



# INTRODUCTION

## WHAT IS IT?

**Turbo** is an oscillator plugin for Korg's multi engine, based on variable waveshaping synthesis. An original technology developed at Sinevibes, it uses a pair of sine oscillators coupled with special sine-based waveshapers which essentially "curl" the waveform in real time, enriching it with new harmonics. The final tone depends not only on the waveshaper curve itself but is also highly sensitive to frequency and level relations of the sine partials, and this allows **Turbo** to create a very wide range of characterful tones: from warm and rounded to buzzy and abrasive.

## SPECIFICATIONS

- Two sine oscillators with variable balance, frequency ratio and beating frequency.
- Five different waveshaping algorithms with continuously variable curve complexity.
- Built-in lag filters for noise-free, ultra-smooth parameter adjustment and modulation.
- Built-in envelope generator with widely adjustable attack and decay times (1 ms to 10 s).

## COMPATIBILITY

- Korg **prologue**
- Korg **minilogue xd**
- Korg **NTS-1**

## PACKAGE CONTENTS

- **Turbo** plugin in **prologue**, **minilogue xd** and **NTS-1** formats
- 16 example patches in **prologue** and **minilogue xd** formats
- User Manual PDF
- Multi Engine Preset Converter utility

# BEFORE YOU START

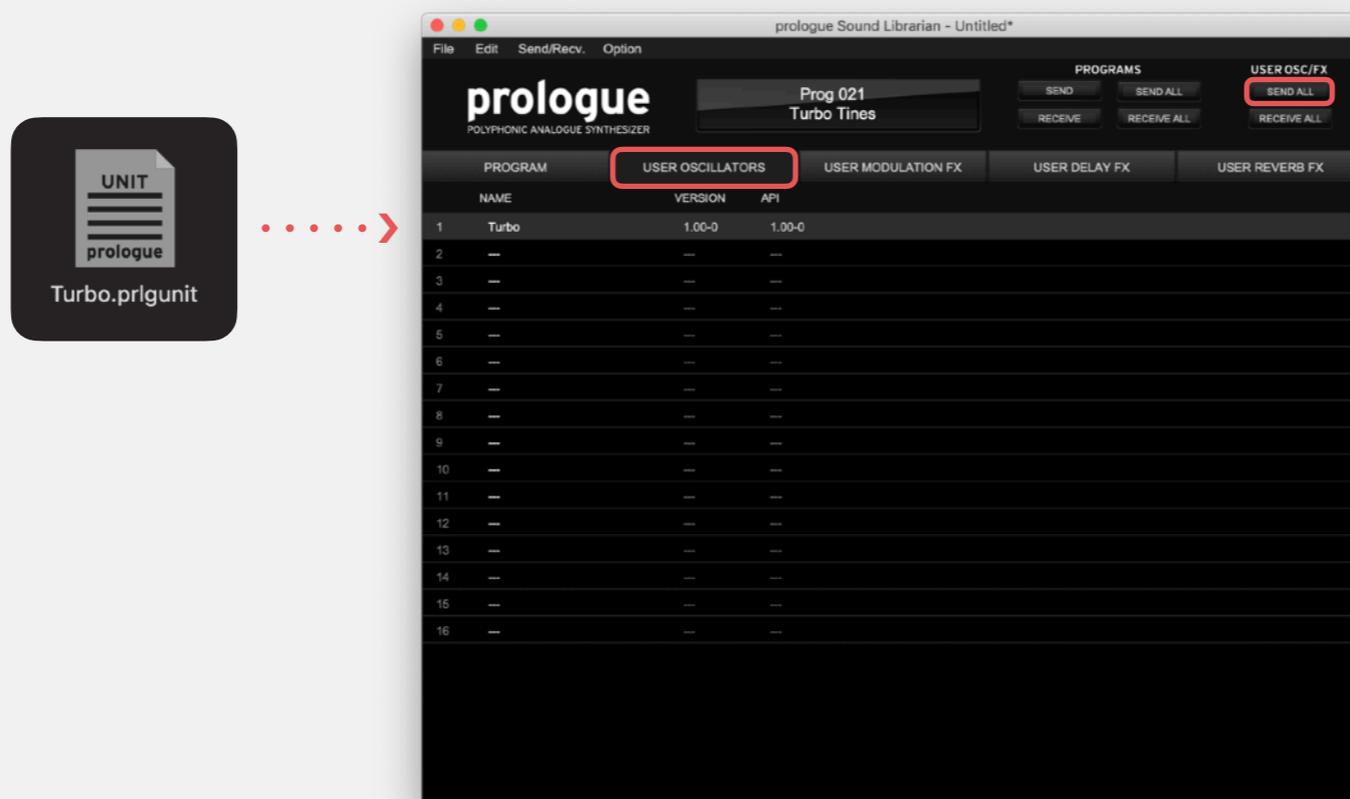


Before you install third-party plugins, please make sure that you have the latest **system update** installed on your KORG synthesizer, and that you also perform the **panel update** and **voice update** procedures if they are required. Older system versions can have major issues with newer plugins. You should keep the **Sound Librarian** application updated as well.

