, used by hundreds of thousands of users all over the world, and the approach we had when designing BitterSweet Pro was to make it just as easy and straightforward to use.

With BitterSweet Pro, Transients and Sustain can be amplified or attenuated simultaneously or individually, and it can process either all components (Main) in one, or process the Mid (Center) or the Side (Stereo) parts of the sound independently by encoding the material with its internal MS encoder, process it, and then decode it back to stereo again. This fundamental design makes it really easy to perform powerful level-independent transparent shaping of the sound spectrum with BitterSweet Pro.

1.2 Frequency Dependent Transient Processing

In addition to this, BitterSweet Pro is designed with the option to process only a certain part of the frequency spectrum, turning the processing frequency dependent, acting just like a dynamic equalizer.

When Frequency Range is set from 20 Hz to 20 KHz the processing is performed on the full band, now changing the value of the low cut off frequency turns it into a High shelf dynamic

eq, setting the high cut off frequency turns it into a Low shelve dynamic eq, and setting both turns it into a peak dynamic eq, in any case the gain can be adjusted with the Static Gain parameter, and the slope can be set with the Frequency Order parameter, from 6dB per octave to 12, 18 and 24 dB, the higher the Frequency Order is the steeper the slope of the frequency response becomes.

The detector sidechain is filtered in accordance with the frequency range setting and its low cut, high cut and band pass filter, and the filtered sidechain source can be audited with a simple button click.

2 General Settings



Bypass
Speed
Lookahead
Dynamic
Frequency Range
Frequency Order

Static Gain
Period
Mode
Clip
Output Gain
Processing Display

2.1 Bypass

Global bypass, when pressed, the signal is routed directly from the inputs to the outputs.

Value Range: Enabled/Disabled

Default Value: Disabled

2.2 Speed

The Speed parameter alters the mode for the processing of the transients, controlling the envelope smoothing and generating a natural attack, when set to Medium or Slow this can be compensated using Lookahead.

Value Range: Fast/Medium/Slow

Default Value: Fast

2.3 Lookahead

Introduces a delay line to the processing path to re-sync the processing according to the speed mode, which is the interpolation time. When Lookahead is enabled a delay is introduced in the processing (not in the detection).

Value Range: Enabled/Disabled

Default Value: Disabled

2.4 Dynamic

A dynamic gain, that depending on the Mode setting dynamically adjusts the gain of the transients and/or the sustain.

The Sweet side reduces the transients, which typically decrease the perceived presence of percussive instruments in the mix. The Bitter side magnifies the transients, which typically increases the perceived presence of percussive instruments in the mix. If a Mode Ø setting is selected, Bitter is increasing the Transients and decreasing the Sustain, while Sweet is doing the opposite, increasing the Sustain and decreasing the Transients.

Value Range: -100,00% (Sweet) / 100,00% (Bitter)

Default Value: 0,00%

2.5 Frequency Range

Frequency Range sets the actual frequency range that is to be processed.

If neither of the Lower or Upper values are adjusted, the BitterSweet Pro operates in Full Band. By adjusting the Lower Value a high shelf filter is introduced, and by adjusting the Upper Value a low shelf filter is introduced, adjusting both introduces a peak filter. In any case, the filter slope can be adjusted with the Frequency Order parameter, and the gain can be adjusted with the Static Gain parameter.

The button above the slider is a key listener provided for listening to the extraction used for the analysis of the material.

Lower Value Range: 20 Hz / 20,0 kHz

Lower Default Value: 20 Hz

Upper Value Range: 40 Hz / 20,0 kHz

Upper Default Value: 20,0 kHz

2.6 Frequency Order

The Frequency Order sets the number of frequency-dependent components controlling the slope of the frequency response. One component, referred to as 1 (First-Order), gives a 6 dB/Octave slope, adding a second component, referred to as 2 (Second-Order), gives a 12 dB/Octave slope etc. The higher the Frequency Order is, the steeper the slope of the frequency response becomes.

Value Range: 6 / 12 / 18 / 24 - dB Per Octave

Default Value: 6 dB/o

2.7 Static Gain

Controls the actual gain of the Frequency Range filter envelope.

