DOEPFER

NAMM 2020

A-111-6 Miniature Synthesizer Module

VCO

- triangle core VCO, frequency range: about 32 Hz ... 16 kHz
- manual tune control, octave range switch -1 / 0 / +1 octave
- modulation input with attenuator
- switch to address the modulation signal to frequency modulation or pulsewidth modulation
- manual pulsewidth control for rectangle waveform, PW can be also modulated by the Mod. input
- waveform switch (sawtooth / off / triangle), the sum of the waveform chosen by this switch and the rectangle is fed into the VCF (to turn the rectangle off the PW control has to be set fully CCW)
- external CV input for VCO frequency (1V/octave)

Balance unit

- The balance unit is made of two VCAs which are controlled by the sum of manual Balance control and the balance CV input in the opposite direction.
- The audio input of VCA1 is hard-wired to the VCO output, audio input 2 is connected to the socket Ext.In.
- The output of the balance unit is used as audio input for the VCF
- manual balance control, fully CCW the internal VCO is used, fully CW the external signal (Ext.In) is used, at center position both signals have about the same level
- CV input for balance (range about 0...+5V)
- external audio input for VCA2, about 5 Vpp level required for similar loudness as the internal VCO
- this socket is normalled to the internal VCO suboctave f/2 signal, if no external signal is applied the suboctave signal is used as the second signal for the balance unit

VCF

- 24 dB low pass, frequency range 10 Hz ... 20kHz
- manual frequency control, two frequency modulation inputs
- socket FM1 (with attenuator) is normalled to the internal **Envelope** signal
- socket FM2 (without attenuator) has 1V/octave scale
- manual resonance control (up to self oscillation)
- if the VCO is turned off and the VCF resonance is set to maximum the module can be used as a sine oscillator (1V/oct control via FM2)

VCA

- manual gain (initial gain), used to open the VCA without envelope
- switch to select gate or envelope as control signal for the VCA

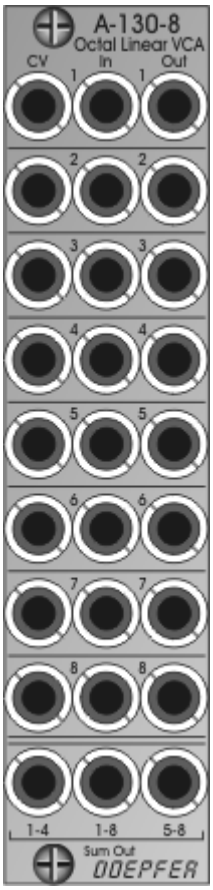
Envelope

- Gate input (min. +5V), can be normalled to the bus
- manual controls for Attack and Decay/Release
- mode switch to select between A/D, ADSR and A/R mode in center position (ADSR) the sustain level is fixed to about 50%
- envelope output socket (about +10V)
- CV input for time control, by means of two internal jumpers one can select which time parameters are controlled by the CVT input (e.g. A only or D/R only or A/D/R) and in which direction (i.e. if an increasing CVT shortens or stretches the time parameter in question)
- Envelope LED display
- Attack time range: ~ 1ms ... 5 sec (can be extended by using the CVT input)
- Decay/Release time range: ~ 1ms ... 15 sec (can be extended by using the CVT input)

