XODULAR

pure data modular
synthesizer system

user's guide

INTRODUCTION: ABOUT THE XODULAR PURE DATA MODULAR SYNTHESIZER SYSTEM

The XODULAR is a virtual modular synthesizer environment in Pure Data. (To run it you need an installed copy of Pure Data-Extended). The XODULAR consists of twenty modules that users can copy/paste in any combination to create their own modular system. If familiar with Pure Data, one can expand on modules or build own additions. However, there is no need to be familiar to use the XODULAR. Acquiring some basic understanding of the user interface and signal flow should be enough to get patching. (See page 5 in the XODULAR manual)

This system came about over the course of a year. It is very much flavoured by my creative decisions and patching-style. It has a lot of foundational modular building blocks because I like patching complexity from simple tools. I really hope some other people can get some enjoyment out of this system and I do feel it is open ended enough to light up people's creativity.

Yours Sincerely / Johan

USER INTERFACE AND SIGNAL FLOW

USER INTERFACE:

First of all: Download a copy of Pure Data Extended at www.puredata.info and install on your hard drive

Open the XODULAR.pd file in Pure Data-Extended

Choose Audio Settings in pure data. Sound out from the XODULAR is hardwired from the MIX-OUT module to channel 1 and 2 on the user's sound card.

Understand the difference between EDIT MODE and PERFORMANCE MODE in Pure Data. To make patch connections, one has to be in EDIT mode and to use the control interface one has to be in PERFORMANCE MODE (Cmd+E toggles between the two modes)

All INPUTS are at the top of the module and all the OUTPUTS are at the bottom. Infinite amount of patch connections can be drawn from the same output so there is no need for multiples in the system.

In EDIT mode, highlight any module and copy (Cmd-C) it and paste (Cmd-V) to duplicate it.

Shift+click allows you to fine tune the settings of a knob/slider with higher resolution.

For a deeper understanding of Pure Data please refer to the Floss Manuals (http://en.flossmanuals.net/pure-data/) or the helpful Pure Data Community on Facebook.

SIGNAL FLOW:

There are three types of signals in the XODULAR system: audio, cv and trigger/gate/pulse/clock. General rule in the XODULAR is that all connections are possible. Or, at least, just like in any hardware modular system - all connections might not work but there's no harm in trying. Most audio modules can go into sub-audio and the LFO goes into audio-rate so there's no fixed way to use any module. Triggers are normally used to trigger or sync modules but can be used for modulation or audio too.

Pure Data will stop producing sound if a DSP feedback loop is detected. So feedback patches that works like a charm with hardware is trickier in this environment.

SAVING PATCHES:

The system automatically saves and recalls the position of the knobs, sliders and toggles when you save the patch. This way, you can save a patch like any file on your computer.

BE CAREFUL: There should be no unpleasant audio surprises or sudden raises in volume, BUT modular is modular and dsp is dsp so be careful. If making an 'esoteric' connection, remove headphone or set master volume low just to be safe and not hurt your ears.

For an in-depth explanation of each module continue reading the manual or skip to the page for a specific module. See the EXAMPLE PATCHES part of the manual for some inspiration.

OSCILLATORS

VOLTAGE CONTROLLED OSCILLATOR - VCO-SINE:
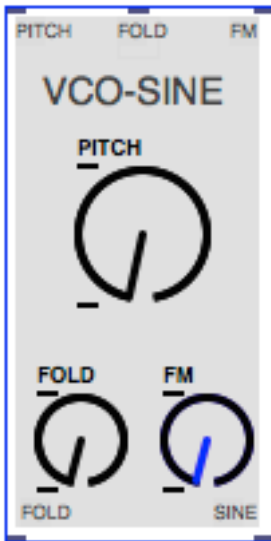
The VCO-SINE is a sine wave oscillator with an integrated cosine wavefolder. The range is from 0.2Hz - 2093Hz and can be used for audio, low frequency modulation and audio rate modulation.

CONTROLS:
PITCH - controls the pitch of the VCO-SINE. The PITCH knob becomes an offset control when the parameter is being modulated.

FOLD - controls the amount of wave folding

FM - attenuator to control the amount of incoming signal from the FM input.

INPUTS:
PITCH - inlet for controlling the pitch of the VCO. The PITCH knob becomes an offset control when the parameter is being modulated.

FOLD - inlet for modulating the fold amount of the wavefolder. The FOLD knob becomes an offset control when the parameter is being modulated.
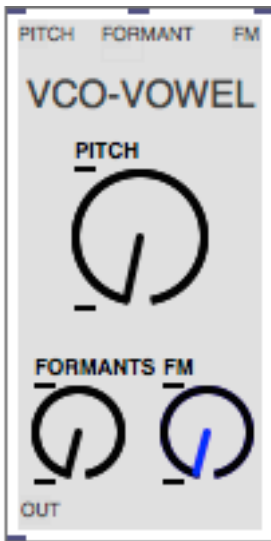
FM - Inlet for external Frequency Modulation. The amount of the incoming signal can be attenuated with the FM knob.

OUTPUTS:
FOLD - Outlets the folded sinewave. The wave will be completely quiet if the FOLD knob is set fully CCW.

SINE - Outlets a pure sine wave not affected at all by the wavefolder circuit.

VOLTAGE CONTROLLED OSCILLATOR - VCO-VOWEL:

The VCO-VOWEL is a sawtooth oscillator that runs through a series of bandpass filters that are set at values that resembles the vowels of human speech. The range is from 0.2Hz - 2093Hz and can be used for audio, low frequency modulation and audio rate modulation.

CONTROLS:
PITCH - controls the pitch of the VCO-VOWEL. The PITCH knob becomes an offset control when the parameter is being modulated.

FORMANTS - scans through the bandpass filters and morphs smoothly between different vowel-sounds

FM - attenuator to control the amount of incoming signal from the FM input.

