CeeS installation manual

for Yamaha CS30

Introduction

This guide shows how to install the Tubbutec CeeS upgrade in a Yamaha CS30 synthesizer. It is a relatively easy install, but basic soldering and metal working skills are necessary. You will need to solder 20 castellated pins with 2.54mm pitch and 8 wires. You will also need to drill 6 holes in order to install the MIDI sockets.

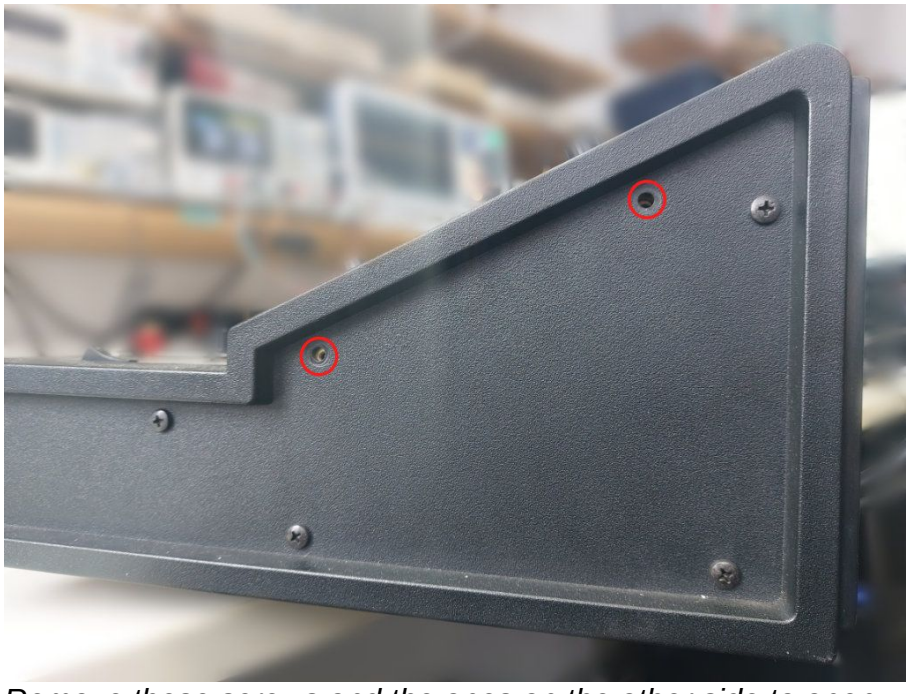
Tubbutec does not take any responsibility for damage caused by an improper installation.

Tools needed

- Screw driver
- Soldering iron
- Center punch
- Metal drill: 3.2mm – 3.5mm (1/8'' should work fine)
- Stepping drill to create 14mm or 15mm (9/16'' or 19/32'') holes
- Cable ties

Opening the synth

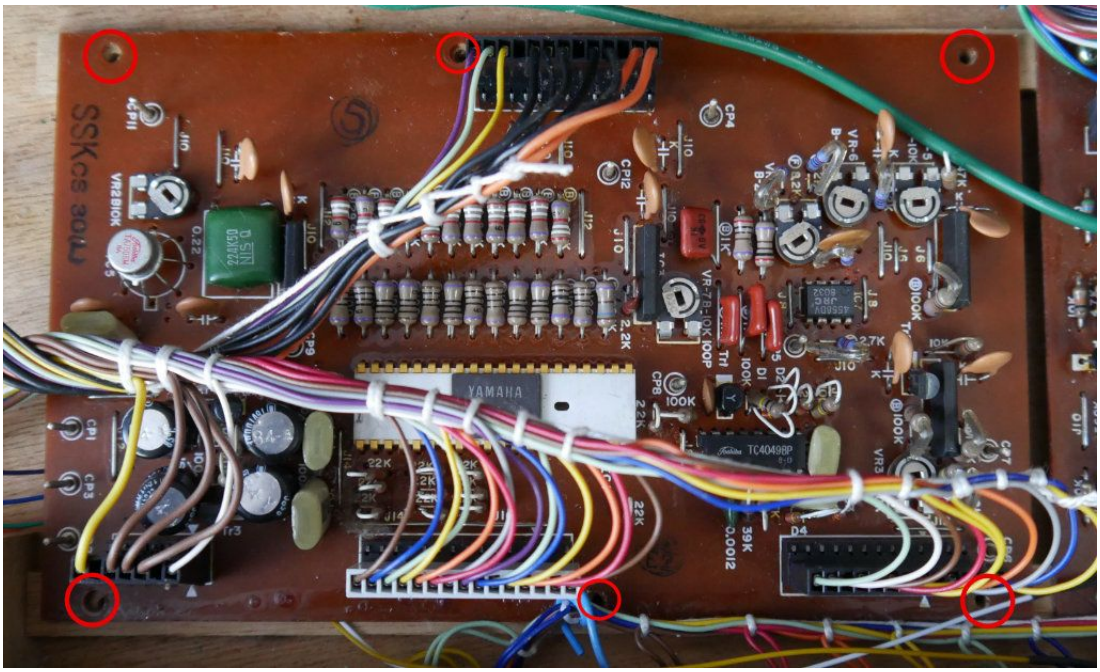
Remove the 4 screws on the side panels as shown. You can now open the front panel of the CS30.