Value Range: -24.00 dB / +24.00 dB

Default Value: 0.00 dB

2.8 Period

The Period parameter sets the range of the time window used for the detection of the transients that are to be processed which adjusts the extraction of the transient information. By using Period the extraction can be adjusted depending on the material that is to be processed, which in the end will affect the result differently depending on the setting.

Value Range: 20.0 ms / 120.0 ms

Default Value: 40.0 ms

2.9 Mode

The Mode setting adjusts how BitterSweet Pro is processing the material.

Component

- Main - processes using regular stereo signal scheme and it's the only available mode for multichannel operations.
- Center - engages the internal MS encoder and processes only the Mid channel. After processing, the sound is decoded back to stereo. This setting is very efficient for snare and kick drums.
- Stereo - engages the internal MS encoder and processes only the Side channel. After processing the sound is decoded back to stereo. This setting is very efficient for panned rhythmic instruments.

Processing

- Tr. - Transients only.
- Sust. - Sustain only.
- Tr+Sus - Both Transients and Sustain.
- Ø - Means that Dynamic/Bitter is increasing the Transients and decreasing the Sustain, while Dynamic/Sweet is doing the opposite, increasing the Sustain and decreasing the Transients.

Value Range:

Tr. Main / Tr. Center / Tr. Stereo

Sust. Main / Sust. Center / Sust. Stereo

Tr. + Sust. Main / Tr. + Sust. Center / Tr. + Sust. Stereo

Tr. + Sust. Ø Main / Tr. + Sust. Ø Center / Tr. + Sust. Ø Stereo

Default Value: Tr. Main

2.10 Clip

Enables the built in soft clipper, applied at the very last stage of the processing.

The soft clipper is carefully compressing and flattening the peaks in order to clip the level of the input signal. As the input signal reaches the clip threshold, the algorithm rounds the edges of the clipped peaks for a smoother clipping.

Cubic is a digital style symmetrical soft clipper (introducing odd-order harmonics).

Tube is a kind of analog style asymmetrical soft clipper (introducing even-order harmonics).

Value Range: Off / Cubic / Tube

Default Value: Cubic

2.11 Output Gain

Sets the global gain applied to the processing output before the soft clipper.

