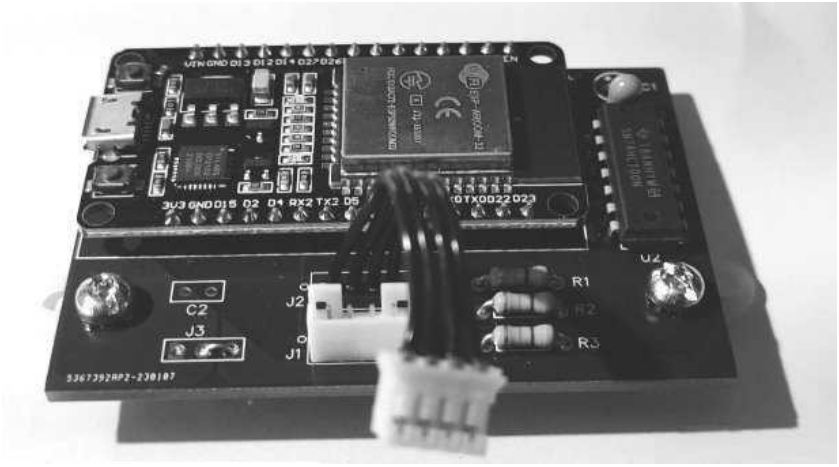



# Wino2 user manual

# Contents



**Document versions**

| | | |
|---|---|---|
| Version 2.0 | 27/09/2025 | Adapted to Wino2 v.2 = optional add-on to UnO2 v2 firmware |
| Version 1.0 | 31/07/2023 | Initial release |

# Introduction: what is Wino2 ?

In short : *Wino2* is the acronym for "*WIFI-enabled UnO2*"

Some time ago we created the UnO2 firmware, which was not an extension of the UnO firmware, but rather a spin-off of the TinyBox hardware ( https://www.tinybox.rocks/ ). Instead of the rigid 10x10 preset stucture, with up to 8 messages per preset, a TinyBox setup can contain any number of "presets", "stompboxes" or "triggers", organized in a fully flexible bank structure, and each preset can contain any number of MIDI messages, sent on any of the 16 MIDI channels. UnO2 firmware took that same approach, be it without the extended setup memory space of the TinyBox hardware.

Now we decided to bring some more TinyBox functionality to the UnO2 equipped FCB1010. By installing the Wino2 module inside the FCB1010, you can make the floorboard WIFI enabled. This allows you to wirelessly connect your laptop or iPad to the FCB1010 and view live status info of your MIDI controller using the browser: current bank, selected preset, activated effects, etc.

The built-in webserver also hosts an identical copy of the UnO2 ControlCenter editor software, which you can use to store and compile your UnO2 setup directly on the FCB1010. Making the FCB1010 WIFI enabled finally removes one of the big hurdles in programming the FCB1010: no more need for a MIDI-USB interface to connect the FCB1010 to your laptop. Many cheap interfaces unfortunately turn out to be incompatible with the FCB1010. So far the only solution was to purchase a more expensive MIDI-USB interface with dedicated drivers and large enough data buffers. The Wino2 module eliminates that requirement – instead of spending your money on a compatible MIDI-USB interface you can purchase a Wino2 module which offers the interesting extra functionality of a live status display and more.

Being WIFI enabled allowed to add a nice extra feature: you can send or receive MIDI to or from your laptop or iPad over WIFI, using a protocol called "RTP MIDI" or "AppleMIDI".

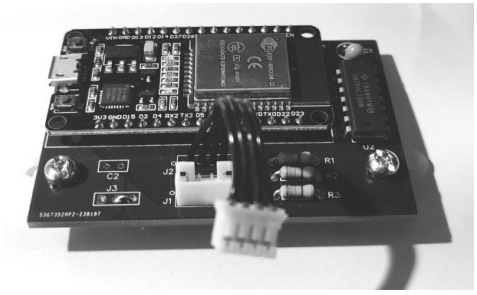
Read on to learn all details about Wino2.

# IMPORTANT prerequisite :

Please be aware that the Wino2 module requires the use of **UnO2 v.2.0** (or higher) firmware. Earlier versions don't contain the necessary communication with the Wino2 module to report switch presses or effect activations. Wino2 needs that info to be able to show a live status screen.

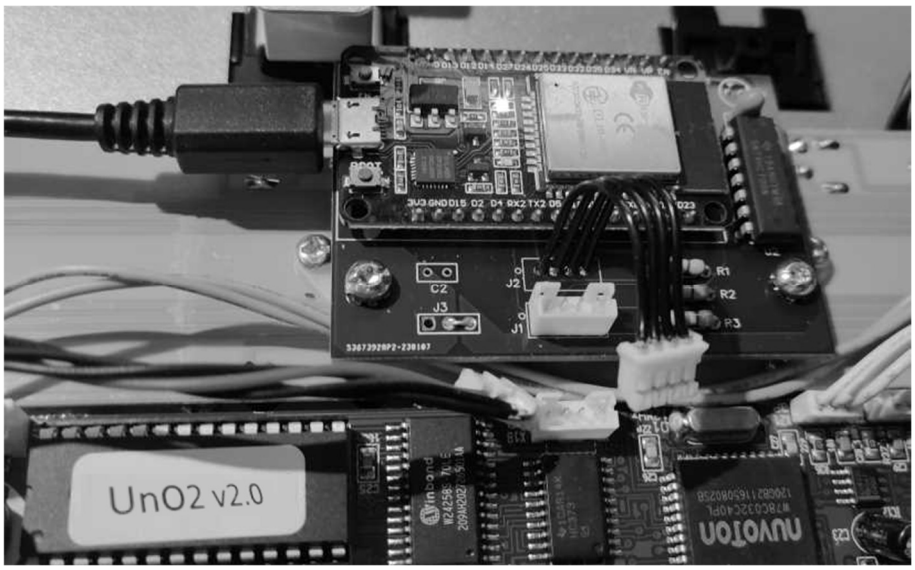
( this remark only concerns the current "version 2" Wino2 module, released September 2025. The initial "version 1" Wino2 module was delivered with its own dedicated Wino2 firmware, and is not compatible with UnO2 firmware )

# The Wino2 module



The wireless connection provided by this module replaces the 2-way MIDI connection required so far to program the FCB1010. Moreover this module also contains the UnO2ControlCenter application, adapted to run in a browser window. No more need for any software installation to program your floorboard.

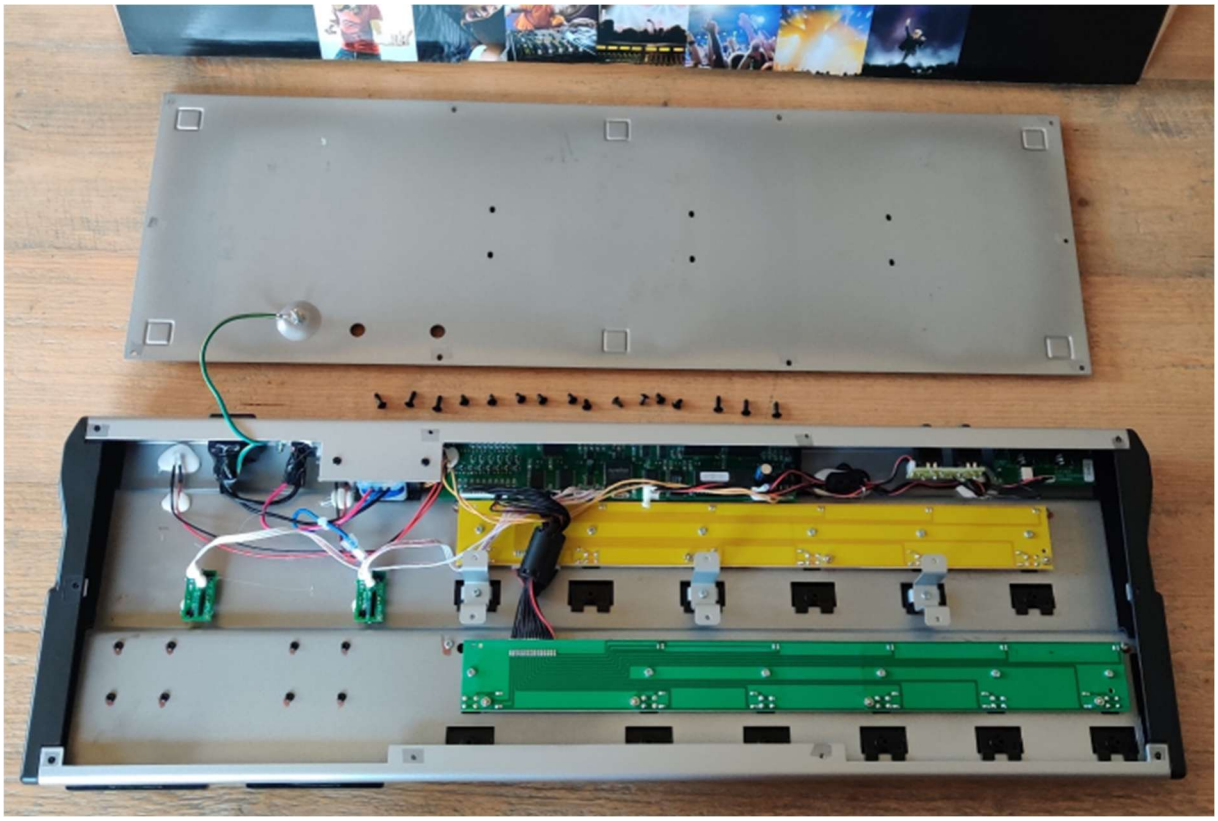
Installing the module is very simple. No soldering required, all you need is a screwdriver!



