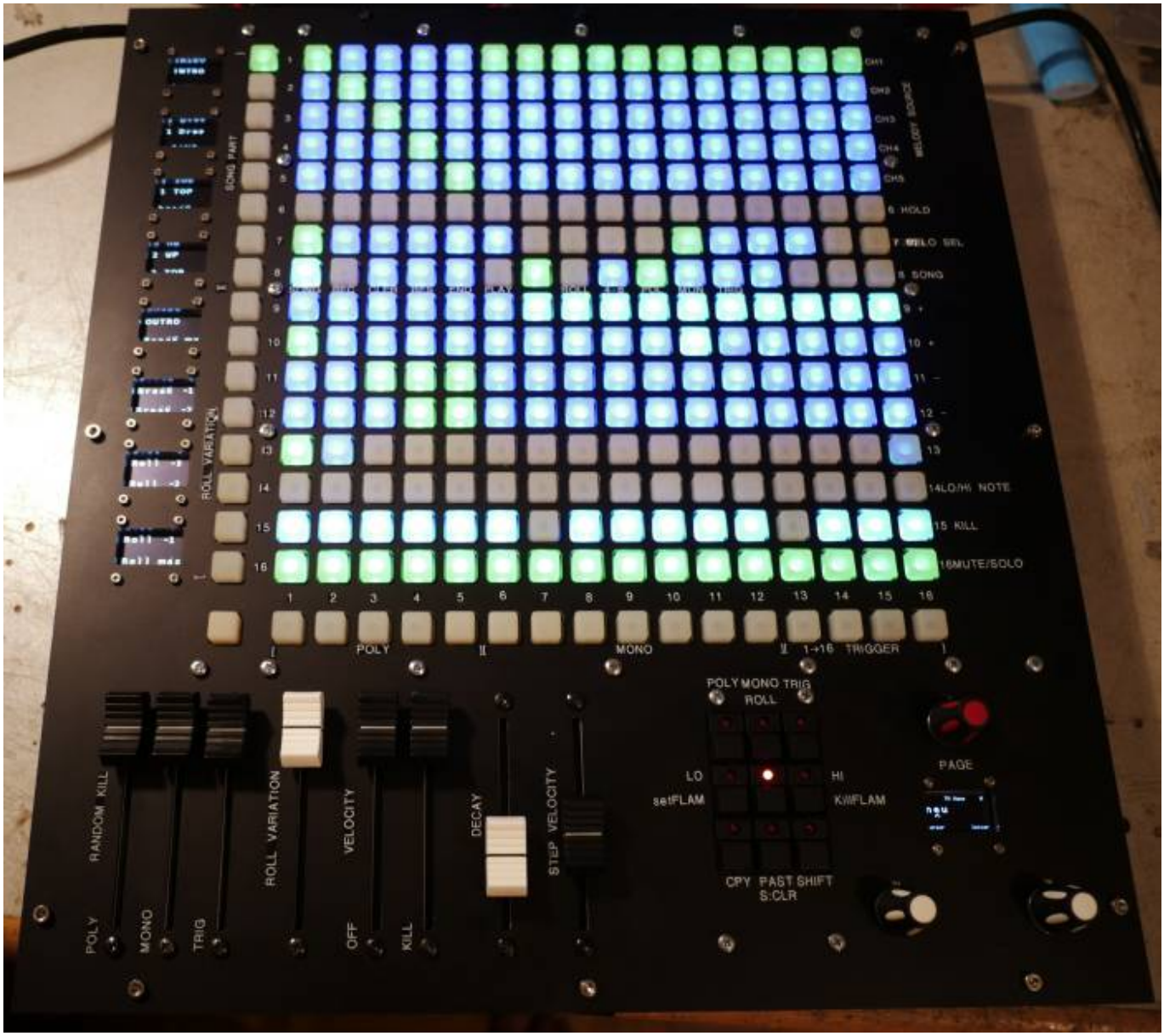
# TriggerMatrix V4

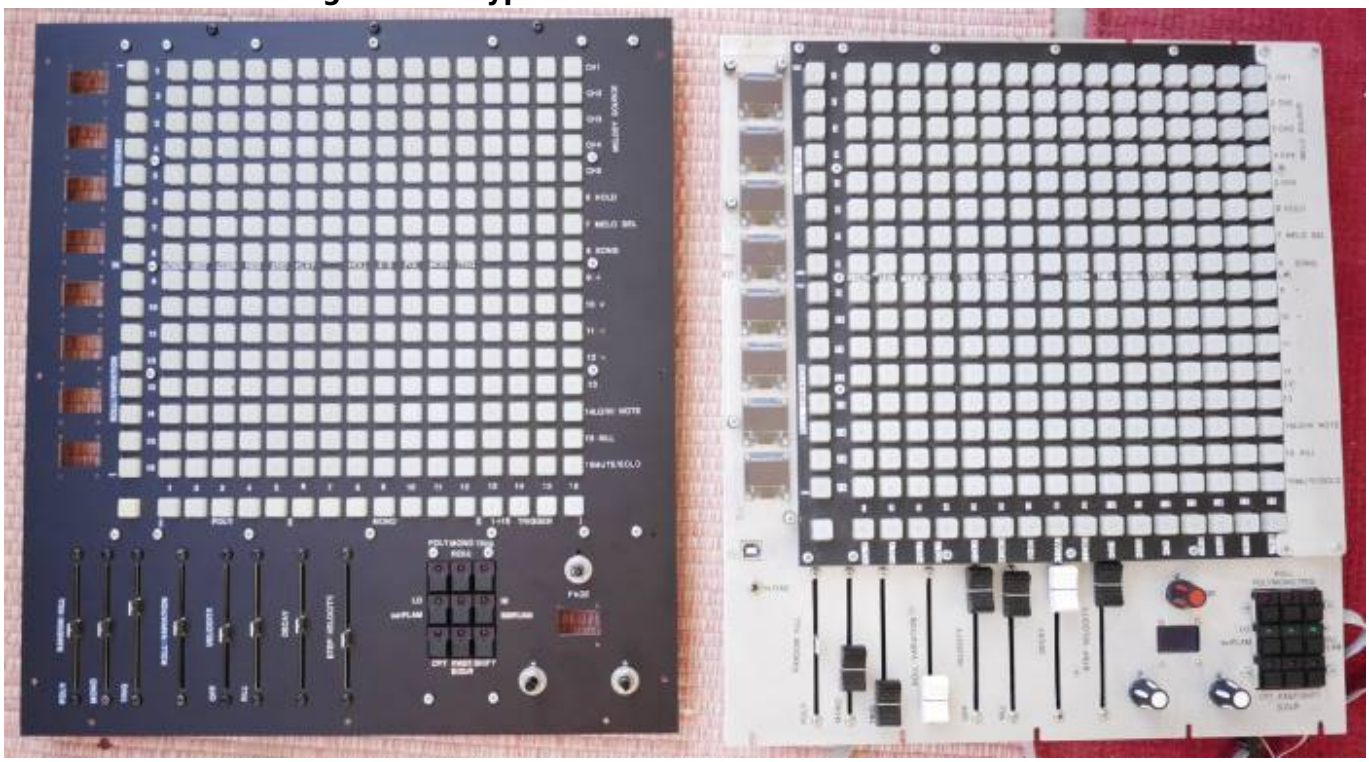





**Planed in 3D:**



**Left: Serial Nr1 « » Right: Prototype**



# CODE, FIRMWARE

**Install MIOS Studio, connect TM4 via USB, and Start the STUDIO**

**1. Upload MIOS BOOTLOADER**
**2. (only needet for Virgin Machines) type following commands into the MIOS-TERMINAL:**

- set lcd_type GLCD_SSD1306_ROTATED
- set lcd_num_x 9
- set lcd_num_y 1
- set lcd_width 128
- set lcd_height 64
- store

**3. (for Version Updates) Unzip the TM4-Firmware, and Upload the TM4.hex**
**4. Unconnect USB & Connect the USB again — finished.**
**5. If the Machine is not detected by mios studio, and you already checked the usb-connections, the device or the code is broken, for that on the backside of TM4 is a switch, please set it to “bLOAD”, now you can upload new & unbroken codes, dont forget to set it to “normal” back again - after upload new code - else the APP will not boot…**

