The Stringer Seventy-Six Paraphonic Construction Kit
from Dome Music Technologies

Version 1.1, April 2023

Introduction

Stringer Seventy Six is a set of modules which allow you to build sophisticated polyphonic and paraphonic instrument designs, such as string machines, combo organs, brass ensembles, electric pianos, etc.

It contains:

> ***Pink Flight Divide-Down Oscillator*** - a polyphonic oscillator with velocity sensitivity and individual ADSR envelopes for each voice channel.

> ***Aqua-Marine Ensemble Generator*** - a tri-chorus ensemble generator, modelled on the Eminent Solina circuit. A preset version of the Solaris Ensemble by Dome Music Technologies.

> ***Kleiner-Kiffer Phaser*** - a simple phaser, modelled on the sound of the EHX Small Stone.

Stringer Seventy Six was designed to be a low-cost introduction to polyphony within the Voltage Modular environment. You can build very rich and lush patches using only this bundle together with the free-of-charge Voltage Modular Nucleus Edition and the Dome Music Technologies Freebie Collection.

All the presets in the included preset pack were also designed to be used with only free-of-charge modules.

V1.0 to V1.1 Updates (April 2023)

Pink Flight Updates

The Poly Inputs are now 'normalled' to the Poly Sources jacks on the IO Panel.

Detune functionality introduces analogue warmth and richness to oscillator tuning.

Maximum envelope Attack, Decay and Release times lengthened from 10 sec to 20 sec.

Volume control has been smoothed to prevent zipper noise when moved.

Aqua-Marine Updates

Single-channel "Chorus" mode introduced to complement the original tri-chorus "Ensemble" effect.

Module bypass available on front panel "Mode" switch as well as right-click option.

Kleiner-Kiffer Updates

Module bypass available on front panel "Color" switch as well as right-click option.

Pink Flight Divide-Down Oscillator

The Pink Flight Divide Down Oscillator provides the basic sound source for building your own polyphonic / paraphonic instruments, such as string machines, electric pianos, brass ensembles, paraphonic synths, combo organs, etc.

Polyphonic Inputs Section

Pink Flight provides polyphonic **Pitch**, **Gate** and **Velocity** input sockets. If no poly cables are connected to these sockets, they are 'normalled' to the **Pitch**, **Gate** and **Velocity** sockets on the Voltage Modular **Poly Sources** panel. You can also set the number of polyphonic voices (from 1 to 16) through this panel. If you want to drive the Pitch, Gate and Velocity inputs from another module, simply connect a poly cable to the required poly input and output socket. For example, you might want to place a Poly Glide module between the Poly Pitch Output of the Poly Sources panel and the Poly Pitch Input of Pink Flight.

Transposition and Tuning Section

Basic pitch (footage) can be set over a 5 octave range by using the **Octave** switch (+/- one octave) and the **Semi** knob (+/- 12 semitones). Fine tuning is available over a range of +/- one semitone through the **Fine** knob.

The **Detune** knob is provided to add a little bit of analogue 'warmth' to the sound of Pink Flight. Traditional (hardware) divide-down oscillators can sound 'cold' or 'clinical' because keys separated by one octave from one another are *exactly* related by the frequency ratio 2:1. This means that the keys are locked in phase to one another and no gentle phasing occurs. **Detune** adds a linear offset to the frequency of each key: -2.0 Hz at 7 o'clock, 0.0 Hz at 12 o'clock, and +2.0Hz at 5 o'clock. This introduces a bit of analogue 'slop' to the oscillators and breaks them free from phase locking. You may also have to adjust the **Fine** knob to bring things back closer to concert pitch. This is particularly true with low bass notes. If you are running two Pink Flights in parallel, you can get added warmth and richness by detuning one module by a positive amount and the other by a negative amount.

Waveform Selection and CV Modulation Section

Pink Flight offers three waveform types - sawtooth, triangle and variable pulse (with Pulse Width Modulation).

The Width knob allows you to set the static width of the pulse waveform, from 0.5% to 99.5%. Pulse Width Modulation is available by connecting an external modulation source to the **PWM** socket and setting depth of modulation through the **PWM** knob. At the 7 o'clock position, the modulation input has no influence. At the 5 o'clock position, a modulation input of +5V will increase the pulse width by 50%.