# Getting started

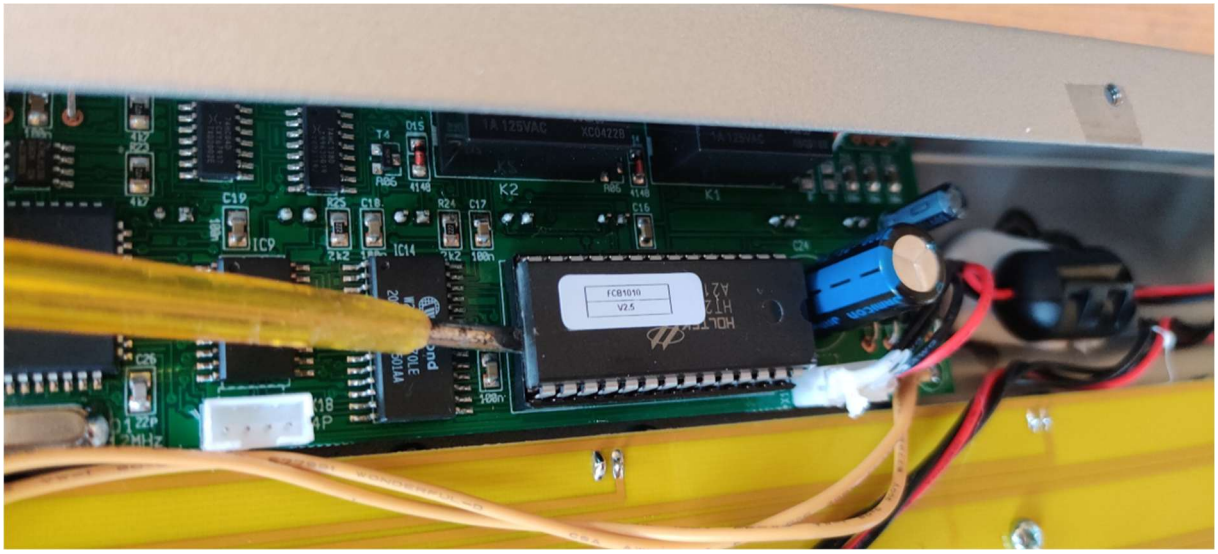
## 1. Open up the FCB1010


Turn the FCB1010 upside down, remove 16 screws to open the housing, lay the bottom plate next to the housing (leave the ground wire connected)



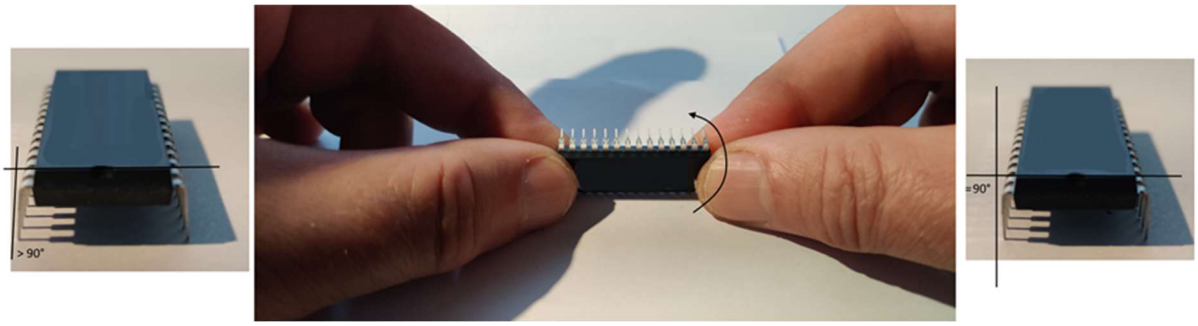
## 2. If not done already : install the UnO2 chip

Remove the original firmware chip from the socket on the main board. If necessary remove all hot melt adhesive which might be applied to the chip. You can use a small screwdriver to lift the chip out of the socket without bending the chip legs.




Store the original chip in a safe place, you might want to have it available if you would ever sell your FCB1010.

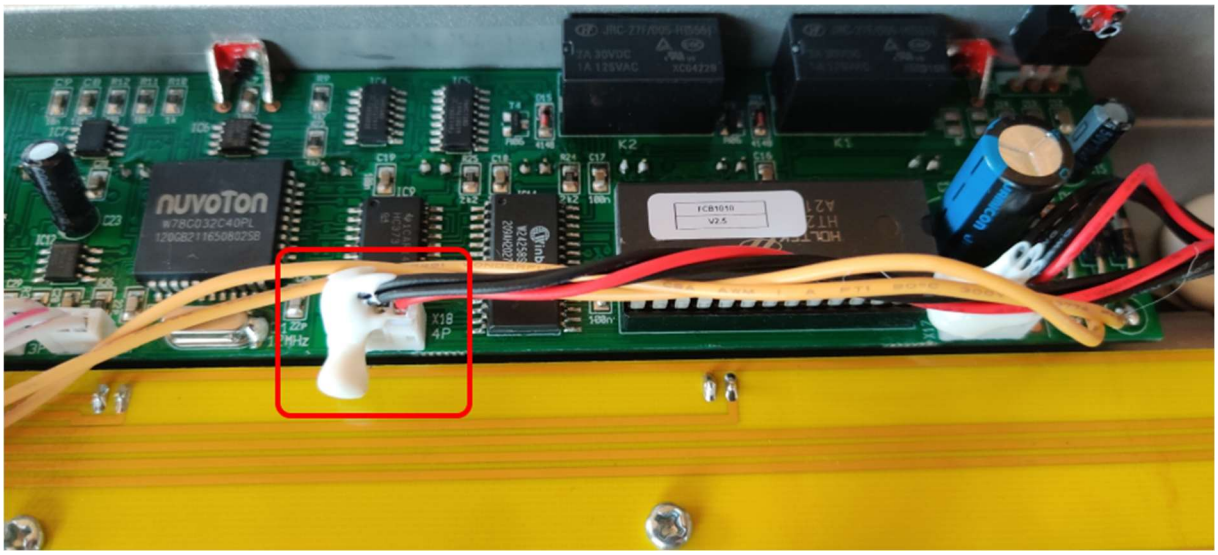
Before inserting the UnO2 chip, make sure the chip legs are perfectly perpendicular to the chip body. You can do that by slightly rotating the chip on a flat surface as follows :



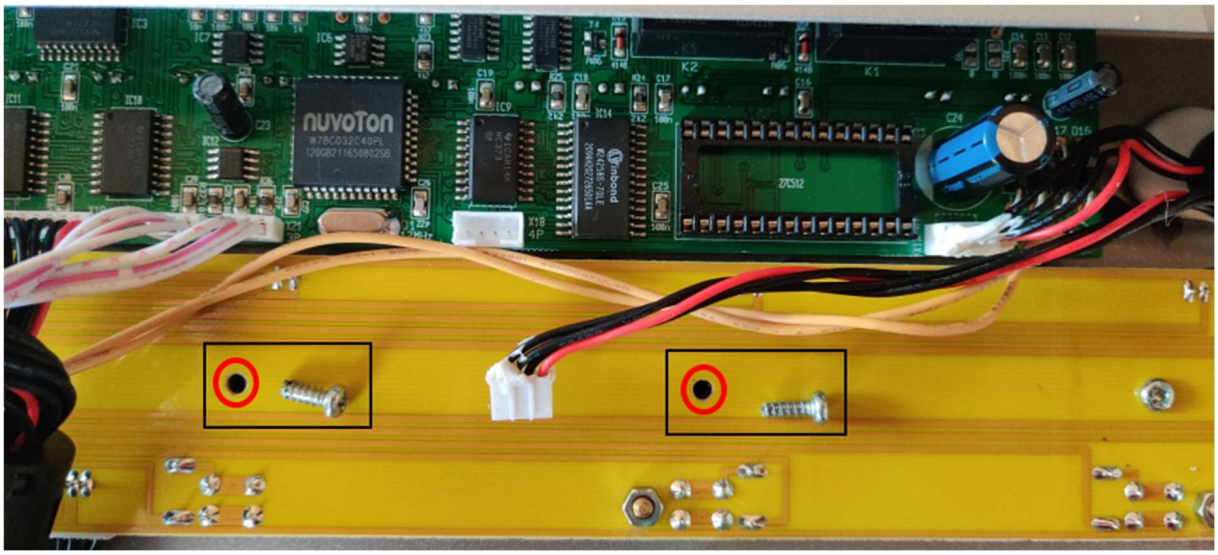

Place the UnO2 chip in the socket using the same orientation: the notch on one side of the EPROM must match the notch on the EPROM socket. Be careful not to press too hard, and pay attention not to bend any of the EPROM pins during insertion.