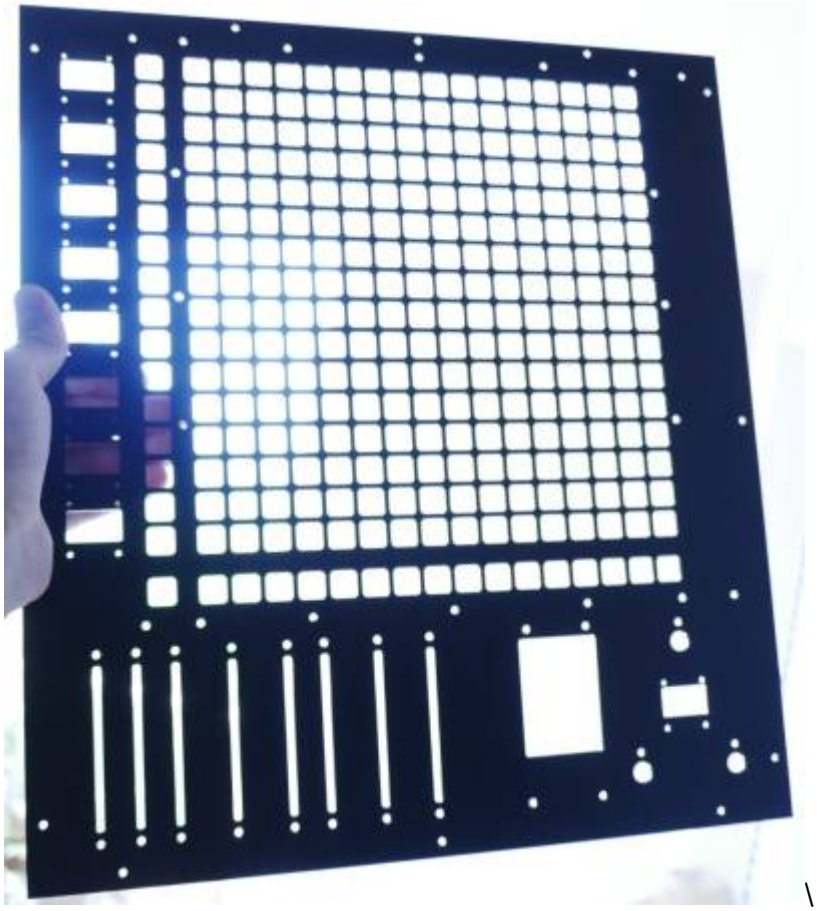
# BUILD

## BOM, Components, PCBs

- BLM16x16x, not longer produced anymore…
- CORE32 STM32F4
- 2x Midi IO
- DINX4
- 8x 10K Lin, Faders
- 6x Fader-Knob, BLACK
- 2x Fader-Knob, WHITE
- 9x Switches
- 3x Encoder
- 9x OLED-Displays 128x64px 0,96"
- 108x M2 Nuts
- 36x M2 Screws
- 20x Crimpable connector, 2x5 Pole
- 5x Crimpable connector, 2x8 Pole
- 1x 26Pole Wire
- 1x Boot-Switch for Bootload-Mod
- 3x Encoder Knob
- Full Sized SD-CARD, which is not Hi-Capacity, eg take 4 or 8GB Cards!
- 2x Wood: 15 x 400 x 39mm, or > 16 x 400 x 39mm (39mm is minimal, i took 40mm…)
- 1x Wood: 15 x 335 x 39mm, or > 16 x 333 x 39mm (39mm is minimal, i took 40mm…)
- 3mm Alu Plates for Ground and Backpanel (you cut and drill it by your own)
- 3mm Alu Frontpanel, CNC-machined (See DXF-File for more info)

