

# Higher Hz – HZ Multiplier



## HZ Multiplier Manual

Thanks for downloading and using HZ Multiplier from Higher Hz, please read through this manual to understand how it works.

### Compatibility

HZ Multiplier requires a VST Host to work. HZ Multiplier will work within just about all VST Hosts or DAWs running on Windows or Mac OS so long as they are ready to support a 64 Bit VST 2.4, 64 Bit VST 3 or 64 Bit AU.

## Installation

Installing HZ Multiplier is a manual process but not a hard one. First Unzip the downloaded files and identify the parts that you want to install to suit your needs. You can toss out anything else to make it a bit clearer.

In every case you are putting a **WHOLE FOLDER** into the right location. If you try to be clever and drag over only a .dll the install/plugin will fail. Delete whatever you did and start again.

### Installation Windows

Installing HZ Multiplier into your host is a manual process. Open the downloaded folder and grab the **whole folder** for *either* the VST 2.4 or VST 3 and drag & drop it in your relevant VST folder.



For VST 2.4 this can be any folder that you specify but for VST 3 this must be the default path:

**This PC > OS(C:) > Program Files > Common Files > VST3**

Start your DAW and the HZ Multiplier should be searched, found and available under HigherHZ.

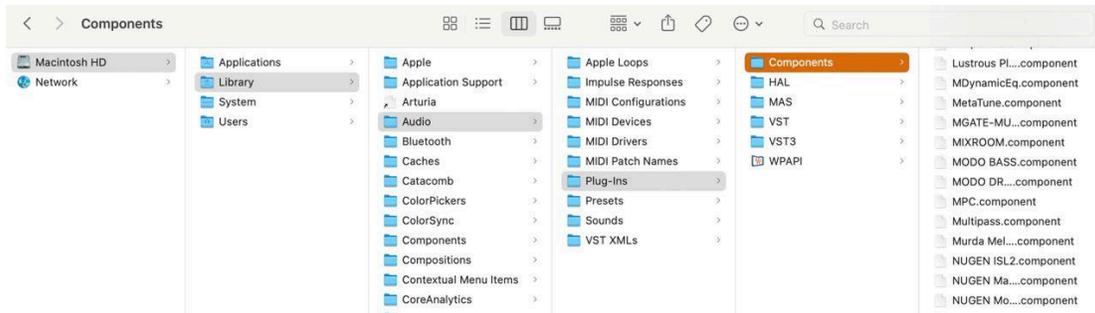
If HZ Multiplier does not appear please check Compatibility above and that you copied/dragged over the whole folder (not just the .dll file) as there are other files in the folder needed to make the VST work properly.

### Installation Apple Mac OS

Installing HZ Multiplier into your host is a 2 or 3-stage manual process. First install the HZ Multiplier and run it in your DAW (to make the second part easier). Then install the Patches to the created Folder.

Install AU

Folder location is **~/Library/Audio/Plug-Ins/Components**. Pop the **whole HigherHZ Folder** in the Components Folder.



You can access that folder by clicking the Go tab in Finder, selecting Go To Folder, and typing the path `~/Library/Audio/Plug-Ins/Components`. You can also access it by opening your Macintosh HD, where you'll see Applications, Library, System, and Users folders. Choose Users, then click through each step from the Library folder. More easily, you can access it by clicking the Go tab in Finder, then hold down the Option button, and you'll see Library appear on the list of destinations.

If you're the only user of the Mac, it makes no difference which of these Components folders you use. Obviously, if it's shared, you may want to have public and user-only plugins. Many plugins that don't have an installer end up in the user-only Components folder because it's so quick to reach.

### Unverified Publisher Warning

If macOS says unverified publisher, or anything similar, you have to go to the following location:

### **System Preferences (found on the task bar or via Spotlight search easily) ———> Security & Privacy**

In this panel, near the bottom, the plugin/software that was just blocked should be named with the option to Open Anyway. As you know, this happens with legitimate software, so people shouldn't be worried about clicking Open Anyway unless they have any other reasons to doubt the developer/software.