## 3. Install the Wino2 WIFI module

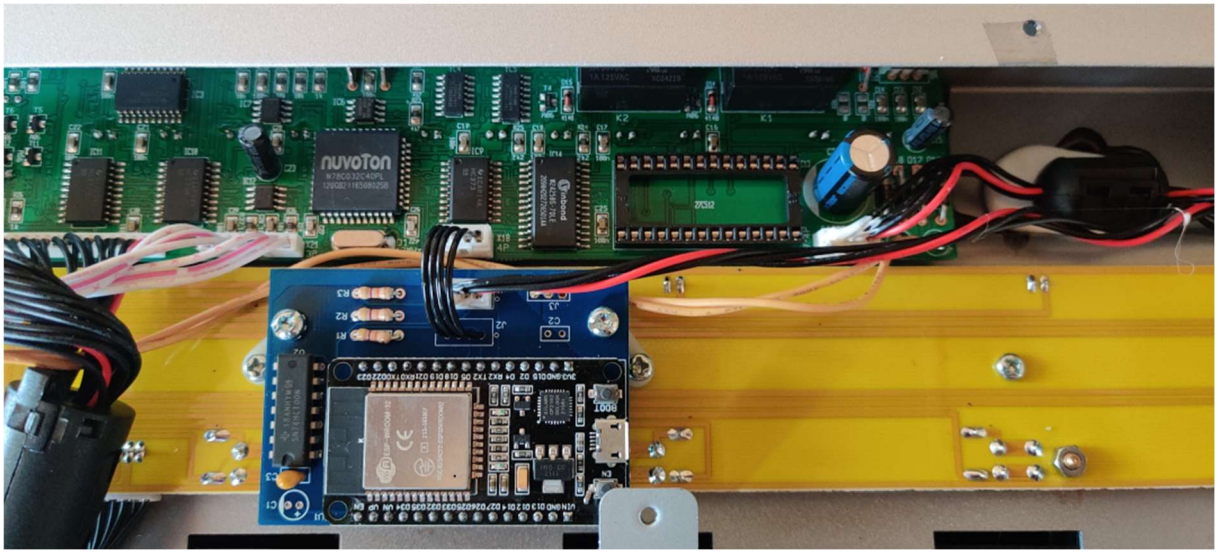
On the FCB1010 main board, unplug the red/black wire unit with 4 leads, which is running from the small MIDI connector board to the main board. Before you can do so it may be necessary to (carefully!) remove applied hot melt adhesive. Never pull the wires, you might pull them out of the connector housing. Instead remove all hot glue and wiggle the connector itself until it loosens from the main board.



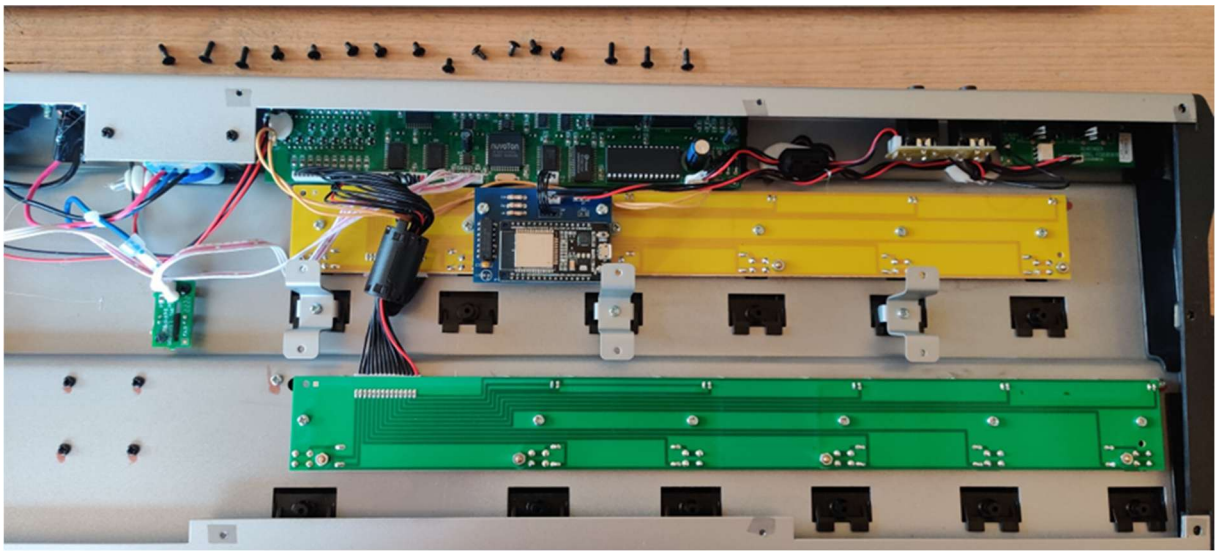

Remove following 2 screws which hold the FCB1010 switch board :



Reuse the 2 screws to mount the WIFI module. The module orientation is so that the 4-pins connector is close to the now empty 4-pins connector on the FCB1010 main board. Plug the large red/black wire into the connector of the WIFI module, and plug the short wire unit of the WIFI module into the 4-pins connector of the main board :




The FCB1010 inside now looks like this :

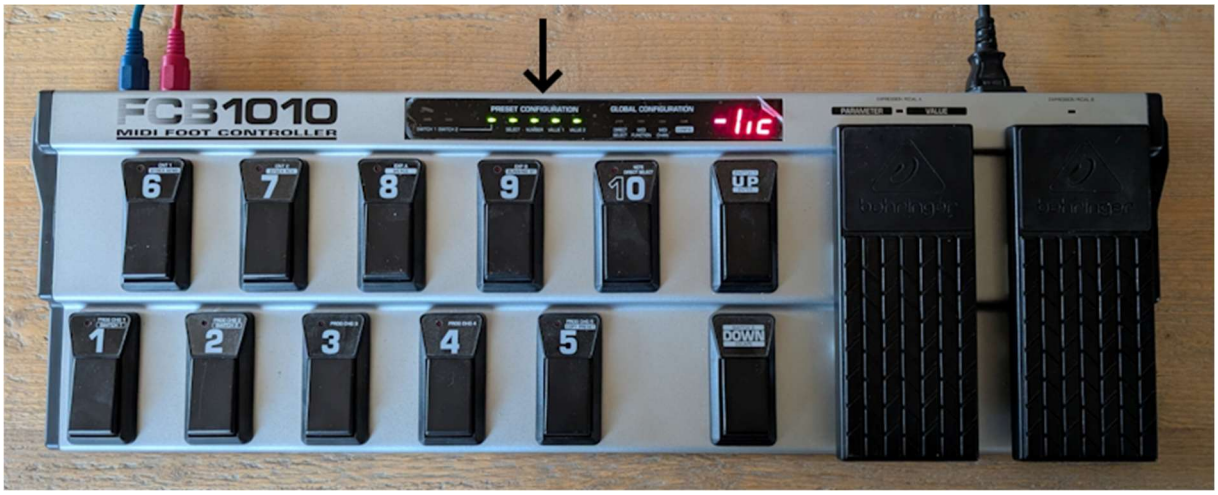


Before closing the FCB1010 housing again using the 16 screws, you can check if the modification was done correctly. Power up the FCB1010, the display should show “-lic” if the UnO2 firmware was just installed. If you have been using the UnO2 firmware already, the display will show the same startup sequence as before: “---” for a short time, followed by the bank number (“01” if a setup is loaded, “00” in case of an empty setup)

If “-lic” is displayed, the UnO2 firmware still needs to be registered. This is done in a later step of this tutorial.

## 4. Initialize the firmware for use with the Wino2 module

Now you can activate the communication between UnO2 firmware chip and Wino2 WIFI module by power cycling the floorboard and keeping switches 1 and 9 pressed during power up. The activated "Wino2 mode" is indicated by a row of green LEDs lighting up on the FCB1010:



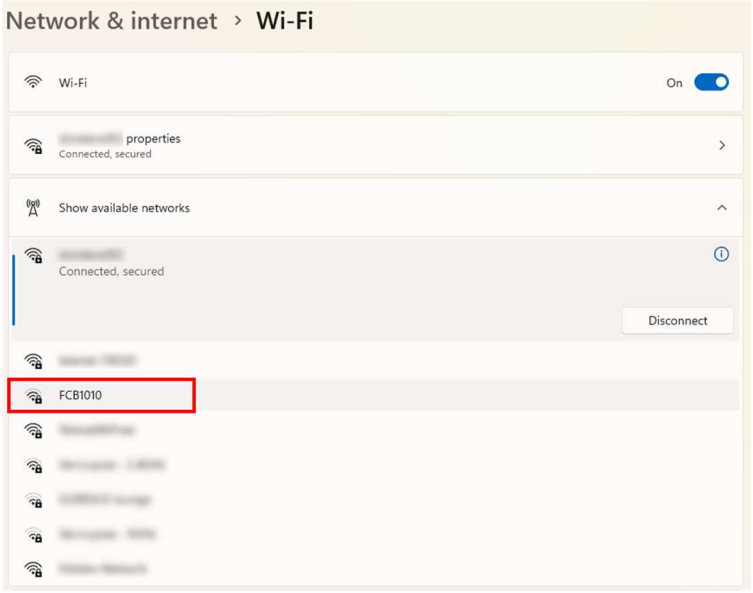

Whenever you would decide to remove the Wino2 module, you can do the same 1+9 footswitch click during startup to disable the communication again. Not doing so would result in several SysEx status messages being sent to the MIDI OUT connector of the FCB1010 on each switch click. Those messages are filtered out by the Wino2 module when it is installed.