## Pictured Doku

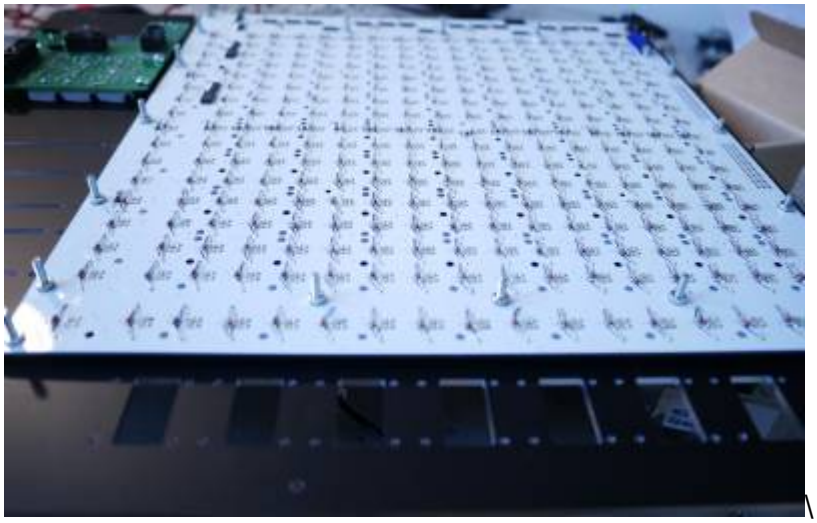
### BLM16x16



\



\

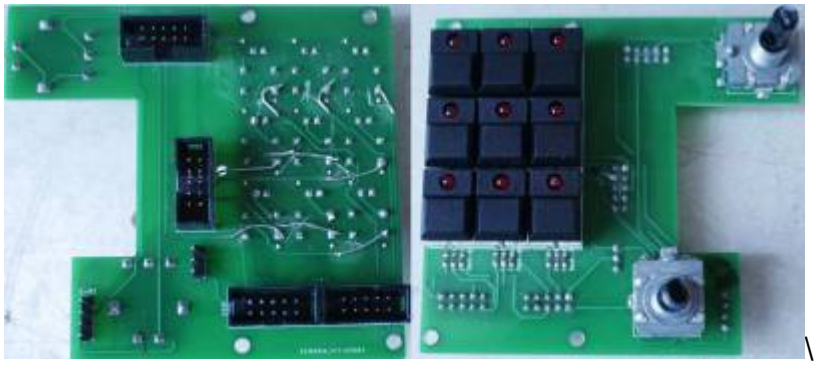


\

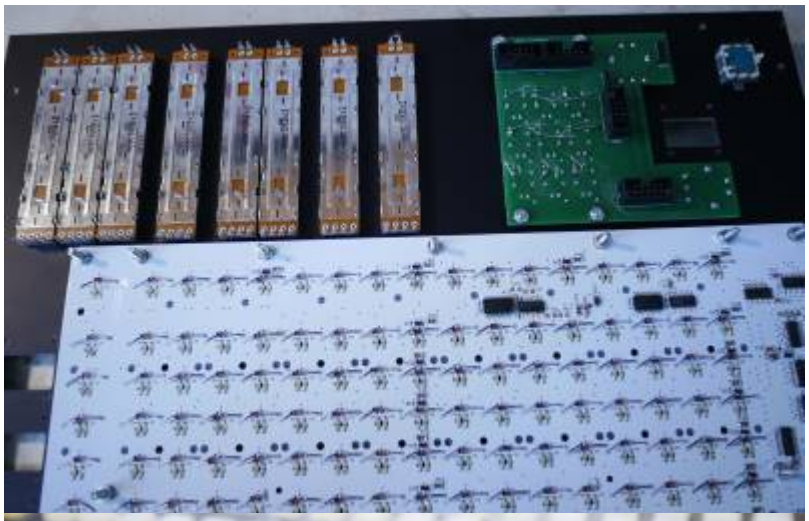

