Assembling the calculator - IN-16 / B-5870 / IN-17 - versions

Things you will need

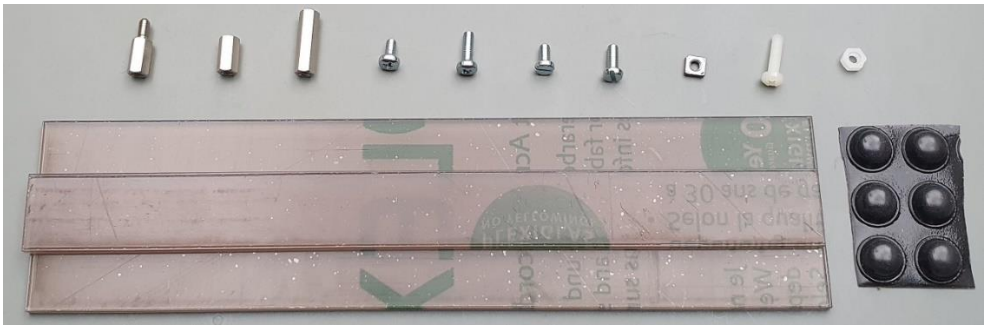
- Assembled boards
- High voltage power supply
- Keycaps
- Nixies soldered to the socket boards
- Connection Wires

ID	Qty	Wires	Mode	Comment
SWITCH	1	2	straight	
LED	1	3	straight	
KEYBOARD	1	5	straight	
DRIVER	1	6	straight	
TOHVPSU	3	1		
HV	1	1		IN-16, B-5870
HV	2	1		IN-17

⚠️ **Double-check the pin order and polarity of all connections before you power up the device.**

- 3D printed case parts
- Additional parts

ID	Qty	Description	Comment
1	2	Standoff, 10mm, female/male	
2	10	Standoff, 10mm, M3, female/female	
3	3	Standoff, 16mm, M3, female/female	
4	4	Pan head screw, 6mm, M3	
5	11	Pan head screw, 10mm, M3	
6	21	Screw, 6mm, M3	
7	10	Screw, 8mm, M3	
8	20	Sqare nut, M3, 5.5 x 5.5 x 1.8mm, DIN562	
9	2	Plastic screw, 8mm, M3	IN-16 underlighting
10	2	Plastic nut, M3	IN-16 underlighting
	1	Piece of transparent acrylic 203mm x 50mm x 3mm (e.g., 7C22)	IN-16, B-5870
	1	Piece of transparent acrylic 203mm x 20mm x 3mm (e.g., 7C22)	IN-17
	6	Rubber foot	



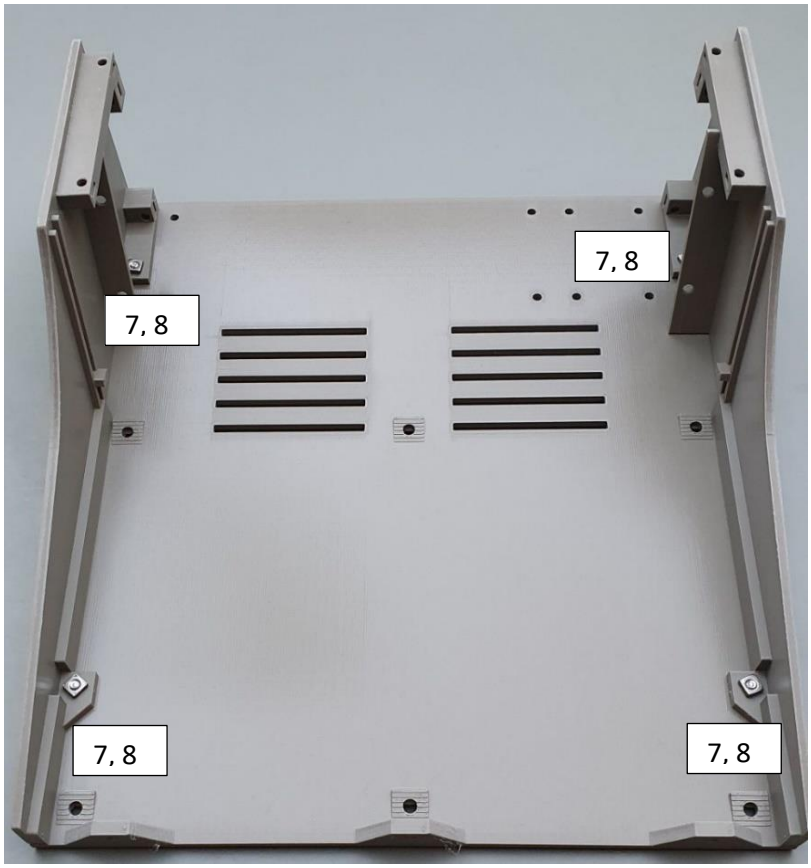
Assembly

⚠️ Make sure you don't overtighten the screws.