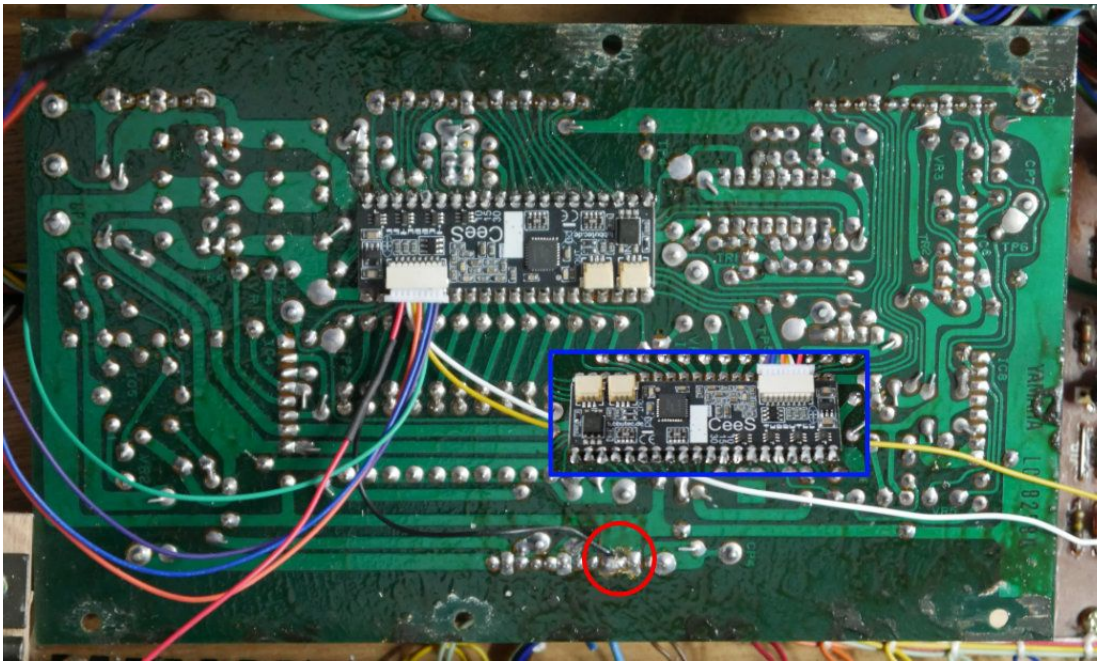
Remove these screws and the ones on the other side to open the front panel

Installing the CeeS board

Remove the 4 screws of the SSK board in order to access rear side of it.
You can now solder the CeeS board in place below the key assigner IC as shown. Note the correct orientation.
Plug in the 8 pin connector and solder the black wire. This is the GND connection.



