

# Synthesizer Interface module build and calibration

## Description

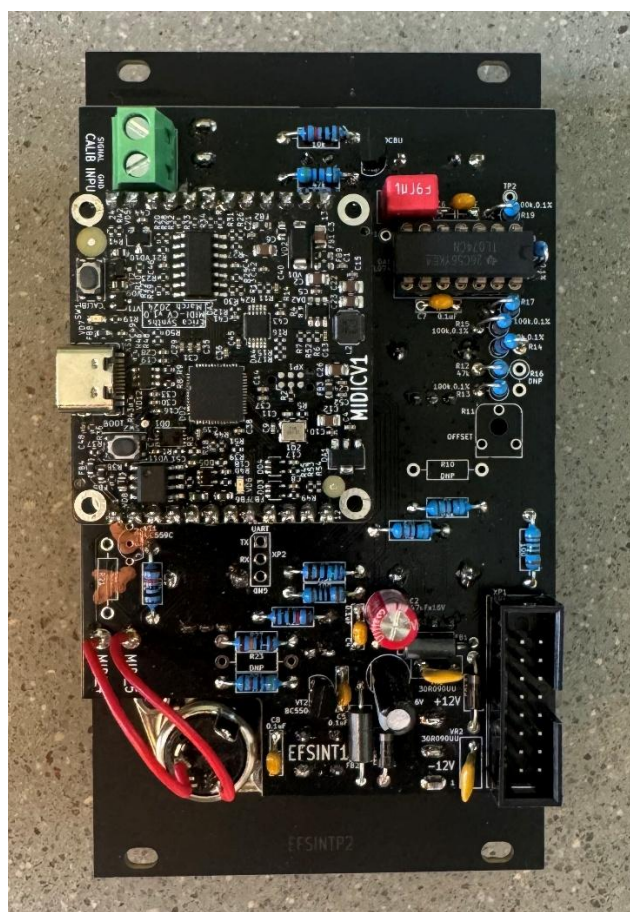
The INTERFACE module is a replacement for the original keyboard interface module, designed to be used with MIDI keyboard controllers. The core of it is Erica Synths highly accurate MIDI-CV board for DIY projects, and we maintained all functionality of the original INTERFACE module – manual and ECV transpose and portamento. The CV and Gate outputs from the module are sent directly to the CV and Gate bus of the power distribution board, and all modules that are designed to accept CV and Gate are connected to the board via power supply cables.

## Assembly

Start with installing the DIN5 connector on the panel. Use two M3 screws supplied with the kit to attach the connector from the back side of the panel as shown on the picture below. Once all components on the main PCB are assembled, install and solder two one row female connectors for the MIDI-CV board on the component side of the main board. Make sure connectors are aligned with the silkscreen and are perfectly vertical. Then solder two one row male connectors on the MIDI-CV board. Now, install the MIDI-CV board so that the USB connector is facing left – out of the module.

The green connector in the top left corner is intended for self-tuning of the oscillators (a pulswave from the VCO is supposed to connect here), but, because we have only one self-tuning input, but three VCOs in the system, we are omitting this feature for the Elector Formant synthesizer.

Use two wires to connect the DIN5 connector to the PCB. Pay close attention to the wiring – it's critical here. Follow the example on the photo below.



## **MIDI-CV board configuration settings**

The INTERFACE module can be configured for various MIDI channel settings, and its done via MIDI learn function - the module will automatically adjust to the MIDI channel setting found on your MIDI controller. To initiate MIDI learn, push and hold the button on the front panel for 1 second, and the module will advance in MIDI learn mode. Now push any key on the MIDI controller or send the MIDI message from a MIDI device. The INTERFACE module sets a MIDI channel and exits configuration mode automatically.

## **MIDI-CV board calibration (optional)**

The board comes 1V/Oct calibrated from the factory, but you might want to recalibrate its response curve for more precise tracking of your specific VCO. Calibration considers adjusting output CV for better VCO tracking. Connect the INTERFACE module to the power distribution board, and also connect the VCO, you are using as benchmark for calibration. The VCO has to be calibrated for 1V/Oct response. Let the VCO warm up for ~10 minutes. The INTERFACE module will send the CV signals to the VCO via power supply busboard.

Set the VCO CV selection switch to ECV, and do not connect anything to the VCO 1V/Oct input, yet. Connect a chromatic tuner to the output of the VCO, turn on the saw wave and set the LEVEL to max. Now, set the VCO frequency to the lowest possible – C0 - rotate the COARSE switch all way CCW and use FINE potentiometer to tune it to C0. Switch the CV selection switch to KOV and play the lowest C on the MIDI keyboard. A tuner has to indicate something around C0.

To enter the calibration mode push and hold the button on the front panel for 3 seconds. The MIDI indicator LED will start flashing. The calibration procedure is following:

1. Play the C0 on the MIDI keyboard, and check the reading on the tuner. Use the FINE knob to set C0
2. Play C1 on the MIDI keyboard and check the reading on the tuner. If it indicates some cents above C1, push B0# key on the keyboard several times until it reads C1. If it indicates some cents below C1, push C1# key on the keyboard several times until it reads C1. Basically, the keys next to desired note correct the CV response of the MIDI-CV board by adding or subtracting a voltage on the CV output.
3. Play C2 on the MIDI keyboard and repeat steps above.
4. Then proceed to C3, C4, C5, C6, C7 and C8.
5. Once calibration is done, push the button on the front panel and the module will save new calibration settings.