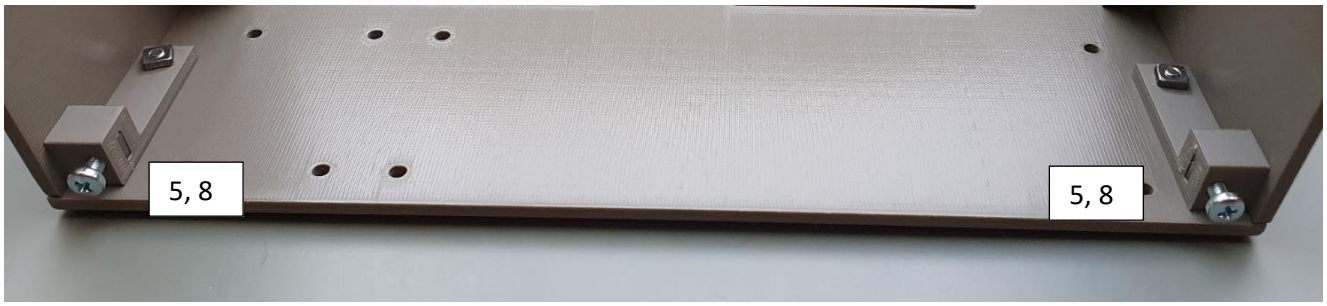
Mount the keycaps

Install the side panels

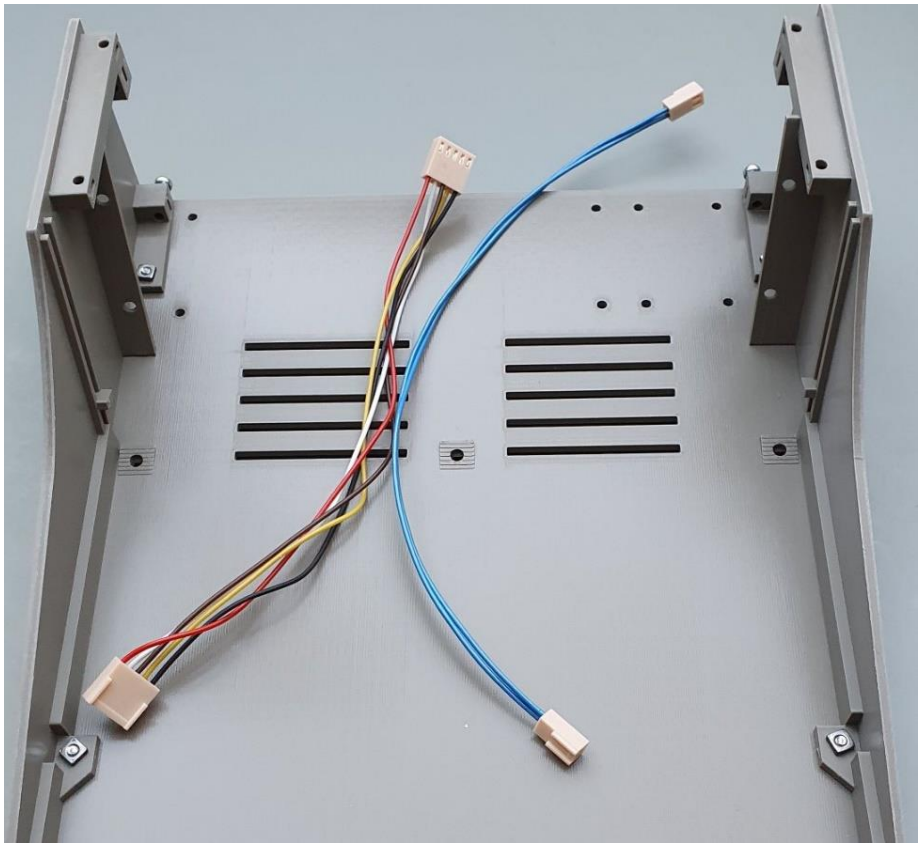
Make sure you install the correct side panels for your version.



Place and secure two nuts in advanced

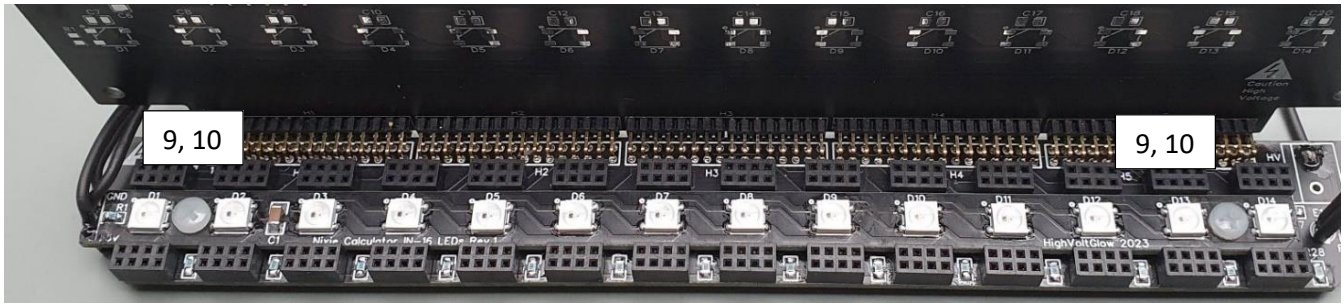


Place the KEYBOARD and SWITCH cables



Install additional LED board (for the IN-16 version with underlighting only)

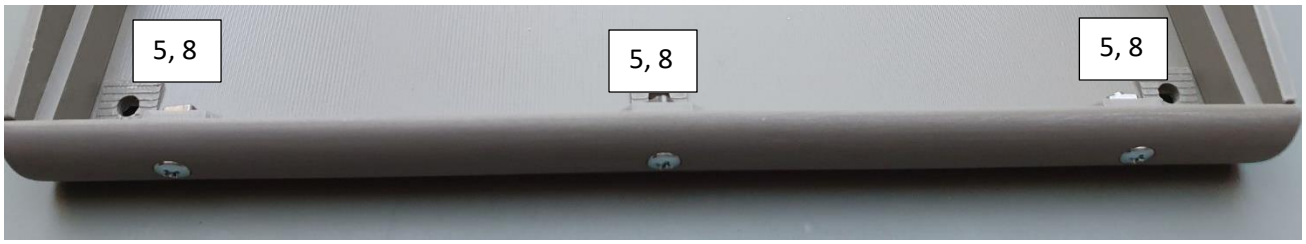
I recommend using underlighting, it looks nicer than backlighting.



