

CrOwBX Calibration for rev.2

Host board set-up for calibration

Tools needed: digital voltmeter, trimpot adjustment tool (or small flat blade screwdriver). Oscilloscope recommended but not necessary.

Initial host board calibration does not require a voice card or carrier board to be installed. Apply +/-19V power to the host board. If this is the first time the board has been powered, check the voltages with respect to common on the +15V, -15V and +5V regulators.

Set the panel controls as follows:

Modulation section:

LFO rate max., frequency depth min., PW depth min., LFO shape sine, OSC1 (FM) off, OSC2 (FM) off, OSC1 (PW) off, OSC2 (PW) off.

Oscillator section:

OSC1 frequency min., initial PW min., OSC2 frequency min., WAVE1 saw, X-MOD off, SYNC off, WAVE2 saw, portamento min., TUNE to mid-rotation, DETUNE OSC2 to mid-rotation.

Filter section:

FREQUENCY to max., RESONANCE to min., MODULATION to min., OSC1 off, OSC2 off, TRACK on, NOISE off.

Envelope section:

Set both filter and loudness EGs as ATTACK min., DECAY min., SUSTAIN max., RELEASE min.

Calibration

LFO:

Make sure to set the LFO waveform to sine and the LFO rate to maximum. Observe the voltage present on the LFO header (J15) With the oscilloscope or DVM set to frequency mode, if available. Adjust trimpot R83 to obtain a period of about 50 milliseconds, which is a frequency around 20 Hertz.

Octave switch:

With the oscillator controls set to the defaults shown above, observe the voltage at the Molex header pin marked D10_VCO1F to common with the octave switch set to the NORM (middle) position and note this voltage value. Now, set the octave switch to -1 and adjust trimpot R132 to obtain exactly -1.000v down from the measurement taken at the octave NORM. Similarly, set the octave switch to +1 and adjust trimmer R133 to obtain exactly +1.000v up from the measurement taken at NORM. Example: NORM shows a voltage of +0.645v. -1 would then be $0.645 - 1.000 = -0.355\text{v}$ and +1 would be $0.645 + 1.000\text{v} = 1.645\text{v}$.

Portamento (single voice crOwBX only):

Set the portamento to maximum. Connect a 1v/oct and gate source such as a MIDI to CV unit or CV keyboard to the 1V/OCT and GATE jacks. Play two notes one octave apart: there will be no tone, but the portamento voltage glide response can be observed on the Molex header pin marked C1_KEYCV measured to common. While alternating between the two octave notes, adjust trimmer R143 until the time taken to change from the voltage at the lower note to the voltage at the higher note is between 1 to 2 seconds.

Distortion trim (single voice crOwBX only):

With the VOLUME panel control set to max and the MUTE switch on (the switch position that connects JP1 to common), measure the voltage where R55 and C32 connect, to common. Adjust trimmer R52 to obtain a value as close to zero as possible.

Four-voice portamento and distortion trim calibration procedures are listed in the carrier board calibration document.