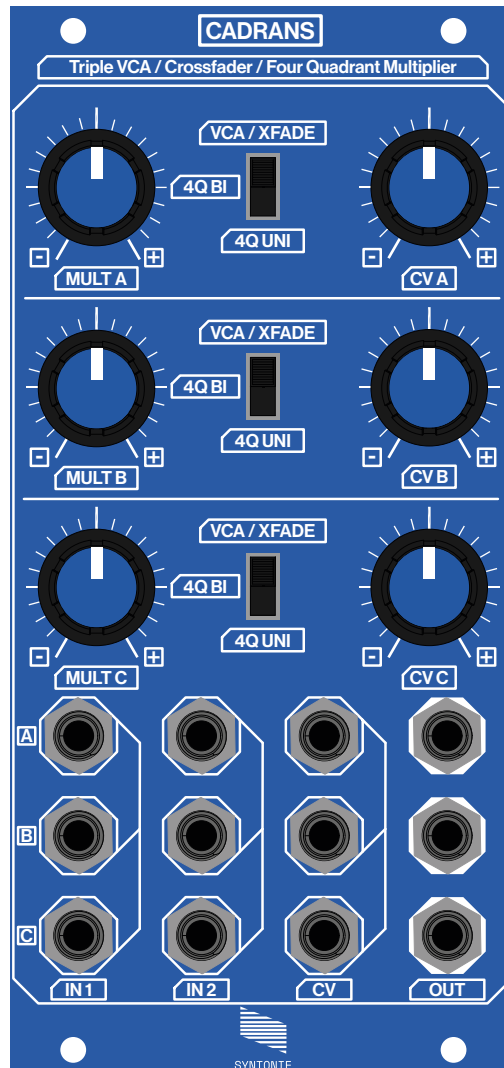

Cadrans

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Triple VCA / Crossfader / Four Quadrant Multiplier ▸ User documentation



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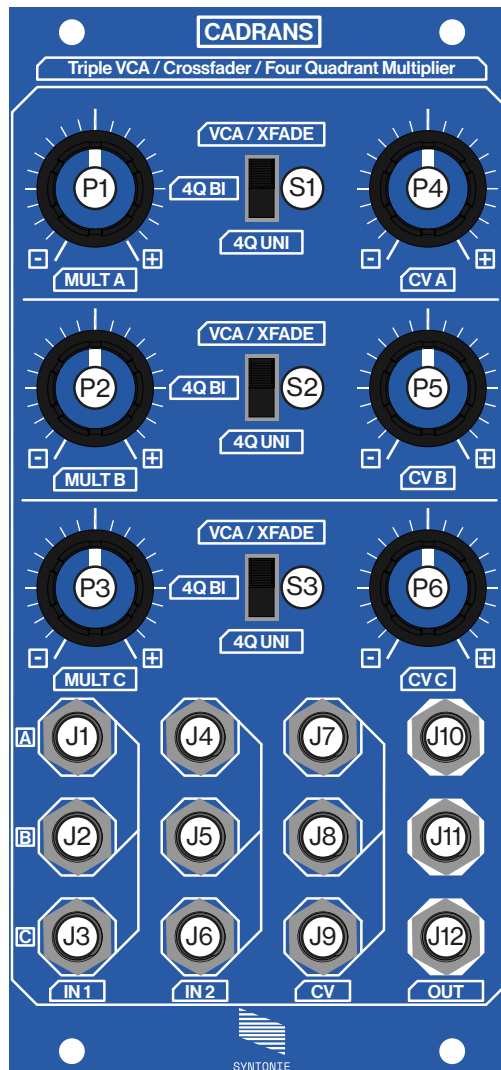
Cad战略ans is a triple multiplier with three identical channels, featuring manual control as well as voltage control over the amplitude, as well as a mode switch to select one of the three different modes: VCA or crossfade, four quadrant bipolar, and four quadrant unipolar.