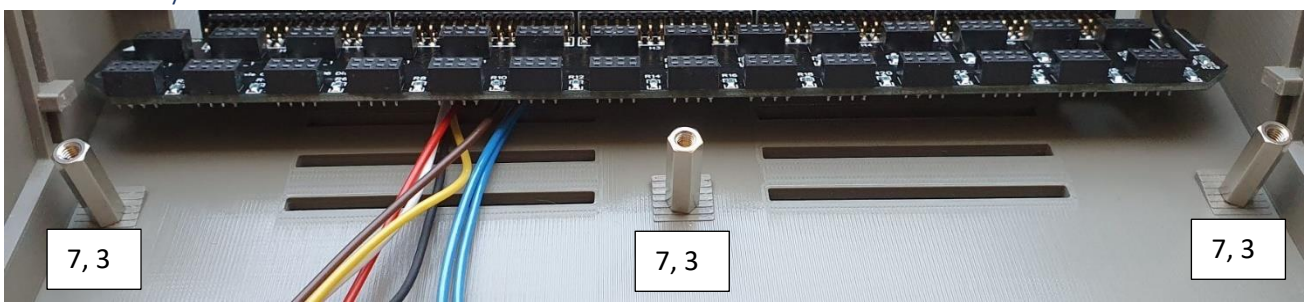
Also use the 3D printed spacers

Install the display and driver board(s)