INPUTS:
PITCH - inlet for controlling the pitch of the VCO. The PITCH knob becomes an offset control when parameter is being modulated.
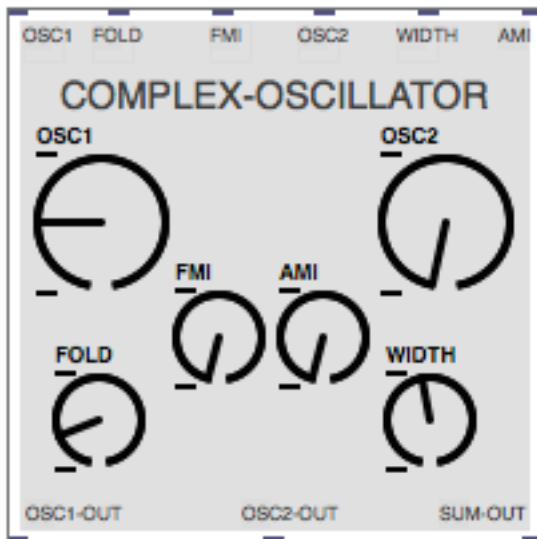
FORMANTS - inlet for modulating and scanning through the bandpass filter formants. The FORMANTS knob becomes an offset control when the parameter is being modulated.

FM - Inlet for external Frequency Modulation. The amount of the incoming signal can be attenuated with the FM knob.

OUTPUTS:
OUT - VCO-VOWEL output

VOLTAGE CONTROLLED OSCILLATOR - COMPLEX-OSCILLATOR:

The Complex-Oscillator is a dual oscillator with internal Frequency Modulation and Amplitude Modulation routings. The range is from 0.2Hz - 2093Hz and can be used for audio, low frequency modulation and audio rate modulation.

OSC1 is a sinewave with an integrated cosine wavefolder. It has dedicated knobs for pitch (OSC1), wavefolding(FOLD) and Frequency Modulation from OSC2(FMI).

OSC2 is a sawtooth generator that can produce three sawtooth waves slightly detuned from each other. It has dedicated knobs for controlling pitch(OSC2), the amount of detune between the waveforms(WIDTH) and the Amplitude Modulation from OSC1(AMI).

INPUTS:

OSC1 - inlet for controlling the pitch of Oscillator 1. The OSC1 knob becomes an offset control when the the parameter is being modulated.

FOLD - inlet for modulating the fold amount of Oscillator 1's wavefolder. The FOLD knob becomes an offset control when the parameter is being modulated.

FMI - inlet for modulating the amount of Frequency Modulation being sent from OSC2. The FMI knob becomes an offset control when the parameter is being modulated.

OSC2 - inlet for controlling the pitch of Oscillator 2. The OSC2 knob becomes an offset control when the the parameter is being modulated.

WIDTH - inlet for modulating the amount of detuning on Oscillator 2. The WIDTH knob becomes an offset control when the parameter is being modulated.

AMI - inlet for modulating the amount of Amplitude Modulation being sent from OSC1. The AMI knob becomes an offset control when the parameter is being modulated.
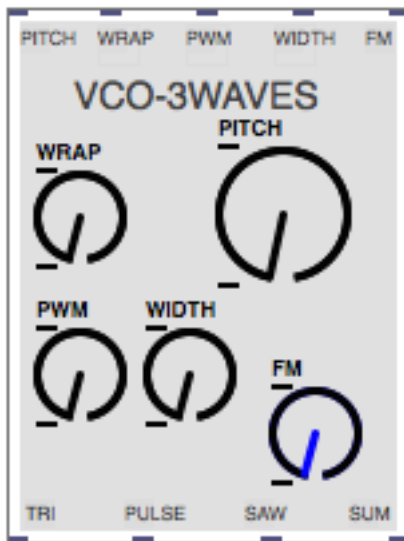
OUTPUTS:

OSC1-OUT - Oscillator 1 output

OSC2-OUT - Oscillator 2 output

SUM-OUT - Oscillator 1 and Oscillator 2 mixed together

VOLTAGE CONTROLLED OSCILLATOR - VCO-3WAVES:

The VCO-3WAVES is an oscillator that produces a trianglewave, a pulsewave and a sawtooth wave. The waves have separate outputs as well as a mixed output. The range is from 0.2Hz - 2093Hz and can be used for audio, low frequency modulation and audio rate modulation. It has a dedicated knob for controlling the pitch of all three waveforms (PITCH). Additionally, each wave has a dedicated knob to affect its shape and timbre in some way.

CONTROLS:

PITCH - controls the pitch of the VCO-3WAVES. The PITCH knob becomes an offset control when the parameter is being modulated.

WRAP - controls the amount of wavefolding/wrapping on the triangle wave. The WRAP knob becomes an offset control when the parameter is being modulated.

PWM - controls the pulse width of the pulse wave. The PWM knob becomes an offset control when the parameter is being modulated.

WIDTH - controls the amount of detuning of the sawtooth wave. The WIDTH knob becomes an offset control when the parameter is being modulated.

FM - attenuator to control the amount of incoming signal from the FM input.

INPUTS:

PITCH - inlet for controlling the pitch of the VCO. The PITCH knob becomes an offset control when the parameter is being modulated.

WRAP - inlet for modulating the fold amount on the triangle wave. The WRAP knob becomes an offset control when the parameter is being modulated.

PWM - inlet for modulating the pulse width of the pulse wave. The PWM knob becomes an offset control when the parameter is being modulated.

WIDTH - inlet for modulating the detune amount of the sawtooth wave. The WIDTH knob becomes an offset control when the parameter is being modulated.

FM - Inlet for external Frequency Modulation. The amount of the incoming signal can be attenuated with the FM knob.