Specifications

- 12HP
- 170 mA +12V (16pin or DC)
- 0 mA -12V
- 0 mA +5V
- 42mm depth

Special thanks to: LZX Team for the Cadet series of modules, especially Cadet X, which have been the starting point to develop this module.

Lorenzo Ferronato for the documentation design // And of course, **everyone who has supported Syntonie until now & those who will support it in the future.**



(P1) Channel A manual amplitude/fade control

(P2) Channel B manual amplitude/fade control

(P3) Channel C manual amplitude/fade control

(P4) Channel A CV attenuverter

(P5) Channel B CV attenuverter

(P6) Channel C CV attenuverter

(S1) Channel A mode switch

(S2) Channel B mode switch

(S3) Channel C mode switch

(J1) Channel A input 1 (jack, 0V/+1V or -/+1V, 100kΩ)

(J2) Channel B input 1 (jack, 0V/+1V or -/+1V, 100kΩ)

(J3) Channel C input 1 (jack, 0V/+1V or -/+1V, 100kΩ)

(J4) Channel A input 2 (jack, 0V/+1V or -/+1V, 100kΩ)

(J5) Channel B input 2 (jack, 0V/+1V or -/+1V, 100kΩ)

(J6) Channel C input 2 (jack, 0V/+1V or -/+1V, 100kΩ)

(J7) Channel A CV input (jack, 0V/+1V, 100kΩ)

(J8) Channel B CV input (jack, 0V/+1V, 100kΩ)

(J9) Channel B CV input (jack, 0V/+1V, 100kΩ)

(J10) Channel A output (jack, 0V/+1V or -/+1V, 75Ω)

(J11) Channel B output (jack, 0V/+1V or -/+1V, 75Ω)

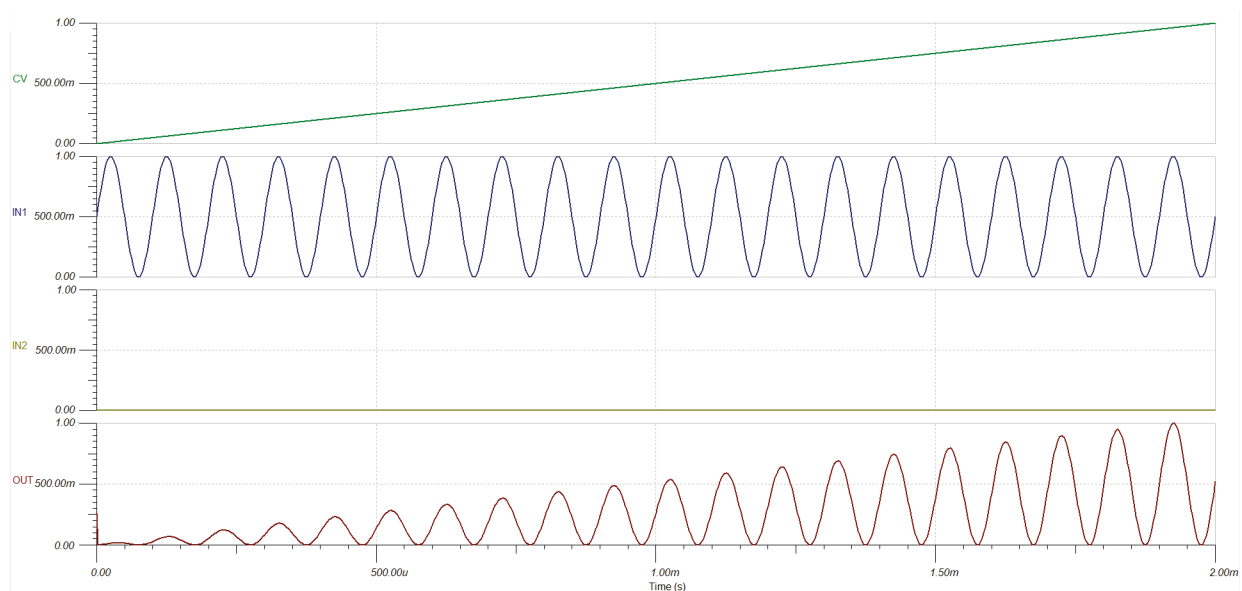
(J12) Channel C output (jack, 0V/+1V or -/+1V, 75Ω)