Value Range: -24.00 dB / +24.00 dB

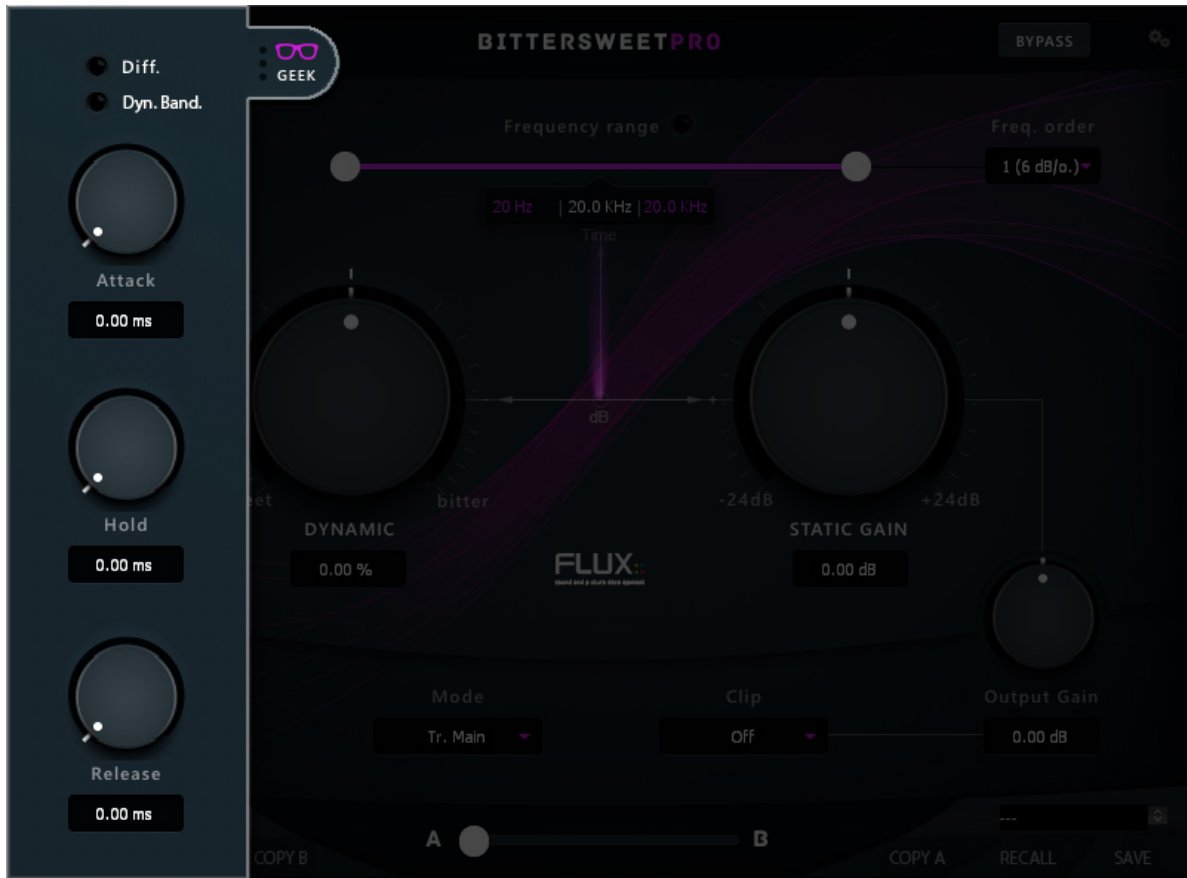
Default Value: 0.00 dB

2.12 Processing Display

Displays a graphical representation of the actual transient and sustain processing.

3 Geek

Clicking the Geek glasses opens a window with an additional range of parameters providing extended control of the transient processing envelope.



Diff. / Dyn. Band	Hold
Attack	Release

3.1 Diff.

Diff. is a key listener for the Difference between input and output signal (at the final output, after the clipper).

Value Range: Enabled/Disabled

Default Value: Disabled

3.2 Bandwidth

Value Range: Static BW/Dynamic BW/Flat Sum

Default Value: Static BW

Static bandwidth provides a constant Q factor, no matter of the gain factor of the filter. It's computed by having a constant bandwidth at ± 3 dB from 0 dB.

Dynamic bandwidth provides a dynamic Q factor, dependent on the gain factor of the filter. It's computed by having a constant bandwidth at ± 3 dB from peak levels of the filter.

Flat Sum is a more traditional way of computing the Q factor. The bandwidth is constant for the gain factor divided by two.

3.3 Attack

Adjusts the attack time for the transient processing envelope.

Value Range: 0.00 ms / 200.00 ms

Default Value: 0.00 ms

3.4 Hold

Adjusts the hold time for the transient processing envelope.