If you open the Security & Privacy panel and the plugin isn't listed, just leave the panel open, and try to open/launch the software/plugin again, and it should appear.

While annoying this is a result of decisions at Apple and not our software.

### Install AU Patches

AU Patches are stored separately from the plugin. If you followed the advice above and have run the plugin in your DAW, the folder you need to put the patches into should already be there.

The location is the path is: `~/Library/Audio/Presets/HigherHz/HZ Multiplier` Replace the HZ Multiplier Folder – or – drop the presets into that folder.



## HZ Multiplier Overview

HZ Multiplier is designed to add body & width to sounds using methods similar to a soundbox (like an acoustic guitar body) and room (like reverb). The way the effect works best will tend to vary from instrument to instrument and situation to situation so please be sure that when using HZ Multiplier you don't just "set and forget" or make the largest sound you can in Solo as it may just make your mix worse overall.

The sorts of effects or outcomes HZ Multiplier will help you to achieve are:

- Unison/Doubling
- Chorus & Flange
- Echo
- Reverb – simple early reflections

The idea is that commonly you will be balancing some or all of the above as you use HZ Multiplier to add depth & sparkle to any (or all) of the sounds in your mix. Maybe not the Masters but where there is a will, there is a way.

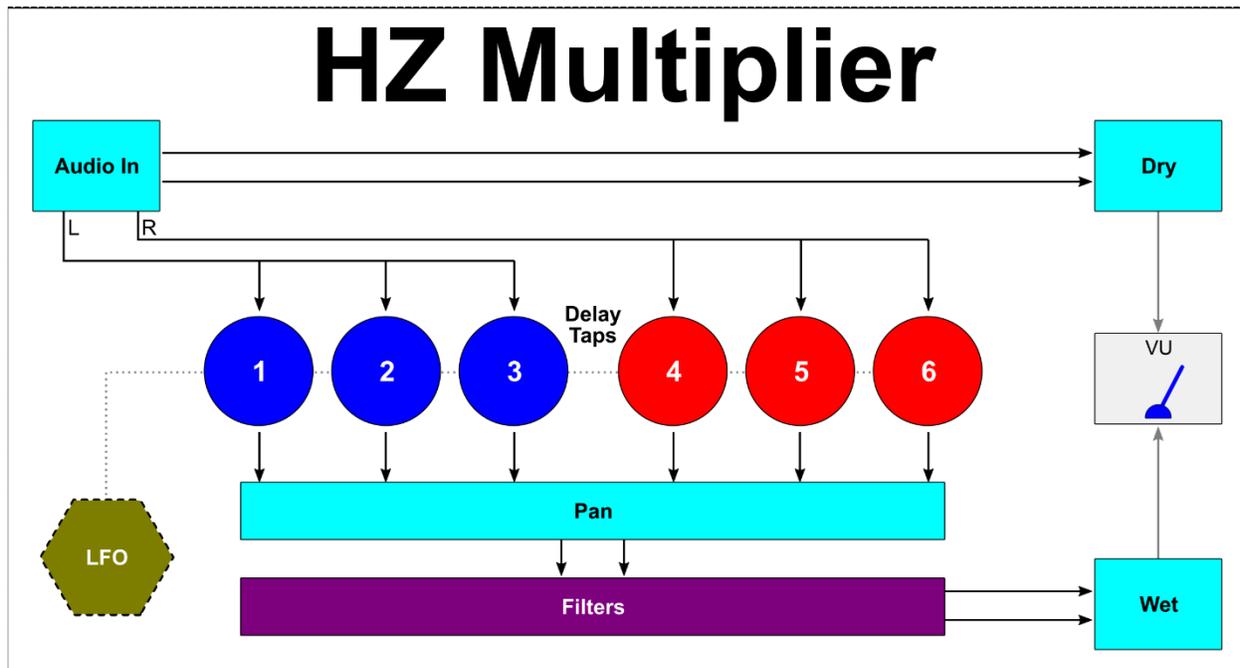
### HZ Multiplier – The GUI



The user interface for HZ Multiplier is split into several parts.

