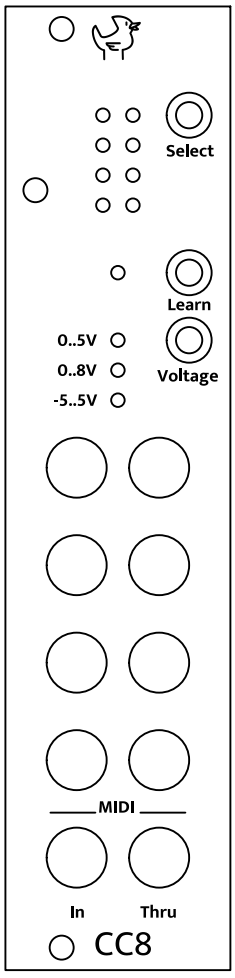
# Entineering CC8

User Manual

v1.2




Entineering

# Introduction

Entineering CC8 is a module for Eurorack synthesizers. It converts MIDI Control Change messages to control voltages (CV) that can be used to control other modules.

Features of Entineering CC8 include:

- Eight individual outputs.
- Output voltage range selectable between 0..5V, 0..8V and -5..5V for each output individually.
- Easy configuration of MIDI CC messages and MIDI channels via a "Learn" functionality.

Some application examples:

- **Dynamic Modulation Control**: Use a MIDI controller's knobs or faders to modulate various parameters on your Eurorack modules in real-time. This could be filter cutoff, resonance, oscillator pitch, etc.
- **Sequencing and Automation**: Record MIDI CC automation in a DAW (Digital Audio Workstation) and then play it back to control CV parameters in the Eurorack system. This is useful for creating evolving sequences or automated parameter changes.

# Connecting the Module

## Connecting Power

Your Eurorack synthesizer module comes equipped with a 16-pin keyed connector for power supply.

To connect the module:

1. Power Off Your System: Before connecting the module, ensure that your Eurorack case and power supply are turned off.
2. Locate the Power Connection on Your Case: Identify the power headers on your Eurorack case. These headers will also have a 16-pin connector.
3. Use the supplied ribbon cable to connect the module to your Eurorack power supply. The red mark on the ribbon cable identifies the -12V supply line. On the module, the red mark points towards the bottom on the module.

4. Secure the Module: Once connected, mount your module into the case using the appropriate screws, ensuring it is securely in place.

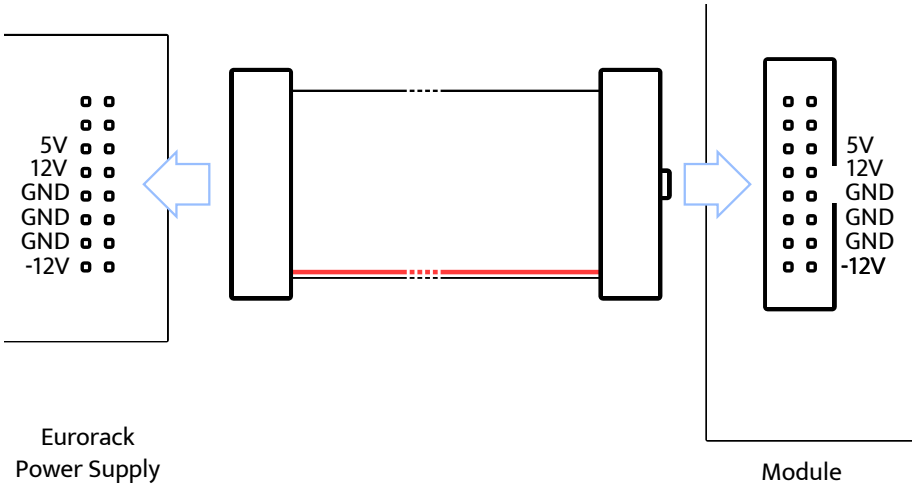



**Figure 1:** Connecting Power

Only use proper Eurorack power supplies with voltages of -12V, +12V and +5V.

### Connecting MIDI

To connect a device with a 5-pin DIN connector to the module, you need a MIDI DIN-to-TRS adapter. The TRS jacks on the module use the A pinout that is now included in the official MIDI standard.

To be able to send MIDI data to the module, connect the MIDI Out or MIDI Thru port of your MIDI keyboard, audio interface or similar, to the MIDI In jack of the module.

## Using the Module

### Configuring the CC Message for an Output

- Press the Select button to cycle through the outputs. Press the button repeatedly until the indicator for the desired output is blinking.