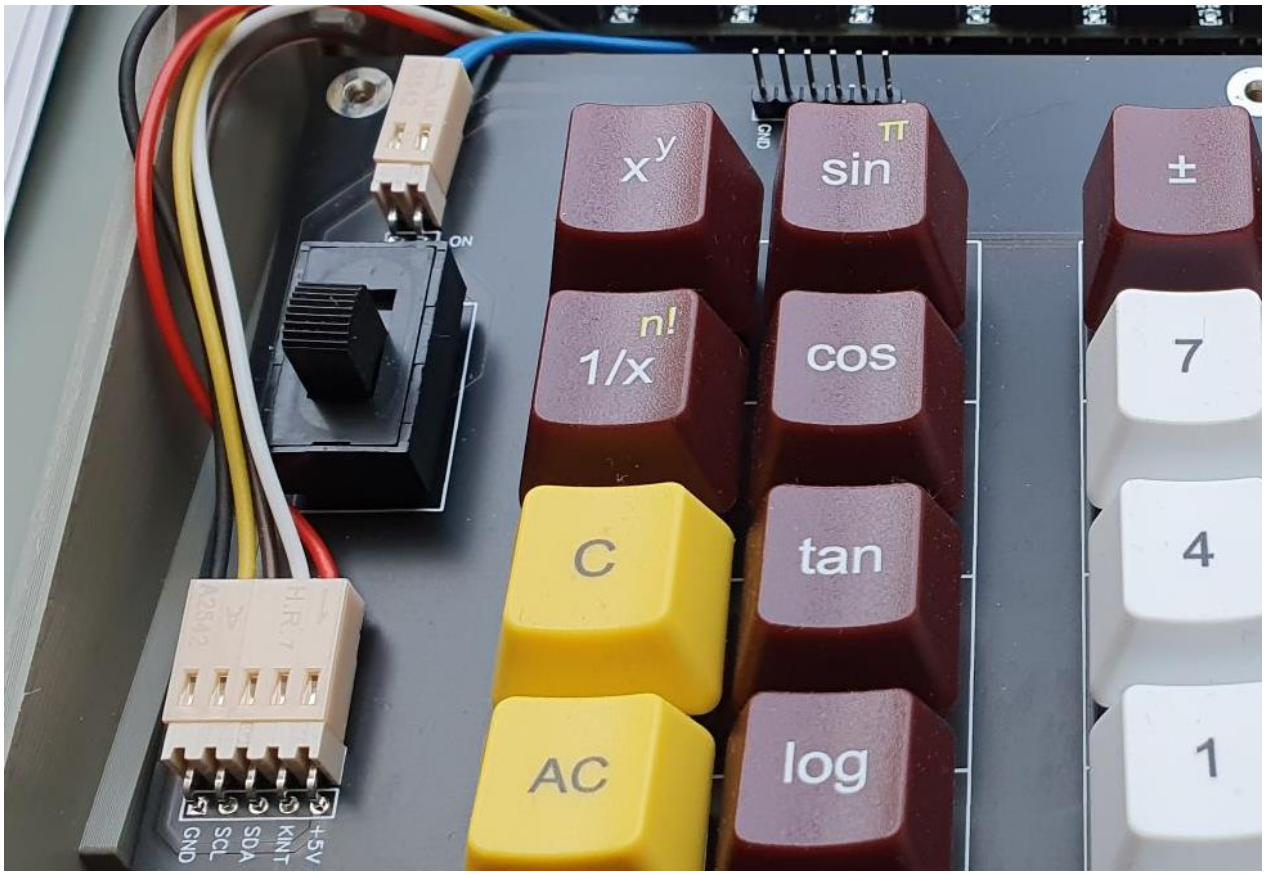
Install the front part



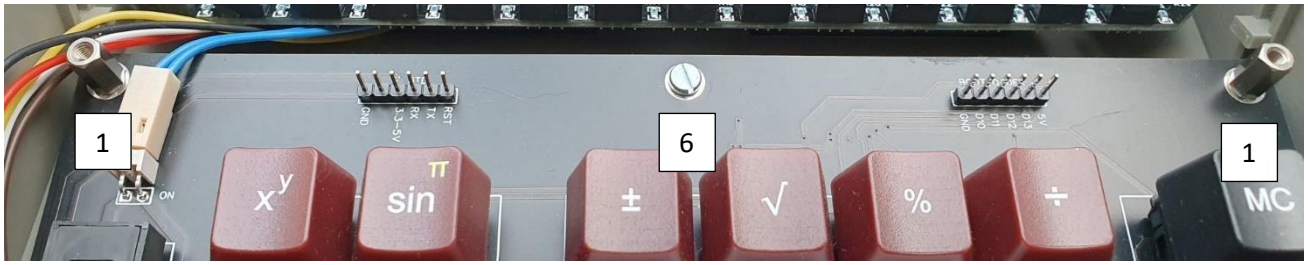
Install the keyboard standoffs



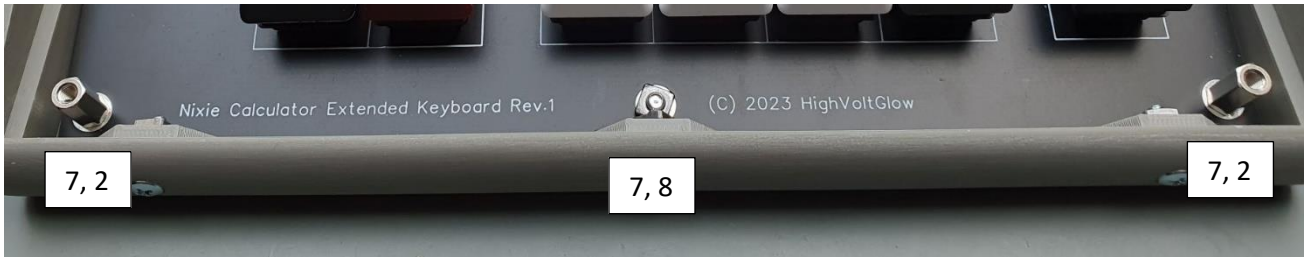
Connect cables to the keyboard



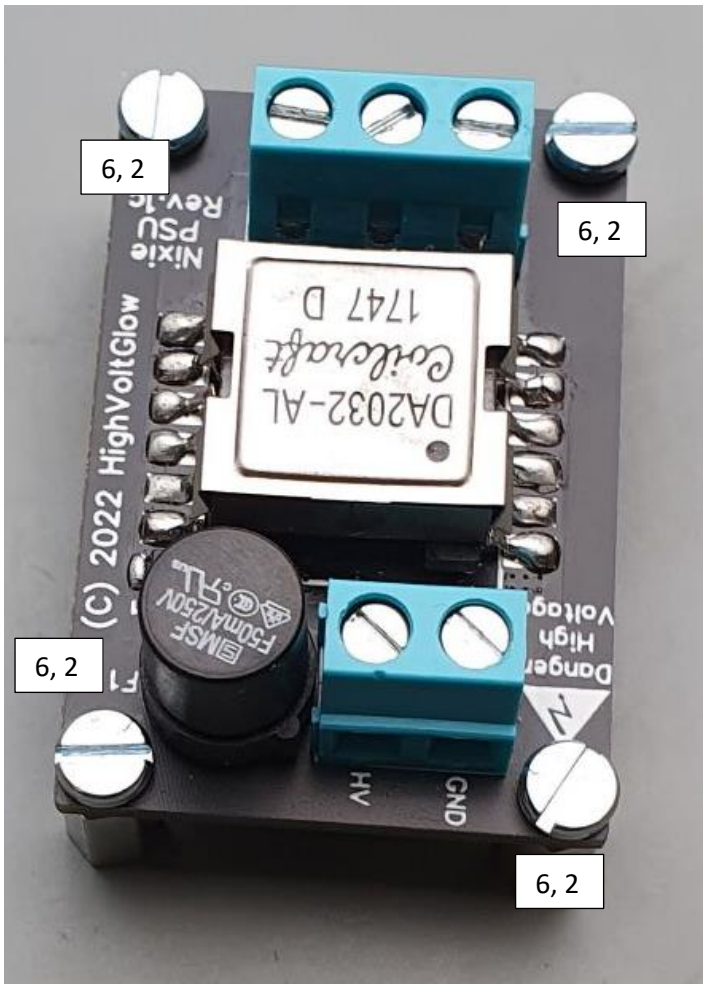
Secure the upper keyboard side



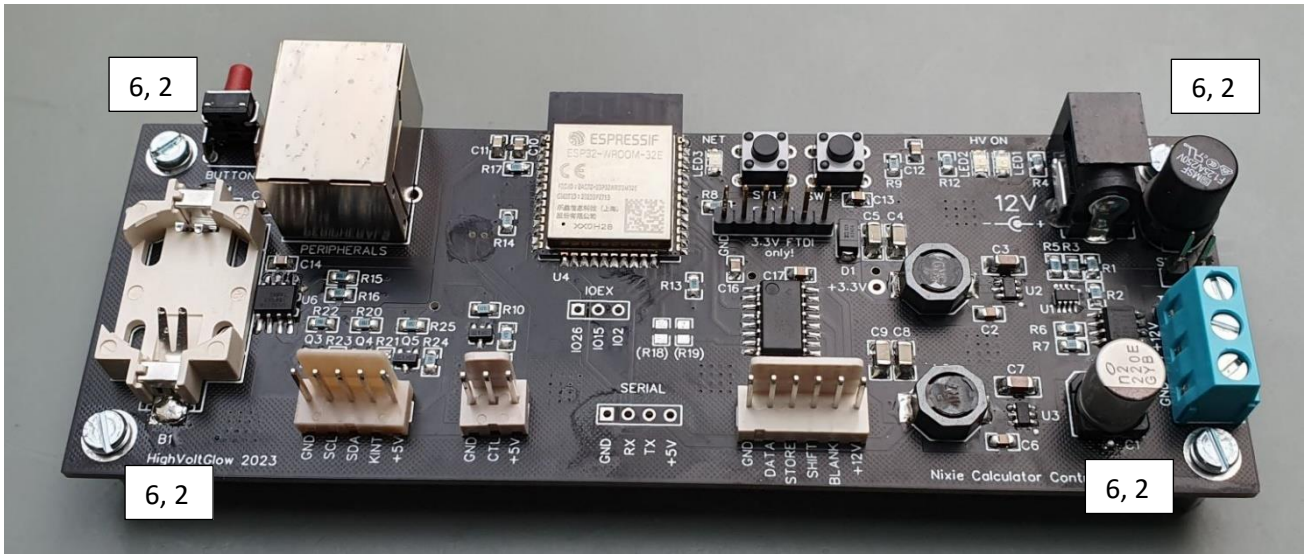
Secure the lower keyboard side