Here are descriptions of each mode:

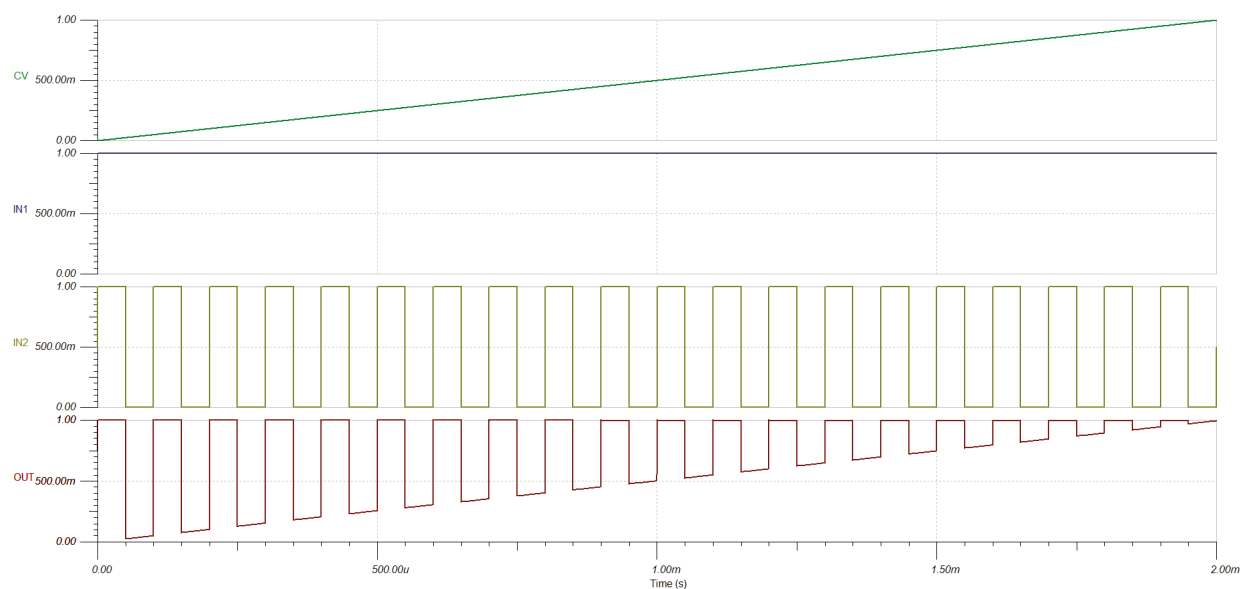
VCA/XFADE :

In this mode, Cadrans works as a voltage controlled amplifier when only one signal is connected to IN1 or IN2. A voltage controlled amplifier will act on the amplitude of the input signal, based on the value of a second signal, here generated by the mult knob and the CV input going through the attenuverter. In video, the amplitude is equivalent to the contrast level.