- The top with the VU Meter is where the main functions for the whole effect are handled.
- The section below is where each of the echo taps are set up and can actually be ignored if you prefer.

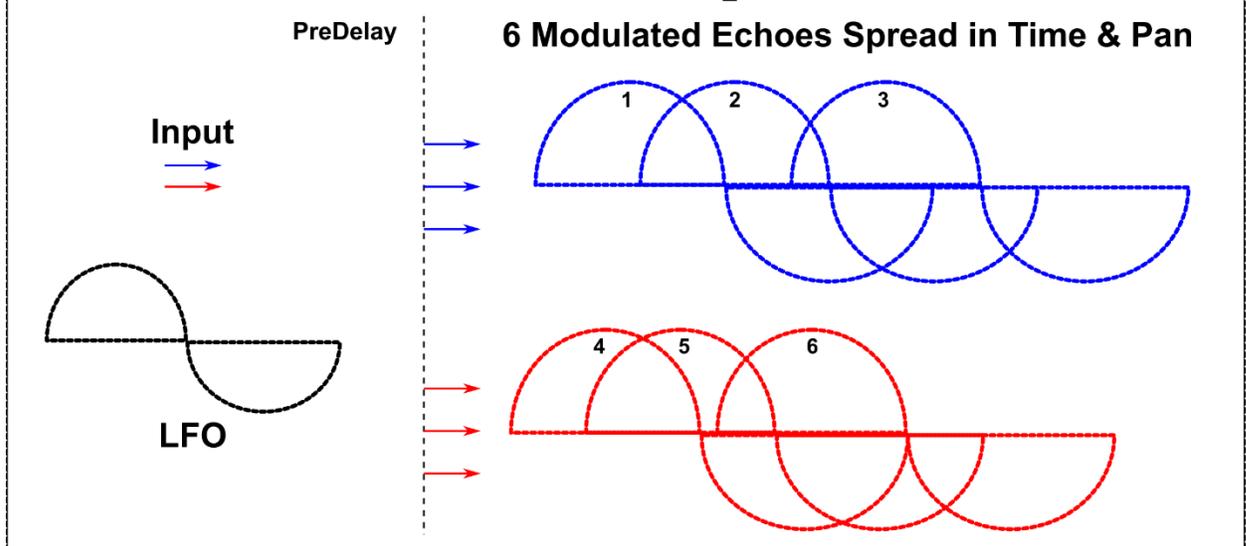
It is worth understanding the signal flow. This is the signal flow diagram:



Signal Flow:

1. Audio input is Stereo and echoed straight to the Dry Output.
2. Input is split Left & Right with the Left signal being sent to Taps 1-3, Right signal is sent to Taps 4-6.
3. Each Tap can have its own Delay offset (always late). The Spread knob controls how much effect the Tap Offset positions have from 0-100%.
4. Each Tap can be panned as you like. This gives you complete control over how stereo is managed. The Width knob controls how much effect the Tap Pan positions have from 0-100%.
5. The main PreDelay can be set with a short range or increased to operate as a more traditional Delay (with all other settings operating). When using HZ Multiplier as a Unison/Doubler, it is best to keep the PreDelay value at or close to 0 and the Range button off.
6. **Take care with feedback as larger values can very easily create a feedback loop that will howl until the feedback knob is lowered.**
7. Tone can be adjusted with 12db high and low pass resonant filters at the final audio bus. This means that with feedback, tone adjustments are not cumulative.
8. There is a modulation system that is initially very simple but once the delay times are spread, phase relationships change as per the image below. This is part of how the unique sound is developed. Each Tap that is delayed carries the phase of the LFO back by that amount of time. This is not a set relationship like some multi-voice choruses but mimics a more natural process. This generally reduces the sense of "swishiness" as collectively the taps are all modulating at different times (or phases to be more accurate). You can however choose to keep all the taps "tight" and raise the Feedback to get Flanger effects.