Install the HV PSU standoffs (may not apply to your model)



Install the controller standoffs

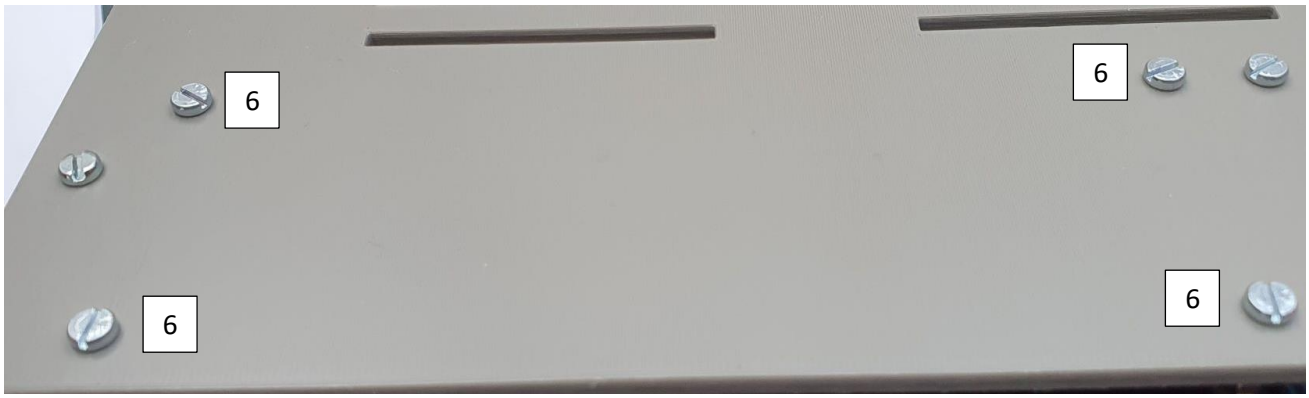


Connect the display HV wire(s) to HV power supply (could be different for your model)

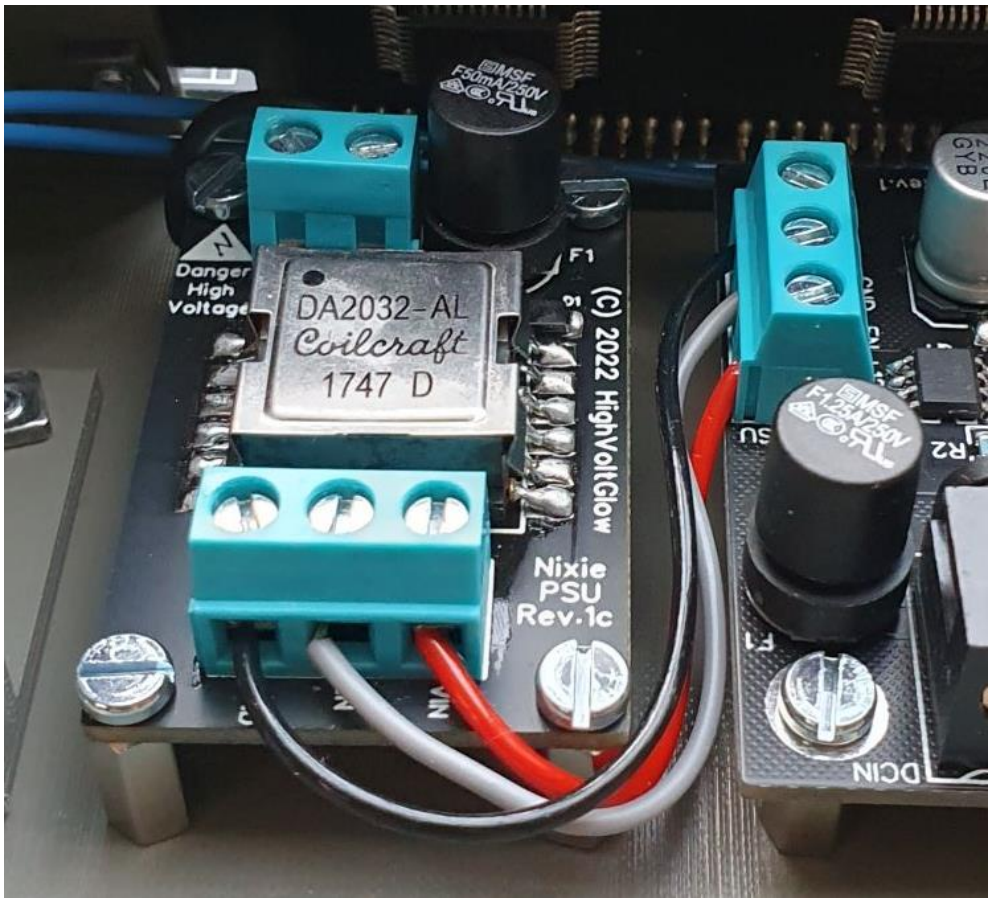
For the IN-16 and B-5870 version only the HV wire is connected. For the IN-17 version you must also connect the ground wire.

