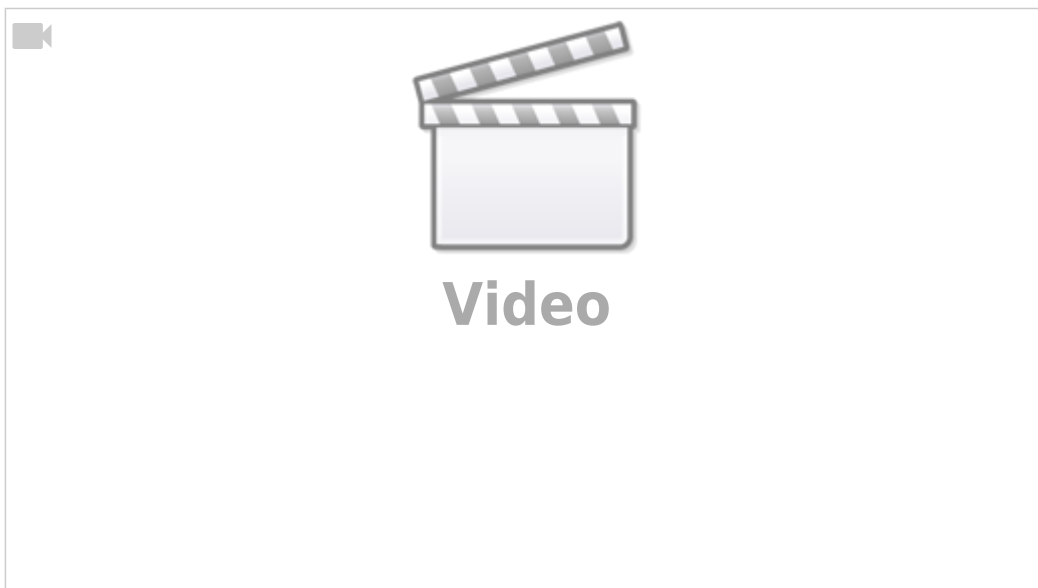# MIDIbox CV V2

Introduction

MIDIbox CV V2 is the successor of MIDIbox CV V1 with focus on digital, high-resolution modulation of CV outputs and an enhanced control surface.

Official Ucapps Page

Video Demo

Control Surface Features

- a "Standard Control Surface" (SCS), compatible to various other MIDIbox projects, which gives (a cumbersome) access to all parameters.
- the display used for the SCS can either be a 2×20 character LCD (CLCD), or a 128×64 graphical LCD. The graphical LCD will also print a scope!
- support for 4 OLEDs which are used as scopes! CV channels can be assigned to the scope displays individually. Selectable oversampling rate and trigger level.
- all parameters are also bidirectionally accessible via NRPN, this is demonstrated by a sophisticated Lemur template, running on an iPad. A PC/Mac based solution (e.g. based on Ctrlr) is feasible as well
- user configurable buttons (up to 32)
- user configurable rotary encoders (up to 16)
- optional LED rings for encoders

