Getting Started.

Getting started with Trueno is as simple as running the installer and opening the plugin from your favourite host.

As Trueno is a hybrid hardware/software product, it works differently from the plugins you may already use. We've worked hard to keep the latency as low as possible whilst reducing clicks and retaining the timing accuracy you expect from a modern sequencing system. The points below should help you to get the best performance out of Trueno:

Adaptive latency compensation: Trueno has built in adaptive latency compensation. This works out the amount of latency caused by sending data to the device and receiving audio back. The amount of latency is dependant on many things: the audio interface buffer size and what other programs are running on your computer for example. It is recommended you reopen your project if you begin to notice timing issues, this will reset the internal averaging of the latency compensation.

Audio Interface: To ensure optimal timing accuracy when sequencing, we recommend you record with your audio interface set to a buffer size of 256 samples or fewer.

MIDI/USB/ Tuning.

MIDI (1): indicates MIDI activity. Clicking the indicator when it's lit up acts as a MIDI panic button, cancelling all current notes.

USB (2): indicates that the editor is currently connected to Trueno. Multiple editors can be open at once, although only one can be connected to Trueno at a time.

Tune (3): to tune Trueno, click the tune button; the editor should be connected to Trueno first. Once the tune button lights up again, tuning is complete. The tuning settings are shared between all open instances of the plugin.

Warming up: the VCO circuits are temperature dependent, meaning temperature changes will result in some pitch drifting. For this reason, we recommend you let Trueno warm up for around 5 minutes before using it. To warm up, Trueno simply needs to be powered from a USB port which will allow the VCO circuits to reach a stable temperature, this will prevent you from having to tune Trueno multiple times.

MIDI Controllers: Allows MIDI CC control of parameters. The control destination (4) is the last clicked parameter. The control source (5) can be MIDI CC, note velocity or note aftertouch. The amount (6) specifies how much the control source can effect the controller destination, it can be either positive or negative.

① MIDI ② USB ③ Tune

④ VCO1 Pitch ⑤ Velocity ⑥ -19.4

① +12   **②** Para   **③** Held   **④** 0.023

Trans.   **Mode**   **Glide**   **Time**

⑥ **⑤** /Recording Destination/ ⬜

Note Mode/ Recording.

Transpose (1): transposes the note(s) being played up or down 24 semitones.

Mode (2): Trueno's VCOs can work in either monophonic or paraphonic mode. In monophonic mode, all VCOs play the same note. In paraphonic mode each VCO plays its own note, allowing up to 3 notes to be played at once. *Note:* in paraphonic mode the VCF is shared between all the VCOs.

Glide: creates a smooth pitch transition between notes. Trueno's glide function has 4 modes (3): *HldK*, held – constant glide time; *HldV*, held – variable glide time; *AlwK*, always – constant glide time; *AlwV*, always – variable glide time.

In held mode, the glide effect will only be heard if the previous note is still being held; in always mode, the glide effect will always be heard.

In variable mode, the glide time (4) depends on the interval between the new and previous note; in constant mode, the glide time is always the same.

Recording: The recording destination (6) specifies the folder in which the recordings will be saved. Click the record button (5) to arm recording; start playback from your DAW to begin recording. Click the record button again to stop recording; the file will then automatically be saved. It is recommended you start recording slightly before the beginning of your MIDI sequence to prevent missing notes.

Oscillators.

Trueno's three VCOs (Voltage Controlled Oscillators) generate raw waveforms that can then be manipulated to create a huge range of sounds. Each is capable of generating analogue saw, square and triangle waveforms.

Each VCO is connected to a VCA (Voltage Controlled Amplifier) which is used to adjust the volume of the VCO.

Power (1): to enable a VCO click the power button in the top left.

Semi (8): adjusts the VCO up or down in pitch in semitone steps. It has a range of **+** or **−** 24 semitones.

Fine (4): adjusts the pitch up or down with a finer degree of control. It has a range of **+** or **−** 1 semitone.

Wave (2): selects the current waveform being output by the VCO. To change it, use the **<** and **>** arrows (5) which will appear by mousing over the box. The **A** button is highlighted when the oscillator is in analogue mode; the **D** button is used to switch the oscillator to digital mode (6).

Gain (3): sets the output volume of the oscillator.

Pulse-width (7): VCO1 has an adjustable pulse-width. This specifies the duration that the square wave is high vs low.
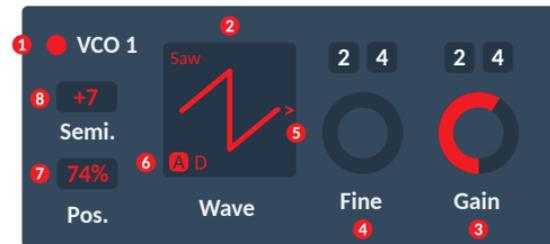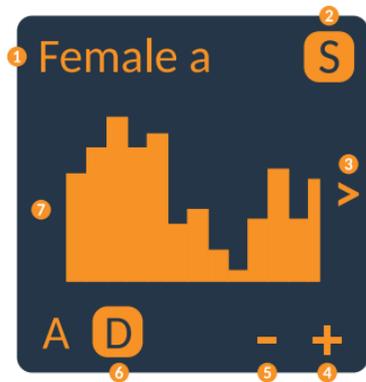
Digital Mode.