Secure the HV power supply (could be different for your model)

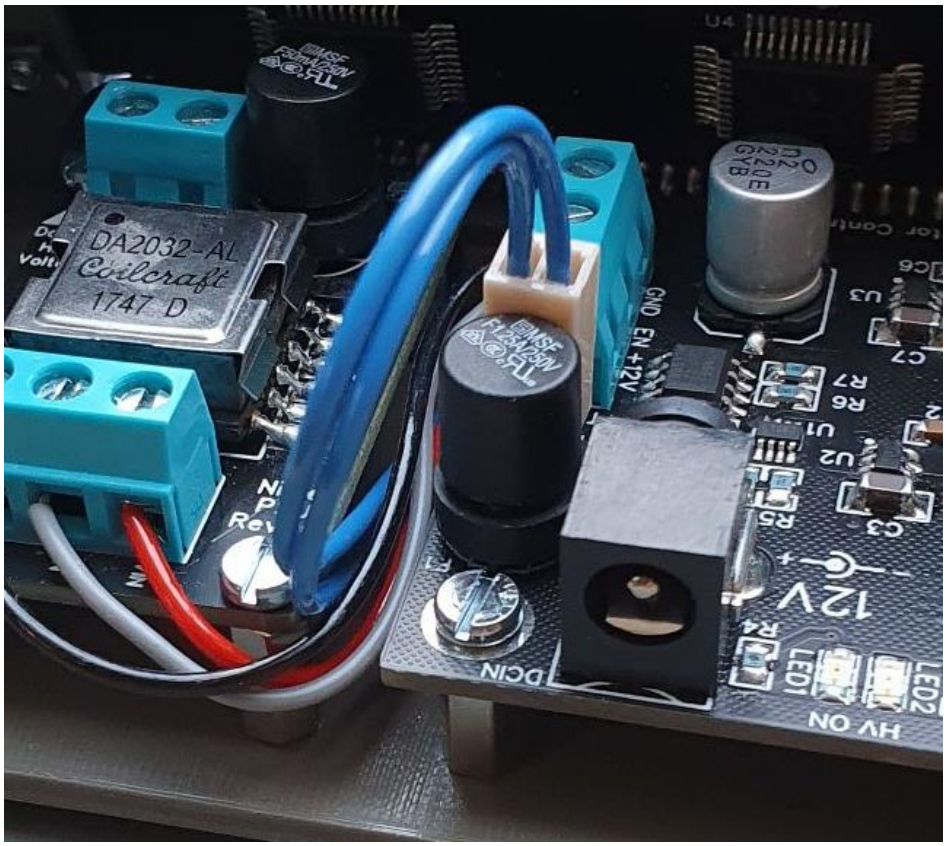
Secure the controller



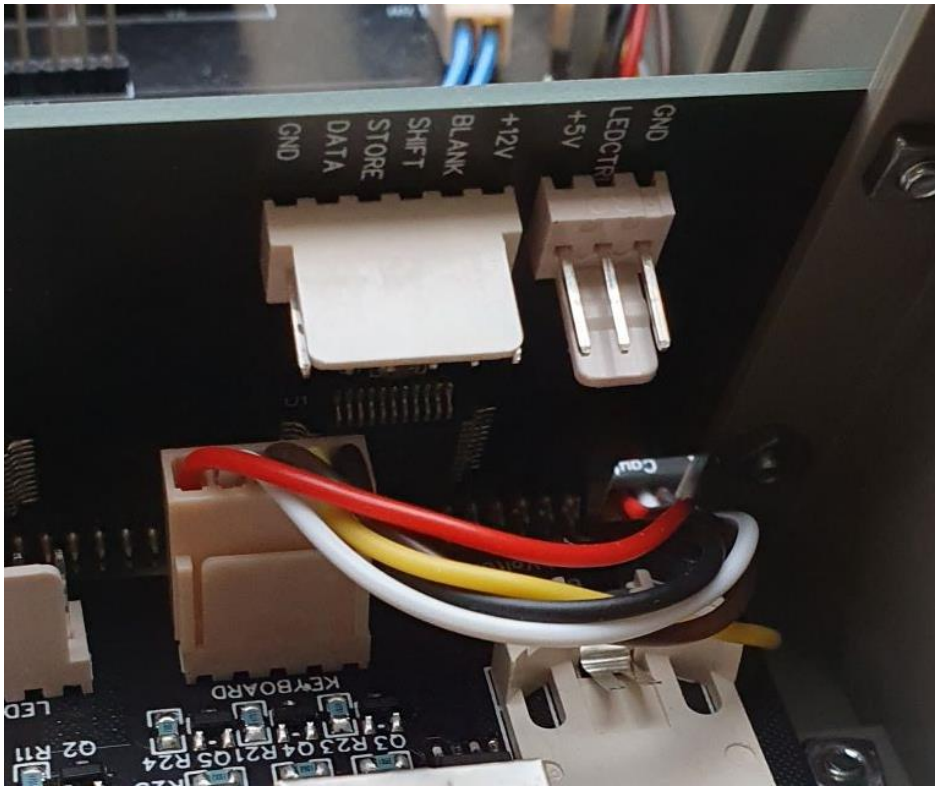
Connect +12V, EN and GND from controller to the HV power supply (could be different for your model)