# HZ Multiplier



Because this device can get loud and create feedback, it is always advised that a Brickwall Limiter or Clipper be applied across the masters of your DAW to prevent any LOUD events getting to your amp/speakers/ears.

## Insert or Send

Mostly it is expected that HZ Multiplier will be used as an insert effect – between the instrument and the mixing desk or in the insert box of the mixing desk. In these cases use the Dry signal with Wet signal to create the balance and output level that you want.

If you decide to use this device as a send effect eg Reverb, be sure that the Dry knob is set to 0, all the way to the left, so you are not returning the unaffected signal which will mess up your mix balances.

## The Controls



This section covers the controls. You can operate the unit with only the white knobs for its main purpose as a Unison/Chorus.

Top:

- **Spread** – sets the power of the Tap offset times (below) from 0-100%. Smaller values keep duplicates closer, larger amounts create a larger, looser feel.
- **Width** – sets the power of the stereo Pan amounts (below) from 0-100%.
- **Rate** – sets the overall speed for the modulation LFO. This controls all delay taps.
- **Depth** - sets the overall amount for the modulation. See the modulation image above to see how tap time spread changes modulation phase offsets.
- **PreDelay** – sets the default time for the Taps. Generally this will be set to zero or a low value. You may however raise this for more Reverb-like results.
- **Range** – changes to a long echo time for a more traditional Delay experience. All other parameters are still active so this is useful for diffused echo.
- **Feedback** – sets regeneration amount for each tap individually and can be used to emphasize the effect either as a Reverb or Flanger (PreDelay & Spread at or very close to 0). Large amounts of Feedback can become very LOUD so please take care and use a Limiter or Clipper across your mix.
- **VU Meter** – this is only loosely representative of output signal activity and not designed to be remotely accurate.
- **Input + Output Meters** – display average levels at input & output if you want help in level matching.
- **Dry** – sets the output level for the dry signal.
- **Wet** – sets the level for the effected signal.

## Bottom:

- **Tap 1 - 6** – set the delay offset (positive) for each Tap. Larger amounts will make that tap later/looser. It is generally worth understanding how you want Time & Pan to interact. The power of these knobs is controlled by the Spread knob above.
- **Pan 1 - 6** – set the stereo position for each Tap. These are colored to help remind which taps have been fed left & right signal but you are totally free to pan as you wish. The power of these knobs is controlled by the Width knob above 0-100%.
- **Hi Pass** – is a 12db high pass filter that will roll off lower frequencies (bass) to help reduce muddiness or enhance brightness.
- **Lo Pass** - is a 12db low pass filter that will roll off higher frequencies (treble) to help reduce brightness or enhance warmth.
- **Hi Reso** – sets the Resonance or Q for the High Pass Filter.
- **Lo Reso** – sets the Resonance or Q for the Low Pass Filter.

## Automation & Patches

Parameter Automation is handled by your DAW so please understand how your DAW handles Automation.

Automatable Parameters have been assigned in logical order in the VST but your DAW may display them in a different order (or even not at all).

If visually impaired, some DAWs offer the option to display the parameters in a Text-list form which will help. Parameters should display in the order in the manual and broadly the signal flow.

Patches are also commonly handled at the DAW level so please consult your DAW manuals if you need to consider things like patch changes within a piece (not really recommended as the unit may output thumps).

## Support

Support should generally not be necessary if you have followed instructions in this manual. Should you need advice on a situation, please start by looking at the Manual (this PDF) or the Video Manual on our YouTube channel: [Higher HZ - YouTube](#). Most questions you may have will already have been asked and answered there already.

As a final option if you have a need you may ask directly at: [support@higherhz.com](mailto:support@higherhz.com)

## Legal Liability

Higher HZ MultiPLY is an audio effect using the VST SDK and dependent on Host software (your DAW) for operation. Usage and results also depend on what is fed to the unit and other parameters and events beyond our control.

This means that we cannot be responsible for outcomes or damages real or perceived as a result of using this software device.

We will however advise common cautions advised above like managing levels and using a Limiter across audio outputs.