Follow the links below to check and download the latest software for your synthesizer:

- Software for KORG [prologue](#)
- Software for KORG [minilogue xd](#)
- Software for KORG [NTS-1](#)

# INSTALLING THE PLUGIN



## STEP 1

Connect your computer to your synthesizer via MIDI or USB-MIDI and launch the Librarian app.

## STEP 2

While in the USER OSCILLATORS tab, drag and drop the **Turbo** plugin file into any available slot.

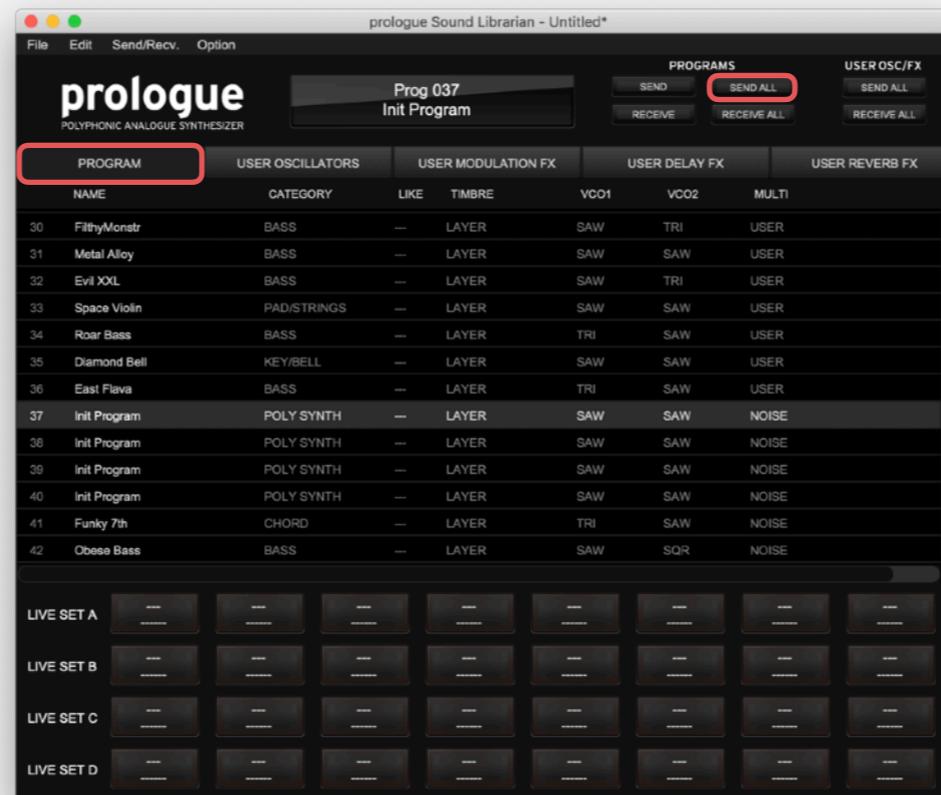
## STEP 3

Press the SEND ALL button in the USER OSC/FX toolbar section.



To get the latest version of **Turbo**, visit the **Sinevibes** website and request your downloads:  
[www.sinevibes.com/updates](http://www.sinevibes.com/updates)

# INSTALLING THE PATCHES



## STEP 1

Connect your computer to your synthesizer via MIDI or USB-MIDI and launch the Librarian app.

## STEP 2

In the **Turbo** package, open the Presets folder, and then open the folder corresponding to the slot number into which you installed the plugin.