Value Range: 0.00 ms / 200.00 ms

Default Value: 0.00 ms

3.5 Release

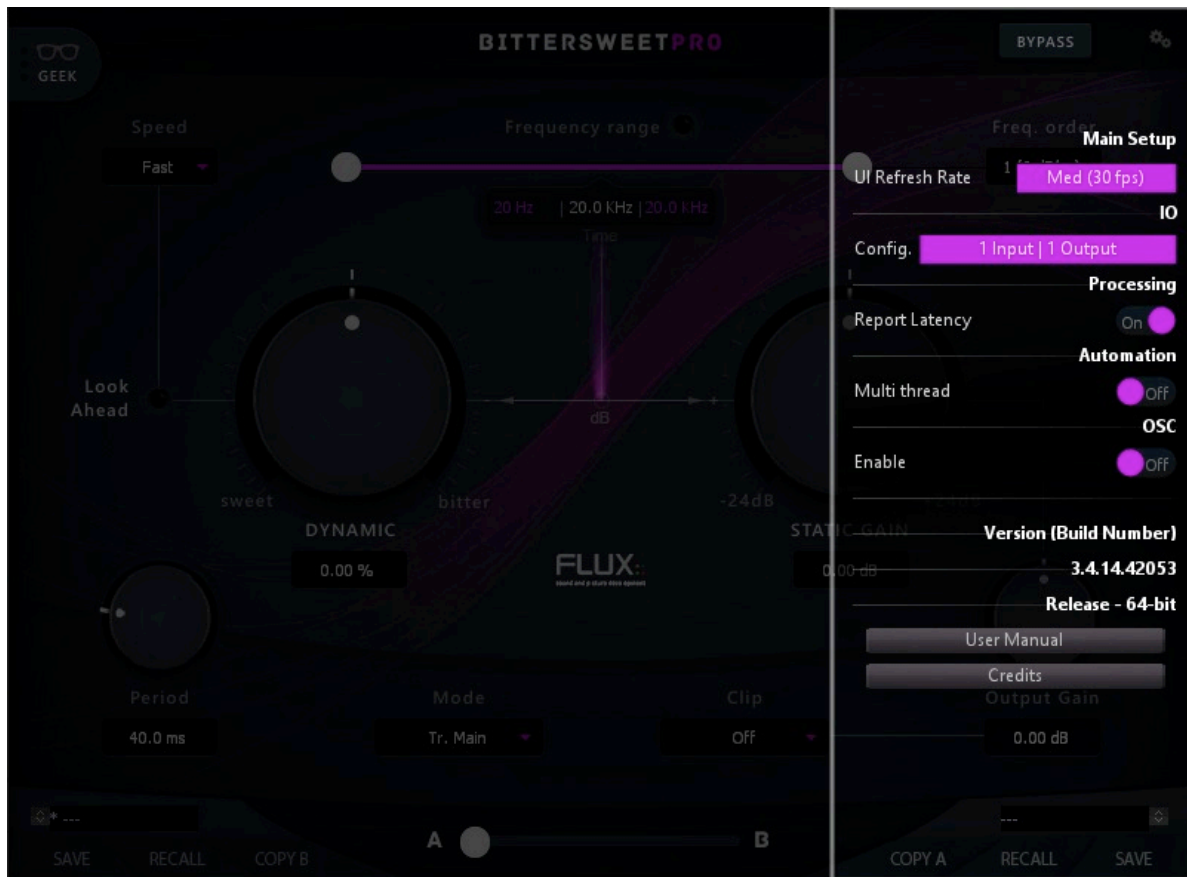
Adjusts the release time for the transient processing envelope.

Value Range: 0.00 ms / 500.00 ms

Default Value: 0.00 ms

4 Plugin Settings

Clicking the cogwheel symbol opens a window with a range of general settings and a direct access button to the user manual.



Main Setup
I/O
Processing

Automation
OSC
Version / User Manual / Credits

4.1 Main Setup

UI Refresh Rate

Max refresh rate of the plug-in's UI.

4.2 I/O

Input / Output

I/O Config and Layout is not always available, though it is always displayed, it can only be edited in some configurations and formats.

Config

Current I/O configuration, is only available in certain VST hosts; typically hosts with limited capabilities for handling multichannel configurations.

Layout

Available I/O routings based on current I/O configuration. Layout is available for editing if more than two input channels are available. If the Layout is changed from the default value, an asterisk * is displayed next to the Layout information in the Input section.

4.3 Processing

Report Latency

Enables/Disables the latency reporting to the host.

4.4 Automation

Multithread

Enables/Disables Multithread Automation.

4.5 OSC

OSC is available in BitterSweet Pro only, and is not supported in BitterSweet Pro Studio Session.

Enable

Enables/Disables OSC control and mapping of the plug-in's parameters.