OUTPUTS:
TRI - Triangle wave outlet

PULSE - Pulse wave outlet. (this output also functions as a trigger/clock output)

SAW - Sawtooth wave outlet

SUM - Triangle, Pulse and Saw mixed together

VOLTAGE CONTROLLED OSCILLATOR - VCO-DRUM:

The VCO-DRUM is an oscillator module for producing percussive sounds. (VCO-DRUM can also be used successfully as a bass or melodic synthvoice or as a modulation source) It outputs a square- and sinewave simultaneously. The module has an integrated envelope and vca. Thus, unlike the other oscillators of the system, it doesn't produce sound constanly. It requires a trigger/gate signal sent to the TRIG input to open the envelope and produce sound.

CONTROLS:

PITCH - controls the pitch of the VCO-DRUM. The PITCH knob becomes an offset control when the parameter is being modulated.

P.CV - attenuator to control the amount of incoming PITCH modulation

DECAY - controls the decay of the integrated AD-envelope. The DECAY knob becomes an offset control when the parameter is being modulated.

D.CV - attenuator to control the amount of incoming DECAY modulation.

FM - attenuator to control the amount of incoming signal from the FM input.

A-DECAY - controls the decay of the accent-envelope if being triggered by a gate signal at the ACC input.

ACCENT - attenuator to control the amount/loudness of the accent-envelope

ENVMOD - controls the amount of modulation from the main envelope to the PITCH.

NOISE-FM - Controls two functions simultaneously. Fully CCW there is no effect present. Turn the knob CW and control the volume of a white noise. The knob is also controlling the pitch of a sine wave oscillator that is modulating the frequency of the main oscillator (PITCH)

INPUTS:

TRIG - input for trigger gate/signal to trigger the VCO-DRUM

PITCH - input for modulating the pitch of the VCO-DRUM. The PITCH knob becomes an offset control when the parameter is being modulated.

DECAY - input for modulating the decay of the main envelope. The DECAY knob becomes an offset control when the parameter is being modulated.

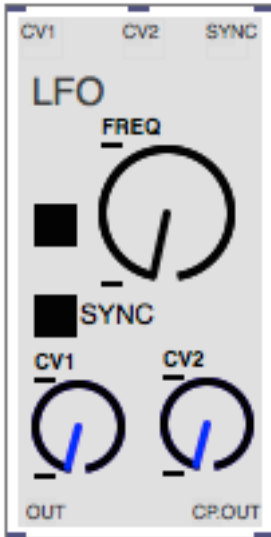ACC - input for trigger/gate signal to trigger the accent envelope

FM - input for external FM

OUTPUTS:

OUT - VCO-DRUM output

MODULATION

LOW FREQUENCY OSCILLATOR - LFO:

The LFO is a low frequency oscillator triangle wave. The range is from 0.031Hz - 48.99Hz and can be used for audio, low frequency modulation and audio rate modulation.

CONTROLS:
FREQ - controls the frequency of the LFO. The FREQ knob becomes an offset control when the parameter is being modulated.

CV1 - attenuator for the amount of modulation being sent to the LFO FREQ from the CV1 input

CV2 - attenuator for the amount of modulation being sent to the LFO FREQ from the CV2 input

INPUTS:
CV1- inlet for controlling the frequency of the LFO. The FREQ knob becomes an offset control when the parameter is being modulated.

CV2 - inlet for controlling the frequency of the LFO. The FREQ knob becomes an offset control when the parameter is being modulated.
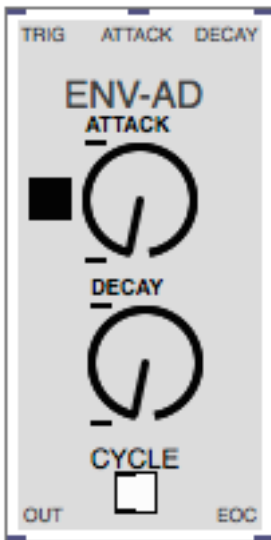
SYNC- trigger/gate input for syncing the lo cycle to external clocks.

OUTPUTS:
OUT - LFO output

CP.OUT - LFO comparator out. (trigger/gate signal at the start of each lo cycle)

ENVELOPE GENERATOR - ENV-AD:

The ENV-AD module is an envelope generator with two stages. ATTACK and DECAY. Both parameters are under voltage control. The envelope can cycle (re-trigger itself to perform LFO-type duties) In CYCLE mode the ATTACK and DECAY settings set the rise and fall times for the ramps. At very short settings the envelope will produce oscillator-like sounds.

CONTROLS:

ATTACK - controls the time in ms for the attack stage. Range is from 1ms-2541ms. The ATTACK knob becomes an offset control when the parameter is being modulated.

DECAY - controls the time in ms for the decay stage. Range is from 1ms-10 000ms. The DECAY knob becomes an offset control when the parameter is being modulated.

CYCLE - toggle for switching between normal mode or cycling mode

INPUTS:

TRIG - trigger/gate input for triggering the envelope

ATTACK - input for modulating the ATTACK time. The ATTACK knob becomes an offset control when the parameter is being modulated.
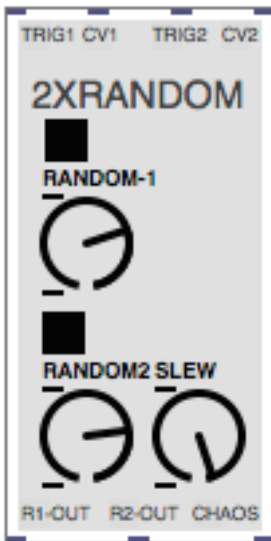
DECAY - input for modulating the DECAY time. The DECAY knob becomes an offset control when the parameter is being modulated.