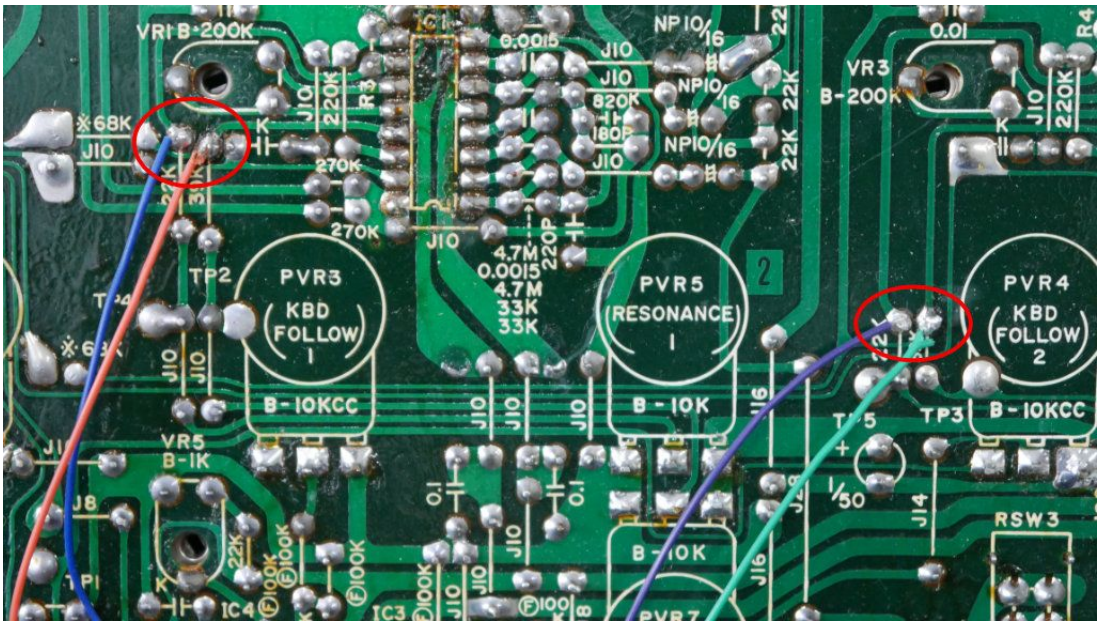
Remove these 4 screws of the CS30 key assigner board



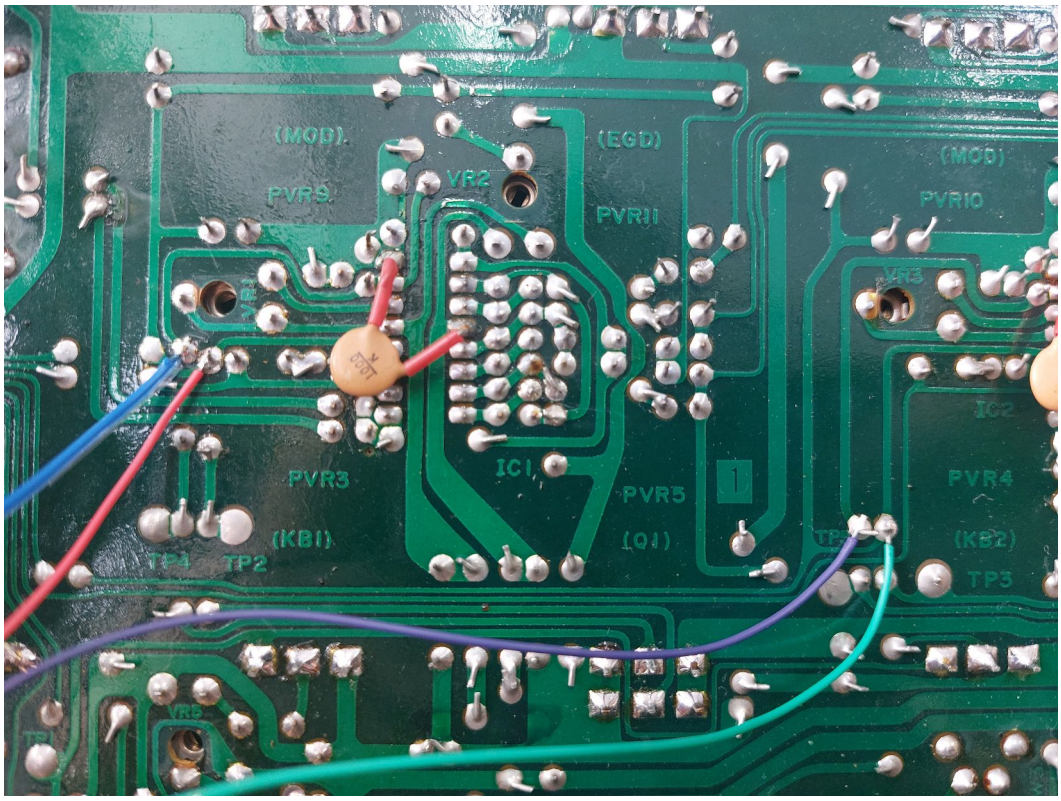
The soldered CeeS board and the black wire soldering point

Soldering the filter wires

In order to get control of filter cutoff and resonance, four wires need to be soldered to the back of the filter board. Solder the blue, orange, purple and green wires to the points shown in the picture below.