## 5. Calibrate the expression pedals

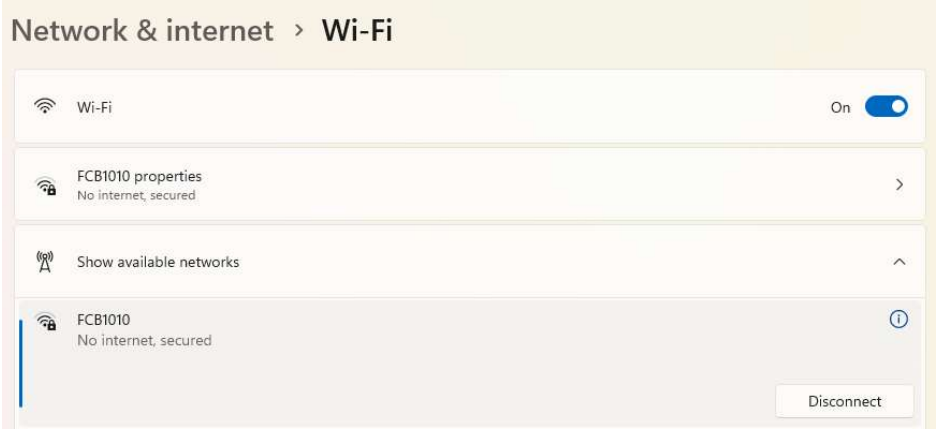
If not done already, don't forget to calibrate the FCB1010 expression pedals. Failing to do so is the most common cause for non-working expression pedals. Calibration instructions can be found in the Behringer manual or by googling "FCB1010 calibration". Keeping the 1+3 switches pressed during power-up initiates the calibration procedure. Keeping the 1+5 switches pressed during power-up initiates a full test procedure of all FCB1010 hardware components, followed by the pedal calibration.

## 6. Connect to the FCB1010 through WIFI

Use your laptop or iPad to connect to the WIFI access point which is now embedded in the FCB1010. The SSID “FCB1010” should appear in your list of available WIFI networks (sample screenshots taken from a Windows computer) :




Select the access point with SSID **FCB1010** , and fill in the password, which is **FCB_Wino**

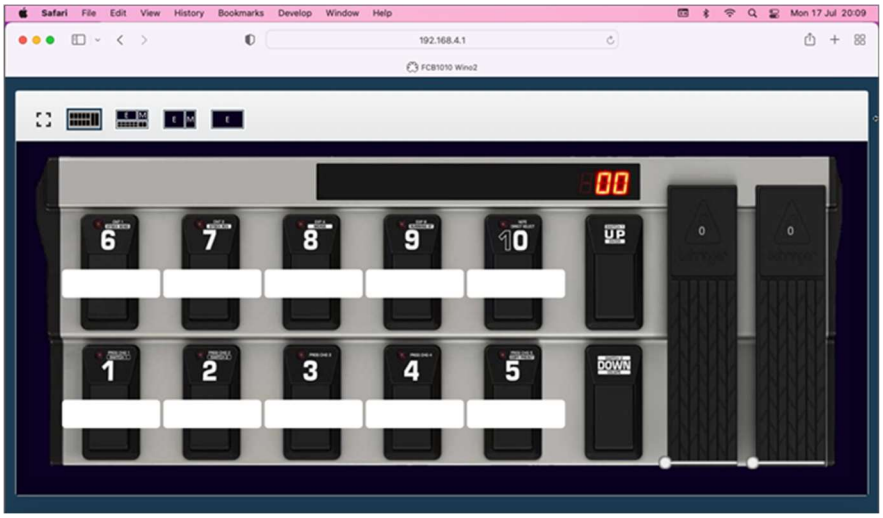



*Remark :*

Further on in this manual you will learn an alternative way of connecting to the FCB1010, using your home router instead of the embedded access point. That has the advantage of retaining your internet connection while being connected to the FCB1010. As you can see in the screenshot above no internet is available while using the embedded Wino2 access point.

## 7. Open the embedded web application

With your laptop wirelessly connected to the FCB1010 access point, you can open the embedded web application by surfing to IP address **192.168.4.1**. Preferably use Google Chrome (or a recent MS Edge browser on Windows), although Safari also works correctly on MacOS.

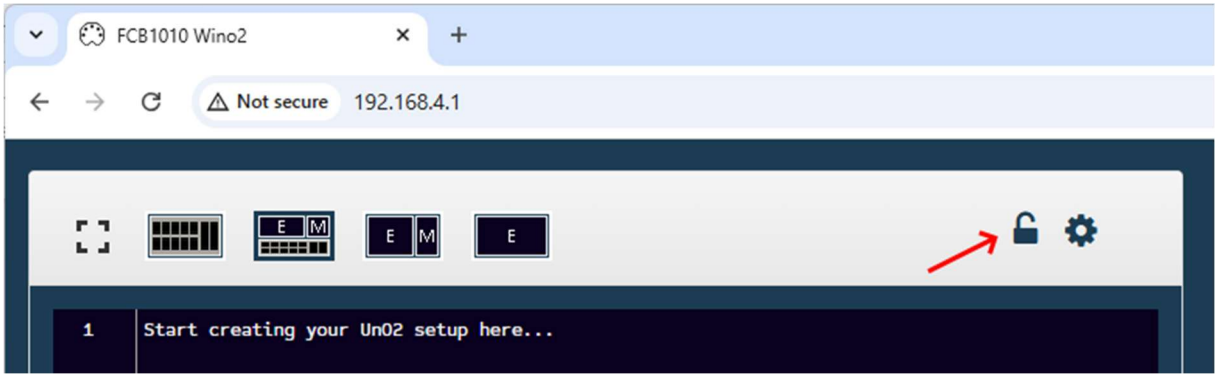

If at first you see some weird, scrambled web page, don't worry. Press the Refresh button or close the browser tab and open a new one. The embedded WIFI access point is not as strong as a dedicated router, so the initial page loading can take some time or require a refresh to get all script and stylesheet files downloaded. After the initial page load, things will run much smoother since the browser caches the downloaded files, and status updates or setup edits no longer require any extra file downloads.

## 8. Register the UnO2 firmware (if not already done)

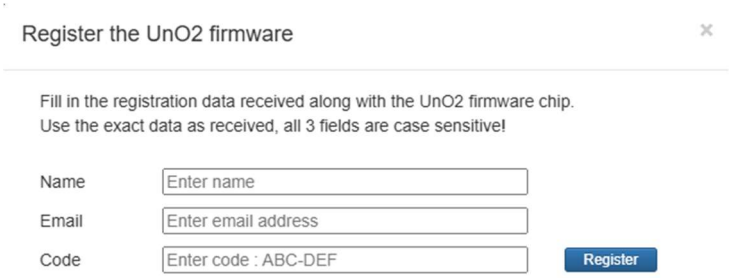
If you have been using the UnO2 firmware before, you are ready to go. If not, the FCB1010 display shows “-lic” and you first need to register the UnO2 firmware.

Click the icon which opens the full user interface (more details about this later) 


Now click the padlock icon in the editor menu bar:




This opens the registration form where you can fill in the data which you received through email when placing the UnO2 order. The info is also printed on the cardboard box which contained the UnO2 firmware chip.




*Attention:*

- Copy-and-paste the data exactly as received, all 3 fields are case sensitive
- Make sure you run the web browser on an internet connected device, so that the application can connect to the online license server.
- Initial connection to the license server may give a timeout error. In that case, just click the Register button again.

If you can’t combine a wired Ethernet connection (for internet access) with the FCB1010 WIFI connection, you can also connect the Wino2 module to your home router, instead of connecting directly to the FCB1010 using its internal access point. More info about this a bit further in this manual, in the chapter “Connecting to the FCB1010 using your home WIFI access point”

Of course, you can also choose to register the firmware using UnO2 ControlCenter installed on your PC. This procedure is described in the UnO2 user manual.

That’s it, now you are ready to rock and roll!

Detailed info about the embedded UnO2 ControlCenter (which is identical to the version installed on a Windows or Mac PC) and the “programming language” used for creating your FCB1010 setup can be found in the UnO2 user manual.

## IMPORTANT REMARK about UnO2 ControlCenter

With the Wino2 module installed, it is important to stick to using the embedded editor and *not* the PC editor for programming the Wino2 equipped FCB1010. This is necessary because the embedded editor not only sends the compiled setup binary to the FCB1010 main board, but it also stores setup info on the Wino2 module itself. The module uses this info to show live status info (including bank, preset and effect names) in the browser. The compiled setup binary created by the PC editor doesn’t contain this info. Therefore, mixing the use of the PC editor and the embedded editor may result in status info not being correctly displayed.

More details about this can be found in the chapter “Saving and sending FCB1010 setups”.

If you have programmed the UnO2-equipped FCB1010 prior to installing the Wino2 module, simply copy-and-paste your earlier text-based setup from the PC editor to the browser-based application, and continue using this last one from now on.

