Tubbutec OrganDonor

Installation manual for Siel Orchestra 1 / 2

Tools you will need:

- Soldering iron
- Wire stripper
- Metal drill 3.5mm (or similar)
- Metal drill for a 15mm hole (stepping drill for example)
- Center punch
- Screw driver

Included in the kit:

- OrganDonor Main Board
- 4x OrganDonor Switch Board (1 single), 2x16pin Connector, 1x20 pin connector, 1x 2pin connector
- Analog switch connection: 1x20p – 45cm, 1x16p – 40cm, 1x16p – 35cm, 1x2 - 25cm
- Interconnect cables: 2x 6cm, 2x 17cm
- Midi connector assembly
- Power connector
- Learn button
- 15x screw 2,9x4,5
- Midi socket drill guide
- 2x M3 bolt, 2xM3 nut for midi socket

Principle of operation

OrganDonor uses analog switches to simulate keyboard presses directly. Normally this would require to solder two wires for each key. Luckily this can often be avoided by grouping common signals. OrganDonor features solder jumpers to connect common signals on the back of each analog switch board. We already connect these jumpers for you.

In the case of the Siel Orchestra 2 there is one common signal.

Note: We didn’t have a Siel Orchestra 1 in our workshop, but according to the schematics the Orchestra 1 is built similar to the 2. Maybe you have to adapt the placement of the switch boards, but electrically it’s the same as the Orchestra 2.

Preparation

After the first batch of OrganDonor we decided to consolidate different synthesizer models in one kit where reasonable.

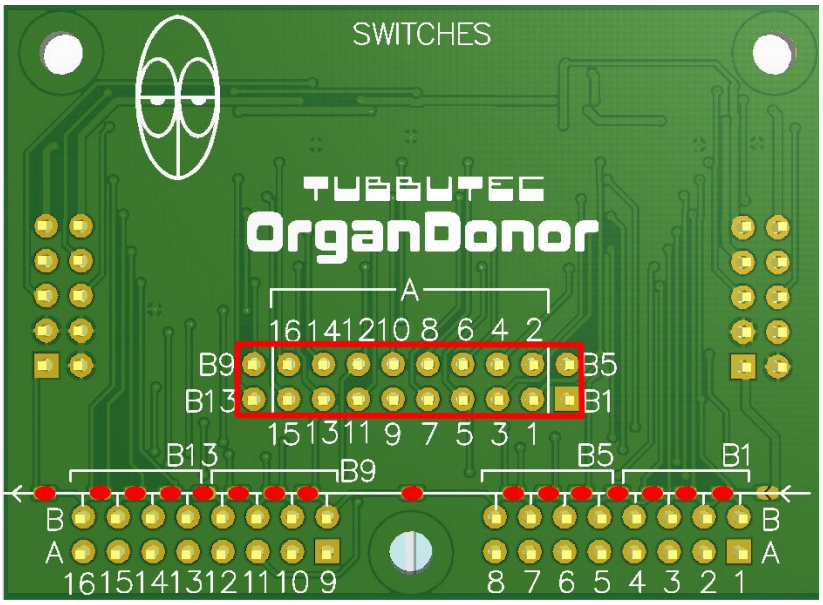
That means that there might be more screws than needed for your model, or the wires are too long, or there might even be a wire assembly you don’t need for your installation. So don’t get confused.

But most importantly this also means you have to solder the shrouded headers to the switch boards, and solder the little jumpers on the backside of the switchboards.