A-174-4 3D Joystick

Joystick module A-174-4 outputs three control voltages generated by a spring-loaded X/Y cross potentiometer (so-called joy stick) and a Gate signal. The control voltages for X and Y are controlled by the X and Y position of the joystick in the usual way. The third control voltage Z is controlled by the rotation of the spring-loaded joystick knob. The Gate signal is generated by a button at the center/top of the joystick knob. For each control voltage the non-inverted signal (X, Y, Z) as well as the inverted signal with adjustable offset (-X+O, -Y+O, -Z+O) are available. The generic joystick control voltages are bipolar, i.e. they range from typ. -5V (lowest position) via 0V (center position) to typ. +5V (highest position). The "Overlap" switches can be used to add a fixed offset voltage of typ. +5V to the non-inverting output in question so that the output voltage range changes to typ. 0...+10V (rather than -5...+5V). That's necessary if e.g. a VCA has to be controlled. The offset voltages which are added to the inverting outputs can be adjusted by means of three small potentiometers. That way different kinds of control voltage ranges are possible. On top of this the four quadrant voltages Q1, Q2, Q3 and Q4 are available. A quadrant voltage becomes positive when the joystick is positioned in the quadrant in question.
Each CV output is equipped with an LED that displays the present voltage

A-130-8 Octal Linear VCA



Module A-130-8 contains eight linear voltage controlled amplifiers (VCAs). Each VCA features a control voltage input, a signal input and a signal output. In addition three mixers are included for the sum of the output signal 1-4, 5-8 and 1-8. The signal inputs are able to process levels up to 10Vpp without clipping. Each CV input is equipped with a trimming potentiometer that is used to adjust the sensitivity of the CV input in question (e.g. 0…+5V or 0…+10V). The amplification range for each single VCA is 0...1. The VCAs and mixers are fully DC coupled. The control voltage and signal inputs can be normalled (e.g. 1 > 2 > 3 > 4 and so on, or 1 > 5, 2 > 6, 3 > 7, 4 > 8 for the stereo application mentioned below).

Typical applications

- any kind of VCA application (e.g. voltage controlled attenuation of audio or control voltage signals)
- two voltage controlled mixers with four channels each
- voltage controlled stereo mixer with four channels each, for this the control voltage inputs have to be correspondingly patched or internally normalled: CV1=CV5 /CV 2=CV6 / CV3=CV7 / CV4=CV8
- voltage controlled mixer with eight channels
- add-on for the planned Joystick module A-174-4

A-133-2 Dual Voltage Controlled Polarizer/Ring Modulator

Module A-133-2 can be used for many applications: e.g. VCA, VC polarizer/attuverter, VC inverter or ring modulator. The module contains special VCAs that allow both positive and negative amplification. The overall amplification is defined by the sum of the voltage generated by the **Man** control, the external control voltage **CV** and the position of the **CV** control which works as an attenuator for the external control voltage. By means of the external control voltage CV the manually adjusted amplification can be modulated. CV can be both positive or negative to obtain positive or negative amplification values. In addition the CV signal can be modulated via the modulation control input **Mod** by means of another control voltage. The current amplification is displayed by a dual color LED

Application examples:

- voltage controlled amplifier (VCA)
- voltage controlled inverter
- voltage controlled polarizer/attuverter
- DC coupled ring modulator with offset feature, the "classical" ring modulator corresponds to Man=0 and symmetrical audio signals for In and CV
- additional effects by means of the modulation feature of the CV signal (using the **Mod** input)

A-183-4 Quad Level Shifter/Converter/Buffer

Module A-183-4 is a fourfold level shifter. A level shifter is required if the level of a digital control signal has to be increased or decreased. A typical application is the conversion of a gate, trigger or clock signal with +5V voltage level to +12 level. The output level can be set by means of a jumper to +12V or +5V. The four output signals are displayed by means of LEDs.
The outputs and inputs are normalled: the output signal of the upper unit is used as input signal of the unit below provided that no patch cable is inserted into the input socket of the lower unit. That way the module can be used also as clock/trigger/gate buffer or buffered multiple for digital signals. For this the signal that has to be buffered is connected to input 1. The buffered (and possible level shifted) signal appears then at all four outputs.
Input voltages below +0,8 V are treated as "low", voltages above +3 V as "high"

<u>Typical applications</u>

- Converting the levels of digital control signals (e.g. gate, trigger, clock) to another voltage level (+12V or +5V)
- buffering and duplicating digital control signals (e.g. gate, trigger, clock)