OUTPUTS:

OUT- ENV-AD output

EOC - trigger/gate output at the end of each cycle (only works in CYCLE mode)

DUAL RANDOM CV GENERATOR - 2XRANDOM:

The 2XRANDOM module is a dual random cv generator. Filtered white noise is hardwired to a sample & hold. The sample & hold generates a random CV every time a trigger/gate is sent to the TRIG input. Each channel has an attenuator to control the random values. Channel 2 has an additional slew generator. Besides the two random channels there is a CHAOS output which outputs a ringmodded square wave derived from the two random channels.

CONTROLS:
RANDOM-1 - attenuator for controlling the amount of randomness of RANDOM-1. The RANDOM-1 knob becomes an offset control when the parameter is being modulated.

RANDOM-2 - attenuator for controlling the amount of randomness of RANDOM-2. The RANDOM-2 knob becomes an offset control when the parameter is being modulated.

SLEW - controls the amount of slew applied to RANDOM-2

INPUTS:
TRIG1 - trigger/gate input to clock/trigger RANDOM-1

CV1 - input for modulating RANDOM-1 amount. The RANDOM-1 knob becomes an offset control when the parameter is being modulated.

TRIG2 - trigger/gate input to clock/trigger RANDOM-1

CV2 - input for modulating RANDOM-2 amount. The RANDOM-2 knob becomes an offset control when the parameter is being modulated.
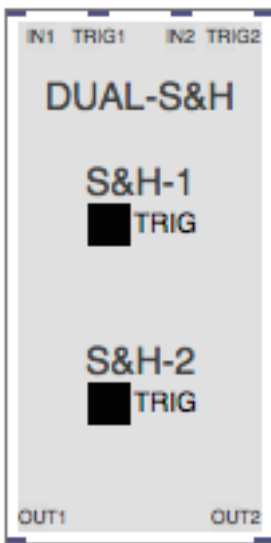
OUTPUTS:
R1-OUT - RANDOM-1 output

R2-OUT - RANDOM-2 output

CHAOS - Two ringmodded square waves derived from RANDOM-1 and RANDOM-2

DUAL SAMPLE & HOLD - DUAL-S&H:

The DUAL-S&H module is two sample & hold circuits that can be independently clocked/triggered.

INPUTS:

IN1 - input for signal to be sampled by channel 1

TRIG1 - trigger/gate input to hold the value present at IN1

IN2 - input for signal to be sampled by channel 2

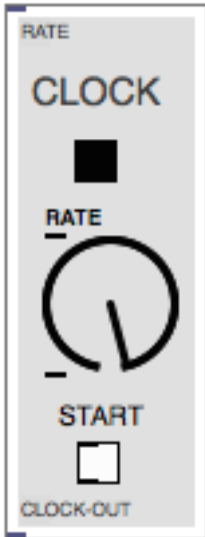TRIG2 - trigger/gate input to hold the value present at IN2

OUTPUTS:

OUT1 - S&H1 output

OUT- 2 S&H2 output

CLOCKS, LOGIC & UTILITIES

VOLTAGE CONTROLLED CLOCK - CLOCK:

The CLOCK module is a simple clock generator. with a start/stop toggle and dedicated knob for clock rate. Useful predominantly as a master clock for patches.The clock rate goes into audio rate so the module can be used for audio and modulation duties as well.

CONTROLS:
RATE - control for clock rate in ms. Range is from 1ms - 1000ms. The RATE knob becomes an offset control when the parameter is being modulated.
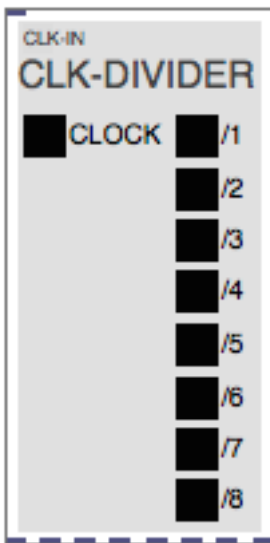
START - toggle to start or stop the clock

INPUTS:
RATE - input for modulating the clock rate. The RATE knob becomes an offset control when the parameter is being modulated.

OUTPUTS:
CLOCK-OUT - CLOCK output

CLOCK DIVIDER - CLK-DIVIDER:

The CLK-DIVIDER module is a simple clock divider. It takes an incoming clock/trigger/gate/pulse and divides by numbers from 1-8 with dedicated outputs for each division. If the module is being clocked at audio rate, the subdivisions can perform frequency divider like functions.
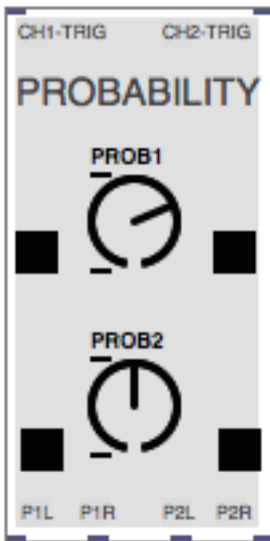
INPUTS:

CLK-IN - input for any trigger/gate/clock/pulse

OUTPUTS:

The module outputs the 8 subdivisions independently from left to right (1-8)

DUAL PROBABILITY LOGIC - PROBABILITY:

The PROBABILITY module is a dual channel probability gate. It takes a trigger/gate/clock/pulse signal and distributes it randomly to two outlets. The probability for which output it will send to is set manually with the PROB knob. Fully CCW will send all signals to the left output. Settings at 12' will produce a random but even distribution between left or right. Fully CW only and always sends the signal to the right output.