\

\


**Code-Block**


\

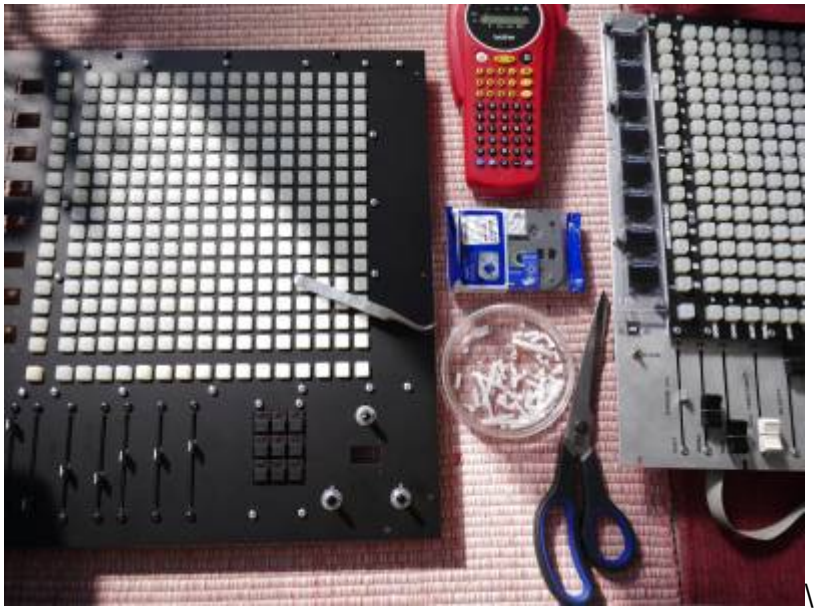




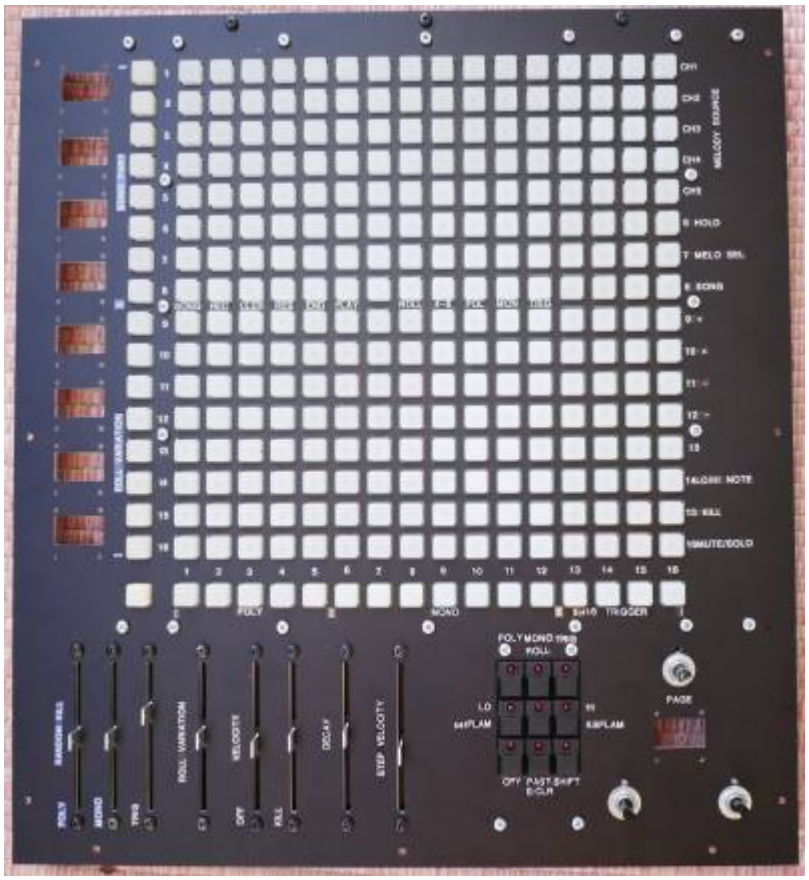



**Labels:**