Here’s how to do it:

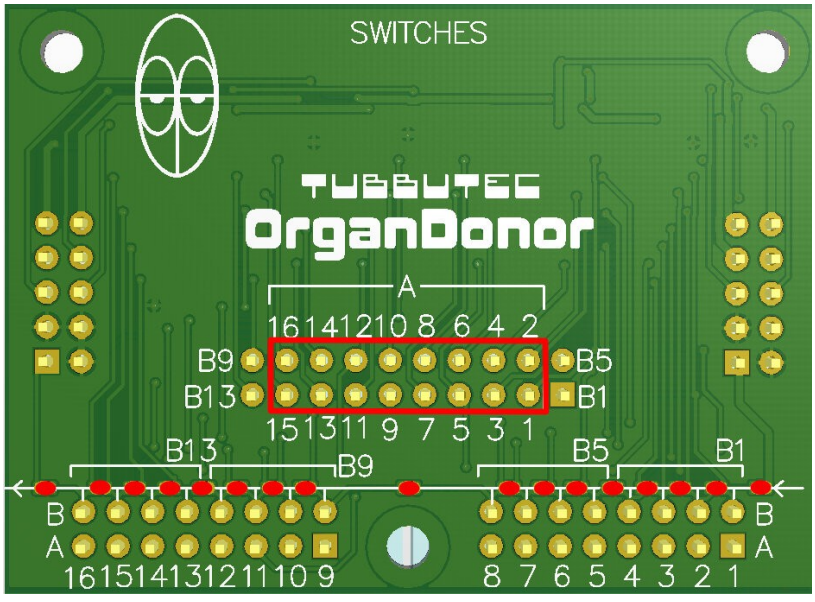
Switchboard 1

20pin Header – make sure to install the header on the top side of the board. Solder the jumpers on the backside of the board as shown.



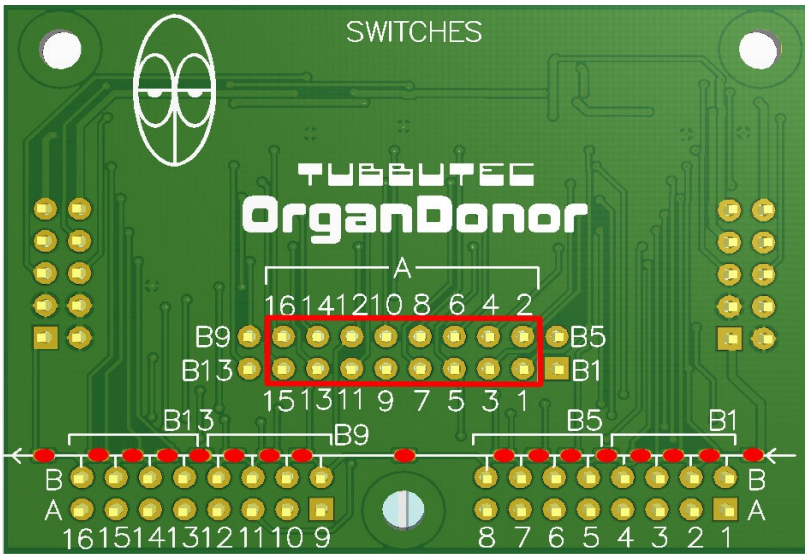
Switchboard 2

16pin Header – make sure to install the header centered on the top side of the board. Solder the jumpers on the backside of the board as shown.



Switchboard 3

16pin Header – make sure to install the header centered on the top side of the board. Solder the jumpers on the backside of the board as shown.