Control Voltages Features

- Typically 12bit outputs with common MBHP based AOUT Module. Internally working with 16bit
- Volt/Octave (positive and negative) and Herz/Volt characteristic
- Configurable slew rate to "smooth" the output curve (e.g. if controlled only by 7bit CCs)
- Selectable MIDI port (USB/MIDI/OSC), can also listen to multiple ports
- Selectable MIDI channel and keyboard range (if it listens to MIDI notes)
- Can listen to MIDI Note, Velocity, Aftertouch, CC, NRPN (14bit), PitchBender (14bit)
- Portamento, Glide, Glissando
- Octave Transpose, Semitone Transpose, Finetune, Pitch Range for incoming PitchBender events in MIDI Note mode.
- Legato, SusKey (fingered portamento)
- Poly chain mode to combine multiple CV for controlling multiple VCOs
- Arpeggiator with Up/Down/Up&Down, Random, etc. modes. Options: Sort, Sync, Oneshot, Constant Arp Cycle rate, Easy&Expert play, Speed and Gatelength.
- 303-like Bassline Sequencer with up to 32 steps and 8 sequences. Supports also Glide and Accent
- 2 LFOs with Amplitude, Rate, Delay, Phase and predefined modulation targets CV output, LFO2/1 Amplitude, LFO2/1 Rate, ENV1/2 Rate.
- Various waveforms such as Sine, Saw, Pulse, Random, Positive Sine/Saw/Pulse, etc. Works in "slow" (0.008..44 Hz) and "fast" mode (up to 440 Hz). Supports also Key Sync, MIDI Clock Sync and Oneshot
- 1 simple ENV with Amplitude, Delay, Attack, Decay, Sustain, Release and predefined modulation targets CV output, LFO2/1 Amplitude, LFO2/1 Rate,
- Supports Linear and Exponential curve.
- Works in "slow" and "fast" mode. Supports also Key Sync, MIDI Clock Sync and Oneshot.
- 1 multi-stage ENV with Amplitude, Offset, Rate, 16 steps with selectable loop and sustain step and predefined modulation targets CV output, LFO2/1 Amplitude, LFO2/1 Rate.
- Supports Linear and Exponential curve.
- Works in "slow" and "fast" mode. Supports also Key Sync, MIDI Clock Sync and Oneshot.
- 4 Modulation Matrices with two sources (incl. constant values), two destination paths (invertable), and operations such as +, -, multiply, XOR, OR, AND, MIN, MAX, <, >, Equal, Sample&Hold
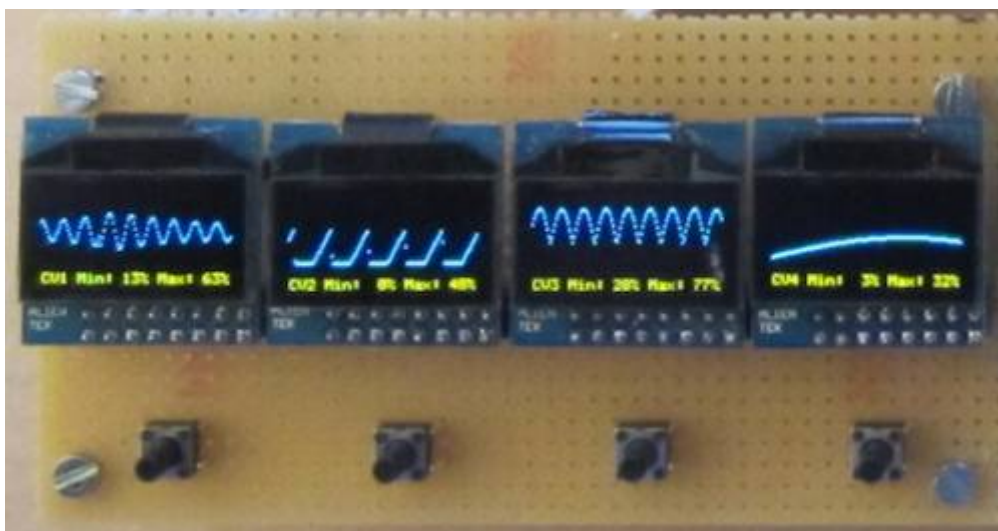
MBHP Modules Required

- Core32 STM32F4
- Aout Module or Aout_ng Module
- Ainser8 Module
- Din Module
- Dout Module
- SCS Module

Options

Scope Display

Up to 4 SSD1306 based "scope displays" can be connected to display CV output waveforms with a selectable oversampling rate and trigger level

[Core32 STM32F4 Interconnection](#)

Led Rings Encoders

Up to 32 free assignable rotary encoder functions with support for LED rings are available. The encoders have to be connected to a MBHP_DIN module, the LED rings to four shift registers of a MBHP_DOUT module.

LRE8x2