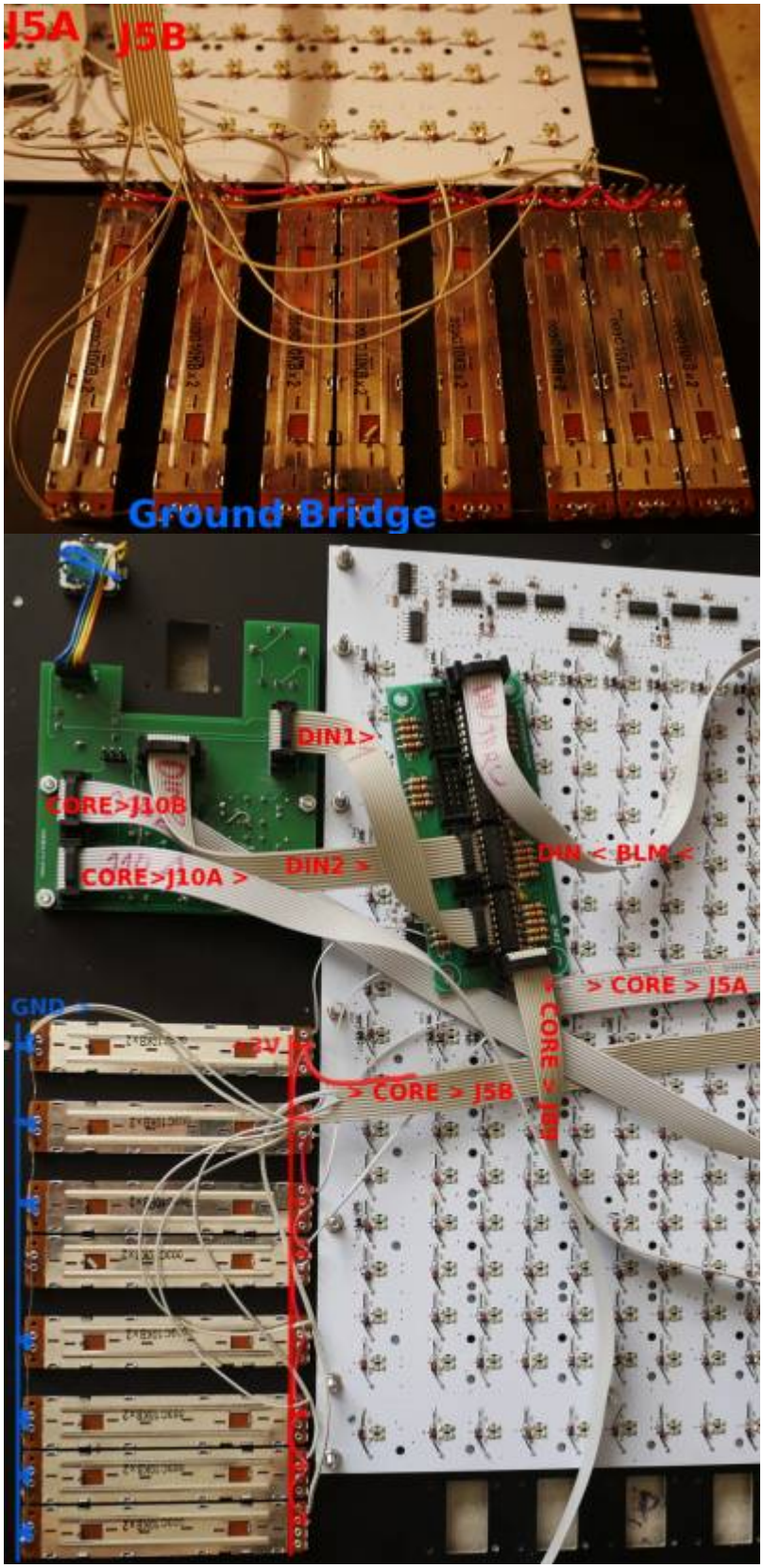








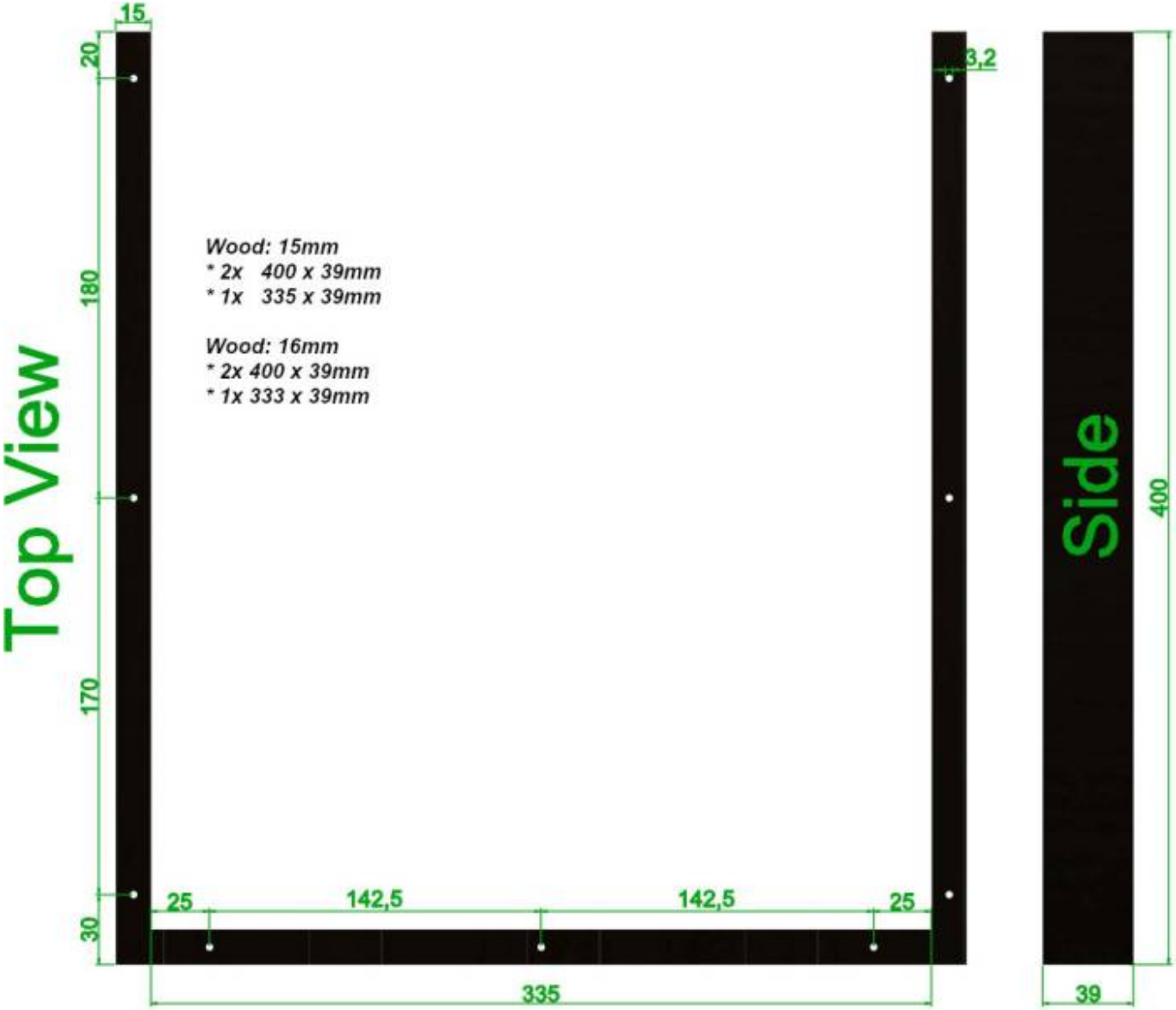
**Wires:**


J5A
J5B
Ground Bridge
DIN1>
CORE>J10B
CORE>J10A >
DIN2 >
DIN < BLM <
> CORE > J5A
