

NOTE: These resistor values don't work well at all. I suspect other impedances in parallel affects the voltage dividers. Experiment!

TEST RANGE OF FREQ CV POT
TEST RANGE OF RES CV POT

NOTE: ProOne uses 200k to pin 9, and 240k as pull down for LP, and also 150pF for caps. Experiment with those values?

NOTE: The 68k between pos input and GND is from ProOne - what does it do? And should the other outs have one as well?

Also, the resonance feedback is different: the OP amplifies the output 2.4 times, and then the feedback seems to be voltage divided a LOT. Well, there is also 3.6k in the IC, on pin 8, and that in parallel with the ProOne's 3k kind of makes up for the gain of 2.4 in the output. See <https://electricdruoid.net/cem3320-filter-designs/>

The resonance control input is a current. The ProOne has max 75uA (but I think it also has to do with the input at pin 8). I chose 56k for a max current of 89 uA for 5V in (thinking 0-5V in, as for cutoff).

Normal level in should be about 10V p-p, but adding a bit more gain to the amp, so that weak signals can have a go (and to see whether that kind of distortion agrees with the VCF).

A sweep from 0-8V on the panel pot should result in a voltage sweep from 155mV to -25mV, and a resulting filter sweep from approx min to max cutoff frequency, if I read the data sheet OK. It says that increasing voltage means a decrease in filter frequency. So, the effective input CV range is 0-8V (as suggested by Doepfer). Still, to accomodate for smaller CV ranges, I increased the gain a bit, so that 5V should cause the cutoff to peak, and added an attenuator. Note that values outside this range should not cause damage to the IC, the data sheet states the max voltage on that input to be +/-6V.

NOTE: Using 150pF for filter capacitors, like on the ProOne. Apparently, this raises the base frequency one octave.

Optional untested extra output, not in the PCB. Put it in because a TL072 takes no more room than a TL071, so if one wants it, it's there (for anything).

A VCF built on the CEM3320, based on its data sheet reference implementations, and a bit of inspiration from the ProOne.

Rev. A in a severe prototype state.

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