Soldering points for the filter control wires, board version 2



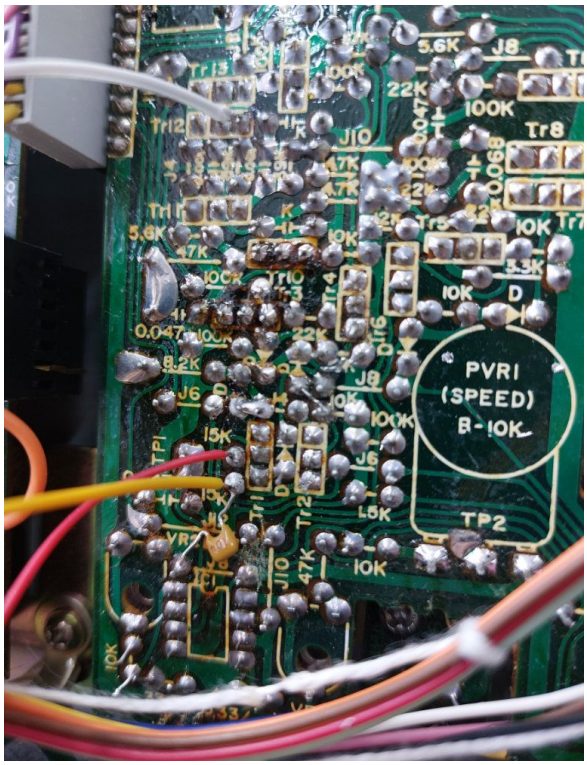
Soldering points for the filter control wires, board version 1

Soldering the sequencer wires

In order to get control of the sequencer section, three wires need to be soldered to the back of the sequencer board:
Yellow for the clock signal
White for the start/stop signal
Red to control the sequencer LED

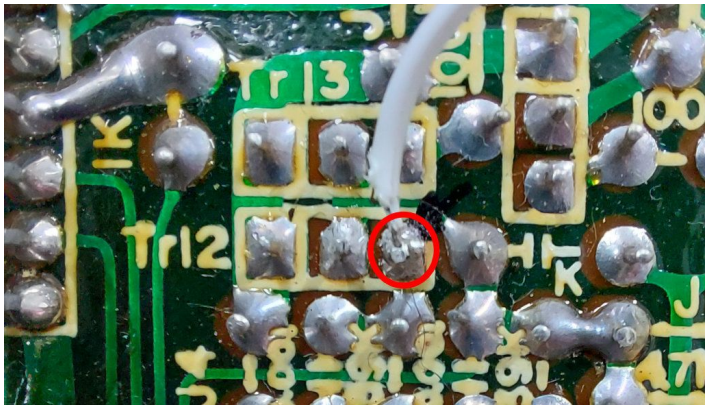
Furthermore, it is necessary, to bridge two pins with a small bit of wire or a blob of solder and solder a 100nF capacitor between the yellow wire and GND.

There appear to be two board versions. This is what appears to be board version 2.



