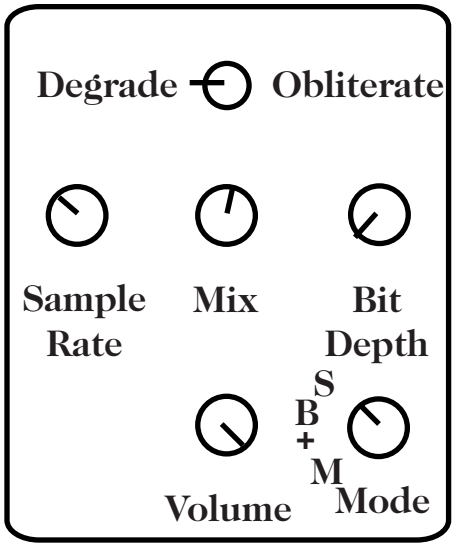
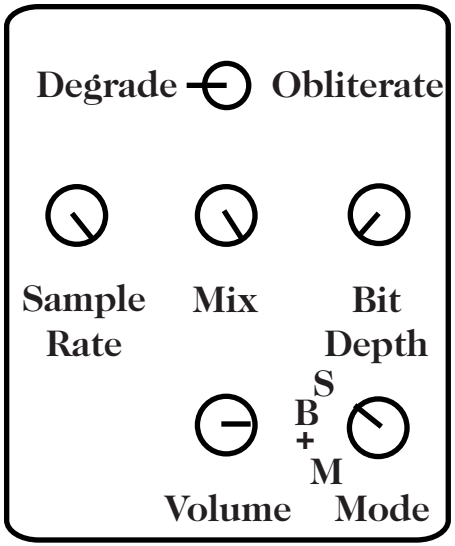
Sample settings

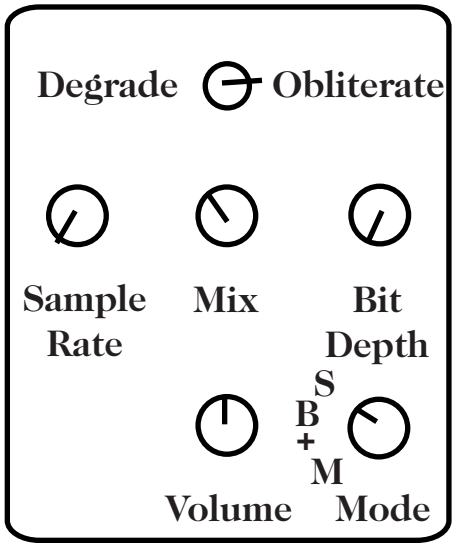
Also note that many of the sounds of the FrantaBit come from use of the expression pedal, which can't be shown here. As always, best results will come from experimenting.