# The Wino2 web application

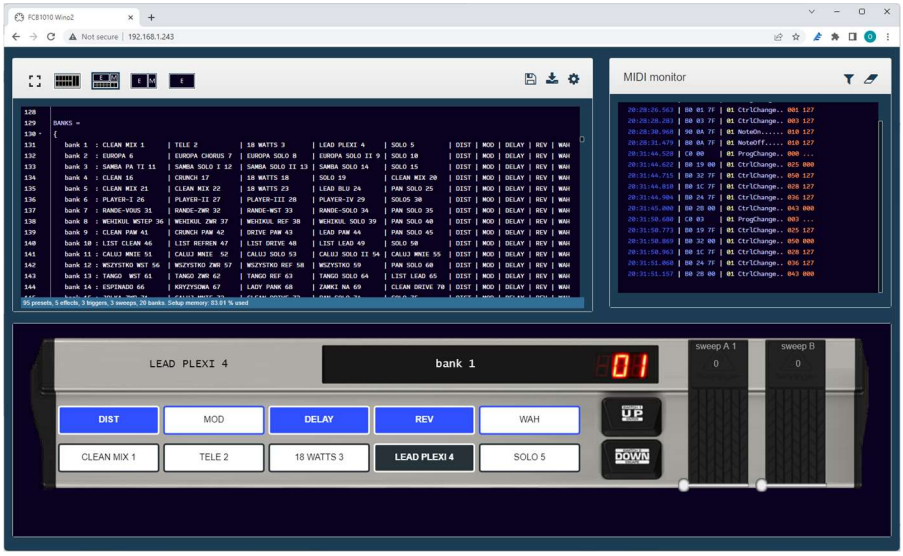
The web page shown when browsing to the FCB1010 IP address has 4 large icons in its header bar. These serve to choose the preferred combination of application views :

The first one, opened by default, is the FCB1010 status page. It shows an image of the FCB1010, with info on the currently selected bank, which presets are assigned to which switch, which effects are activated, etc. This is also a remote control for your FCB1010!

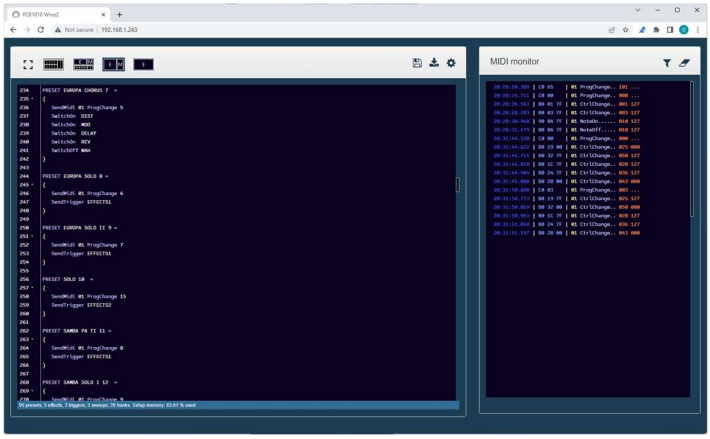

The next one shows a combination of all available windows on 1 screen :

- a shrinked status page
- an editor window containing your setup code
- a MIDI monitor window which shows all MIDI sent by the FCB1010

This screen can be useful while testing out setup changes

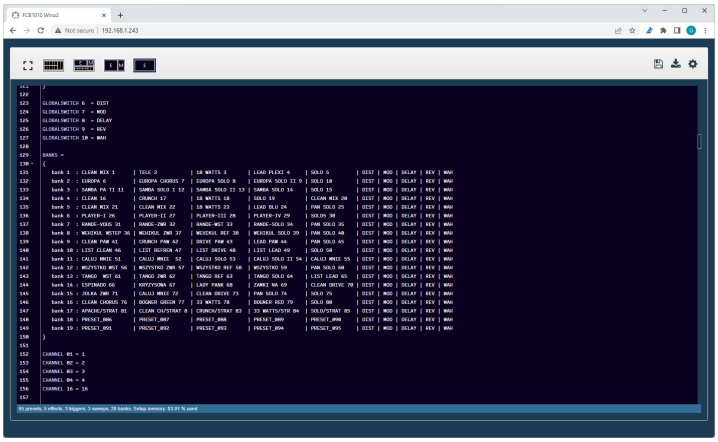



This icon selects a combination of editor window and MIDI monitor, again useful while testing setup changes. Collapsing the status page leaves more space for the editor and monitor windows

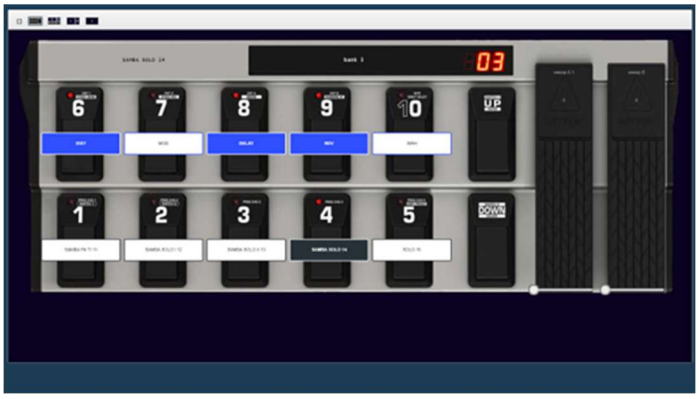




Use the full-screen editor page while creating your setup.



The icon to the left of the 4 display option buttons toggles the browser window between “fullscreen” and normal mode. Fullscreen mode will mainly be interesting for displaying the status screen during a gig, since you won’t be using your iPad or laptop for anything else at that moment.



# Global configuration

A few global configuration settings can be configured by clicking the cog icon at the right side of the header bar:

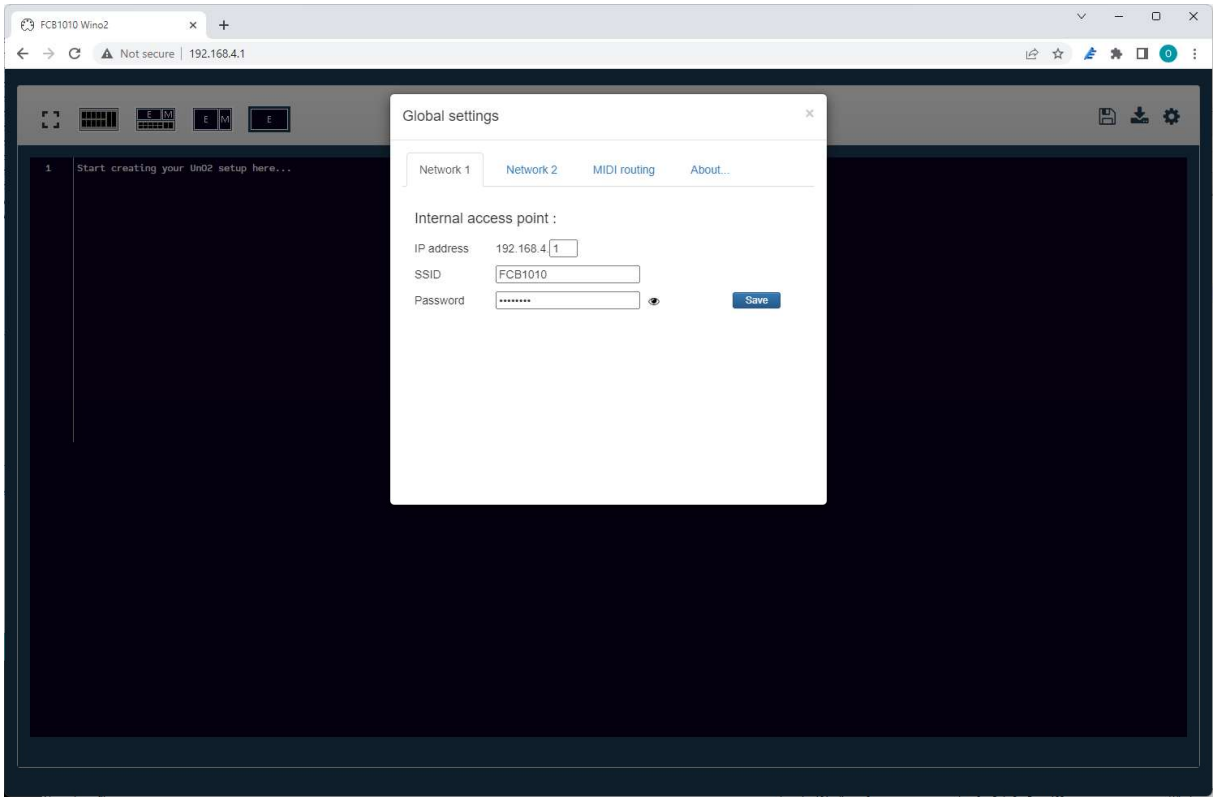

## 1. Changing the embedded access point SSID or password

The first tab of the configuration screen lets you modify the IP address of the Wino2 module (actually there is little reason to do so, but you can…) or the SSID and password of the Wino2 access point.

*Attention :* the password needs to be 8 characters minimum!