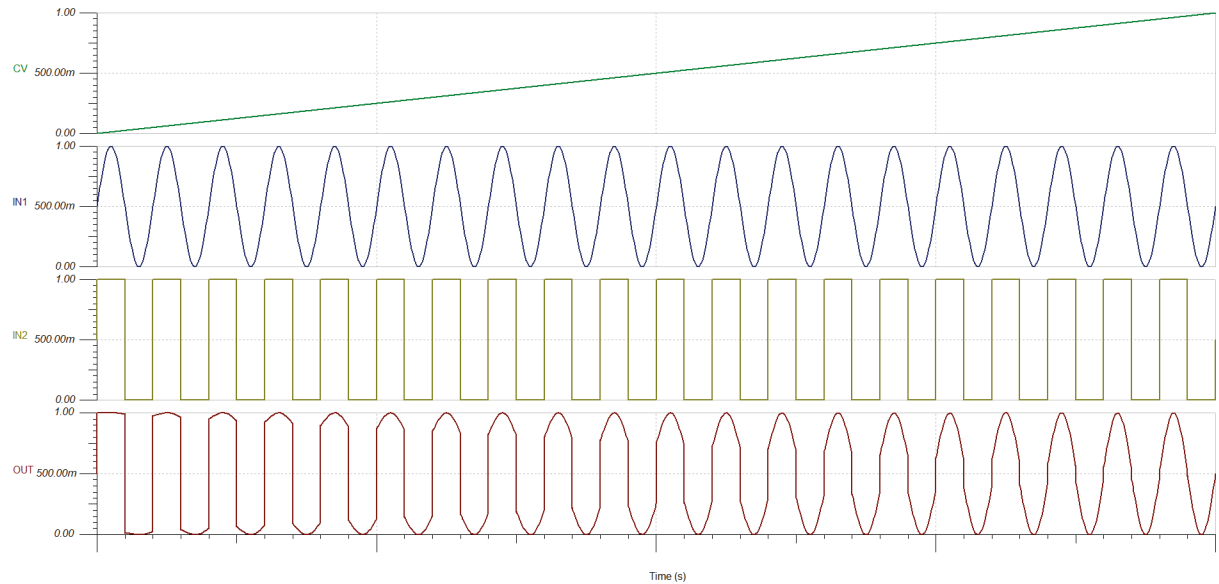
When connected to IN1 only, the signal fades from 0V (black level) to maximum value based on the amount of CV. On a video signal, it will translate to a fade to black/fade from black.



When connected to IN2 only, the signal fades from +1V (white level) to maximum value based on the amount of CV. On a video signal, it will translate to a fade to white/fade from white.



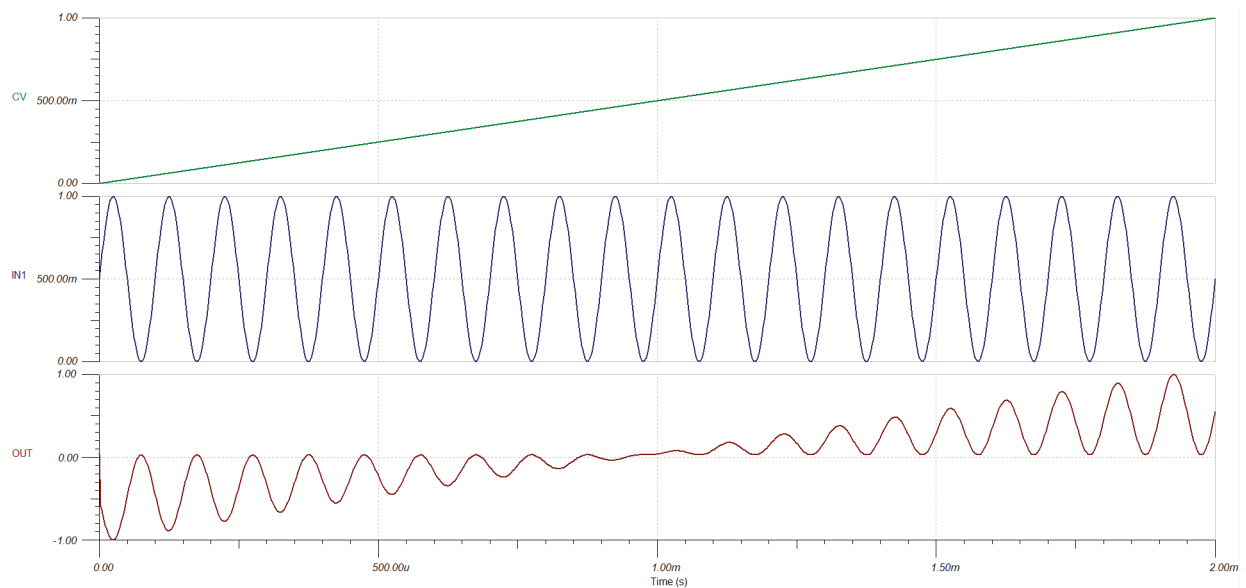
When a signal is present at both IN1 and IN2, Cadrans will act as a crossfader, smoothly transitioning from one to the other based on the CV value.