GND
3V
> CORE > J5B

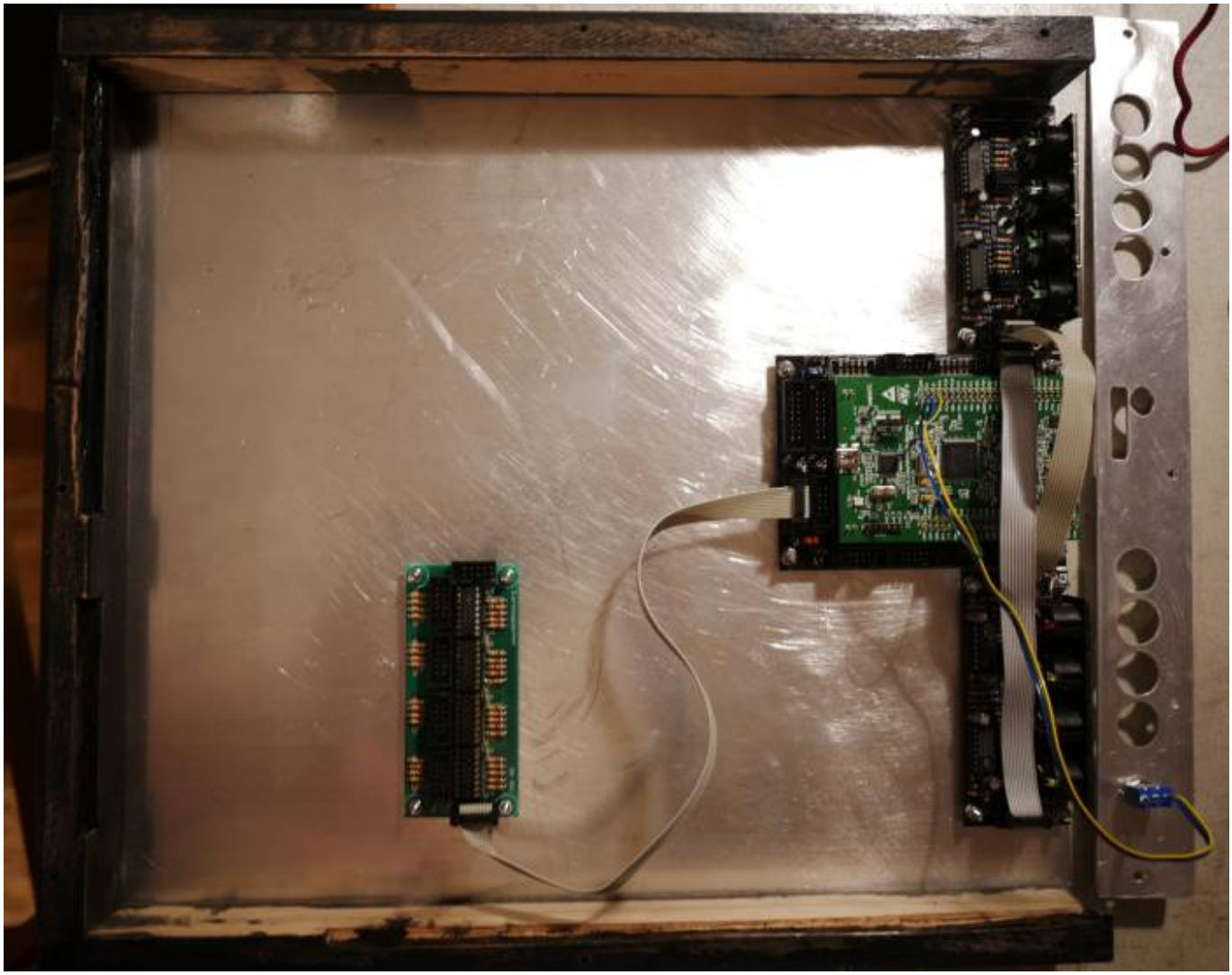


**Wood-Elements:**

15mm “hard-Wood”, i use BEECH, let it cut by your local hardwarestore...