These settings can be reset at all time (for instance in case you would forget the modified password) by keeping the FCB1010 1+2 footswitches pressed during power-up. This reverts all access point settings to its defaults, which are :

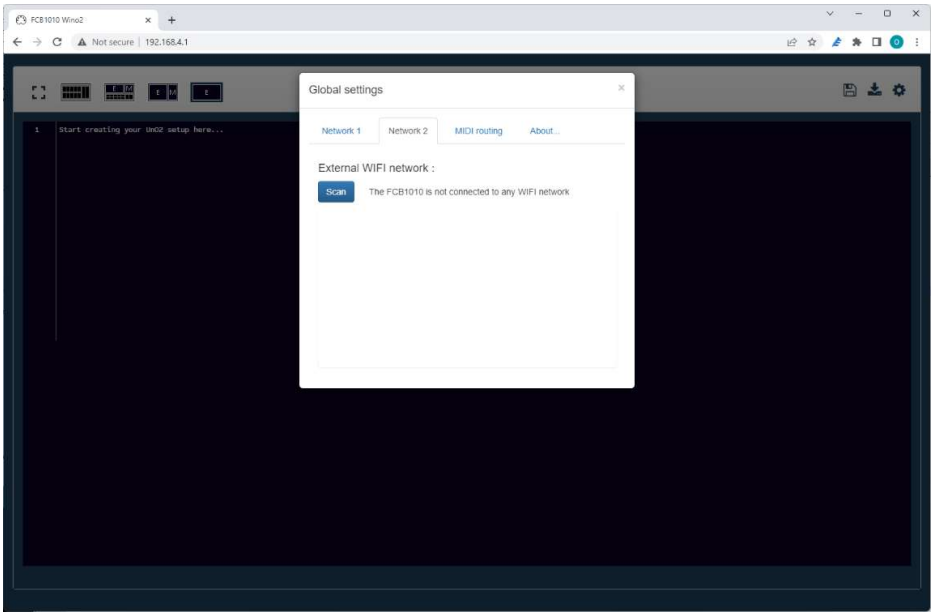
```
IP       : 192.168.4.1
SSID     : FCB1010
Password : FCB_Wino
```



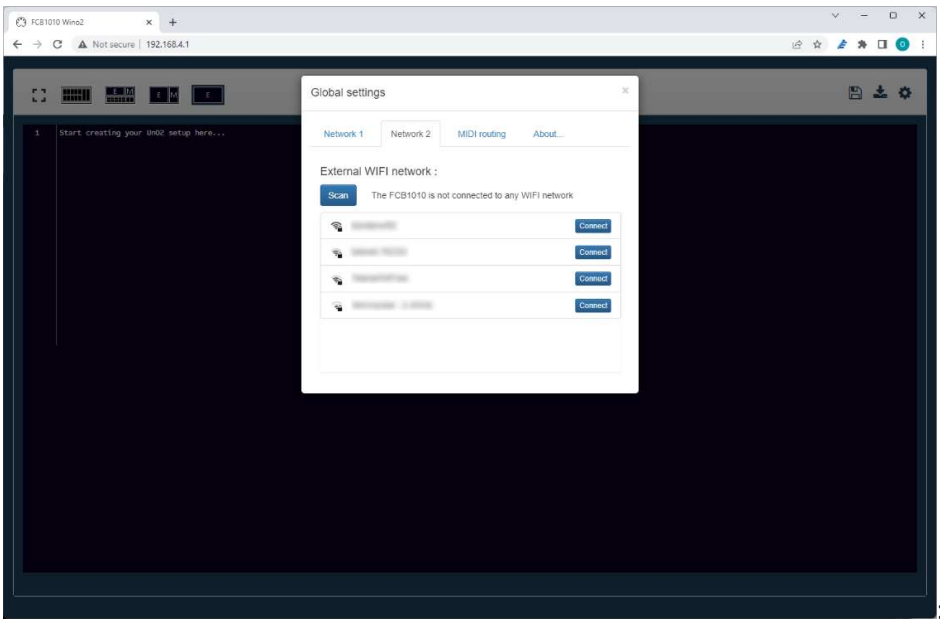
## Connecting to the FCB1010 using your home WIFI access point

The Wino2 module has an interesting extra WIFI option: next to the built-in access point, which we used so far, you can also let the Wino2 module connect to your regular WIFI access point at home. This way both your FCB1010 and your laptop can connect to the same access point, and you can reach the FCB1010 by surfing to its newly assigned IP address (see below). The major advantage of this is that your laptop doesn't lose its internet connectivity this way (provided that your WIFI access point is connected to the internet through your home router of course)

While currently still connected to the Wino2 embedded access point, click the second tab of the global settings menu, labeled "Network 2" :

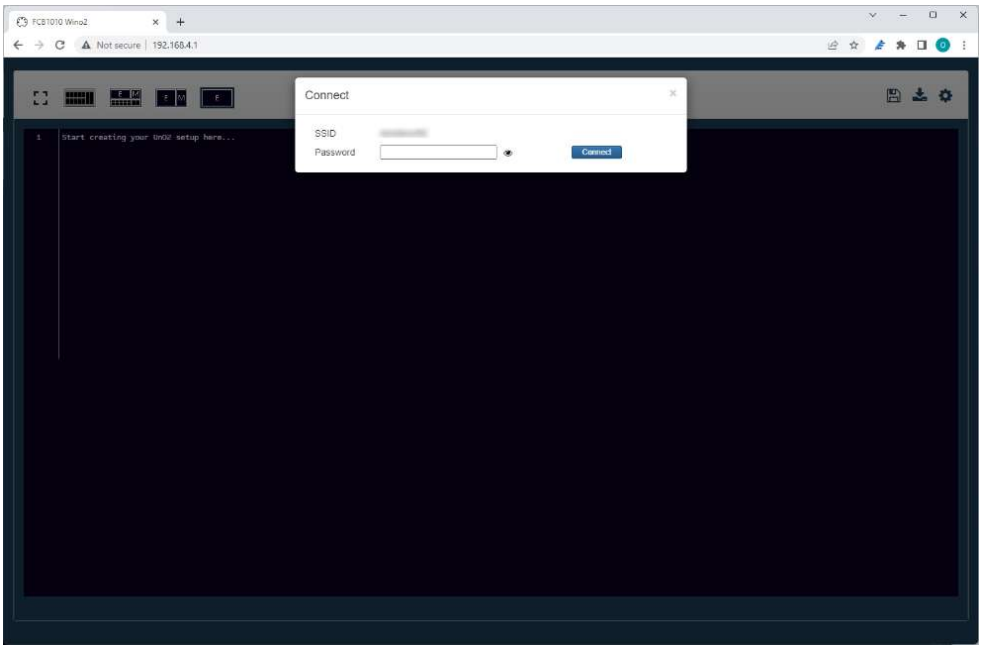



Click the "Scan" button to search for nearby WIFI access points :

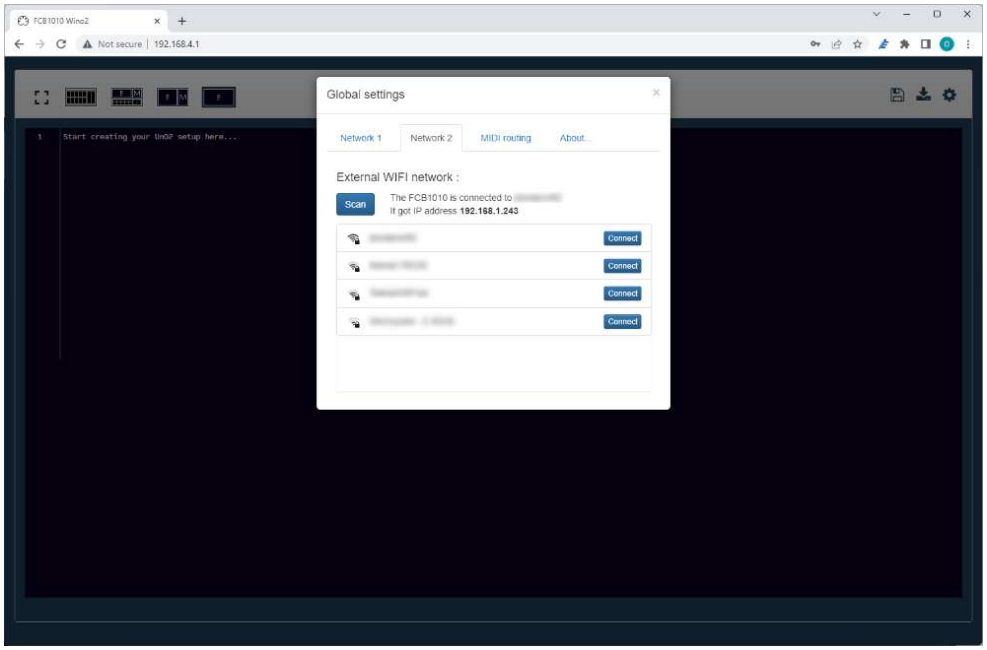



:

Then click the “Connect” button of the preferred access point, and (if required) enter its password :

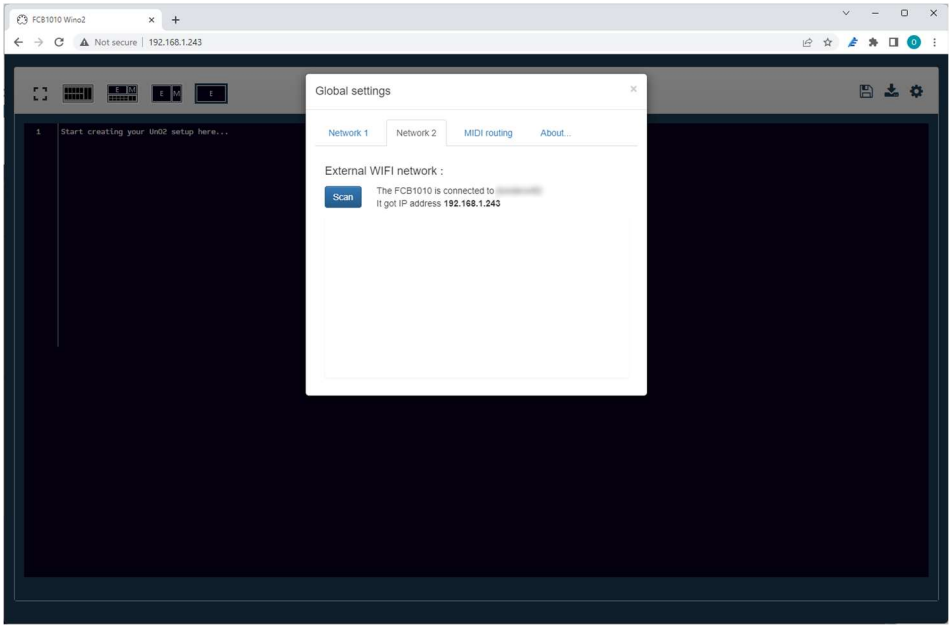



When connection succeeds, the access point will supply an IP address to the FCB1010. It is mentioned in the setup menu :




With this configuration now stored in the Wino2 module, you can disconnect your laptop from the Wino2 embedded access point, and connect to your regular home access point again. Now open your browser, and instead of entering the default Wino2 IP address 192.168.4.1, enter the IP address which was mentioned in the setup menu above. Your laptop will again connect wirelessly to the FCB1010, while maintaining its internet connection through your home router.