CONTROLS:

PROB1 - manual control of the probability for the signal to appear at either P1L output or P1R output

PROB2 - manual control of the probability for the signal to appear at either P2L output or P2R output

INPUTS:

CH1-TRIG - input trigger/gate/clock/pulse for PROB1

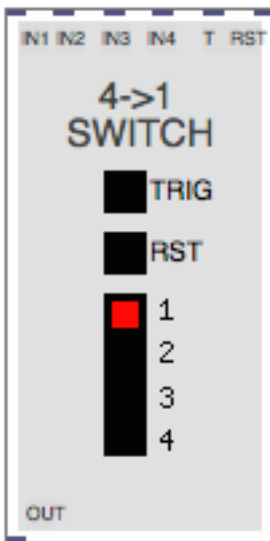CH2-TRIG - input trigger/gate/clock/pulse for PROB2

OUTPUTS:

P1L - Left output for PROB1

P1R - Right output for PROB1

P2L - Left output for PROB2

P2R - Right output for PROB2

FOUR TO ONE SEQUENTIAL SWITCH - 4->1-SWITCH:

The 4->1-SWITCH module is a sequential switch. It takes four signal inputs (audio, cv or gates) and switches between the four inputs sequentially at the output every time a trigger/gate/pulse/clock is received at the T input.

INPUTS:

IN1 - signal input 1

IN2 - signal input 2
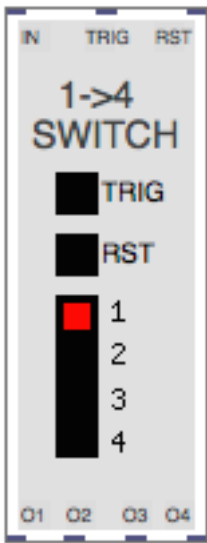
IN3 - signal input 3

IN4 - signal input 4

T - trigger/gate/pulse/clock input to advance to the next signal input and distribute it to the module's output

RST - trigger/gate/pulse/clock signal here forces the switch to reset to step 1.

OUTPUTS:

OUT - 4->1-SWITCH output.

ONE TO FOUR SEQUENTIAL SWITCH - 1->4-SWITCH:

The 1->4-SWITCH module is a sequential switch. It takes one signal input (audio, cv or gates) and distributes the signal to the four outputs sequentially every time a trigger/gate/pulse/clock is received at the TRIG input.

INPUTS:
IN - signal input

TRIG - trigger/gate/pulse/clock input to advance the sequential switch and switch to the next output.

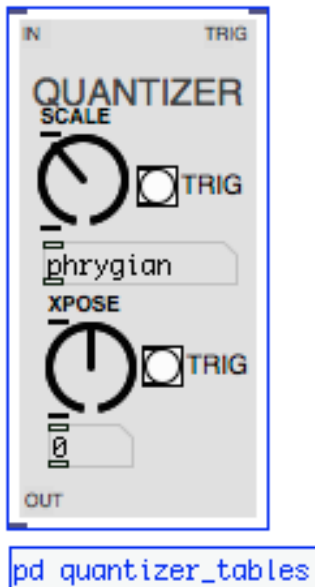RST - trigger/gate/pulse/clock signal here forces the switch to reset to step 1.

OUTPUTS:
O1 - output 1

O2 - output 2

O3 - output 3

04 - output 4

MODAL QUANTIZER - QUANTIZER:

The QUANTIZER module takes any incoming CV and outputs a quantized version determined by the SCALE knob every time a trigger/gate/pulse/clock is received at the TRIG input. The module has 8 different scales: Ionian, Dorian, Phrygian, Lydian, Aeolian, Lydian Minor, Harmonic Major and Whole-tone. To change between scales, turn the knob and manually click the TRIG button next to the SCALE knob with your mouse. There is also the possibility to transpose the CV. Range is down one octave or up one octave. Turn the XPOSE knob to desired destination and the CV will get transposed when you click the TRIG button next to the XPOSE knob. Right below the QUANTIZER module there is a small object called [pd quantizer_tables]. You can copy/paste as many QUANTIZER modules in your system as you like but there can be only one [pd   quantizer_tables] object. So, do not copy that or the QUANTIZERS will not work properly.

CONTROLS:
SCALE - manually choose a scale to quantize CV to

TRIG - click button next the SCALE knob. Any changes on the SCALE knob will not take place until you click the TRIG button

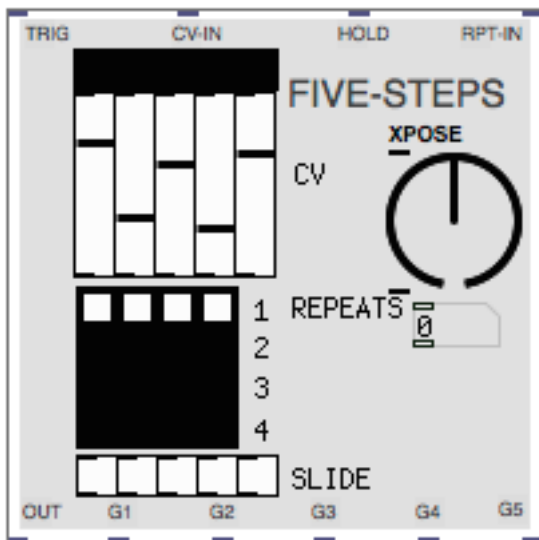XPOSE - manually choose a transposition destination in semi-tones.

TRIG - click button next the XPOSE knob. Any changes on the XPOSE knob will not take place until you click the TRIG button

INPUTS:
IN - CV input to be quantized

SEQUENCERS

VOLTAGE CONTROLLED SEQUENCER WITH 5 STEPS - 5 STEPS:

The 5-STEPS module is a voltage controlled sequencer with 5 steps. You set the CV for each step with a dedicated slider. Steps 1-4 can be repeated 1-4 times. This can be adjusted manually by clicking the REPEATS box. Slide can be attributed to each step by clicking the SLIDE toggle boxes underneath the REPEAT box.

CONTROLS:
5 CV sliders - Set the CV for each step

REPEAT box - Set the number of repeats individually for step 1 -4

SLIDE toggle boxes - set slide on or off for step 1-5

XPOSE - transposes the sequence up or down in semi-tones. Range is down one octave and up one octave.

