



## B I T R E A C T O R

Bit Crusher / Downsampler

### SAMPLE

The SAMPLE knob controls the effect's sampling frequency and determines the maximum frequency that can be accurately reproduced in the output. As it is decreased, the higher frequencies present in the input can no longer be recreated. But rather than these frequencies simply being discarded, they reappear at a different, inharmonic frequency due to the phenomenon known as aliasing.

As the SAMPLE knob is turned clockwise, the sampling frequency is increased. At the fully counter-clockwise position the sampling frequency will be so low that virtually no note will pass through unscathed.

The SAMPLE rate can be 'tuned' to your playing in a sense. At different sampling rates, notes will react differently, producing resonances and other lo-fi sonic deconstruction which there aren't really words to describe. Try turning the SAMPLE knob while continually playing a note to see the different kinds of effects you can get.

### CRUSH

The 8 small LEDs surrounding the CRUSH knob represent the number of bits being used (each LED represents 1 bit); as the knob is turned clockwise, more bits are added and more LEDs are lit.

Less bits means the signal levels can't be properly reproduced, and this can result in anything from a fairly subtle (8 bit) to a super-clipped square wave (1 bit) distortion.

Since the bit crush distortion is relatively dependent on the incoming signal level, you may also find it interesting to experiment with the volume of your input signal and see how it affects the distortion. On a similar note, since the gain of the pedal is so high, it can be sensitive to pickup hum. If you want it to be less sensitive, you can turn the volume down on your guitar and compensate with the LEVEL knob on the pedal, resulting in the same output volume without the hum.

### LEVEL

The LEVEL knob is an output volume control. This adjustment is provided to compensate for the difference in perceived volume at different bit depth (CRUSH) settings. At 1 bit, for example, since the distortion is so intense the output volume seems to be louder (in reality the amplitude is actually smaller, but the ear doesn't hear it that way). To make up for this, you can decrease the LEVEL setting to get the desired volume.

### EXPRESSION PEDAL

An expression pedal input is available to take over control of the SAMPLE knob. When the expression pedal is plugged in it automatically takes control, meaning the SAMPLE knob will no longer do anything.

The expression pedal is connected via stereo cable (TRS - tip ring sleeve). The tip must be connected to the potentiometer wiper (this is generally the standard for expression pedals). Expression pedals can have different resistance values. 10K $\Omega$  works well (this is one of the most common values). Higher resistance values will still work, but the 'feel' of the control will be different - the lower SAMPLE rates will take up a larger portion of the range. For any questions regarding expression pedal compatibility, please feel free to contact us at [info@rpseffects.com](mailto:info@rpseffects.com)

Plugging/unplugging the expression pedal should be done without the pedal powered. If it's done with the pedal powered there's a chance that the pedal will lock up and not function - if this happens, it will be necessary to remove the power to reset it.