Pay attention to the modified IP address typed in the browser address bar in screenshot below:




For creating or editing your Wino2 setup, you will prefer to use this new WIFI configuration. It allows you to reach your FCB1010 by surfing to its assigned IP address, without changing any of your original laptop WIFI settings. On the other hand, while at a gig, you can have a live status view of your FCB1010 by connecting your iPad to the embedded Wino2 access point and surfing to 192.168.4.1. Indeed, you would not want to rely on any public access point for viewing status info during a gig.

Both connection methods (through embedded access point or via an external access point) remain simultaneously available, so after returning from a gig you can again connect through your home router without any reconfiguration required.

## 2. Sending MIDI over WIFI

Having WIFI connectivity available allows us to let the FCB1010 send wireless MIDI to a laptop, or receive wireless MIDI from a laptop and forward it to other MIDI devices through its MIDI OUT connector. No more need for an extra “WIDI” dongle!

The Wino2 module uses the “RTP-MIDI” technology for this. More info about this MIDI standard can be found on following links :

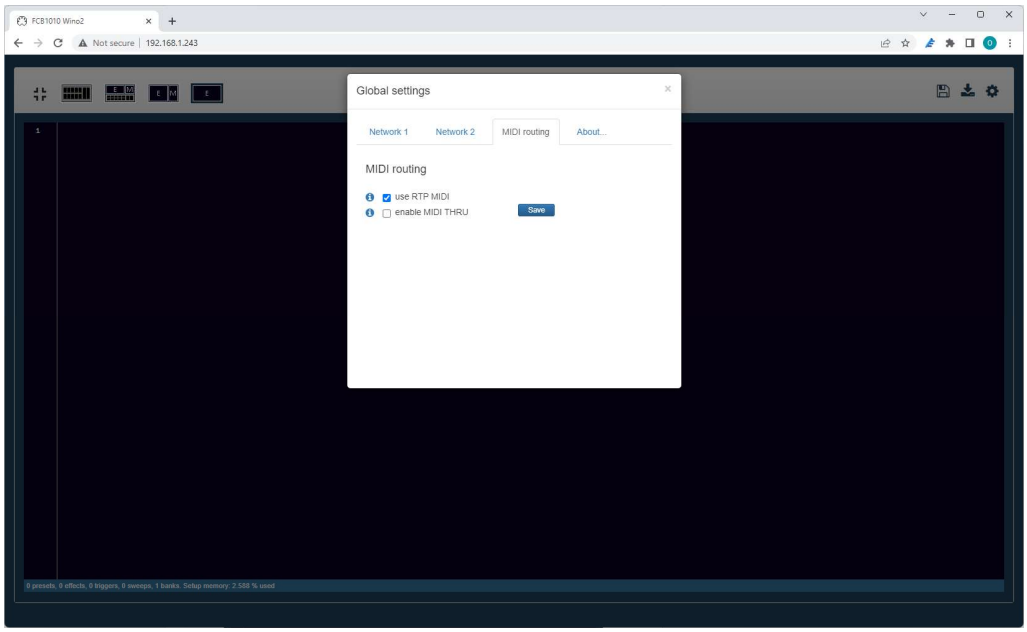
- https://www.midi.org/midi-articles/rtp-midi-or-midi-over-networks
- https://en.wikipedia.org/wiki/RTP-MIDI

On macOS and iOS, RTP-MIDI (also known as AppleMIDI) is supported out of the box.

On Windows, a free RTP-MIDI driver can be installed. More info about that in the links above.

On Android, an app called MIDI Connector adds support for the RTP-MIDI protocol.

You can enable RTP-MIDI in the “MIDI routing” tab of the setup menu :




## 3. Enabling MIDI THRU

The same “MIDI routing” tab above also has a checkbox to enable MIDI THRU. When doing so, all MIDI sent to the FCB1010 through its MIDI IN connector will be forwarded to the MIDI OUT connector.

# Saving and sending FCB1010 setups

Without going into detail about how to program the Wino2 equipped FCB1010 setup (this is covered in great detail in the UnO2 user manual) let's continue going through all menu options of the web application. Next to the cog icon discussed above, the editor window also has a Save button  and a Send button 

## 1. Saving the setup source

The Save button stores the setup text, which you have entered in the editor window, in the non-volatile memory of the Wino2 module. Click the Save button regularly in order not to lose your work while creating your setup.

As you will notice, the Wino2 module can store one single setup source file. However, thanks to the fact that this "setup source" is actually plain text, it is very easy to copy-and-paste the full setup text from the browser into any text editor and save the setup on your laptop, and vice versa load one of multiple alternative setups, stored on your laptop, into the web application and save it on the Wino2 module.

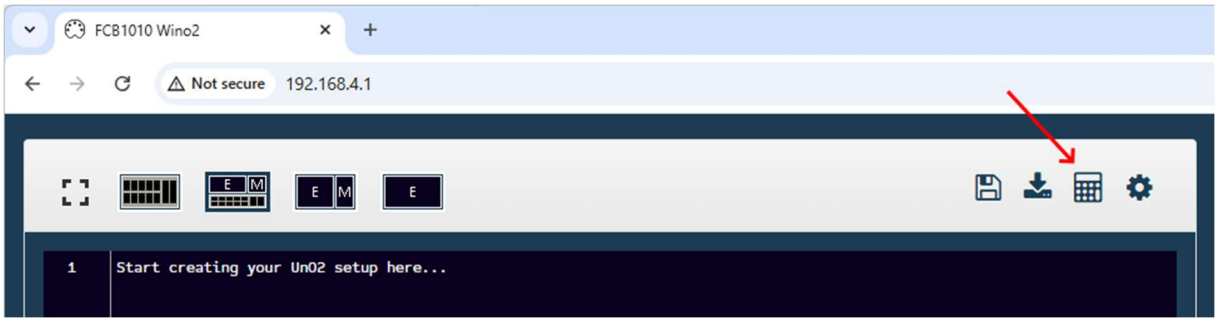
By the way, it is definitely a good idea to make an extra copy of your setup source text on your laptop this way. In case a hickup would occur when saving the setup to the Wino2 storage space, you then still have a backup of the setup source on your laptop.

## 2. Sending the setup binary

In order for your setup to be used by the FCB1010, it is first "compiled" into binary data. When clicking the "Send" button this binary data is sent from the Wino2 module to the FCB1010 main board, where it is stored in the permanent setup memory (the same memory which stores a Behringer, UnO or UnO2 setup when no Wino2 module is installed)

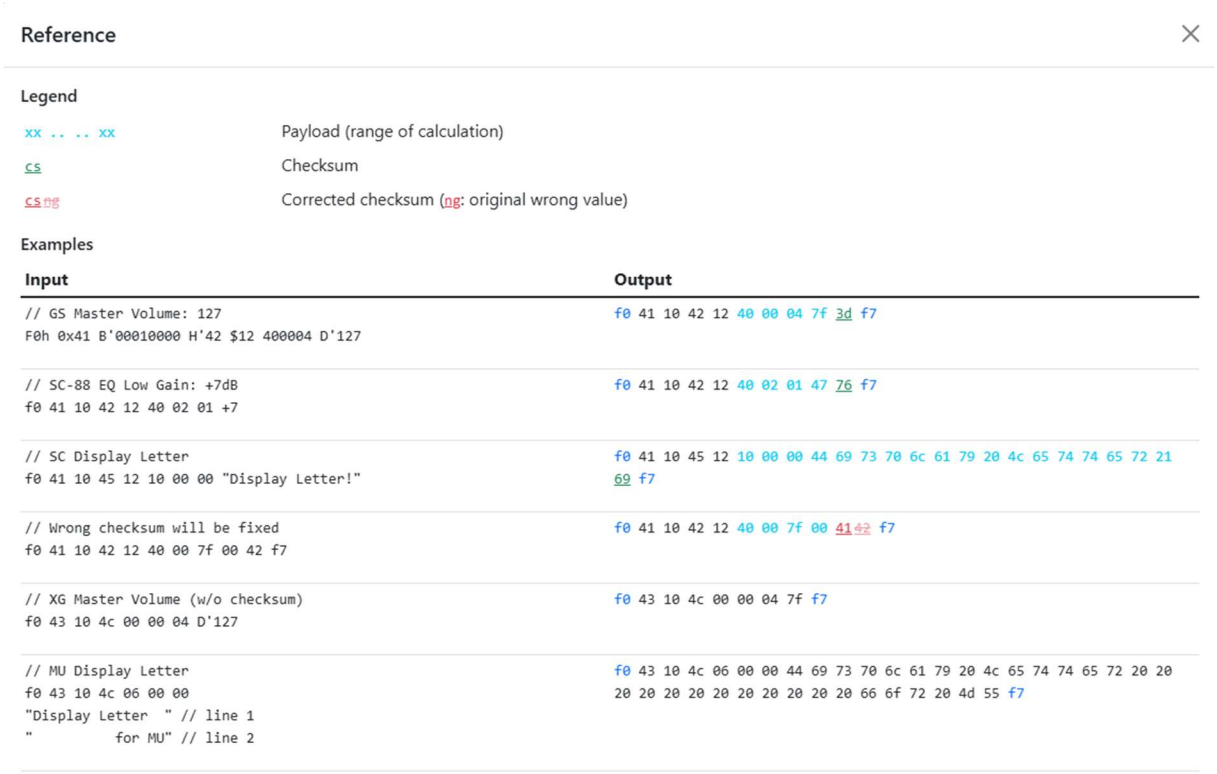
For those who really like to know every little detail of the system:
If you look closely at the popup shown after clicking the Send button, you will notice 2 different status messages: first it says "Saving setup structure", followed by "Storing setup…". Indeed, before storing the binary setup data in the FCB1010 setup memory, the setup *structure* (bank names, bank layout, switch assignments, … ) is retrieved from the setup source text, and stored separately on the Wino2 module. During a gig this info is combined with live data sent from the FCB1010 main board to the Wino2 module to show extended status info in the browser.

