

General

The OSC-01 module is a bank of three oscillators including ring-modulation, hard-sync as well as individual control- and modulation-inputs. The analogue/digital hybrid-circuit derives from the oscillator section of MFB-SyLITE II. Oscillators 1 and 2 use a condenser to create a saw tooth wave. It is charged with analogue voltage and discharged periodically by digital impulses. This principle is equivalent to a DCO and assures a stable oscillator frequency combined with the sound of a real analogue waveform. In addition, OSC-01 also offers a digital generated individually sounding saw tooth waveform for oscillator 3 which derives from the first MFB-SyLITE.

Set-up

The OSC-01 module is fully compatible to Doepfer's A-100 modular system - in size, bus-power and CV/Gate voltage. Connect the 16-pin cable to a corresponded jack on the Doepfer mainframe bus. Supply voltage needs to be +/- 12 volts, 5 volt is not needed. The wattage is 40 mA, the module size 16 TE (Teileinheiten) or 80.9 mm.

ATTENTION: Please check for correct polarity! The colored side of the connector-cable needs to point downwards so that the cable is not twisted.

Function

The OSC-01 module can use the CV-signal of the Doepfer A-100 system-bus. Premise is, that the bus itself is fed by a A-190 MIDI-CV module or a A-185 Bus-Access module. This CV-signal conforms to the 1 volt/octave standard and is used for standard pitch control of oscillators from a keyboard or sequencer. All three oscillators receive the same CV-voltages/pitches from the system bus. To send individual pitches to these oscillators, these need to be addressed from the front CV-inputs 1-3. Here, the system bus signal is ignored.

For general deactivation of the system bus signal, remove the CV jumper on the module's rear (top left).

CV-inputs 1-3 and audio-inputs 1-3 are coupled, meaning that a CV-signal connected to **CV1** is distributed to control OSC2 and OSC3 as long as no further connections are patched. If **CV3** Input is patched, OSC 3 is decoupled from **CV1** that still controls OSC2.

The same principle goes for the audio-outputs. Unpatched, **Out3** carries the signals of all three oscillators. Patching **Out1** or **Out2** excludes their signal from **Out3**. To avoid internal distortion, the summing signal of **Out3** is slightly attenuated compared to the individual output of OSC3 at **Out3**.

OSC 1

OSC1 is tuned with the global **Tune** control. **Wave1** selects between three waveforms: saw tooth, square and 1/6 pulse. Pulse width is under control of **CV4** (see below). The base octave is set with **Octave1** that selects between 16', 8' or 4'. Pitch is controlled by **CV1** or the system-bus control voltage. Voltages between 0 and 5 volts are accepted.

Additional CV-control can be achieved using **CV4**, e.g. for vibrato effects or pitch envelope sounds. Depending on the setting of the according switch, **CV4** controls pitch (**OSC1**) or pulse width (**PW1**). This input accepts control voltages ranging from -5 to +5 volts. The intensity of the modulation inputs can be set using **CV4+5** that shares control for **CV4** and **CV5**. A further global pitch modulation of all three oscillators can be achieved using **CV6** with the according switch set to **ALL**.

The audio output of OSC1 is at **Out1** or at the shared output **Out3**.

Info Inputs CV1 to CV6 are not meant to be used with high frequency signals. You will not be able to get tonal playable FM-sounds with OSC-01. However, atonal FM-effects are no problem at all.

OSC 2

OSC2 is mostly identical to OSC1. Octave and waveforms are selected by adjacent controls, just like OSC1. In addition to the base tuning controlled by **Tune**, **Interval2** offsets its pitch by +/- 1 octave to OSC1. The pulse width of OSC2 is preset to 1/3.

Pitch is controlled independently by input **CV2** or commonly by the either **CV1** or the system-bus (with CV1 not patched). Additional CV-control can be performed using **CV5**, e.g. for vibrato effects or pitch envelope sounds. Depending on the setting of the according switch **CV5** controls pitch (**OSC2**) or pulse width (**PW2**). This input accepts control voltages ranging from -5 to +5 volts. The intensity of the modulation inputs can be set by **CV4+5** that shares control for **CV4** and **CV5**. This input accepts voltages ranging from -5 to +5 volts and can be attenuated by **CV4+5**.

Info: If OSC1 and OSC2 need to be modulated with individual intensity, use a VCA or mixer to attenuate one the signals. **CV4+5** always controls attenuation for both inputs. Patched this way **CV4+5** will act as a common fader for both modulations.

OSC2 can also be controlled by **CV6** set to **ALL**.

The audio of OSC2 is at **Out2** or at the shared output **Out3**. With **Out1** not patched, **Out2** will also carry the outputs of OSC1 and OSC2.

OSC 3

OSC3 is designed with a different feature-set. The saw tooth waveform sounds different to OSC1/2. Pulse width is preset to 1/4 and cannot be modulated. The base octave is set an octave below OSC1/2, just like a sub-oscillator. However, **Octave3** and **Interval3** allow to match octaves as well as continuous and interval detuning.

OSC3's pitch is either individually controlled by input **CV3** or globally by **CV1**, **CV2** or the system-bus CV (see Function). Additional CV-control for vibrato or Pitch envelope sounds is achieved using **CV6**. Depending on the setting of the according switch **CV6** controls oscillator 3's pitch (**OSC3**) or all oscillators' pitches (**ALL**). This input accepts control voltages ranging from -5 to +5 volts and can be attenuated by control **CV6**.

Out3 carries oscillator 3's output. With **Out1** and **Out2** not patched, **Out3** will carry all oscillator's outputs.

Ring-modulator

OSC-01 includes a digital ring-modulation circuit. Its output is at **RingOut**. The sound results from the selected waveforms as well from the oscillator detuning. Ring modulation is factory set as interaction between OSC1 and OSC2. Removing the jumper **Ring3** at the back panel's mid will also include OSC3 here.

Hard-sync

The OSC-01's oscillators can be synchronized internally or to an external oscillator. With internal sync, OSC3 acts as master. His lower base octave is best suited for typical sync sounds. Depending on the setting of the **Sync** switch, either OSC1 alone or OSC1 and OSC2 slave to OSC3. Inputs **CV4** and **CV5** can be used to control the synced oscillators with envelopes, LFOs or CV-sequencer signals.

Any input signal patched to **Sync In** will dictate the master-frequency replacing OSC3. It is recommended to use a square oscillator to do so. Other waveforms usually won't deliver any or an inadequate master frequency.

Calibration

With OSC-01 being a digital controlled module, tuning is not necessary. Inputs **CV1**, **CV2** and **CV3** can be adjusted in spreading collectively. Use the trim-potentiometer on the module's back.



Operating manual

OSC-01 Module