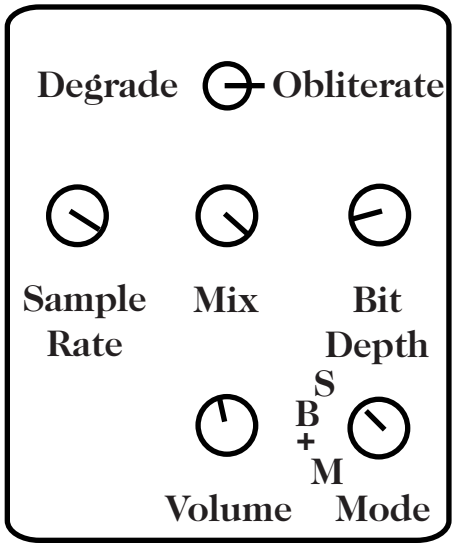
Atonal fuzz



One bit fuzz



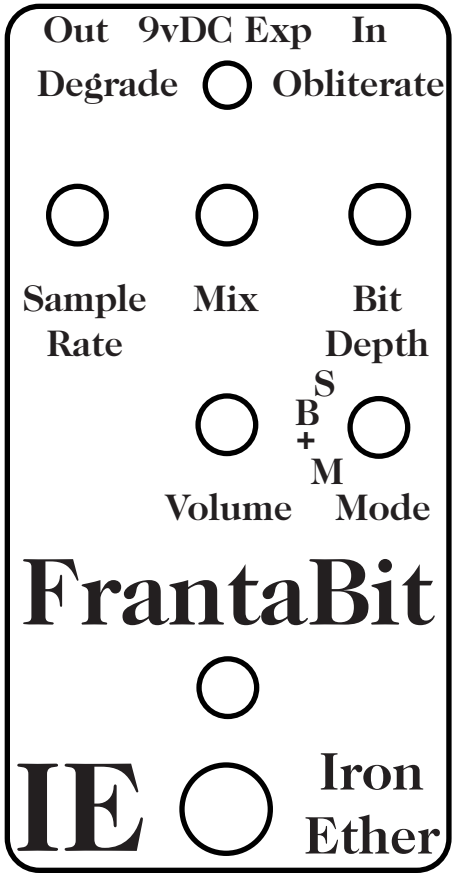
Synthy square wave tremolo



Cyborg-cricket

Iron Ether FrantaBit

Owner's manual



The FrantaBit is a true digital bit crusher and sample rate reducer. It offers a wide array of glitchy digital tones, lo fi crunchiness, video game synth sounds and buzzsaw harmonics. It is designed to be extremely powerful, but simple to use and dial in. It includes an expression jack which can be assigned to any control, to expand performance possibilities in a live environment and in the studio.

Controls

-Sample Rate control: This control allows the user to lower the sample rate of the analog-to-digital conversion from 32khz down to <100hz, creating Nyquist aliasing effects – frequencies from the instrument begin to "fold" back downward, creating new harmonics and subharmonics.

The frequency response is lowered as sample rate lowers, but instead of simply filtering out higher frequencies, they are mirrored back downward, to create strange harmonies and overtones.

-Bit Depth control: From a pristine 24 bits down to a massive fuzzed-out 1 bit, the Bit Depth control introduces digital distortion artifacts, as the instrument's amplitude is quantized into progressively fewer volume "bins".

Uniquely, with this type of distortion, the instrument actually becomes cleaner as it gets louder – the opposite of traditional harmonic distortion. Dynamic fuzz tones, digital destruction, and chiptune synths can be dialed in with this control.

-Mix: Controls the relative volume of the clean and effect signals.

-Volume: controls overall volume.

-Degrade/Obliterate switch: This switch controls the behavior of the sample rate reduction.

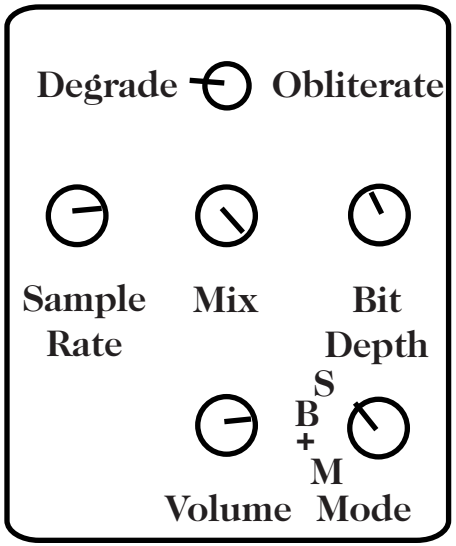
Degrade mode is true digital sample rate reduction, as described above.

Obliterate mode is an emulation of analog aliasing effects – a harsh, harmonically rich "pixellated" sound, much like square wave ring modulation which creates synthy atonal waveforms.

