SCHLAPPI ENGINEERING

Interstellar radio modulates an audio signal on to a high frequency pulse train and then back to an audio signal with voltage control over the clocks for the modulation (carrier) as well as the demoulation, 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. It also acts as a novel form of noise oscillator without any input (or with the error out patched to the input).

SIGNAL IN
Attenuates input level. If no cable is inserted a DC voltage is applied.

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

OUT
This is the recovered and mangled audio

ERROR
A type of logic comparator (XOR) outputs the difference between the input and output

ERROR THRESHOLD
Sets the comparator threshold for the error output. 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.
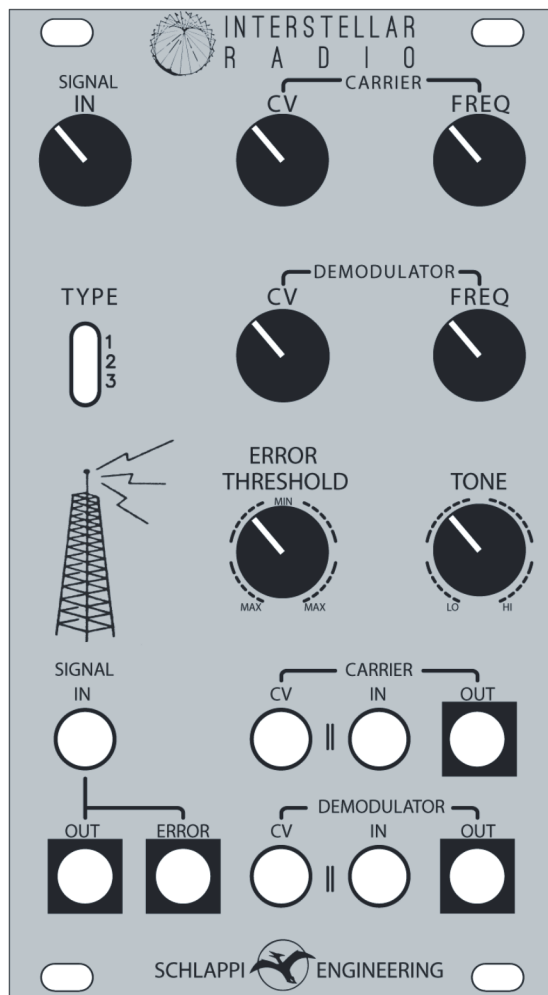
CARRIER CV
CV over carrier frequency. If no cable is inserted input signal is applied

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.

CARRIER IN
replaces carrier with external oscillator

DEMODULATOR CV
CV over demodulator frequency. If no cable is inserted input signal is applied

DEMODULATOR FREQ
Bias frequency of the receiver (down conversion) side. If this is set too low no output will be produced.

DEMODULATOR IN
replaces demodulator with external oscillator

PATCHES TO START WITH

NOISE OSCILLATOR

KNOB POSITIONS

SIGNAL IN	75% CW	
TYPE	1	
CARRIER	75% CW	
CV AND **FREQ**	25% CW	
ERROR THRESH	75% CCW	

- Patch the ERROR OUT to the SIGNAL IN
- Listen to the OUT
- Explore the effects of the ERROR THRESHOLD and CV knobs
- Try sending envelopes to the CV inputs
- Try sending melodic sequences to the CV inputs (does not track V/OCT)
- Converse with infinite space

DISTORTION

- Patch an audio signal into the input
- Listen to the ERROR output
- ERROR THRESHOLD will act as a bit of a wet/dry mix
- Try the different TYPES
- Listen to the OUT (you may not hear the input signal unless the carrier and demodulator frequencies are high, especially on TYPE 2)
- Try turning each knob one at a time to see how they affect the tone
- Feed in CV
- Try using an external VCA to gate the output to the input
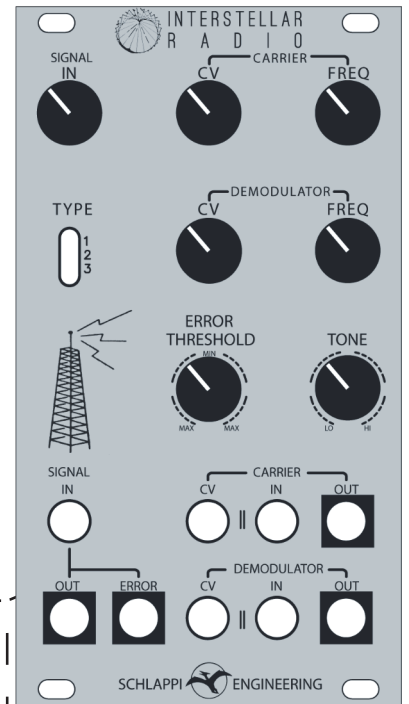
HI HAT/SNARE/CYMBAL