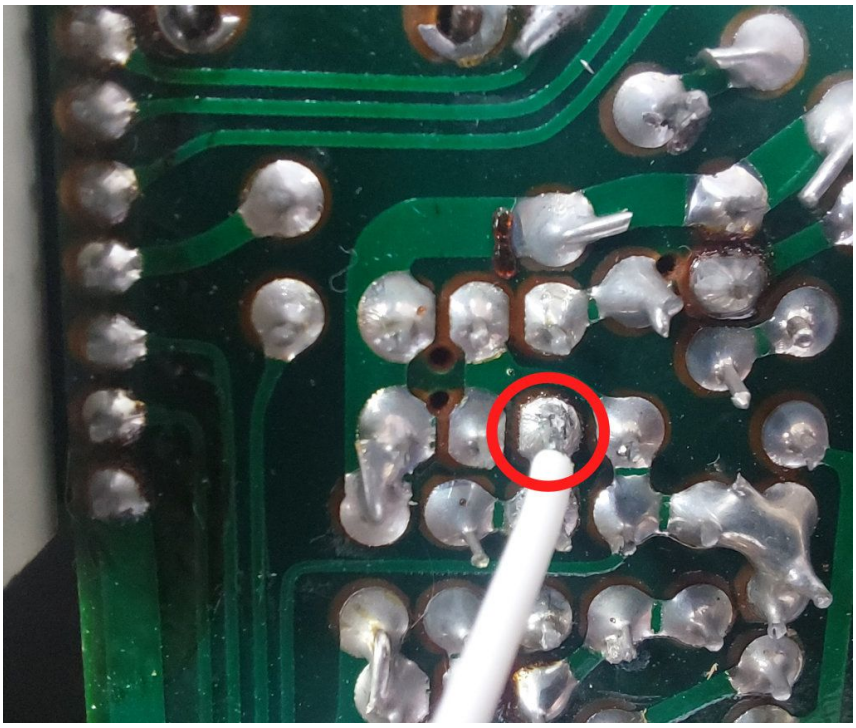
Overview of sequencer board and wires

Detail showing the solder points for the red and yellow wires, the 100nF capacitor and the solder bridge

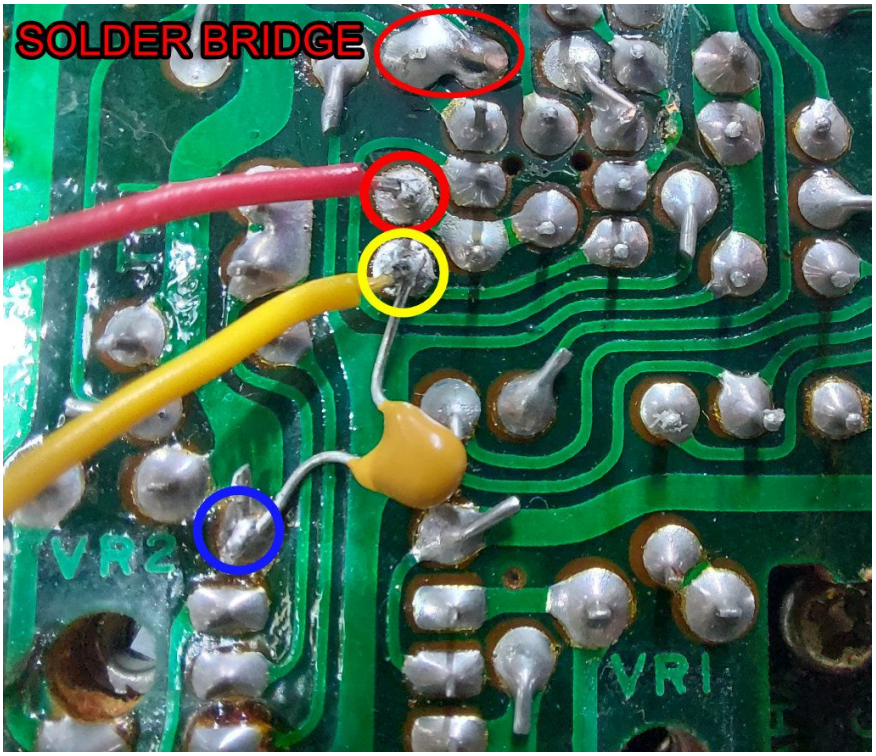


Solder location of the white wire

There appear to be multiple board versions. Here are the points for what we assume is board version 1:



Solder location of the white wire

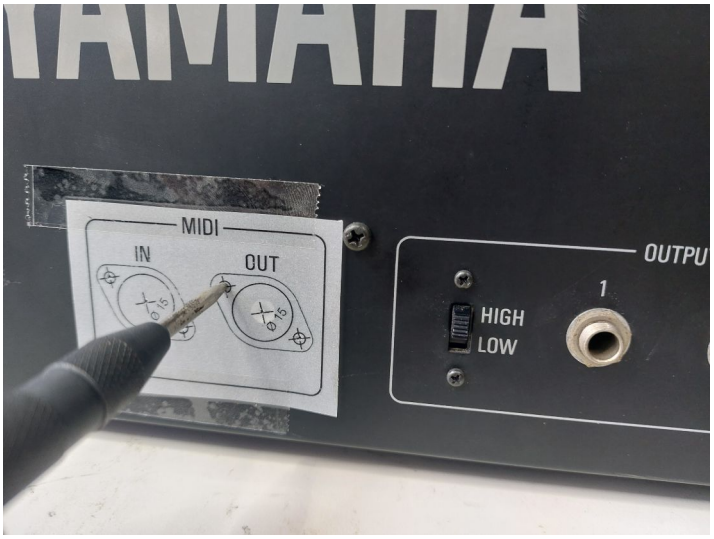


Detail showing the solder points for the red and yellow wires, the 100nF capacitor and the solder bridge

