Dr. Scientist BitQuest!

Hello and thank you very much for getting this BitQuest! I really appreciate it and I hope you have a ton of fun with your pedal! (ryan@drscientist.ca if you have any questions at all, www.drscientist.ca for other goodies)

OK, let's start with power and 2 important notes and then you can go have fun, read later if you want more patch specific info. **Your BitQuest needs 9VDC using the regular 2.1mm centre negative plug and 75mA of current.** It's a digital pedal so you'll need to use a good, isolated, filtered, and regulated supply and be careful with daisy chaining or you could have hum. Hum is always related to the power supply and interference with other pedals so start there if you have hum, check in with me for a trouble-shooting partner. (There's no battery inside the BitQuest, nobody takes batteries on epic quests!)

Important Point #1 - To switch between clean and distorted mode you have to click the toggle over to the side you want to be on and then also click the patch selector off the patch its on and back to reset the microprocessor and load the new patch. This will give you a chance to remember Important Point #2...

Important Point #2 - The dirty side of the BitQuest has a ton of gain and with great gain comes great volume, so remember when you go from clean to dirty to turn your volume knob down or you might get an earful. You can also turn down CTRL0, making sure the gain is really low, then you won't get an earful.

On to the pedal! So what's a BitQuest anyway? The BitQuest is a digital multi-effect pedal featuring the option of using the effects with a cool high-gain digital distortion or clean with expanded control. These are 8 lovingly hand-programmed effects that I think sound cool with distortion and also just cool in general, or weird, or fun, just great guitar sound-effects. The patches are selectable by the rotary switch, the knob right above the toggle switch. The toggle chooses the distorted or clean mode for the patches. In and out are on the top panel with the power jack. The jack on the side of the box is an expression pedal input that takes over for the knob CTRL1. It needs to be a TRS pedal with 50k of resistance. I recommend the Moog EP-2, it works great with all my pedals.

I'll go over the analog controls first and then we'll hit the digitals!

First is the **Mix** knob, it's a dry/wet blend with the dry signal staying analog while the wet signal goes through the digital processor. The **Volume** knob controls the level of the wet signal only and it goes from below unity to loud. The **Tone** knob is an analog active treble equalizer that can cut or boost your highs, it's flat in the noon position.

The knobs labelled **CTRL0**, **CTRL1**, and **CTRL2** are digital controls and their function depends on the patch and if you're in clean or distorted mode. I'll go over each patch now and how the controls are different depending on the mode.

Important Note #3 - In distorted mode CTRL0 is a digital gain control for every patch. It covers a wide gain range and as you turn it up you also increase a powerful but sensitive digital noise gate. In clean mode CTRL0 becomes another control knob for the effect, adding more power/variation to each patch.

Patch 1 - Flanger - A flanger is the combination of two signals, one delayed slightly in time, resulting in an interesting metallic sound called a comb filter, which is then modulated for a moving comb filter effect.

Distorted Mode: CTRL1 controls the rate of the effect and with it at zero you freeze the oscillator, giving you a comb filter sound. You can set where this comb filter is by carefully turning up CTRL1 until you get to a filtered sound you like, then quickly turning the knob down to zero, and it'll freeze it at that setting. CTRL2 controls the flanger level, so you can add as little or as much flanging as you want to your high gain tone.

Clean Mode: CTRL0 becomes a negative/positive feedback control, letting you add in a touch or a ton of each kind of feedback. If you leave the feedback at noon you can set up a nice chorus sound. Turn it down for

negative feedback, up for positive feedback, and watch out as it can oscillate at the extremes depending on signal strength. CTRL1 stays exactly the same. CTRL2 sets the delay time of the delayed signal giving you the flanger effect. Turn it down for subtleness, turn it up for more drama.

Patch 2 - High Pass and Low Pass Filters - This patch gives you control of two steep filters that can slice off your signal from the top down and the bottom up, making for bandpass filter sounds such as all bass, cocked wah midrange, or all treble, depending on how you set the two filters.

Distorted Mode: CTRL1 is a Low Pass filter that cuts highs and lets lows through, and CTRL2 is a High Pass filter that cuts lows and lets highs through.

Clean Mode: CTRL1 and CTRL2 stay exactly the same and CTRL0 becomes a resonance knob. Resonance is basically feedback for filters and it can give your tone a really... resonant.. sound. Be careful with it as it can oscillate as you turn it up, depending on signal strength and also the resonant frequencies of your gear.. so turn it up slowly!

Patch 3 - Bit Crusher with Sample Rate Reducer - A bit crusher removes digital samples from your signal, distorting the signal by lack of information. A sample rate reducer limits the maximum high frequency resolution of the signal while introducing weird aliased frequencies. Together they're a great way to really destroy your signal digitally.

Distorted Mode: CTRL1 sets the bit depth and it has 6 different settings from no crush at all (24 bits) down to 20, 18, 17, 16, and 15. Each lower bit depth is more crushed, so each one is quieter yet more distorted sounding than the last. Turn it all the way down for full bit depth. CTRL2 sets the sample rate of the signal, turn it all the way up for full signal resolution.