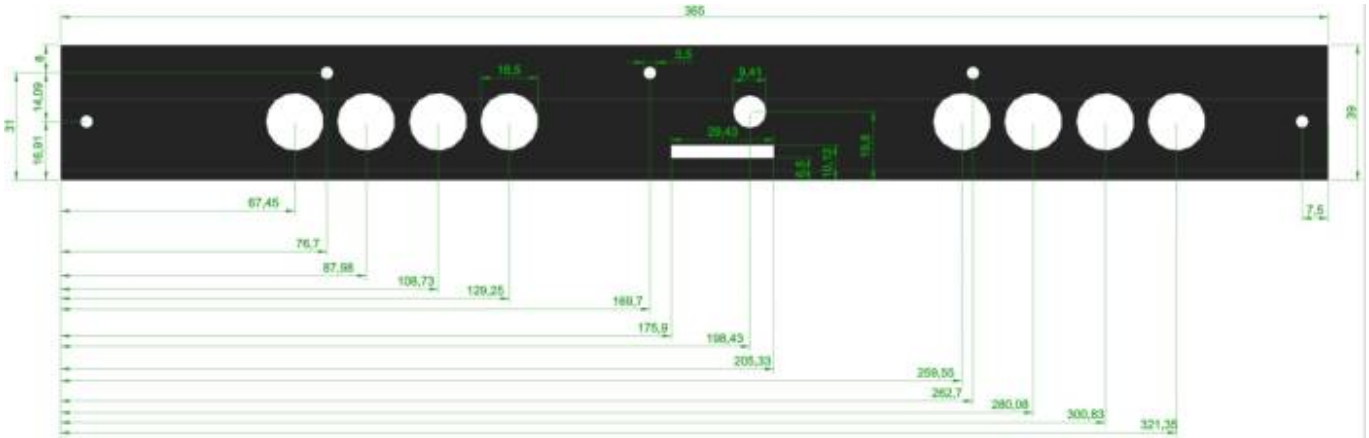


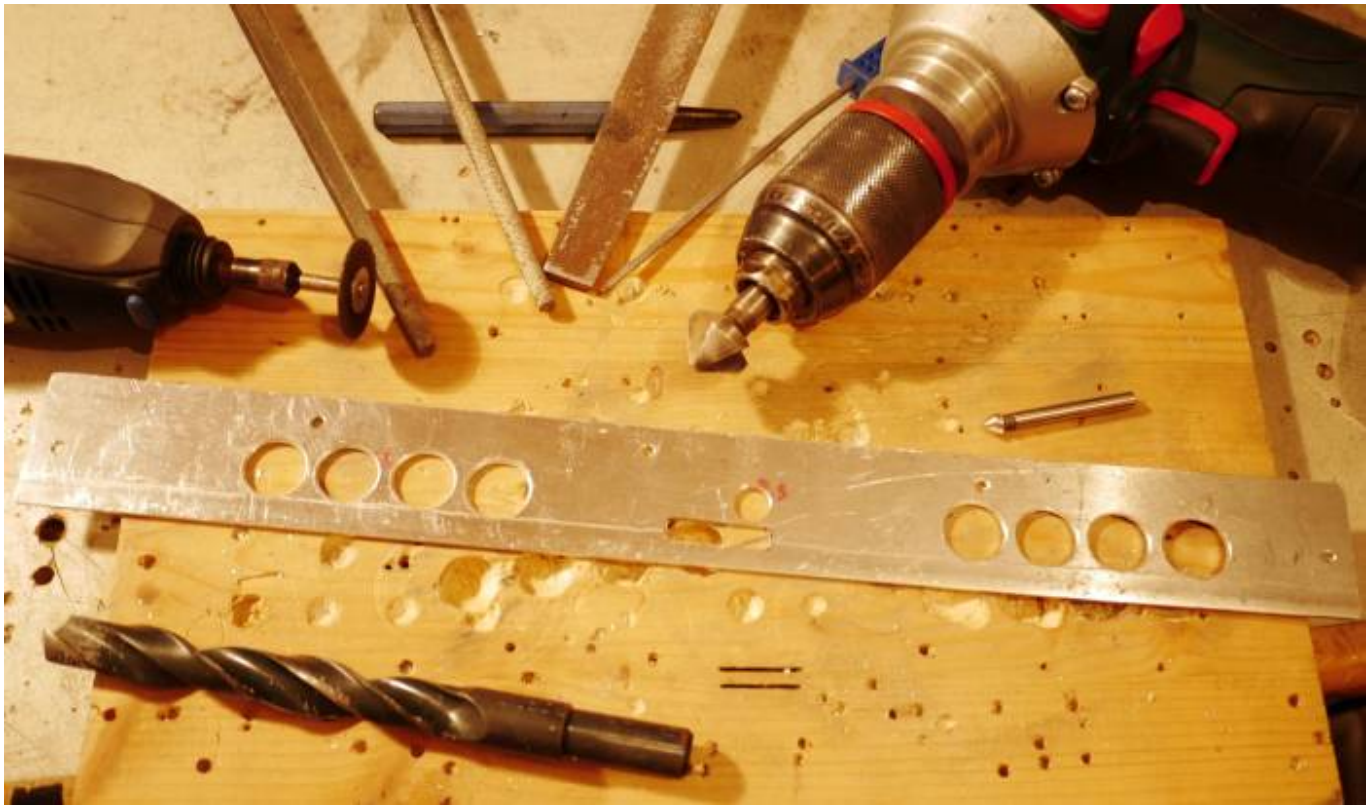
**Screws:**


in/mm
5.00
OFF
ON
ZERO




**DIY-Back-Panel:**
3mm Aluminium Plate





# Features

**Short spoken:**

- 16xdrumtriggers > Trigger-Routing-Matrix > Drum-Syntesizers
- 5x Poly Melody-lines > Trigger-Routing-Matrix > Melody-Syntesizers (track 1-5)
- 7x Mono Melody-lines > Trigger-Routing-Matrix > Melody-Syntesizers/Pitachable Drums (track 6-12)

**Rules:**

- Drum-Trigger are Velocity Master > we dont care about the velocity of the Melodys
- There are Songs (ProgramChange), each Song has 8 different Trigger-Routings Presets> these are the Song-Parts
- Each Song has 4 StepSequencer-Variants (Rythms)
- Each Song can Remote up to 6 Melody Scenes (LoopA-compatible!)
- 256 Songs saved on SD-Card, and Load-able while playing
- The Tempo has to be changed by Hand or Midi, it is not saved with the song
- System-Settings, like Ports or MidiChannels are Hardcodet, but there will be a sys-menue in near future
- Triggermatrix midi-outs are connected to all synths, so it manage the program-change also
- 16x Trigger-OUTs with fixed Notes, on one midichannel - to connect Drum-Synths, Drum-Samplers
- 5x Polyphonic Melody-Retrigger-OUTs on 5 MidiChannels - to connect MelodySynths to it
- 7x Monophonic Melody-Retrigger-OUTs on 7 MidiChannels - to connect Monophonic Synths like pitchable Drums or Bass-Synths Fix Me! - i think 1-5 is poly the rest is mono!

- All 16 Trigger & ReTrigger-OUTs share the same Routing and Channelstrip UI (Mute, Solo, Roll…)