4.6 Version Information

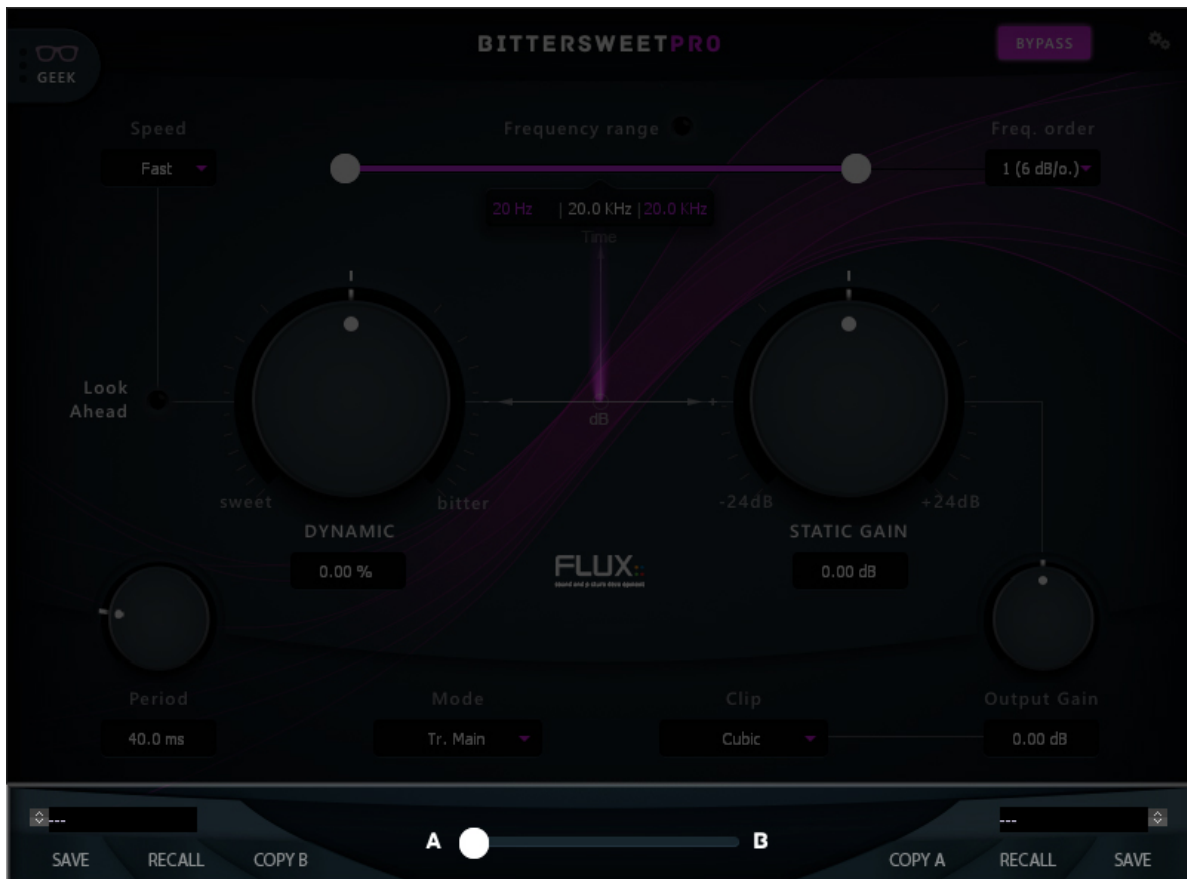
Plug-in version and build-number information.

4.7 User Manual / Credits

Quick link to the User Manual. Plug-in creation credits.

5 Preset Management

BitterSweet Pro, as well as all other Flux:: plug-ins, provides two preset slots referred to as slot A and slot B, which provide access to two sets of parameter settings simultaneously. In addition to just recall the settings for each of the slots individually and alternate between their settings, a morphing slider is provided offering the possibility to morph between the slots and their corresponding settings. When clicking on one of the preset slots, the built in preset manager appears.



- Preset Sections / Save / Recall / Copy A/B
- Morphing Slider

5.1 Preset Sections

BitterSweet Pro provides two preset sections referred to as section A and section B, offering simultaneous access to two full sets of parameter settings. Clicking the A section (bottom left) or the B section (bottom right), or clicking the arrow in the Current Selected Preset display, opens a new window accessing the built-in preset manager.

5.2 Save

Save replaces the selected preset by a new one under the same name featuring the current settings. If you want to keep an existing preset without your new modifications, just select an empty place into the preset list, enter a new name for this modified preset featuring the current settings and press Save.

5.3 Recall

Once a preset is selected from the preset list it must be explicitly loaded into section A or the section B by using the recall button. A preset is effective only after it has been recalled.