Clean Mode: CTRL1 loses 1 crush setting so it has 5 settings from full bit depth down to 15 bits. CTRL2 stays exactly the same. CTRL0 becomes a modulation control for the sample rate so you can give your signal a weird ascending and descending digital destruction. The position of CTRL2 sets the range of the modulation. To disable the modulation turn CTRL0 to zero.

Patch 4 - Infinite Reverb - This is a dense, full range hall style reverb that can have infinite and even oscillating decay.

Distorted Mode: CTRL1 sets the decay time from very short to infinite to oscillating, so be careful with setting it too high at first and ease into the oscillations. CTRL2 is dry/wet mix so you can have a cool halo of reverb around your distortion signal, or play with 100% wet distorted reverb.

Clean Mode: CTRL1 remains the decay time control, CTRL0 becomes a pre-delay control letting you slow the onset of the reverb effect up to about a quarter of a second for a delayed attack. To disable the pre-delay turn CTRL0 to zero. CTRL2 becomes a rate control for a sine wave that modulates the pre-delay, providing an interesting form of reverb modulation with the depth of the modulation being set by CTRL0. To disable the modulation turn CTRL2 to zero. In clean mode the digital output is 100% wet so use the analog mix knob for dry signal.

Patch 5 - Notch Filter - A notch filter is a very steep but very narrow filter that slices a notch out of your signal, focused in the midrange area. Use with an expression pedal for a great manual phaser sound.

Distorted Mode: CTRL1 sets the position of the notch, as in where it slices your signal, from low to upper midrange. CTRL2 sets how wide the notch is and the wider it is the more dramatic sounding it will be as the more frequencies will be affected.

Clean Mode: CTRL1 and CTRL2 stay the same and CTRL0 becomes an envelope control for the notch filter depth. Turn it up to increase the effect and as you play you'll hear a phasing sound as the hardest notes are filtered by the notch, like a phaser that only phases when you play. For maximum envelope action turn CTRL0 and CTRL1 all the way up. To disable the envelope turn CTRL0 to zero.

Patch 6 - Ring Modulator - A ring mod is basically a ridiculously fast tremolo, so fast that when added to your signal it makes really weird high pitched frequencies, very robotic and atonal sounding.

Distorted Mode: CTRL1 sets the rate of the modulating oscillator, from a fast tremolo to crazy fast weirdolo. CTRL2 is a dry/wet mix letting you blend the ring mod signal with your distortion signal, making for really cool and weird tones, or you can use the ring mod signal by itself, 100% wet and distorted.

Clean Mode: CTRL1 stays exactly the same. CTRL2 becomes a nice dark reverb control, giving a cool sense of space to the weird ring mod tone. CTRL0 becomes a rate control for a sine wave that modulates the modulating frequency. It's like turning CTRL1 up and down except a sine wave does it for you. When the modulation is active CTRL1 sets the range of the modulator so you can have it speeding up and slowing down a little bit or a lot. To disable the modulation turn CTRL0 to zero.

Patch 7 - 1 Octave Pitch Shifter/Harmonizer - This patch lets you pitch shift your signal by one octave up or down. **Important Note #4 -** Because of the way the microprocessor's pitch shifting algorithm works, the delay pointer is always reading past its pointer to get its next samples for shifting. As it moves back and forth getting the samples and shifting them it causes a modulation in the signal that is unavoidable. This modulation is most noticeable at the lowest pitch settings and stands out more when you happen to play notes that correspond to the frequencies of the algorithm. It works best with fast, plucky music rather than held notes. It's intended to be close enough for rock'n'roll, knowwhatimean?

Distorted Mode: CTRL1 sets the pitch shift for the signal. Noon is no shift, all the way down is 1 octave down, all the way up is 1 octave up. CTRL2 is a dry/wet mix letting you harmonize the pitch shifted signal with your distortion signal or you can use just the 100% wet pitch-shifted signal.

Clean Mode: In clean mode you get two pitch shifters instead of one. CTRL0 and CTRL2 each become a +/- 1 octave pitch shifter. CTRL2 becomes a mix knob that mixes between CTRL0 and CTRL2, so you can have a blend of pitch shifters, say one octave down and one octave up, then mix that with your dry signal using the analog Mix knob for 3 voice harmonizing.

Patch 8 - 1 Second Delay - This is a clean and clear digital delay that can go from about 5ms delay to 1 second.

Distorted Mode: CTRL1 sets the delay rate from basically instant to 1 second. CTRL2 sets the amount of repeats from one to infinite. In distorted mode you hear a mixed output of distorted signal and distorted repeats. The repeats volume is turned down a little and they also have some slight treble filtering, both to help them sit nicely with a distorted signal.

Clean Mode: In clean mode there's no digital mixing, you only get a wet output, so it's repeats only and you have to mix in clean signal. CTRL1 and CTRL2 stay exactly the same. CTRL0 becomes a delay address modulation control. What that does is use a sine wave to vary the position of the delay pointer's next read location. This modulation depends on the setting of CTRL1 to tell it how close or far to look for its repeats, so remember the two controls work together here. The result is an odd kind of pitch-shifted and patterned repeats, going from just knocking sounds to full up and down pitch shifting to unpredictable settings in between that I hope you have fun finding!

And that, in a really long reading nutshell, is the BitQuest! I hope you have a fun digital adventure with it and thank you again! -Ryan