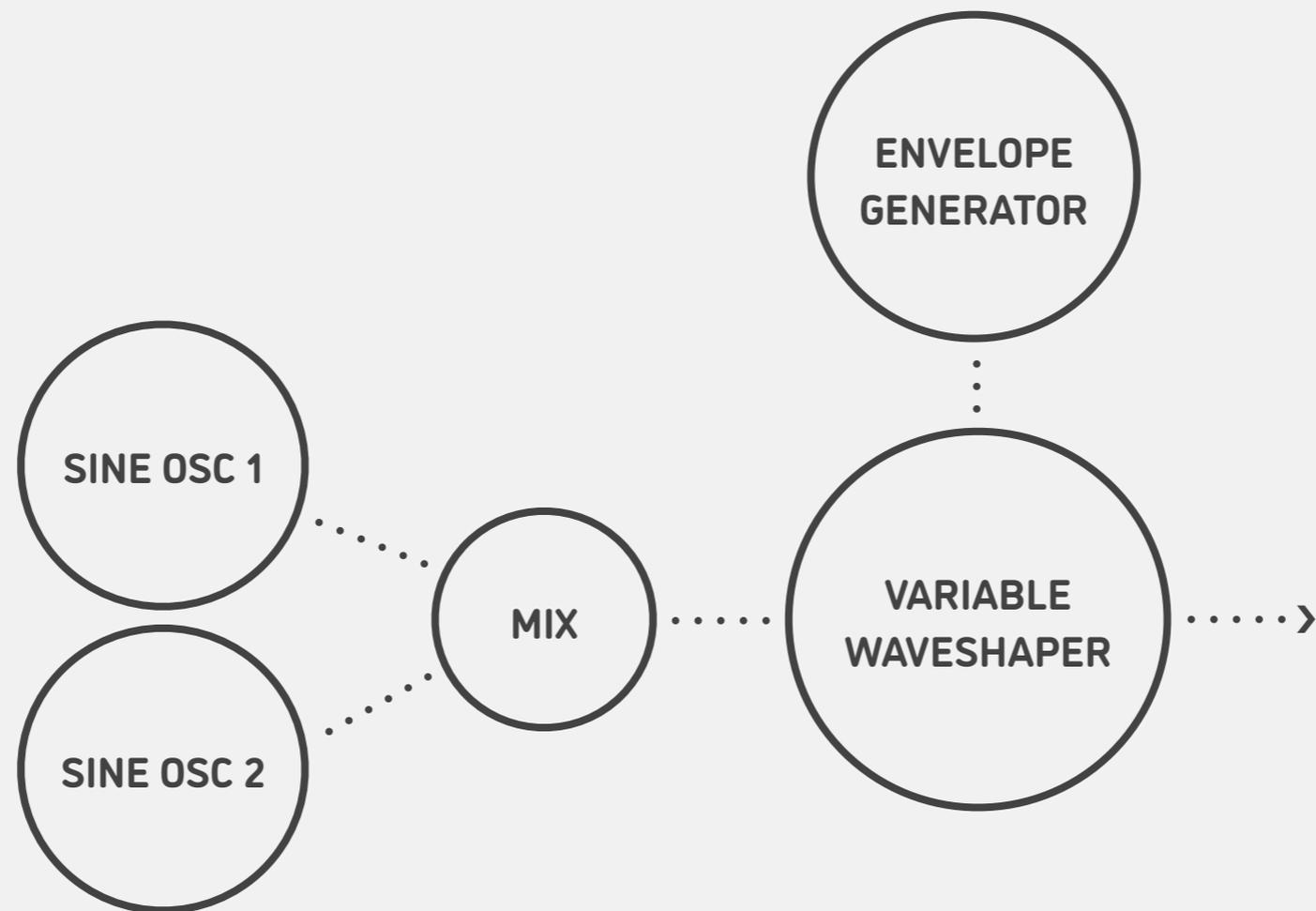
## STEP 3

In the Sound Librarian, click to highlight the target preset location, then drag and drop the desired preset file onto this location. Repeat this for all presets you'd like to install.

## STEP 4

Press the SEND ALL button in the PROGRAMS toolbar section.

# STRUCTURE DIAGRAM

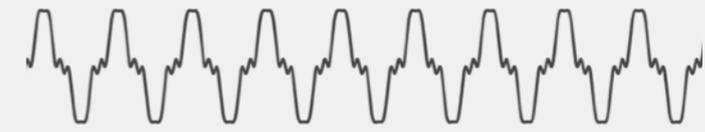


# SCIENCE

The variable waveshaping technology works by curving and bending the waveform in real time. Let's try a simple sine wave as shown on the right.



As the sine wave cycles up and down, the waveshaper formula effectively adds peaks and dips along its path. In terms of the sound, it is changing the original spectrum by adding multiple new overtones.



Now let's see what happens if the wave gets just a bit more complex – such as when we mix two sine waves, one running at 2x higher frequency than the other.



Since the waveshaping curve is highly reactive to the frequency ratio and the level balance between these two incoming sine waves, the spectrum becomes dramatically different. As the curve complexity (shape) is increased, even more new peaks and dips are added to the waveform.



And here is the same mix of two sine waves but with a different waveshaping curve: as you can see, a different algorithm also produces a dramatically different output shape.



# PARAMETERS

## SHAPE

Use the SHAPE knob of the multi engine oscillator to adjust the complexity of the waveshaper curve.

## SHIFT + SHAPE

Hold the SHIFT button and then use the SHAPE knob to adjust the balance between the two sine oscillators. 0% is just the first oscillator, 50% is an equal mix, and 100% is just the second oscillator.

## Type

Select one of 5 different waveshaper curves, each giving its own distinct tone. This and all other additional parameters are adjusted by switching to the MULTI ENGINE page in EDIT MODE and turning the PROGRAM/VALUE dial (**prologue** and **minilogue xd**) or by holding the OSC button, turning the TYPE dial and then turning the B knob (**NTS-1**).

## Ratio

Set the frequency ratio between the primary and the secondary sine oscillators: 1:1 to 8:1. Lower ratios produce roaring or growling tones, higher values produce more buzzy, abrasive ones.

## Detune

Adjust the beating frequency between the sine oscillators: 0-50% range is mapped from 0 to approximately 4 Hz (it is fixed regardless of the key played). The beating causes low-frequency amplitude pulsations in the oscillator mix which in turn produces cyclic waveshape changes.

## EG Amount

Amount of envelope generator output applied onto the waveshaper curve: 0-100%.

## EG Attack

Envelope generator attack time: 0-100% (exponentially mapped from 1 ms to 10 s).

## EG Decay

Envelope generator decay time: 0-100% (exponentially mapped from 1 ms to 10 s).



**SINEVIBES**

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[www.sinevibes.com](http://www.sinevibes.com)