Trueno's digital mode generates digital waveforms that can be processed by the analogue amplifiers and filter. Trueno's digital mode uses an additive oscillator meaning it generates waveforms by adding together many sine waves; this is a powerful technique that can be used to generate a wide range of complex waveforms.

Each sine wave is known as a partial. Each digital oscillator has 64 partials in total. These partials are spaced at integer multiples of the fundamental frequency. Switching to the spectral editor (2) allows the amplitude of each partial to be changed (7), making it easy to change the preset waveforms or even create brand new ones.

Digital Mode: To switch the oscillator to digital mode, click the **D** button (6).

Wavetables: Use the **<** and **>** arrows to switch between the preset wavetables. The wavetable name is displayed in the top left (1).

Spectral Editor: To edit a wavetable click the **S** button (2) to switch to spectrum mode.

Use the **+** and **-** buttons (4,5) to zoom in and out of the spectrum. Use the **<** and **>** arrows (3) to navigate up and down the spectrum.

Use the **LMB** to edit the value of a partial. Use the **RMB** to reset the partial to zero. Clicking and dragging either of these buttons has the effect of editing multiple partials at once.

Analogue Modulation.

VCO 3 can be used as a modulation source to modulate VCO 1's amplitude and pulse-width as well the VCF's cutoff. To switch on modulation, click the power button and make sure VCO 3 is also switched on. VCO 3's gain control can then be used to set the amount of modulation.

Select one of the three modulation modes:

AM (1): VCO 1 amplitude modulation.

PWM (2): VCO 1 pulse-width modulation.

VCF (3): VCF cutoff modulation.

Note: The modulation is bipolar (both positive and negative) and added to the destination's current value. It is therefore recommended that the modulation destination is not at its minimum or maximum value to prevent clipping.

Filter.

The VCF (Voltage Controlled Filter) is used to filter the combined output of the VCOs. Its controls are explained below:

Power (1): to enable the VCF click the power button in the top left.

KF (5): key-follow; changes the cutoff frequency based on the key last pressed.

LP/BP (6): Trueno's VCF has two modes: LP (Low-Pass) removes only higher frequencies; BP (Band-Pass) removes some higher and lower frequencies.

Cutoff (4): sets the frequency of the VCF.

Resonance (3): sets the amount of the filtered signal that is fed back into the input. The filter will begin oscillating at higher resonance settings.

Envelope (2): Connected to the filter cutoff - see EGs (next page).

LFOs/EGs.

Trueno has 4 EGs (Envelope Generators) and 4 LFOs (Low Frequency Oscillators). These can be used to modulate the VCOs' pitch and volume, the VCF's cutoff and resonance as well as the master VCA's volume.

The modulators can be assigned by selecting the modulator (1) (if it's not already selected) then dragging and dropping to the modulation destination. While dragging, the modulation destinations will become highlighted. Clicking and dragging on a destination will change the modulation amount.

Env:

Exp (14): makes the envelope slopes exponential.
Rel (13): switch the envelope's release on or off.
Attack (12): the time taken to reach 100%.
Decay (11): the time taken to go from 100% to the sustain level.
Sustain (10): the level the envelope stays until the note is released.
Release (9): the time taken to go from the sustain level to 0% after the note is released.
Amt (8): The envelope amount.

LFO:

Wave (7): the LFO shape.
Freq (2): the frequency of the LFO.
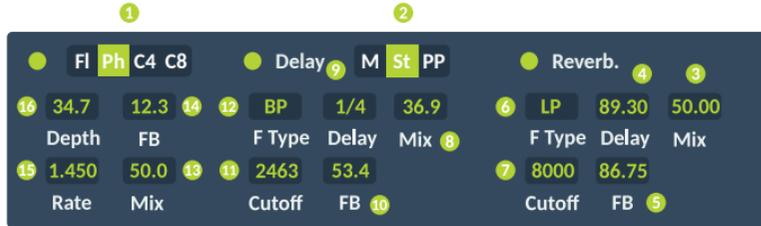*Gain (3):* the amount of LFO gain.
Pos (6): the starting phase of the wave.
Sync (5): puts the LFO in tempo synchronised mode.
Trig (4): restarts the LFO when a new note is pressed.

Effects.

Multi FX: LFO controlled variable delays; the flanger and phasor have two voices while the choruses have 4 or 8 voices.

Mode (1): Fl - flanger, **Ph** - phasor, **C4** – 4 voice chorus, **C8** – 8 voice chorus.
Depth (16): the amount of variable delay.
Feedback (14): the amount of variable delay feedback, also controls the amount of feedfoward in phasor mode.
Rate (15): the frequency of the LFO controlling the variable delay.
Mix (13): the amount of effect applied.

Delay: is a stereo delay with built in filter.

Mode (2): M – mono, **St** – stereo, **PP** – ping pong;
Filter Type (12): used to select the LP (Low-Pass), HP (High-Pass) or BP (Band-Pass) filter.
Cutoff (11): the delay filter cutoff frequency.
Delay (9): the delay length.
Feedback (10): the amount of delay feedback.
Mix (8): the amount of effect applied.

Reverb: is a stereo reverb with built in filter

Filter Type (6): used to select the LP (Low-Pass), HP (High-Pass) or BP (Band-Pass) filter.
Cutoff (7): the reverb filter cutoff frequency, can be used to brighten or dampen the sound.
Delay (4): the reverb delay, larger values emulate larger rooms.
Feedback (5): the amount of reverb feedback.
Mix (3): the amount of effect applied.