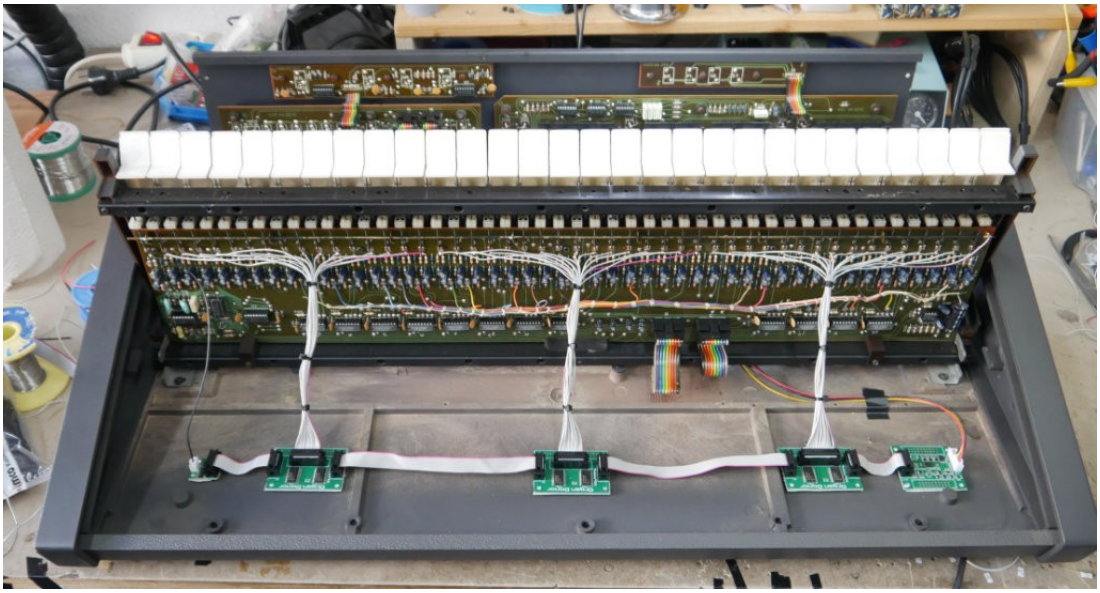
Switchboard 4 (Single Switch)

We already soldered the jumper on this board, you can use it as is.

Switch board installation

Mount the switch boards and the main board on the bottom plate of the synthesizer as shown in in the picture using the 15 2,9x4,5mm screws. The switchboards are mounted in reverse order to keep cable length short. From left to right: Switch board 4 (single), switch board 3 (16p), switch board 2 (16p), switch board 1 (20p), main board.

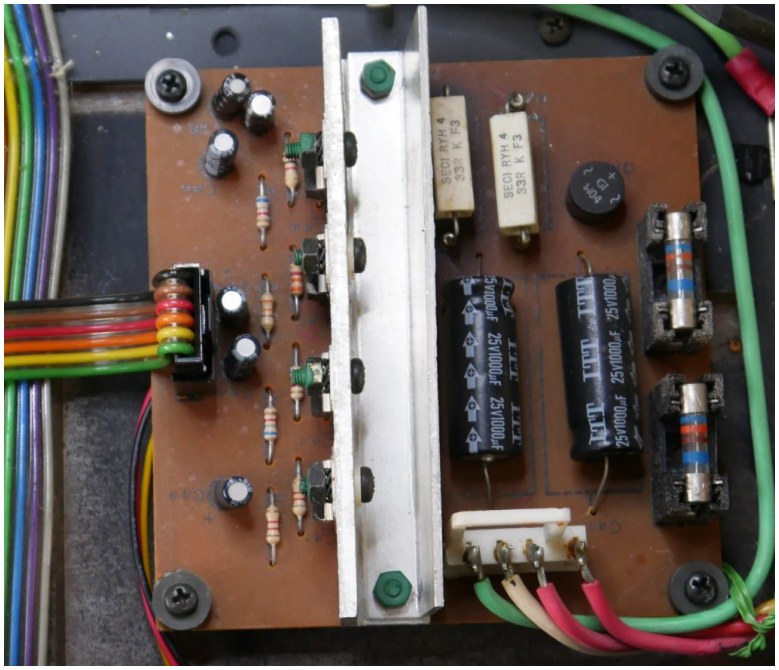
Caution: the case bottom is made out of plastic. We recommend drilling pilot holes (2mm diameter) before installing the screws, but be careful not to drill through the bottom, about 1mm deep is enough.