5.4 Copy A / Copy B

The current parameters of a section are copied to the other one. The section A or B is re-initialized with the current values and the morphing slider is parked at 100% of the corresponding section.

5.5 Morphing Slider

Morphs the parameter values of both parameter sections, it has no unity or specific value display; it provides morphing of the current values from both of the parameter sections (A & B). A double-click on one side of the slider area toggles between the two parameter sections. The actual result of the morphed parameter settings can be saved as a new preset.

6 Preset Manager

The preset manager contains three preset banks, the Factory bank contains factory presets, this bank is not available for saving of presets but any of the presets can be loaded into a preset slot and then saved into, the User bank, where all user presets are saved. Finally, the Global bank, here you can save a complete snapshot with all the settings from both preset slots, as well as the position of the morphing slider.



In the preset manager, any preset can be loaded into a preset slot by double clicking on the name of the desired preset in the actual preset list, the preset will then be loaded into the preset slot corresponding to the position of the morphing slider.

- Additional controls in the preset manager

- Recall A loads the selected preset into the corresponding slot.
- Recall B loads the selected preset into the corresponding slot.
- Update, saves the current settings into the selected preset. (Available in User/Global Banks only)
- New, saves the current settings into a new preset. (Available in User/Global Banks only)
- Duplicate creates a copy of the selected preset and saves it to the list.
- Edit allows for changes to the preset meta properties. (Available in User/Global Banks only)
- Delete, removes the selected preset. (Available in User/Global Banks only)
- Export, creates a file reflecting the content of the current preset bank.
- Import, allows for import of a preset bank file by adding the imported banks content to the content in the current preset bank.

When saving or editing a preset, an option to protect the preset is presented. The preset protection, if engaged, only allows the original preset author to uncheck and edit the preset. This means that you can protect your presets in a multi-user configuration. Protected presets can only be modified using the session used for their creation. If used in another user session they can only be imported or deleted.

7 Specifications

7.1 Processing Specifications - BitterSweet Pro Essential

- Up to 16 channels Input/Output for Essential version.
- 64-bits internal floating point processing.
- Sampling rate up to 384 kHz DXD (Pyramix and Ovation MassCore/Native).
- Sampling rate up to 192 kHz for Native (AU/VST/VST3/AAX/AAX AudioSuite).

7.2 Processing Specifications - BitterSweet Pro

- Mono/Stereo Input/Output.
- 64-bits internal floating-point processing.
- Sampling rate up to 96 kHz.

7.3 Compatibility

BitterSweet Pro

- **Windows - 10 64 bits.**
 - VST (2.4) in 64 bit
 - VST (3.1) in 64 bit
 - AAX Native/DSP* in 64 bit
 - AAX AudioSuite* in 64 bit
 - Waves WPAPI Native/Soundgrid in 64 bit
 - VS3** Pyramix 10 and more in 64 bit and Ovation 6 and more
 - Avid Venue Systems
- **macOS (Intel and ARM) - 10.12 and more, 11 and 12.**
 - VST (2.4) in 64 bit
 - VST3 (3.1) in 64 bit
 - AU in 64 bit
 - AAX Native/DSP* in 64 bit

- AAX AudioSuite* in 64 bit
- Waves WPAPI Native/Soundgrid in 64 bit
- Avid Venue Systems

** VS3 for Pyramix & Ovation Native/MassCore sold only through Merging Technologies and authorized dealers.

7.4 Licence Requirements

In order to use BitterSweet Pro or BitterSweet Pro Studio Session, an iLok.com user account is required (the iLok USB Smart Key is not required).

7.5 AAX DSP Specifications

AAX DSP - Number of BitterSweet Pro instances per DSP.

	44.1 - 48 khz (1 FS)	88.2 - 96 khz (2 FS)	176.4 - 192 khz (4 FS)
1 Channel	9	4	1
2 Channels	4	2	0
3 Channels	3	1	0
4 Channels	2	1	0
5 Channels	1	0	0
6 Channels	1	0	0
7 Channels	1	0	0
8 Channels	1	0	0