- Start with noise osc patch
- Run into VCA with short envelope applied
- Apply small amounts of CV to demodulator frequency

INTERSTELLAR RADIO BLOCK DIAGRAM

(parentheses indicate connections normalled to unconnected inputs)
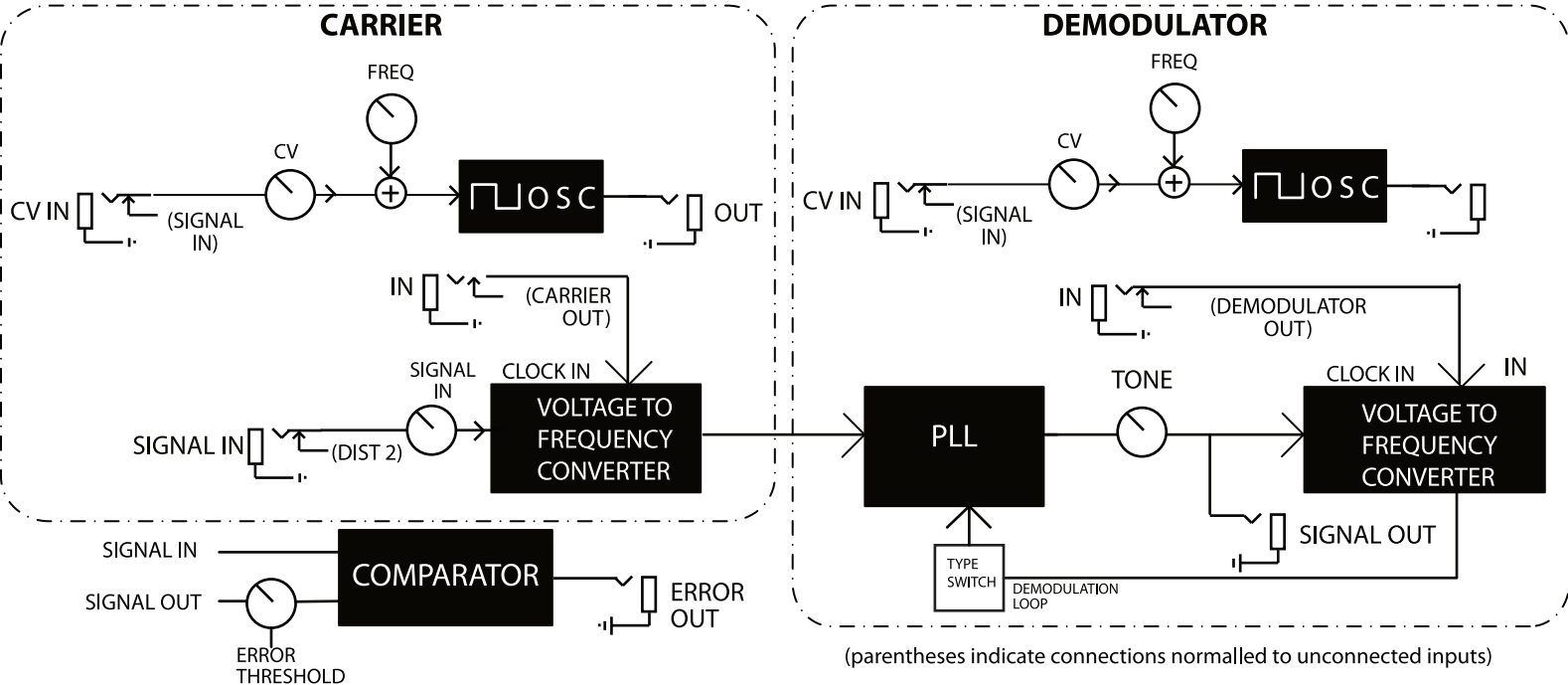
TYPES (PLL COMPARATOR USED FOR TRACKING)

1: (PHASE COMPARATOR 1) will lock to harmonics, great for wild sounds, not great for tracking the input, will almost always create sound

2: (PHASE COMPARATOR 2) will lock for proper demodulation if the clock frequencies are high enough and matched well enough but may not produce sound if not locked

3: (PHASE PULSES) not even trying to lock to anything but will create wild FM sounds