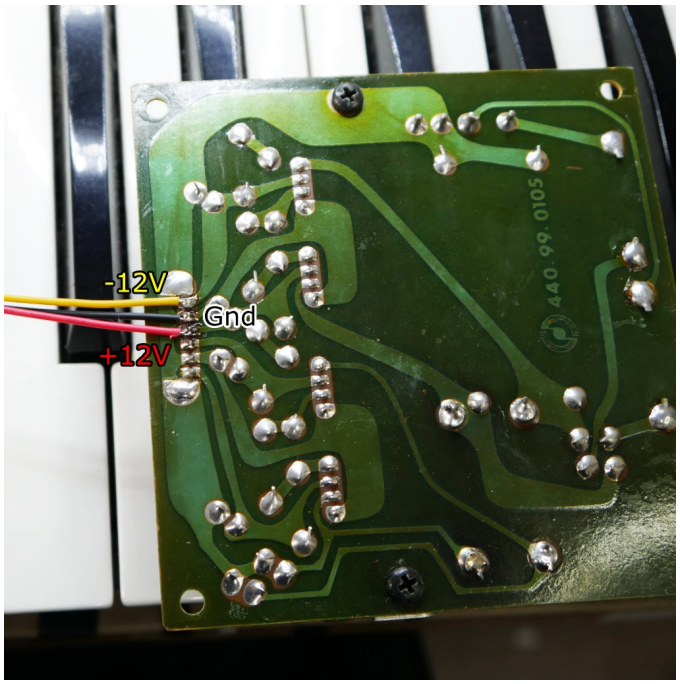
Plug in the interconnection cables between the boards.

Power connection

Unplug the two connectors on the power supply pcb. Remove the 4 screws holding the pcb.



Flip the pcb away from you so you have access to the bottom side.



Solder the wires of the power cable assembly as shown in the picture. Take care not to create solder bridges.

Installing the switch contacts

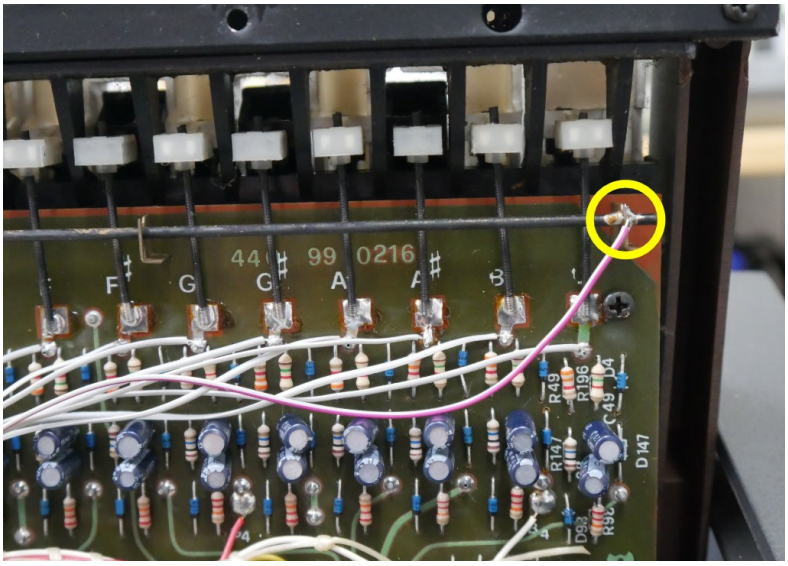
As the switch boards are installed in reverse order switch 1 triggers the highest note and switch 49 triggers the lowest note.

That also means that the key assignment is in reverse order. Keep that in mind should you wish to play with the configuration!

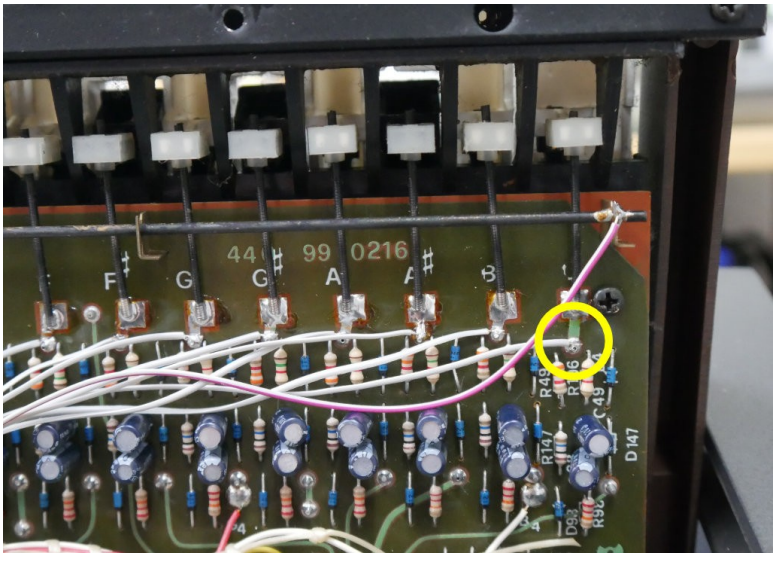
Cut the ribbon cables to length and strip the wires.