The Envelope, Velocity and Volume Control Section

Each voice channel features individually-articulated ADSR amplitude envelopes and individual velocity response. Attack, Decay and Release times can be varied between 1ms and 20 seconds. Velocity sensitivity (touch response) can be varied *via* the **Vel** knob - from flat (full volume, irrespective of key velocity) to fully dynamic (zero volume for softest touch, full volume for hardest touch).

Output amplitude is controlled by the **Vol** knob, with a range of 0 to 200% (+6dB). When the **Comp** (voice count compensation) switch is in the **Auto** position, it will reduce volume automatically as more polyphony is added, to avoid potential input signal overload on downstream modules.

Aqua-Marine Ensemble Generator

This is a preset version of the [Solaris Ensemble](). Solaris itself was modelled after the Eminent / Solina ensemble generator and offered several customisation options on the front panel. Aqua Marine offers you the choice of the default 'Solina' ensemble sound, a classic 1970s chorus sound and a bypass mode.

Input Socket

Aqua-Marine only processes monoaural audio sources. Generally speaking, it's better to mix stereo signals down to mono before processing them with Aqua-Marine, rather than using two modules in parallel on the the left and right channels. This is just a rule-of-thumb, though; do whatever sounds best to *YOU*.

Mode Selection Switch

The Mode Selection Switch allows you to choose between three options:

"Ens" - The classic Solina tri-chorus ensemble sound.
"Chr" - A single-channel chorus sound, similar to the design of many Italian string machines.
"Off" - A bypass option which sends the raw input sound to both outputs.

Output Sockets

For a rich-sounding *mono* output, just use the **Mono / Left** output socket by itself, with the **Right** socket disconnected.

For a wider (but slightly less rich) *stereo* output, pan the **Mono / Left** output and **Right** output hard left and right respectively.

You can also bypass the effect by right-clicking on the front panel and selecting option "**Bypass Module**".

Kleiner-Kiffer Phaser

This is a very simple-to-operate phaser inspired by the *EHX Small Stone*. I say "inspired by" because there's something magical about the original pedal that seemed to defy analysis by a mere mortal like me. However, I think I managed to capture the basic spirit of its iconic, cosmic sound. If you want a *truly authentic* replication of the Small Stone's sound, I can heartily recommend "*Big Rock*" by ArtsAcoustic.

Input and Output Sockets

Kleiner-Kiffer is a strictly mono effect. It IS possible to run two in parallel to process left and right channels of a stereo signal independently. However, if you attempt this, it is strongly recommended that you use an external control voltage, rather than depending on synchronisation of the free-running internal LFOs.

"Color" Switch

The original Small Stone was a four-stage allpass design, meaning that it had two notches in its output frequency spectrum. Kleiner-Kiffer is the same.

Small Stone offered two tone colours – "**HI**" and "**LO**". The "**LO**" setting was a more subtle phasing effect, with zero resonance. The "HI" setting generated a more strident phasing effect, due to the high feedback / resonance levels. The modulation depth was also expanded compared to the "LO" setting, so that peaks and notches would extend higher and lower into the frequency spectrum.

Kleiner-Kiffer's internal parameters have been tweaked to be as close as possible in behaviour to the original Small Stone's '**Color**' settings.

Kleiner-Kiffer can be bypassed by setting **Color** to "**Off**", or by right-clicking the front panel and selecting option "**Bypass Module**".

LFO Rate Knob

The original Small Stone, in common with many early stomp-box phasers, gave you very limited control over parameters. In fact, all you can do is tweak the sweep cycle rate of its internal triangle wave LFO. This limitation has been carried forward into Kleiner-Kiffer. The internal LFO covers roughly the same frequency range as the original – from 0.04 Hz (25 seconds per cycle) up to 12 Hz.

External Control Voltage Socket
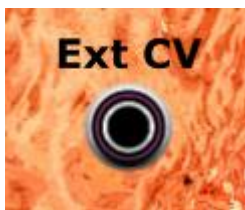
The Ext CV socket allows you to override the internal LFO, and control the centre frequency of the phaser through an external voltage source. This could be another LFO (perhaps using sine wave instead of triangle), an envelope generator, a sequencer, etc. By using a static DC voltage as the external control, you can change the centre frequency manually; the ACE Constants & Multipliers module is ideal for this purpose and is available free-of-charge in the Dome Music Technologies Freebie Collection.

One interesting effect is to set up two instances of Kleiner-Kiffer and feed them with inverted and non-inverted signals from the same LFO:

This gives a wide, swirling stereo effect which can sound very cosmic, especially on the 'HI Color' setting.