Installing the MIDI sockets

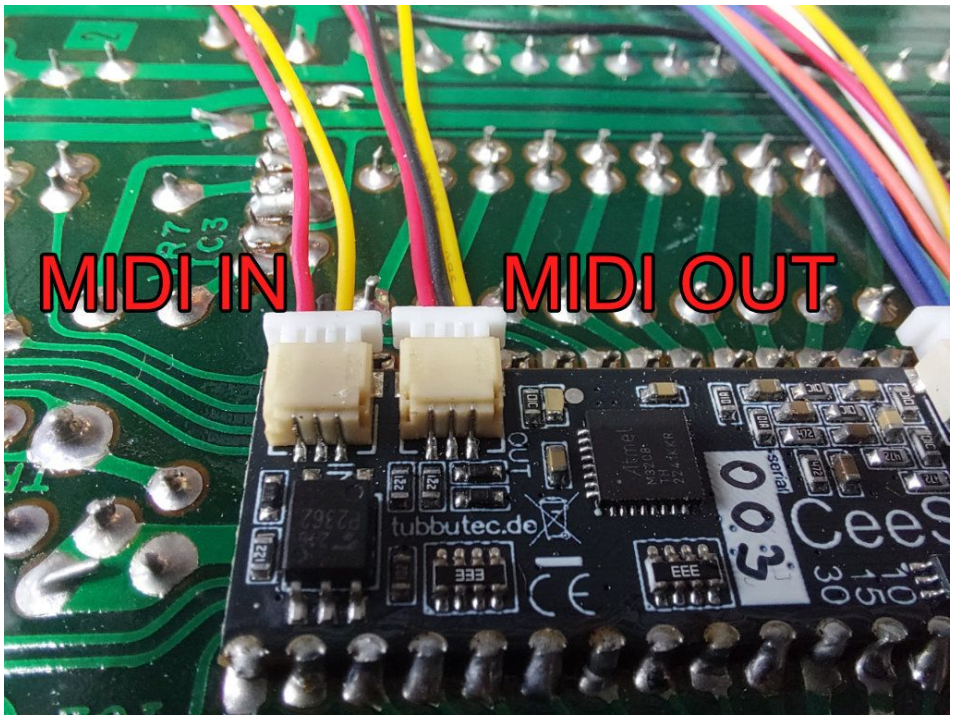
At a location of your choice, put the provided drill aid on the back of the CS30 and fix it with some tape.
The picture below shows a possible location.
When deciding the location, just make sure there is space behind the panels for the sockets.

Next, use a center punch to mark the location of the holes. Drill the 4x 3.5mm holes and the 2x 15mm holes. For the 15mm holes you can use a stepping drill, a 15mm drill, or a punch and die system.



Carefully put the overlay sticker at the correct location.

Finally, mount the MIDI sockets with the bolts and nuts provided, and connect them to the CeeS board. The MIDI socket with two wires is the MIDI in socket, the one with three wires is MIDI out. **Make sure not to swap them.**



MIDI connections. Note the 2-wire connector on the left and the 3 wire connector on the right

The installed MIDI sockets and overlay

Testing

The CeeS boards are of course fully tested by us. However, it is advised to test all functions after installation to rule out any installation errors.

After the installation turn on the CS30. A small red LED on the CeeS board should light up and the synthesizer work normally.

MIDI input test

Connect a MIDI keyboard or computer to the MIDI-IN socket. When sending notes in the correct range on MIDI channel 1, the notes should play and the red LED blink whenever notes are received.

In order to test the filter control, we recommend sending the cutoff and resonance MIDI CC messages from a DAW or MIDI controller:
Cutoff filter 1: CC #16
Cutoff filter 2: CC #17
Resonance filter 1: CC #18
Resonance filter 2: CC #19

In order to test the sequencer MIDI control, first make sure the sequencer is working normally. Then, using the CeeS configuration menu (see user guide) switch the sequencer control to MIDI clock.
Send a MIDI clock including a START message to CeeS. The sequencer should start running and the clock LED should blink.

MIDI output test

Connect a synthesizer or computer to the MIDI-out socket. Pressing keys on the CS30 keyboard should result in MIDI notes being sent.