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**Iron Ether
Polytope
Owner's Manual**

Create massive, multi-faceted and shimmering sounds with the Polytope four-voice detuner. The Polytope creates up to four copies of the input signal which can be detuned in pitch from subtle thickening to huge multi-voice detuned synth sounds. The detuned voices maintain the timbre of the input and respond well to polyphonic signals. In addition to the static detune mode, the included LFO (low frequency oscillator) can be used to sweep the pitches of all four voices to create wide and deep chorus ensembles when combined with the clean signal.

Removing the clean signal allows for true pitch vibrato, from slight wavering to tape-style wow and flutter, slow seasick wobbles and high speed FM synth-style modulation. A highpass filter allows the user to apply the detuning only to high frequencies. The controls are extremely wide-ranging, covering classic sounds and extending into spaced-out madness.

Controls

Detune knob: Controls the amount of pitch shift away from the original note. The Range switch sets the range of this knob; the lower setting covers under a half-step for thick, multi-voice synth sounds. The higher setting allows the pitch to be shifted multiple semitones up and down (in multi-voice modes). In modulation mode, this controls the depth of the pitch sweeping.

Voices knob: This knob fades up the volume of each detune voice in sequence, starting with one voice shifting up from the original pitch, then adding a down-shifting voice. Voices 3 and 4 are additional upward and downward voices, respectively, which are twice as far from the original note as 1 and 2.

Filter knob: This control sets the cutoff frequency of a highpass filter before the detuning. This can be used to remove “beating” (tremolo-like wavering of volume) that can happen with bass-heavy detuning, or to apply the detuning only to

upper harmonics of a signal, as well as for creating unique special effects.

Clean knob: Controls the volume of the clean signal. Adding the clean signal in creates detune or chorus sounds – removing it creates vibrato.

Voice vol knob: Controls the volume of the detuned voices.

Speed knob: In modulation mode, this controls the speed of the LFO which sweeps the pitch up and down. Ranges from very slow, one cycle over many seconds, up to low audio frequencies.

Mode switch: This switch chooses between static Detuner mode or Modulation mode, which applies the LFO to the detune amount.

Quick Start/A Tour of Sounds

Begin with Clean and Voice volumes centered, all other knobs all the way down (counter-clockwise), with both switches set to the left.

Slowly begin turning up Detune as you play at each stop along the dial. In this smaller range, the max amount of detuning is less than one semitone. Now begin adding additional voices by turning up the Voices control. Each additional voice will be gradually turned up in the mix, so you can continuously control the level of each new voice. Increase this all the way clockwise to hear the full ensemble sound of 4 detuned voices plus your original signal.

Leaving the other controls where they are, turn the Filter knob up to increasingly cut bass from the detuned signal. Note that the clean signal is not filtered and will allow full bass through even with the Filter knob up. Switch the Mode over to M for modulation. The pitch will now begin sweeping up and down at a very slow rate, as the Speed knob is all the way down.

Turn the Voices down to 1 and the Detune amount to about 10 o'clock on the dial. Begin increasing Speed to get a sense of just how fast it can go. Note that when using more than one voice, voices 2 and 4 will sweep up when voices 1 and 3 are sweeping down, and vice versa. This can seem to double the rate of modulation when extra voices are added.

IMPORTANT NOTE

The highpass filter can be set high enough that it removes the "meat" of your signal and just leaves the high frequency components, which may include fret clank and pickup noise. The detuning function then is only copying the high frequencies, and it will let you add up to 4 copies of this in addition to volume boost with the Voices Vol control. The result is that you can set the pedal in a way that copies and boosts all the noise in your signal but little else, making for a very noisy sound. The solution is simply to be more moderate with the Filter, so you're duplicating your notes and not just the noise. The Polytope

itself will not add significant noise, but it will boost the existing noise when the Filter is set too high (for the sound source) and Voices and Voice Vol knobs are at high settings.

Power supply

The Polytope is powered by the industry-standard 9 volt DC center-negative power supply (2.1mm jack). It draws 85 mA of current. Use a power supply that can source at least this much.

Warranty

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

Bypass

The Polytope features a relay-based true bypass system. When the pedal is bypassed, the signal is connected directly from the input jack to the output jack via a mechanical switch, and does not pass through any buffers, electronic (FET) switching, or other circuitry that could have an effect on sound fidelity. It's different from the more common true bypass in that instead of a 3PDT stomp switch, this uses a mechanical relay designed specifically for low-voltage signals like audio. This makes for a quieter switch, greater reliability, and the bonus of automatically going into bypass if power to the pedal is lost.