INPUTS:
TRIG - A trigger/gate/pulse/clock here advances the sequencer one step

CV-IN - CV inlet for transposing the sequence

HOLD - A trigger/gate/pulse/clock here actually stops the sequencer from running. The next trigger will start the sequencer again. Useful for creating more complex patterns.

RPT-IN - A trigger/gate/pulse/clock here randomly changes the number of repeats for step 1-4 in the REPEAT box

OUTPUTS:

OUT - outputs the sequencer CV
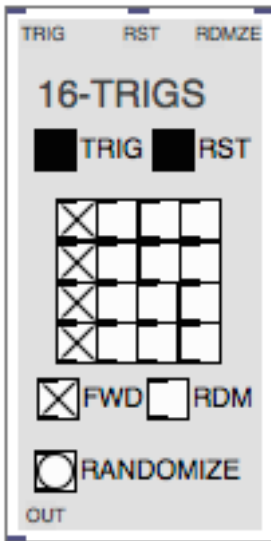
G1 - trigger/gate output for step 1

G2 - trigger/gate output for step 2

G3 - trigger/gate output for step 3

G4 - trigger/gate output for step 4

G5 - trigger/gate output for step 5

16 STEP TRIGGER SEQUENCER - 16-TRIGS:

The 16-TRIGS module is a simple XOX-style trigger sequencer. Click the toggles to create sequences. It has two running modes. Forward(FWD) or Random(RDM). Choose mode by clicking the FWD or RDM box. Clicking the RANDOMIZE button at the bottom of the module will create a random pattern of triggers.

INPUTS:

TRIG - A trigger/gate/pulse/clock signal here will advance the sequencer to the next step

RST - A trigger/gate/pulse/clock signal here will force the sequencer to reset to the first step
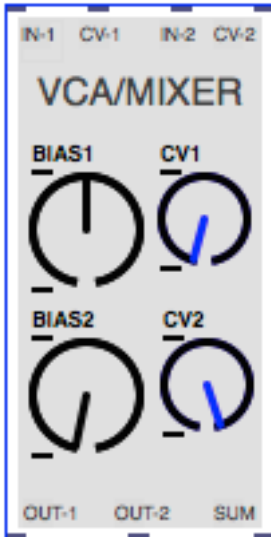
RDMIZE - A trigger/gate/pulse/clock signal here will have the same effect as clicking the RANDOMIZE button manually. I.e - produce a random pattern.

OUTPUTS:
OUT - Sequencer Trigger Out

MIXERS & VCAs

DUAL VCA/MIXER - VCA/MIXER:

The VCA/MIXER module is a two channel voltage controlled amplifier with a separate outputs as well as sum output.

CONTROLS:
BIAS1 - manually controls the gain of the incoming signal at IN-1

CV1 - attenuator that sets the level of incoming voltage at CV-1

BIAS2 - manually controls the gain of the incoming signal at IN-2

CV2 - attenuator that sets the level of incoming voltage at CV-2

INPUTS:
IN-1 - input channel one

CV-1 - control voltage input for modulating the amplifier.

IN-2 - input channel one

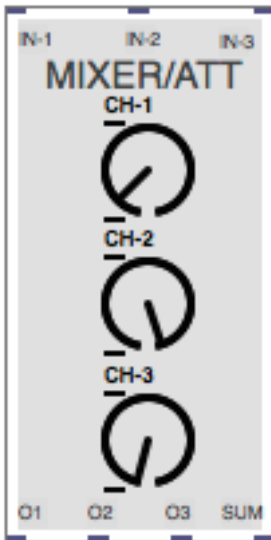CV-2 - control voltage input for modulating the amplifier.

OUTPUTS:
OUT-1 - outputs channel 1

OUT-2 - outputs channel two

SUM - outputs the sum of both channels

3 CHANNEL MIXER - MIXER/ATT:

The MIXER/ATT module is a three channel mixer and/or attenuator. It can mix/attenuate audio and cv.

CONTROLS:

CH-1 - controls the gain of the incoming signal at IN-1. Fully CW is original signal level.

CH-2 - controls the gain of the incoming signal at IN-2. Fully CW is original signal level.

CH-3 - controls the gain of the incoming signal at IN-3. Fully CW is original signal level.

INPUTS:

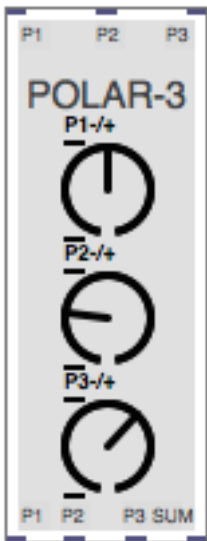IN-1 - signal input channel one

IN-2 - signal input channel two

IN-3 - signal input channel three

OUTPUTS:

O1 - output for channel one (attenuation)

O2 - output for channel two (attenuation)

3 CHANNEL POLARIZER/MIXER/ATTENUVERTER - POLAR-3:

The POLAR-3 module is a three channel polarizer/attenuverter/mixer. Both negative and positive amplifications are possible. If the knob is set to 12' noon, there's no amplification. Fully CW is maximum amplification and fully CCw is maximum negative amplification (i.e. signal is inverted)The module can be used for attenuation/attenueverting and/or mixing of both audio or cv.

CONTROLS:

P1-/+ - manual control of the amplification of the incoming signal from the P1 input

P2-/+ - manual control of the amplification of the incoming signal from the P2 input

P3-/+ - manual control of the amplification of the incoming signal from the P3 input

INPUTS:

P1 - signal input 1

P2 - signal input 2

P3 - signal input 3

OUTPUTS:

P1 - signal output 1

P2 - signal output 2

P3 - signal output 3

SUM - sum of all three channels output

4 CHANNEL OUTPUT MIXER - MIX-OUT:

The MIX-OUT module is a four channel output mixer with individual gain and panning for each channel. Panning is under voltage control.