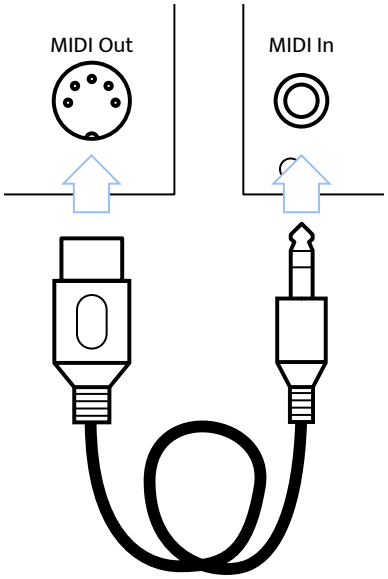



**Figure 2:** Connecting MIDI

- Press the Learn button. The indicators for both the output and for Learn are blinking.
- Move or modify the MIDI controller you want to assign to that output.
- The output indicators will play an animation to indicate the new assignment.

## Configuring the Output Voltage Range

- Press the Select button to cycle through the outputs. Press the button repeatedly until the indicator for the desired output is blinking.
- Press the Voltage button to select the voltage range.

## Factory Reset

This feature was introduced with firmware version 1.2.

To remove all assignments and output voltage configurations, follow these steps:

- Make sure no output is currently selected, i.e. there is no blinking LED.
- Press and hold the Learn button. After approximately three seconds, an animation will play on the output indicators.
- The factory reset is complete.

# Updating the Firmware

The firmware of the module can be updated by sending MIDI SysEx messages.

## Entering Update Mode

1. Disable power to the module
2. Press and hold the Select and Learn buttons
3. Enable power to the module
4. The letter F on the display indicates that the module is in firmware update mode

## Transfer New Firmware

Connect a MIDI cable from a PC-MIDI interface to the module. Now send the firmware file in .syx format from your PC to the module. You can disable any delays between messages for faster transfer.

Some low-cost USB-to-MIDI adapters do not properly support SysEx messages, in particular those based on the CH345 chip.

**Table 1:** Recommendations for Software that can be used for sending SysEx files.

| Operating System | Software | Where to Get |
|---|---|---|
| macOS | SysEx Librarian | https://www.snoize.com/sysexlibrarian/ |
| Linux Command Line | `amidi` | `alsa-utils` package |
| Windows | MIDI SysEx Transfer Utility | https://apps.microsoft.com/detail/9pfd4ddwgktn |

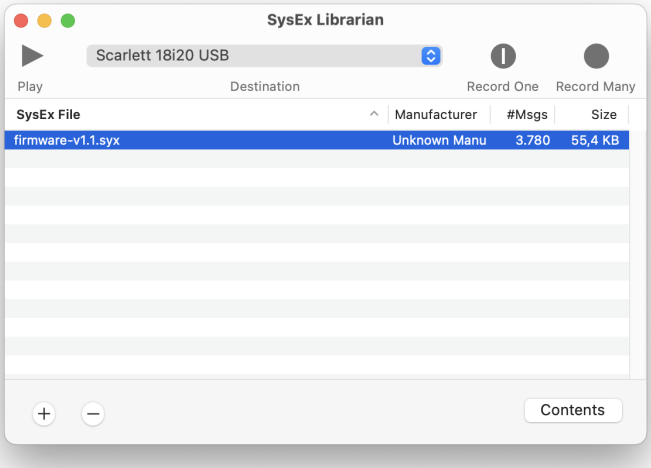



**Figure 3:** SysEx Librarian

### SysEx Librarian

Follow these steps to transmit a new firmware file to the module using SysEx Librarian:

- Add the firmware file to the list of SysEx files in SysEx Librarian.
- Select your MIDI interface in the drop-down menu at the top.
- To speed up the transfer, go to "Settings" under the "SysEx Librarian" menu and set the pause between messages to 0 milliseconds.
- Press the "Play" button in the top left.
- Wait until the file was fully transferred.

### `amidi`

Follow these step to transmit a new firmware file to the module using `amidi` on Linux:

- Open a terminal.
- Type `amidi --list-devices` to get a list of your MIDI devices. Note the descriptor in the "Device" column.
- Type `amidi --send=/path/to/firmware-v1.1.syx --port=hw:1,0,0`, where the argument to `--send` is the path to the firmware file, and `--port` is the MIDI device descriptor from the previous step.

- Wait until the file was fully transferred.

### MIDI SysEx Transfer Utility

Follow these step to transmit a new firmware file to the module using MIDI SysEx Transfer Utility on Windows:

- Select your MIDI interface in the drop-down menu labelled “MIDI Output Port”.
- Press the button “Pick SysEx File to Send” and choose the downloaded firmware file.
- In the field “Transfer Delay”, enter 0.
- Press “Validate and Send SysEx”
- Wait until the file was fully transferred.