- Trigger, Poly, Mono-OUTs can be controlled seperatly by > **Random-Kill** & **Velocity-OFFSet**
- 5×16 Melody-Input-Matrix - Route & Mix Melody Inputs to the 16 Melody-Retrigger-Outs (saved in Song)
- 16x Melody-Input-Matrix-Hold-Buttons - hold the last Note, save it in the Patch - usefull when pitch drums.

the Matrix has also a Trigger-Sequencer built in, the Melodys have to come from anywhere else, but @ the end, they have to be plugged into the matrix…
**Trigger-sequencer, a few facts:**

- is a Drum-Step-Sequencer
- 256 Steps in total
- 32 th fixed rate
- 3,4,5,7,11,13/4 tact
- minimal LoopSection is 16steps = 1 Page, there are 16 pages to chain
- intro LoopSection, from step 0 until to the “minimal LoopSection”- is played once, then it loops the normal LoopSection
- The sequencer is made to give a static NoteStream, the Song-Structure is done LIVE by the TriggerMatrix-ROUTER
- Full Velocity control, visible with 3 different colours, Velocity Set via FADER
- Free programmable Swing to each Step, with 2 different swing Length-sets, which are controlled live with encoder
- copy, paste, erase of pages
- copy, paste, erase of rows
- fixed forward play direction

## Community users working on it

- **Phatline** = Programming, Documentation, Hardware-Prototype, Testing, Jamin…
- Maxim Anokhin - as first User of TM4 - Serial Nr.1

## Getting Involved ?

Just let a Private message on the forum to user already involved

From:
https://www.midibox.org/dokuwiki/ - **MIDIbox**

Permanent link:
**https://www.midibox.org/dokuwiki/doku.php?id=triggermatrix4&rev=1627736691**

Last update: **2021/07/31 13:04**