# SysEx checksum calculator




Just as a small convenience tool, we added a SysEx checksum calculator. Some devices can be controlled through proprietary SysEx messages, and those messages sometimes require a checksum being added as last byte of the message (mainly the case for Roland devices). The included checksum calculator was created by shingo45endo and is available on github :

https://github.com/shingo45endo/sysex-checksum



Reference

Legend

| | |
|---|---|
| xx .. .. xx | Payload (range of calculation) |
| cs | Checksum |
| cs ng | Corrected checksum (ng: original wrong value) |

Examples

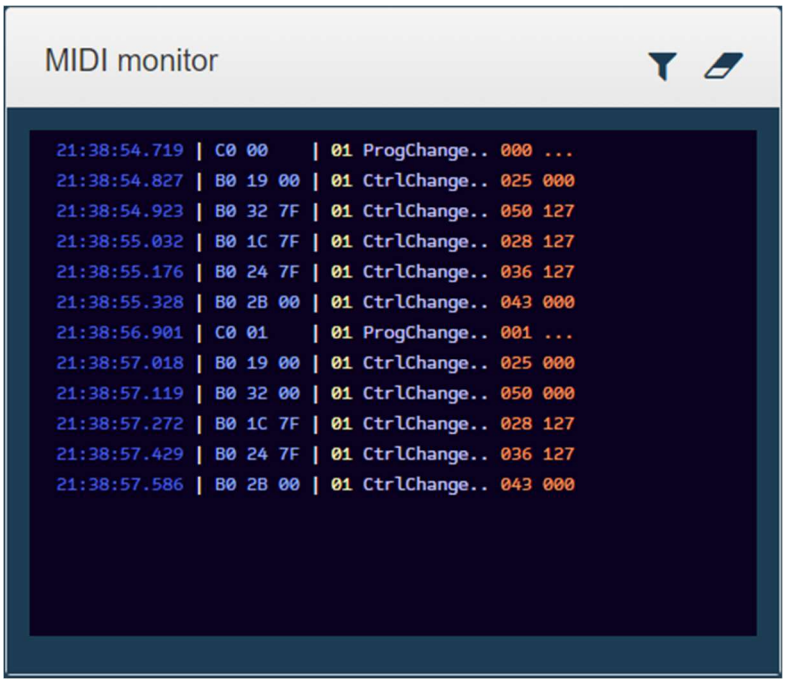
| Input | Output |
|---|---|
| // GS Master Volume: 127<br>F0h 0x41 B'00010000 H'42 $12 400004 D'127 | f0 41 10 42 12 40 00 04 7f 3d f7 |
| // SC-88 EQ Low Gain: +7dB<br>f0 41 10 42 12 40 02 01 +7 | f0 41 10 42 12 40 02 01 47 76 f7 |
| // SC Display Letter<br>f0 41 10 45 12 10 00 00 "Display Letter!" | f0 41 10 45 12 10 00 00 44 69 73 70 6c 61 79 20 4c 65 74 74 65 72 21 69 f7 |
| // Wrong checksum will be fixed<br>f0 41 10 42 12 40 00 7f 00 42 f7 | f0 41 10 42 12 40 00 7f 00 41 42 f7 |
| // XG Master Volume (w/o checksum)<br>f0 43 10 4c 00 00 04 D'127 | f0 43 10 4c 00 00 04 7f f7 |
| // MU Display Letter<br>f0 43 10 4c 06 00 00<br>"Display Letter  " // line 1<br>"  for MU" // line 2 | f0 43 10 4c 06 00 00 44 69 73 70 6c 61 79 20 4c 65 74 74 65 72 20 20<br>20 20 20 20 20 20 20 20 20 20 66 6f 72 20 4d 55 f7 |

## MIDI monitor screen

Things are not always working correctly right from the start. If your gear doesn't behave as expected you might want to inspect the MIDI messages which the FCB1010 sends. You can do so with the monitor screen of the built-in web application. With this monitor you can get a detailed inside view on all outgoing MIDI traffic.

The MIDI message list shown in that screen contains following data for each transmitted MIDI message:

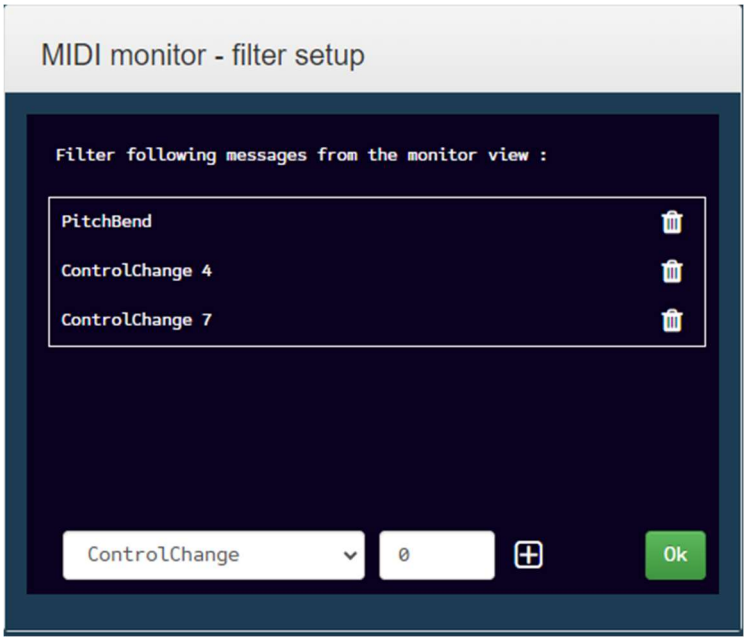
- Timestamp on which the message was received or sent
- Hexadecimal representation of the MIDI message. A MIDI message can contain 1, 2 or 3 bytes, except for SysEx messages which can contain more bytes and are shown on multiple lines in the message list
- Text representation of the MIDI message, which is :
    - The MIDI channel (between 01 and 16), where applicable
    - The MIDI message type
    - 0, 1 or 2 MIDI data bytes (or multiple bytes in case of SysEx)




*Attention:* be aware that showing a lot of MIDI info in the browser can slow down the transmission of MIDI by the Wino2 module. Therefore, use the monitor screen only while inspecting or troubleshooting your setup, never during live use of the FCB1010.

## Message filtering

The amount of MIDI data sent by the FCB1010 can be large, especially when using the expression pedals. Therefore, the monitor screen has the option to filter out certain message types, typically sent when using the expression pedals. For ControlChange messages you can choose which CC number is being filtered (e.g. CC07 & CC04, which are continuous control messages)



# APPENDIX: Factory reset, self-test and pedal calibration

The UnO2 firmware contains the same self-test and expression pedal calibration procedures as the original Behringer firmware. Therefore, calibration instructions can be found in the Behringer manual or online by googling for “FCB1010 calibration”.

- Self test : keep footswitches 1+3 pressed during startup
- Calibration : keep footswitches 1+5 pressed during startup

The factory presets available in the Behringer firmware are ***no longer*** available :

- V-AMP factory preset : keep footswitches 1+6 pressed during startup
- Behringer guitar amp factory preset : keep footswitches 1+7 pressed during startup
- BASS V-AMP factory preset : keep footswitches 1+8 pressed during startup

Instead, there is a setup reset which clears the current UnO2 setup, and a WIFI reset which resets the IP address, SSID and password of the embedded WIFI access point to its default values :

- Setup reset : keep footswitches 1+4 pressed during startup
- WIFI reset : keep footswitches 1+2 pressed during startup

Finally, you can toggle the communication between FCB1010 main board and Wino2 module on and off (needs to be on with the Wino2 module installed, but off when the module is removed).

- Toggle use of Wino2 on/off : keep footswitches 1+9 pressed during startup