Connect the SWITCH cable to the controller

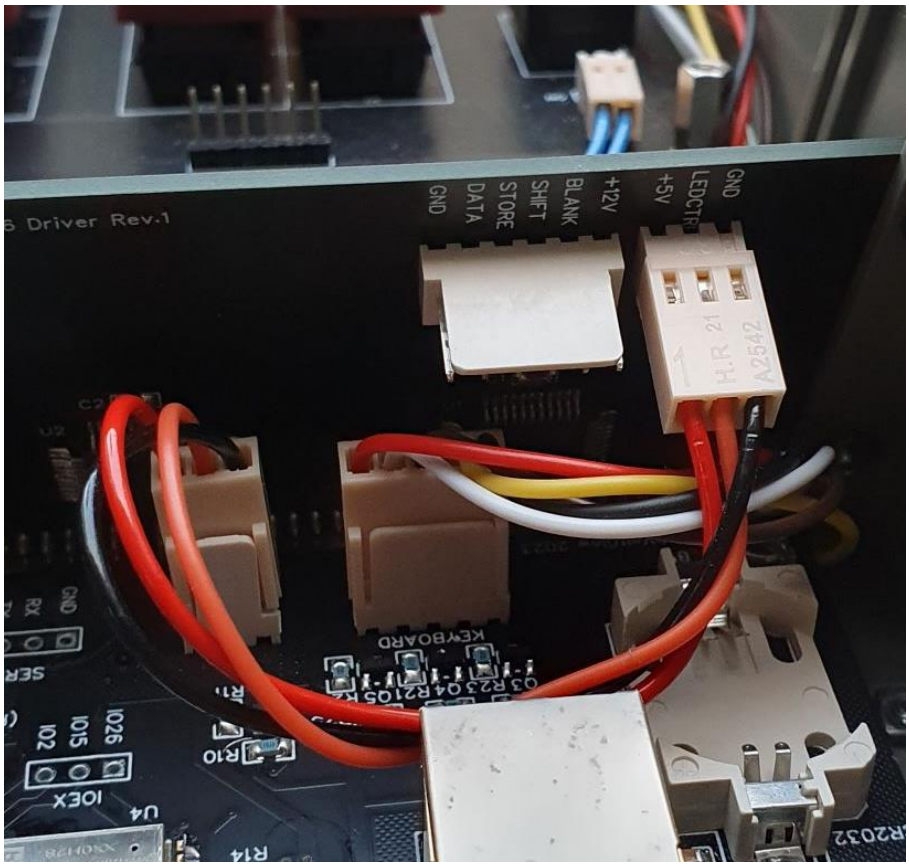


Connect the KEYBOARD cable to the controller

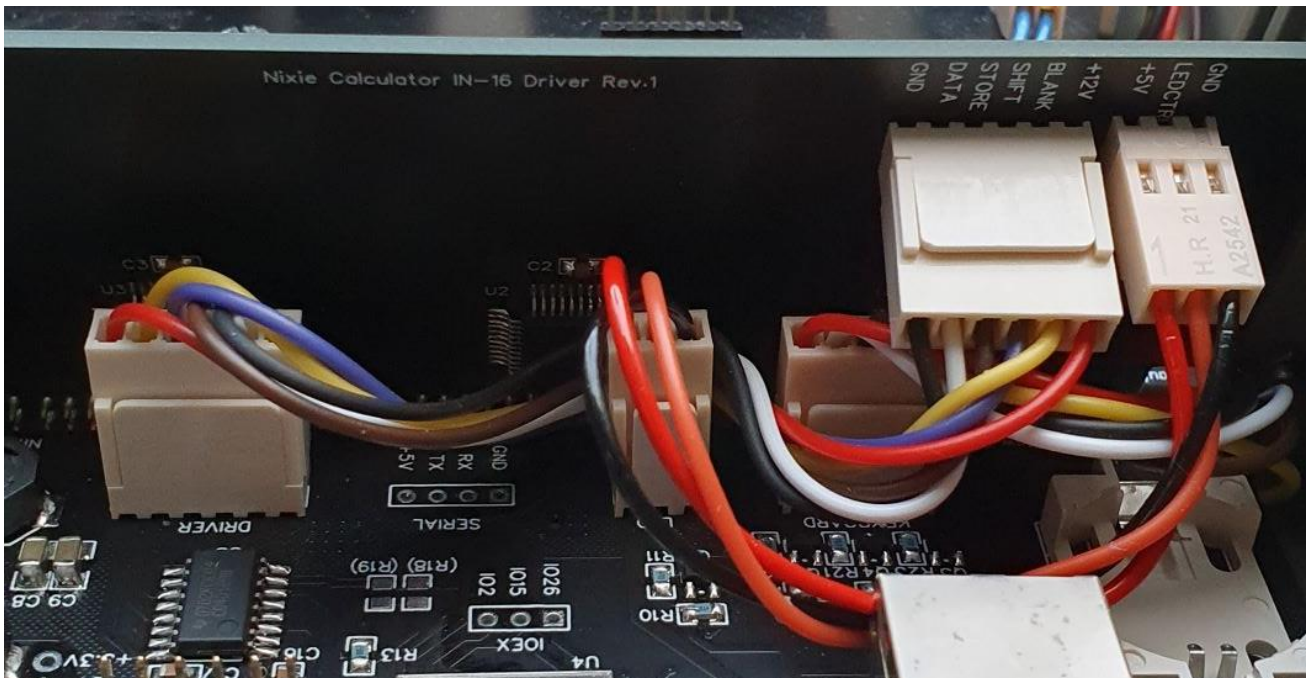


Connect the LED cable from the driver board to the controller

For the IN-16 version with underlighting connect the wires from the separate LED board to the controller.
For the other versions connect the wires between driver and controller board.