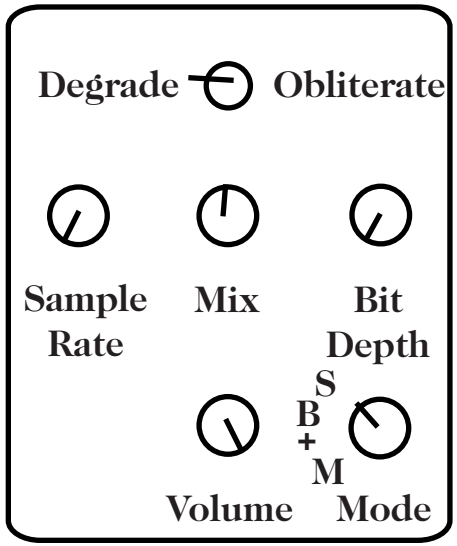
-Expression Mode rotary switch: this 4-way switch allows the user to assign the expression pedal to any control:
S: Sample Rate
B: Bit Depth
+: Controls both Sample Rate and Bit Depth at the same time
M: Mix – clean/effect volume ratio

Sample Settings

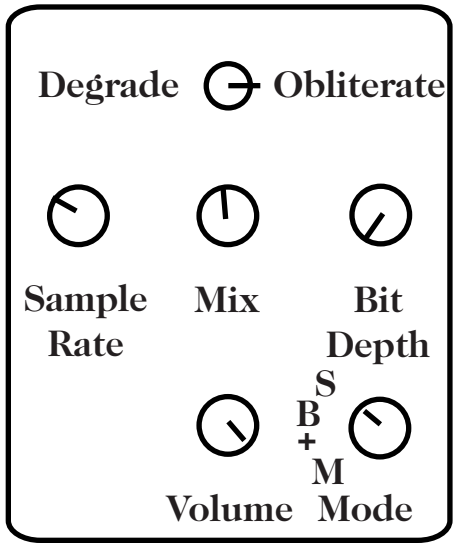
These will get you started making music. They will need to be altered depending on the otput of your instrument and taste, so start here and experiment to find your sounds.



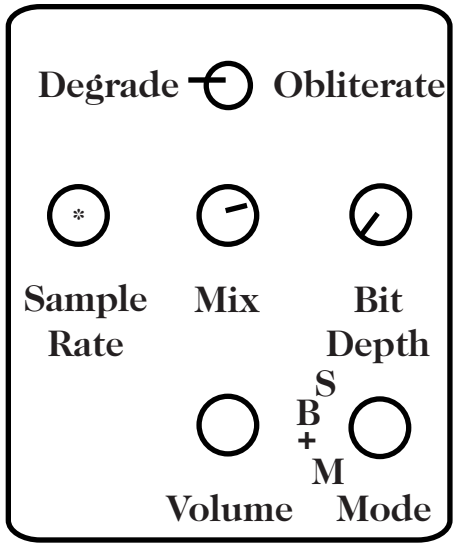
Bit-tendo



Random arpeggiator



Reese



Pitch sync synth
* tune sample rate to the root note of the sale you're playing

Finish

Each FrantaBit is etched and painted by hand, so each one is unique; no two will ever look alike.

Warranty

Your FrantaBit is warranted for materials and manufacturing for one year from the date of purchase. Your warranty is void if you use the wrong type of power supply, take it apart, attempt to modify it or abuse it by using it in a way not intended.

Details

-Power: The FrantaBit runs on the industry-standard 9 volt DC center negative power supply.

-Bypass: The FrantaBit features a click-free relay-based true bypass system. This maintains the benefits of true bypass: when the pedal is bypassed, your signal does not travel through any electronic circuitry; it's connected through a mechanical switch directly from input jack to output jack. This way you can be certain that no tonal coloration or other signal change is happening when in bypass.

In addition, it offers some benefits over the common "3PDT" bypass switch: if power to the pedal is lost, it will automatically go into true bypass, regardless of the setting of the bypass switch. The relay used is designed specifically for audio switching, unlike the "3PDT" switch, so it won't ever make popping or clicking sounds, and will remain quiet and reliable for decades.

