COLD MAC

ANALOG UTILITIES WITH CREATIVE MIXING AND PATCH SURVEILLANCE

COLD MAC is the spice in your modular mélange. Utilitarian functions strung together in a complex web of interaction. Survey your creations with meta-control or expand your sources in twisted mirrors.

Combining classic analog computing elements with unified control, COLD MAC explores traditional territory through a new lens. Audio mixing, crossfade/pan, logical comparisons and envelope following are all involved, expanding a basic patch into a reactive whole.

MAC

At the most essential, COLD MAC will mix 6 inputs down the left edge into the MAC output. SURVEY controls a linear voltage-controlled amplifier (VCA) over the whole mix.

All inputs have 1x gain, except OR(1) and SLOPE which have 2x gain when no input is attached to AND(1) and CREASE respectively.

NB: Inputs are AC coupled so MAC will not mix CV signals.

SURVEY

SURVEY provides control over all functions throughout COLD MAC (See NORMALS section). When no inputs are attached to the left column of jacks, SURVEY engages 'Patch Surveillance' where the grey shaded output jacks respond variously to the SURVEY level. The output transfer functions are discussed to the right & reflected in the small graphs on the panel.

The upper-left jack provides CV control over SURVEY. In this case the knob's position is added to the input as an offset. The input responds well to slow moving CVs through audio rate modulations.

VCA / PAN / CROSSFADE

The first diagonal block (indicated with thin grey lines) is a two input, two output VCA, PAN, CROSSFADE unit, the function of which is chosen by the connected jacks:

PAN a single input between two outs, by connecting an input to LEFT and taking output from LEFT & RIGHT. SURVEY will pan between, or send a CV to FADE directly to delink from global control. *NB: You will need to attach an unconnected jack to RIGHT input to defeat the DC offset normalled there.*

CROSSFADE works the same as PAN with both LEFT & RIGHT inputs, but only a single output. Bonus is that LEFT out and RIGHT out provide inverse faded versions of the ins. Use this 2-in, 2-out combination for dynamic routing, *eg: 2 oscillators alternating between 2 different filters.*

LOGICAL MIXING

The middle two blocks perform analog logic functions inspired by the Serge Modulars of days past. Use it to choose between two CV values, or split an audio wave into positive and negative.

OR, aka Maximum, aka Peak, compares two input values and chooses the higher of the two. Use the left input for your source, and set the compare value with SURVEY, or patch into the second OR input for a CV peak function.

AND, aka Minimum, aka Trough, is the inverse of OR, choosing the lower of two inputs. Again the second input is normalled to SURVEY.

Try patching an audio source to OR, and sending both OR & AND outputs to two different filters, processing the top and bottom sides of the waveform indepedently.

SLOPE & FOLLOW

SLOPE is based around the ARP2600's envelope follower. The far right output provides a full-wave rectified (all negative inputs are flipped above ground), while the FOLLOW out provides a CV that tracks your input volume.

Use FOLLOW to 'Sidechain' anything. Additionally sending it a trigger/gate will create a quick and simple envelope.

CREASE & LOCATION

CREASE flips your wave inside-out becoming a raspy, amplitude-sensitive wavefolder for audio, or discontinuity inducer for CV. *Create a duality in your patch.*

LOCATION is an integrator of the input voltage, most useful for CV. The output will slowly shift in the direction of the input voltage, freezing in place when receiving a 0V input. Larger inputs move more quickly.

POWER CONSUMPTION

65mA @ +12V
62mA @ -12V

Shrouded power connector Red Stripe (-12V) to left when viewed from rear.

NORMALLED CONNECTIONS

To implement the Patch Surveillance technique a great deal of normalization is involved in COLD MAC. This includes, from top down:

- SURVEY to FADE
- -5V to LEFT
- +5V to RIGHT
- OR(1) to GROUND
- OR(2) to SURVEY
- AND(1) to OR(1)
- AND(2) to SURVEY
- SURVEY to SLOPE
- SLOPE to CREASE

NB: The panel graphics incorrectly suggest OR(2) is normalled to AND(2).

PATCH SURVEILLANCE

With no inputs, COLD MAC's SURVEY becomes a meta-control for your patch. The 8 shaded outputs provide different transfer functions as indicated on the panel. The graphs show the response when sweeping SURVEY from CCW through CW.

FOLLOW & LOCATION outs provide time-based functions that allow meta-control to have prolonged impact. LOCATION moves especially slowly for gradually morphing patches.

Attach a CV to SURVEY for 'CV Expansion,' or use audio input for 7 wavefolded versions of the input (including MAC).

LOGICAL CROSSFADING

Using the analog logic functions COLD MAC can crossfade between two audio inputs based on their DC components. The result is a crossfade with spectral connotations.

Patch two audio sources to OR & AND, then combine their outputs with a mixer or passive multiple. Use SURVEY to shift the voltage level where they crossover.

FOLLOW to SURVEY

Self-patch FOLLOW to SURVEY to radically alter the response of the SURVEY knob. Changes will be slewed and the control will be distinctly non-linear in its operation.

Instead of patching CV direct to SURVEY, patch into SLOPE then FOLLOW to SURVEY for a rubbery response with the SURVEY knob adding DC offset.

CROSS-FM COMBINATIONS

COLD MAC is an ideal tool to link two MANGROVES for complex Frequency or Formant audio-rate modulation.

Patch two MANGROVE's Formant outs to OR & AND inputs of COLD MAC. Patch the outputs to the opposing MANGROVE's FM INPUT or FORMANT ins. Now SURVEY provides dynamic control of which oscillator has greater effect, plus MAC provides a mixed & amplified output of both oscillators.

Many alterations of this patch are possible with different input pairings. *Experiment!*