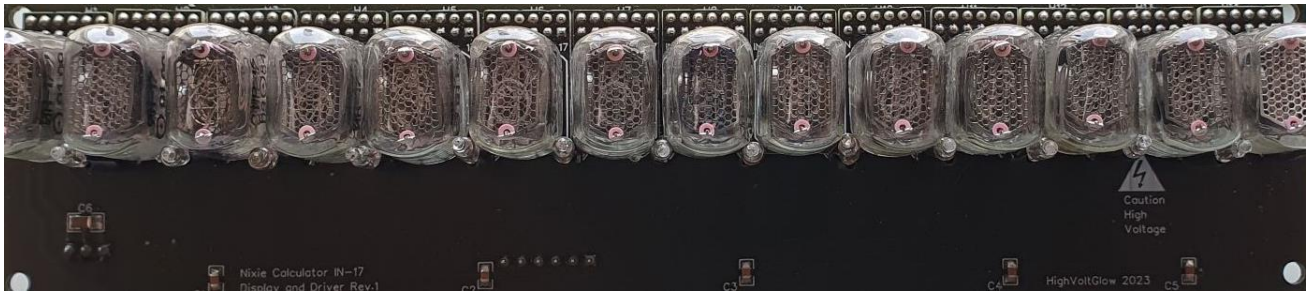
Connect the DRIVER cable from the driver board to the controller



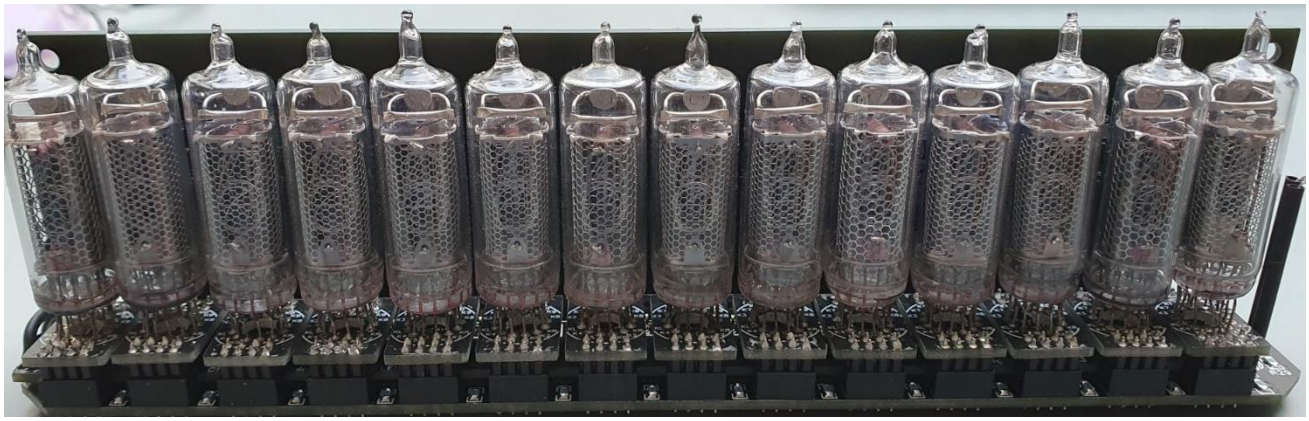
Insert the nixies

B-5870

IN-17



IN-16

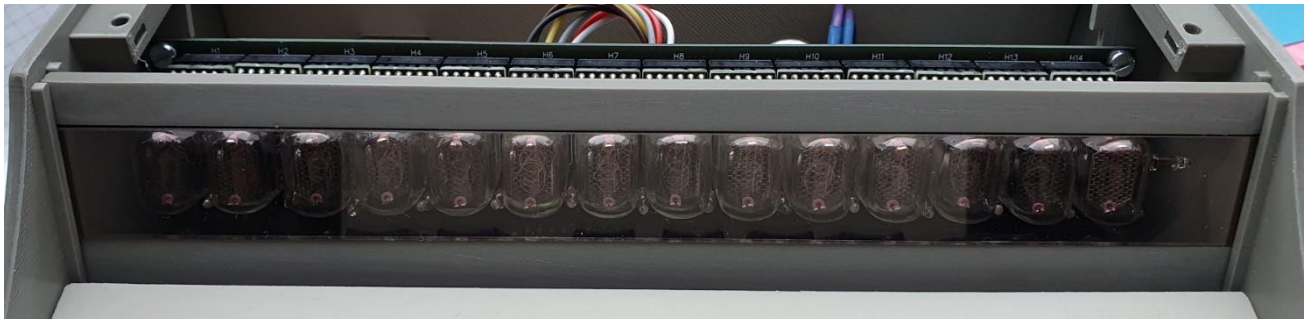


Install the 3D printed socket cover (B-5870 version only)

Install the keyboard shield

Insert the acrylic panel

For the IN-17 version insert first the 3D printed “Nixie Calculator Case IN-17 Front Panel Bottom” part, then the 20mm acrylic and finally the “Nixie Calculator Case IN-17 Front Panel Top” 3D printed part. For the other versions just insert the 50mm acrylic part. I prefer the acrylic type 7C22 (56% light transmission). Depending on the provider, the color is described as gray or brown or umbra.



Install the back shield

Install the top shield

Glue the label board

Place the rubber feet

Final adjustments

Check that everything is square and carefully tighten the screws.