Degrade mode:

In degrade mode, the sample rate control varies how often the digital conversion samples the input. This can be thought of somewhat like a lowpass filter - the sample rate is like the cutoff frequency. However, whereas a lowpass filter removes frequencies above this point, the FrantaBit's degrade mode will fold these frequencies back down onto the signal. The results are strange new subharmonics and overtones.

Settings the sample rate to be in tune with the key in which one is playing can create some very unique effects - tremolo that has a different speed on each note of the scale, and combined with the bit crushing, very bizarre pitch-related fuzz/filter/digital glitch tones.

In degrade mode, turning sample rate all the way up will bypass the sample aliasing sounds completely. Turning Bit Depth up completely bypasses the bit crushing.

Because bit crushing and sample rate reduction can each be used alone, or they can be combined, these two controls can create an enormous array of sounds. The most exreme sounds come from using both together - the sample rate reduction contributing inharmonic new frequencies, and the bit reduction contributing harmonically-related grimy digital octave fuzz.

The bit reduction is unique in that it will become more fuzzy on quieter notes and as the notes decay, and less fuzzy on louder notes. This creates unusual sounds as a single note or chord is allowed to decay - the signal will jump through multiple octaves of harmonics according to the input envelope.

Obliterate mode

Obliterate mode creates the sounds of "faux-bit crushers" - it is harsh, abrasive, and atonal.

There is no "clean" settings for obliterate mode - it spans from fuzzed out square wave tremolo, up through robotic digital synths, and with sample rate all the way up, you'll get squawky cyborg crickets.

It is generally advisable to mix in some clean signal when it Obliterate mode, to maintain the tonality of the instrument. Other times, it might be more useful to completely destroy the input notes, in which case setting the mix fully clockwise will do the trick.

At the low end of the sample rate control in this mode, you can get a nice tremolo. This is accentuated by setting the mix control around the center - experiment in this range to find different depth settings for the tremolo. Turning the bits down in this setting makes for an interesting pulsating synth effect.

As in Degrade mode, tuning the sample rate control to be in tune with your playing can generate many useful sounds in Obliterate mode. Notes become more inharmonic as they get farther from the root or fifth scale degree. This can be used to make pulsating digi-fuzz tones which mutate differently on each note. A pitch-dependent tremolo can also be created this way.

Expression use and expression modes

The FrantaBit has an expression jack that can be assigned to control any of the functions, including multiple functions simultaneously.

The expression modes operate the same way in either Obliterate or Degrade mode, however due to these being different types of processing, the sound result will be quite different.

It is important to set the Mode switch to "S" when not using an expression pedal.

A Moog EP-2 expression pedal is recommended, as it is wired to work properly with the FrantaBit and includes the range knob, which is essential for getting good expression sweeps.

Modes:
-S (Sample Rate) assigns the sample rate to the expression pedal. In this mode, the pedal's onboard sample rate knob will still be active, and it is used to set the lowest frequency from which the expression pedal can sweep. The highest frequency to which it can sweep is set by the expression pedal's range knob.

-B (Bit Depth) assigns the expression pedal to control the bit depth of the effect, from clean, pristine 24 bits at the heel, down to 1 bit at the toe. The user can set the lowest bit depth using the expression pedal's range knob to select the toe down setting. The onboard Bit Depth knob is not active when in B mode.

+ mode assigns the expression pedal to control both sample rate and bit reduction simultaneously. The sample rate knob on the pedal will remain active to set the heel down sample rate, and the toe down sample rate and bit depth will be controlled by the expression pedal's range knob. In this setting, the pedal's onboard bit depth knob is not active. The sweep is from 24 bits and low sample rate, up to 1 bit and high sample rate.

-M (Mix) assigns the clean/effect mix ratio to the expression pedal. This allows the user to set up crunchy crushed tones, and blend between their clean signal and the effect throughout a melodic line or musical phrase.