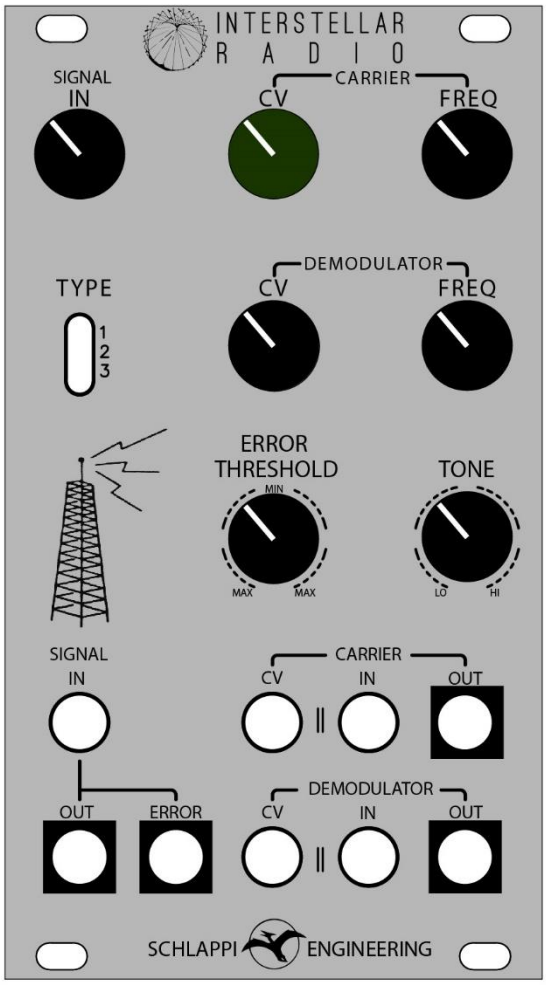

The Interstellar Radio is a faulty transmission line providing several varieties of destructive effects as well as acting as a non-volts/octave complex oscillator when no input is provided.

Interstellar radio converts an audio signal from the input jack to a high frequency pulse train and then back to an audio signal with voltage control over the clock for the up conversion (CARRIER) as well as the down conversion (DEMODULATOR), like a voltage controlled radio transceiver designed for poor reception.

Manipulating these clocks allows for a variety of aliasing, distortion, and frequency modulation type effects. The output is also sent to a comparator along with the input, and the result is available at the “ERROR” output for a ring modulation type effect.

When no input is provided a DC offset (controllable with the input jack) sets a frequency for the up conversion (which is effectively a VCO), the down conversion is a form of frequency modulation acting on the DEMODULATOR oscillator. Two audio signals can be inserted into CARRIER and DEMOULATOR IN jacks and modulate each other in the same way.

If no external CV is applied the input signal is normalled to the two CV inputs, so that turning those controls to the right applies additional audio rate modulation directly to the two oscillators.

Panel Controls

SIGNAL IN: Attenuates input level; If no input is connected, it changes the level of a DC bias input allowing for standalone noise and broken radio sound explorations.

CARRIER CV: Attenuates CV input over internal clock applied to transmit (up conversion) side. If nothing is plugged into the CV input it will apply the SIGNAL IN as audio rate frequency modulation to the CARRIER frequency.

CARRIER FREQ: Bias frequency of the transmit (up conversion) side. Adjusting this effectively changes your sample rate, allowing for aliasing effects. If it is too low it may not pass any audio.

DEMODULATOR CV: Attenuates CV input over internal clock applied to receive (down conversion) side. If nothing is plugged into the CV input it will apply the SIGNAL IN as audio rate frequency modulation to the DEMODULATOR frequency.

DEMODULATOR FREQ: Bias frequency of the receiver (down conversion) side. If this clock matched the CARRIER FREQ and both were set over twice the frequency of the input signal, then the output would match the input. By adjusting this all sorts of nonlinearities and distortion are introduced, including some effects similar to bitcrushing. If this is set too low no output will be produced.

ERROR THRESHOLD: Sets the comparator threshold for the ERROR output. The waveform is asymmetrical and bipolar so a center setting will be the noisiest and most similar to the SIGNAL OUT with the two extremes being closer to the SIGNAL IN. On certain settings this knob will be similar to a wet/dry mix (but everything is square waves).

TONE: This controls a passive low pass filter on the SIGNAL OUT (also the PLL demodulator loop) and can be used to tame the output as well as affect the tracking of the signal.

TYPE: Sets the type of PLL tracking loop used to recover the signal on the DEMODULATOR side. Changes the character of the effect.

PANEL JACKS

SIGNAL IN: Insert audio here.

OUT: This is the recovered and mangled audio, may or may not resemble the input.

ERROR: This is the difference between the input and output audio as rendered by a comparator. Can be thought of as a type of ring modulation.

CARRIER CV: CV control over the internal clock for the CARRIER modulation process.

CARRIER IN: Replaces the internal clock with any signal that crosses zero volts of your choice. If you plug the output of an oscillator that tracks 1V/OCT here you can play melodies on the Interstellar Radio.

NOTE: This will disconnect the internal CARRIER clock, CARRIER CV in will no longer affect CARRIER FREQ.

CARRIER OUT: The output of the internal CARRIER clock - a wide range non V/OCT square wave oscillator.

DEMODULATOR CV: CV control over the internal clock for the demodulation process.

DEMODULATOR IN: Replaces the internal clock with any signal that crosses zero volts of your choice.

NOTE: This will disconnect the internal DEMODULATOR clock, DEMODULATOR CV in will no longer affect DEMODULATOR FREQ.

RX CLOCK OUT: The output of the internal DEMODULATOR clock - a wide range non V/OCT square wave oscillator.

SOME PATCHES TO TRY

BROKEN RADIO NOISE: Leave the input unconnected, listen to the OUTPUT while turning the CARRIER FREQ and DEMODULATOR FREQ knobs. Try feeding in some CV. LOOP 1 or 3 will work best for this.

MODEM MELODIES: Patch a melodic sequence to the input (triangle wave is good), mult the CV of that melodic sequence into the CARRIER CV in and a different CV into the DEMODULATOR CV in. Listen to the OUT.

GLITCH DISTORTION: Insert an audio source into the INPUT (triangle wave, melodic is really good), listen to the ERROR output. Turn down the CARRIER FREQ and DEMODULATOR FREQ until things get crunchy, feed in CV. Turning ERROR THRESHOLD will act as a wet/dry mix.

MODEM MELODIES II: Leave the input unconnected, patch a V/OCT tracking VCO into the CARRIER IN, you are now effectively playing the clock rate. Play a melody, turn the frequency knob on the VCO, go low. Feed a slow LFO into the DEMODULATOR CV.

LASER DRUMS: Feed an external drum machine (or rhythmic sequence) into the SIGNAL IN. Take output from ERROR. Start with both FREQ knobs low and start turning up the CV knobs, turn knobs to taste. Turning ERROR THRESHOLD will act as a kind of wet/dry mix. You may need a VCA after the Interstellar Radio with an envelope triggered by the input or an envelope follower to get silence between drum hits.

PSEUDO RUNGLER: You need a shift register module for this one, I used an NLC 8Bit Cipher. Patch the oscillator OUT from the CARRIER into the DATA in on your shift register. Patch the oscillator OUT from the DEMODULATOR into the CLOCK in on your shift register. Take CV outputs from the shift register into the CV ins of the CARRIER and DEMODULATOR. Lister to the main OUT of the Interstellar Radio. Start with CV and FREQ low then turn up slowly, you should achieve a wide variety of generative melodies and abrasive sounds.