CONTROLS:
MASTER - controls the master volume

IN1 - Channel one gain control
PAN1 - Channel one pan control

IN2 - Channel two gain control
PAN2 - Channel two pan control

IN3 - Channel three gain control
PAN3 - Channel three pan control

IN4 - Channel four gain control
PAN4 - Channel four pan control

INPUTS:
IN1 - Channel one signal input
PAN1 - CV input for PAN1

IN2 - Channel two signal input
PAN2 - CV input for PAN2

IN3 - Channel three signal input
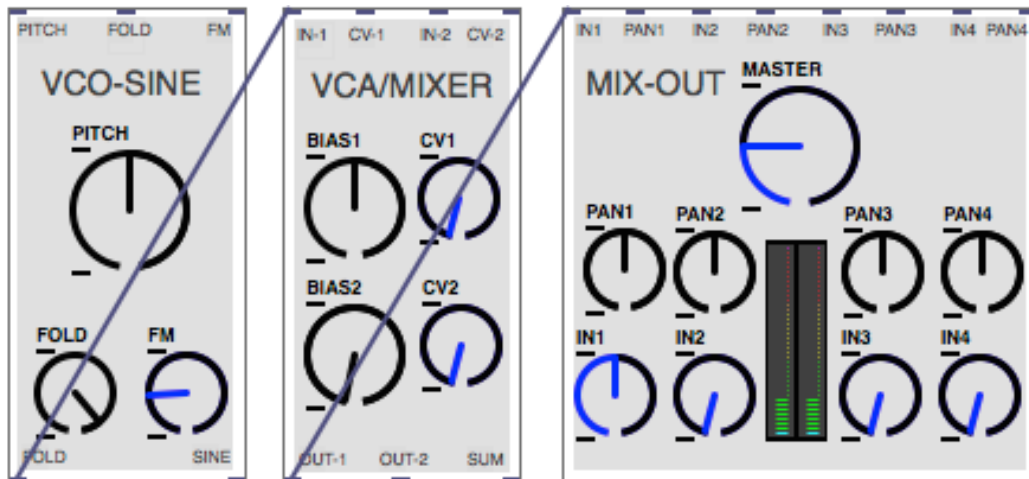PAN3 - CV input for PAN3

IN4 - Channel four signal input

PAN4 - CV input for PAN4

OUTPUTS:

no output. The MIX-OUT automatically sends audio out to channel 1 and 2 of your sound card (built-in or external)

EXAMPLE PATCHES

PATCH 1: MAKING A SOUND

This patch requires three modules: The VCO-SINE, VCA/MIXER and the MIX-OUT.

Patch the FOLD output from VCO-SINE to the IN-1 of the VCA/MIXER. Patch OUT-1 from the VCA/MIXER to the IN1 of the MIX-OUT

Adjust the FOLD and PITCH and listen to the result. No sound? Make sure the VCA BIAS1 is turned up as well as the MASTER and IN1 on the MIX-OUT

PATCH 2: ADDING AN ENVELOPE
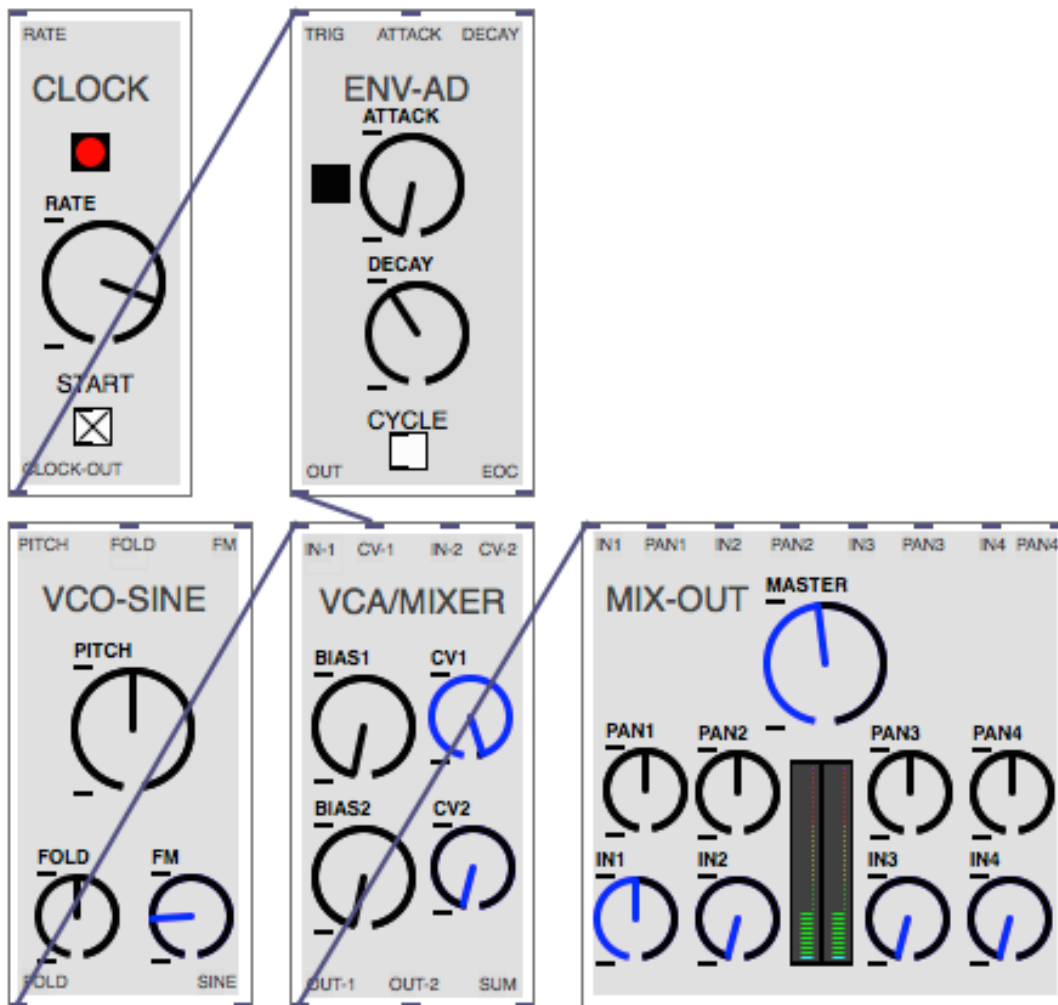
Start from EXAMPLE PATCH 1 and then add two modules: CLOCK and ENV-AD. Patch CLOCK-OUT to the TRIG input of the ENV-AD. Patch OOUT from ENV-AD to the CV-1 input of the VCA/MIXER. Start the CLOCK by clicking the START toggle. Attenuate the envelope cv with the CV1 knob on the VCA.