The two other modes are four quadrant multipliers, in which the signal present at IN1 will be attenuated before being inverted, in a similar way as an attenuverter works. In those modes, IN2 is disabled.

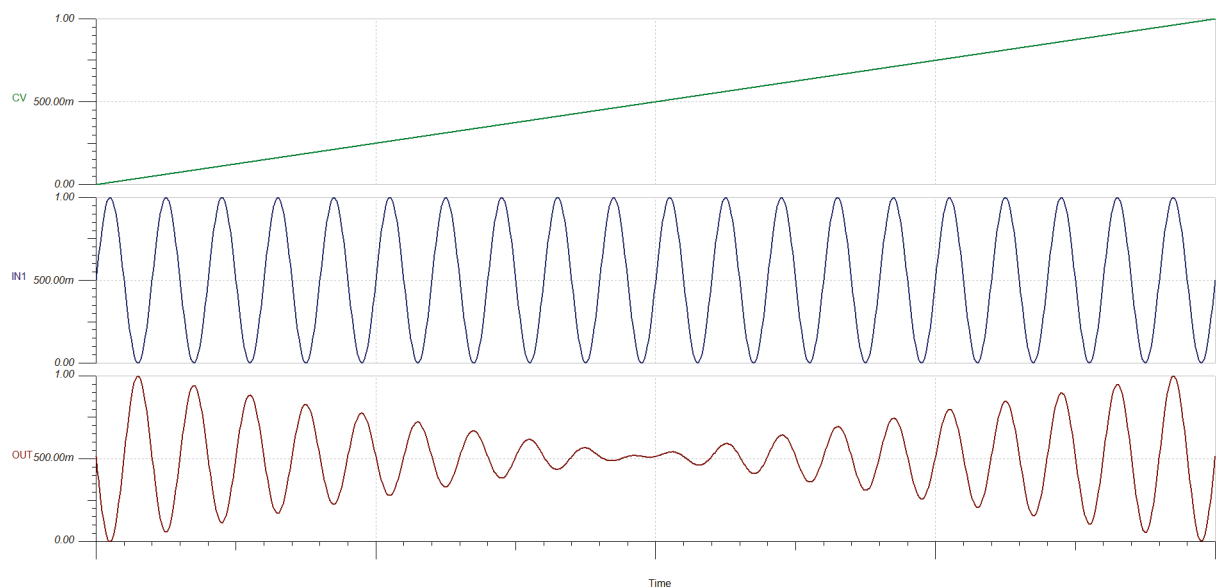
4Q BI :

This mode expects a bipolar signal (ie : +/-1V) and will output a bipolar signal. It is also possible to use it with a more standard unipolar signal (+1V), though the output will be bipolar as well, meaning that the inverted version of the signal will be under black level (0V). This can be useful to add some negative space in a patch, as this mode will fade to black 2x faster than the VCA mode.



4 UNI:

This mode expects a unipolar signal (+1V) and will output a unipolar signal (+1V), which means that, as opposed to the 4Q BI mode, the inverted version of the signal will stay in the 0V to 1V range, with a mid-point at grey level. On a video signal, it will be equivalent to fading to grey before producing a negative image.



Additional information:

- Both the MULT control and CV attenuverter control have a deadzone around the center. This is especially handy to find the mult center point to ensure full CV modulation when the attenuverter is in min or max position. And it is also useful to be able to center the attenuverter and fully attenuate the CV signal.
- The CV input has a gain of slightly more than 1, this to ensure that the CV signal will reach full modulation, and the input signal to reach max amplitude, though this will also cause a bit of clipping, which translates to some visuals artefacts, especially when Cadrans is used to process oscillators and shape generators.
- Cadrans can be used as an expo shaper by using the same signal as the input signal and CV signal in VCA/XFADE mode and attenuverter in max position.

Cadrams

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