Switch board 1 (20pin connector):

Wires 1 (red stripe) gets soldered to the common bus bar, see picture.



Wires 2 gets cut.
Wires 3-18 get soldered to key contacts 49-34.
Wires 19 and 20 get cut.



Switch board 2:

Wires 1-16 get soldered to key contacts 33-18.

Switch board 3:

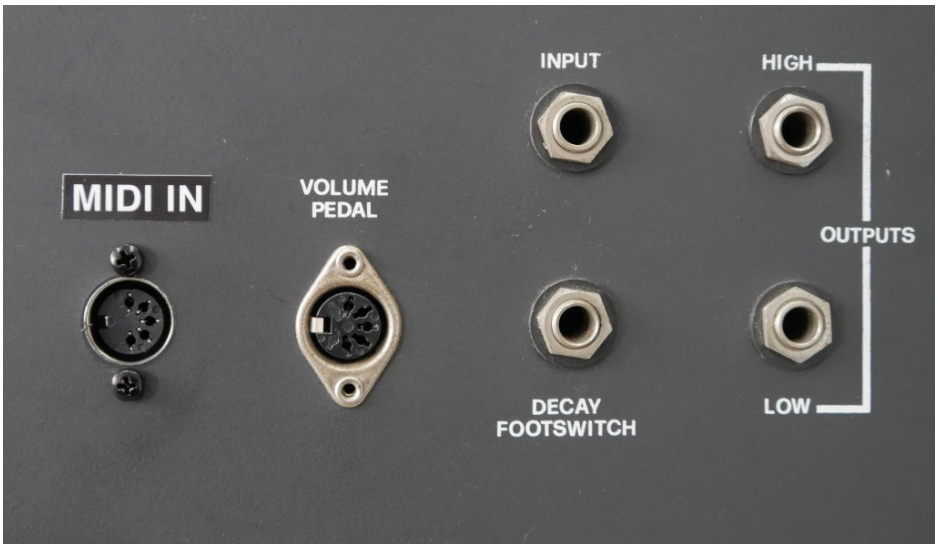
Wires 1-16 get soldered to key contacts 17-2.

Switch board 4 (single):

The single wire gets soldered key contact 1.

Installing the midi socket

The midi socket can be installed on the back of the machine.
Use the provided drill guide to center punch the locations of the 3 holes.
The two small holes need to be about 3.2mmm to 3.5mm in diameter, the large hole 15mm. Here we typically use a stepping drill.
Install the MIDI socket using the 2 M3x8mm screws and the 2 M3 nuts.
If you chose to install the MIDI socket next to the Volume Pedal socket you need to extend the wires of the MIDI wire assembly.



Installing the optional learn button

The optional learn button can be used to set midi channel. It needs to be connected to the IO “2” and “G” pin on the main board. (The back of the main board has labels on it). Wires are not included in the kit.
Press the learn button and while it is pressed send a midi note on any midi channel. organDonor will use this midi channel from now. These settings are saved.

Configuration

You need to flash the corresponding configuration file to OrganDonor using our configuration tool.
The configuration tool can also be used to experiment with settings and key assignments.
You`ll find the configurator here:
https://tubbutec.de/files/organDonor/tubbutecOrganDonorConfigurator.html
This is a browser application, it works with Chrome and Safari right away, Firefox needs to be configured for web MIDI.
The configurator allows you to upload your settings directly from your browser to Organ Donor, safe and load settings and export settings as SysEx files for uploading to Organ Donor via another SysEx tool.