PATCH 3: ADDING RHYTHMIC COMPLEXITY AND MODULATION
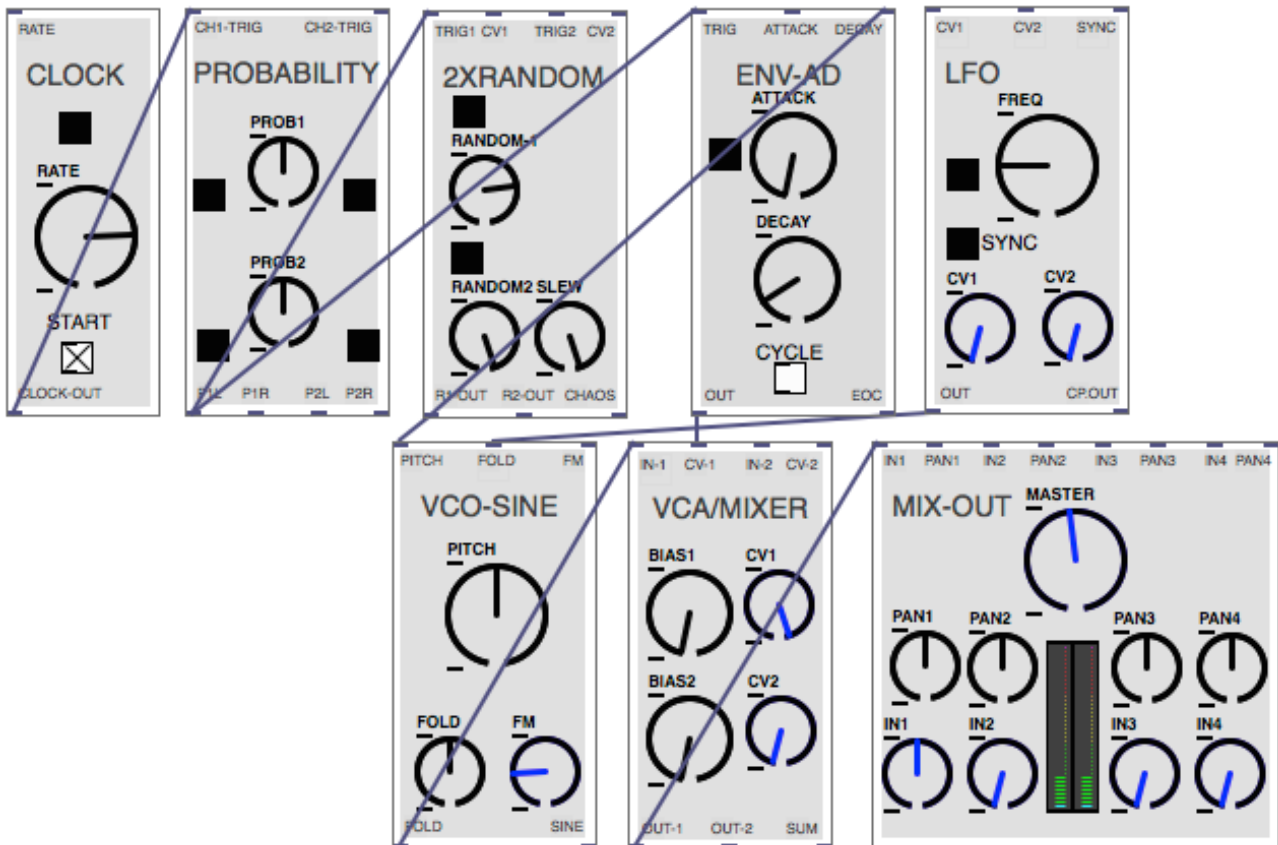
Start with the patch from EXAMPLE 2 and add three further modules: PROBABILITY, 2XRANDOM and LFO. Patch like this:

CLOCK-OUT to PROBABILITY CH1-TRIG

PROBABILITY P1L to 2XRANDOM TRIG1 input

PROBABILITY P1L to ENV-AD TRIG input

2XRANDOM R1-OUT to VCO-SINE PITCH

2XRANDOM R1-OUT to ENV-AD DECAY input

LFO OUT to VCO-SINE FOLD input

This patch has control over clock intensity via the PROB1 knob, it modulates the pitch of the VCO-SINE and the ENV-AD DECAY with random CV from 2XRANDOM. Control randomness with the RANDOM1 knob. The LFO modulates the FOLD amount. Remember that the knob becomes an offset control when being modulated.

Have fun with THE XODULAR PURE DATA MODULAR SYNTHESIZER SYSTEM!

XODULAR homepage: monologx.com/xodular

XODULAR pure data code and design: Johan Ericsson (MONOLOG X)

XODULAR manual design: Joseph Beg (VADA GEFFY)

Stockholm
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