

U-HE SOUND DESIGN GUIDELINES

27. March 2023

1. VOLUMES.....	2
2. PITCH & KEYBOARD RANGE	2
3. EFFECTS	3
4. PERFORMANCE CONTROLS	3
5. XY PADS / MACRO CONTROLS	4
6. CLEAN-UP	5
7. PRESET NAMES & FOLDER STRUCTURE	5

Please study this document carefully before submitting a soundset to u-he!

1. VOLUMES

Volume balancing isn't the most fun part of sound design, but auditioning presets will be stressful for the user if you don't do it. Imagine having to keep adjusting the volume on your TV because the participants in a talk show have wildly different levels... we want to avoid that.

The basic rule

Check your creations across the keyboard range using all performance controls. Monophonic sounds should peak at around **-6dB**. Polyphonic sounds should peak around **-12dB** for single notes and remain **below 0dB** when playing huge chords.

It pays to watch the track meter in your DAW and fix any sounds that go over 0dB. There's no need to concentrate too much on maximizing levels: Find a good balance that will be feel comfortable for people while they audition your sounds.

Where to adjust levels

All our synths have a global output volume knob in the control bar which you should leave at the default 100 unless you can't get the desired result by other means.

Tip: There are often many **gain stages** within the signal path. Try to avoid setting wildly different levels with no specific purpose in mind.

Balance across the keyboard

If your sound is too loud or harsh at one end of the keyboard, try to even out the extremes: Determine the root causes and fix them using "KeyFollow".

2. PITCH & KEYBOARD RANGE

The basic rule

Pitched sounds should have the correct root and be in tune with other pitched sounds: If you play a C you should hear a C! If your sound is a full chord and you play a C, the root note of the chord should be a C.

Which octave transposition is best?

Of course if your presets sound great across an 88-note keyboard, all the better! But always remember that most users will have smaller keyboards...

The shorter the keyboard, the more important octave transposition becomes. For instance, your bass presets must be instantly playable on a 4-octave keyboard set to middle C = MIDI note 60 without the user having to switch octaves.

Basses should work well in the lower two octaves of a 4-octave keyboard, and leads mainly in the upper 2 octaves. Note that leads are less critical than basses in this respect: It's considered fairly normal to switch the octave to extend the range.

3. EFFECTS

The basic rules

Firstly: Added effects should always be the result of a conscious decision! That goes especially for reverb and delay. Use them wisely and not just for the sake of adding "space" to everything. When you do use reverb and/or delay, don't leave it at the default settings, but tweak them carefully to suit the sound. Also leave some dynamic range here and there – please don't over-compress.

Secondly: If you modulate an effect parameter, please avoid polyphonic modulation sources as these tend to produce clicks etc. (polyphonic modulators can send conflicting amounts simultaneously). Use global modulation sources instead.

I sometimes like to pile on the effects. Is that okay?

If it helps you achieve the desired result, of course. However, we take pride in the the raw sound of our synths, so make sure you don't do it ALL the time!

4. PERFORMANCE CONTROLS

The basic rule

As a sound designer you really need a keyboard with a full compliment of lefthand controls (modulation wheel / stick / ribbon, pitch bender) as well as aftertouch. Preferably one with extra knobs or sliders that can send MIDI CC. These performance controls should be assigned so that they add **expression** to the sound, which translates to more **fun** for the musicians. We want that.

Where should I start?

The **modulation wheel** must always do something useful.

Pitch Bend usually does something anyway, but try to find the optimum ranges for the sound. Some sounds get very powerful when you can bend them way down.

Tip: It can be interesting to also have pitch bend affecting cutoff, LFO rate or whatever adds to the experience.

Use **Velocity** and **Aftertouch** whenever that makes the sound more expressive.

Control A and **Control B** are a bonus: If you have any modulation slots to spare, use them to control e.g. a pitch offset or the depth of an effect.

What do I write into the USAGE field when saving my preset?

Note the spaces and UPPER/lower case in this example:

MW = cutoff up

PB = chaos!

AT = vibrato / tremolo

Ctrl A = reverb

Ctrl B = squiggles and jiggles

MW is the modulation wheel, PB is the pitch bender, AT is aftertouch i.e. pressure, and Ctrl A/B are Control A and Control B.

The descriptions after the “ = “ can be factual or picturesque, but please keep them relatively short like in the above example.

5. XY PADS / MACRO CONTROLS

Some of our plugins feature macro controls in the form of four XY pads and 8 corresponding knobs which also appear as NKS controls for NI hardware owners.

The basic rules

Whether auto-assign (like we have in Hive 2) or manually set up, the idea behind the macros is to have all 8 dimensions affecting the sound differently, each with optimal ranges. If applicable, try to stick to the following...

XY1 – oscillator parameters

XY2 – filter parameters

XY3 – envelopes / LFOs / any kind of motion

XY4 – effects

... but feel free to make the most of those controls. Try to make the labels for each XY pad short but meaningful e.g. **Mixture**, **Timbre**, **Motion** and **Spaces**.

The 8 individual axes are labelled using a maximum of 8 characters (10 characters are acceptable if necessary), mainly to stay compatible with the older generations of NKS hardware.

Is auto-assign good enough?

The automatic macro assignments are tamer than what you can get by assigning manually. Auto-assignment is useful, but far from perfect: it can deliver results that don't make sense for a particular preset. Please check what each axis actually does, and consider putting in the time and effort to improve those assignments!

Clear auto-assignments, then re-assign, then check usability

Before you submit presets for **Hive 2** presets (or for any future synths that include a similar auto-assign feature), it's best to clear the auto-assignments then auto-assign all XY axes again: Go to the XY tab, right-click an XY field, select *unassign all*, right-click again and select *auto-assign all unused*.

What should I avoid?

Try not to duplicate in an XY field what the modulation wheel, aftertouch or pitch bend are already doing.

Try not to use XY for pitch bending duties or similar. The controls don't automatically return to the centre and it's often too fiddly to find the zero position by hand on hardware controllers. However, if pitches are somehow quantized or the area around zero has no effect, pitch via XY poses less of a problem and can be very useful!

6. CLEAN-UP

The basic rule

Remove unused modulation remnants. The process of designing sounds often results in modulation assignments that no longer do anything, or elements that consume CPU without contributing to the sound.

Returning unused parameters to default their values (via double-click) makes your work clearer and easier to read for future editing.

Try to work economically. If you use 5 modules for what 3 modules can achieve, then there's room for improvement.

Hive cleaning: unused wavetables!

Before leaving a **Hive 2** sound, make sure that you have unloaded any unused wavetable(s). If, after trying some wavetables, you decide to use e.g. a sawtooth instead, that wavetable will continue to use memory and CPU.

In the WAVETABLE window, right-click on the file name and choose *Unload Current*. And don't forget about WAVETABLE 2!

Hive cleaning: unused suboscillators

If you're not using a sub-oscillator it's best not to leave it set to *like OSC*, especially if the main OSC is a wavetable with a high Unison count. Always choose a simple waveform (e.g. Sawtooth) instead.

7. PRESET NAMES & FOLDER STRUCTURE

The basic rule for preset names

Use Title Case for your preset name. The first letter of each word is upper case. Examples:

Big Boomy Bass

Glassy Wave Paddle

Keep names shorter than 30 characters, otherwise they will certainly look weird in our browser. Avoid brand names, or get creative with their spelling. Finally, please avoid vulgarities and racial slurs etc..

The basic rule for folder structure

If you submit a large number of presets, please sort them into category folders. Have a look at our factory library to see how we generally do it. You can deviate from the typical *Leads*, *Basses* etc. if the soundset is more specialized.