RasPiBox Zero Lite

Version 4.0

construction manual

Rev.	Date	Description
A	02.09.16	First release
B	03.03.18	Changed to pcb version 3.0
C	31.01.20	Changed to pcb version 4.0

Tools:

agregulated soldering iron (25..40W) with small tip

a wet sponge to clean the tip

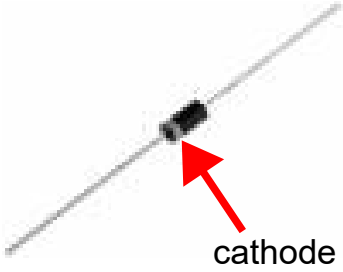
thin solder wire

Side cutting pliers

Needle nose pliers

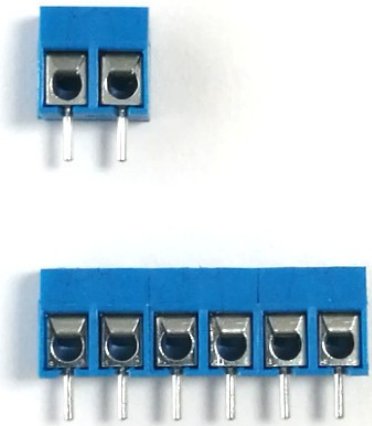
Medium cross slot screwdriver

Parts Basic Version:

 4x 2pole terminal block (K1, K2, K3, K4)	 1x 2x20pole female header (K6)	 1x Schottky diode SB260 (D2)
 2x self-tapping screws		

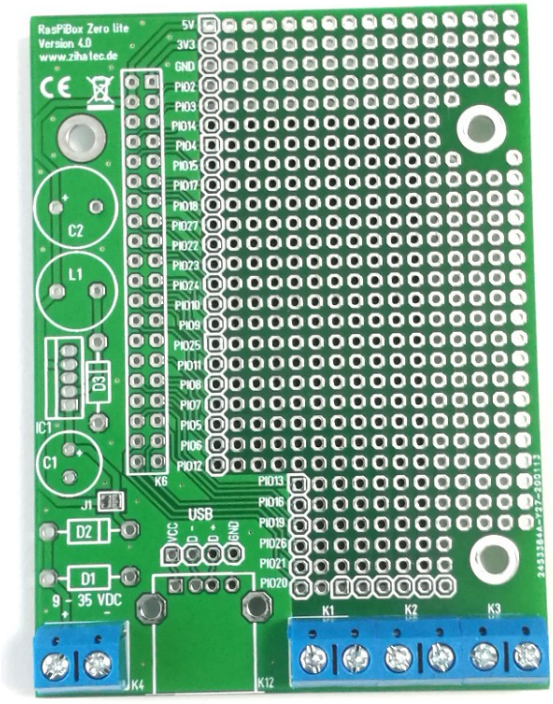
1.) Prepare the terminal blocks

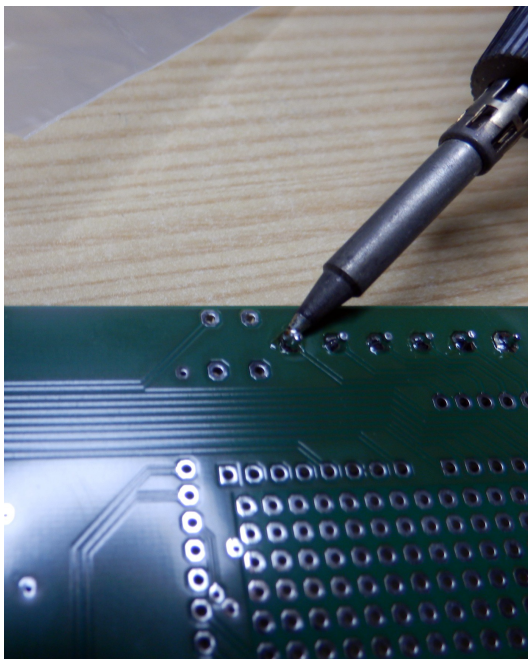
Find the terminal blocks, they're grey or blue and come in 2-pin shapes. We'll need to slide three 2-pin blocks together:



2.) Place and solder terminal blocks

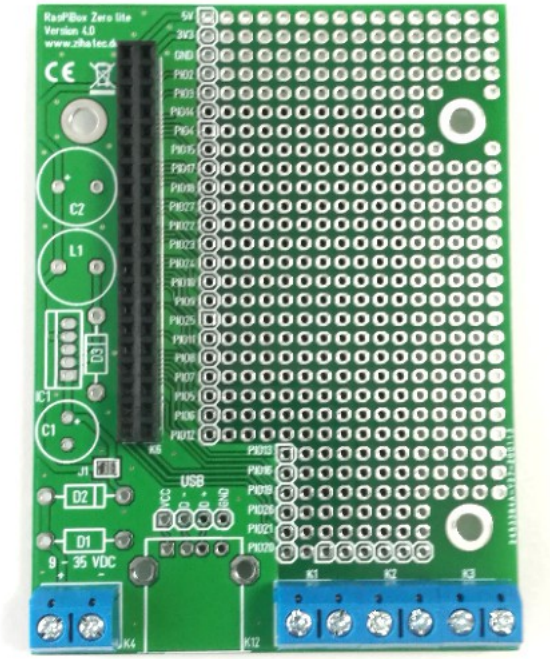
We've to put the blocks into the proto plate. Make sure you place them so that the open ends are facing out as shown:



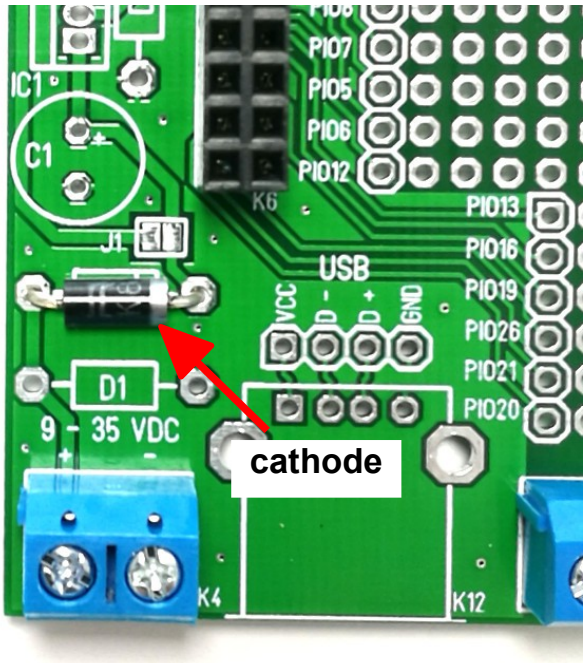


3.) Assemble and solder the 40 pole socket

You've to place and solder the 2x20 pin socket for the Raspberry Pi :



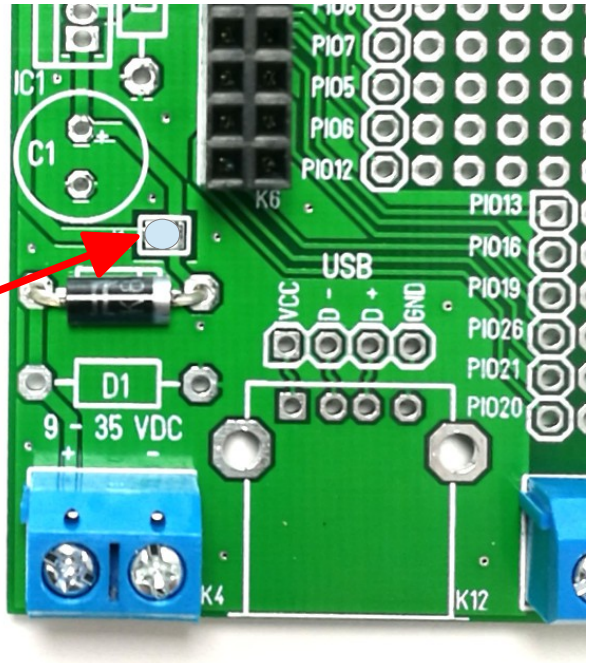
4.) Place and solder the schottky diode D2



5.) Set the jumper wire (basic kit only)

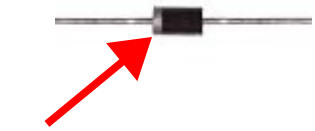
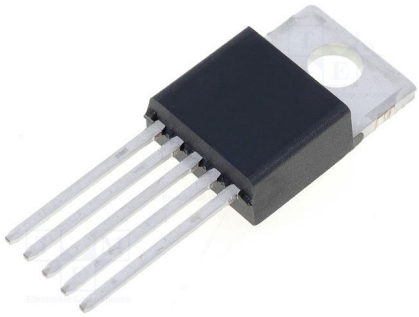
Attention: Please set this jumper in the basic version only! You can supply the PiZero with 5V DC directely from the terminal K4 now.

Solder the jumper

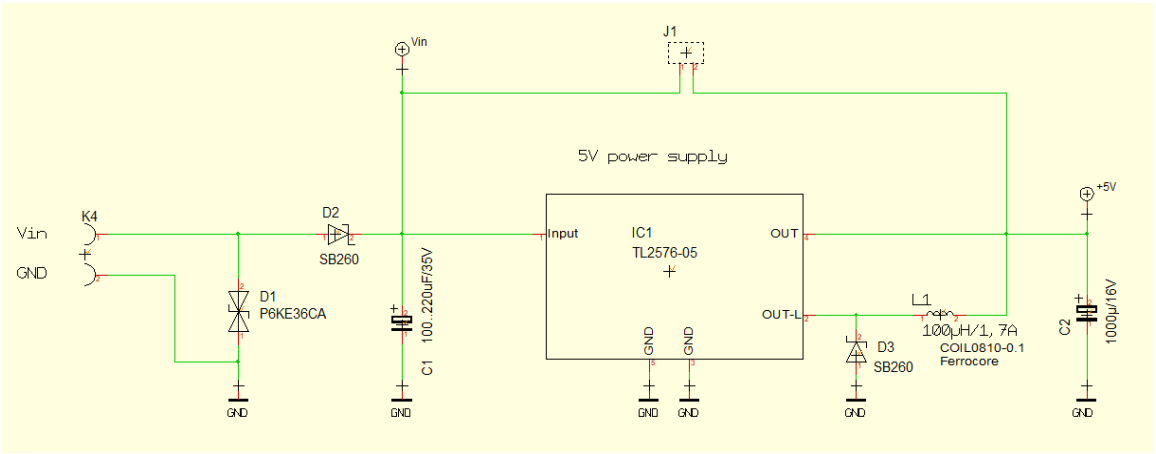


Perform the next steps only if you have the standard kit (includes the parts of the voltage regulator and USB socket). Otherwise continue with step 13.

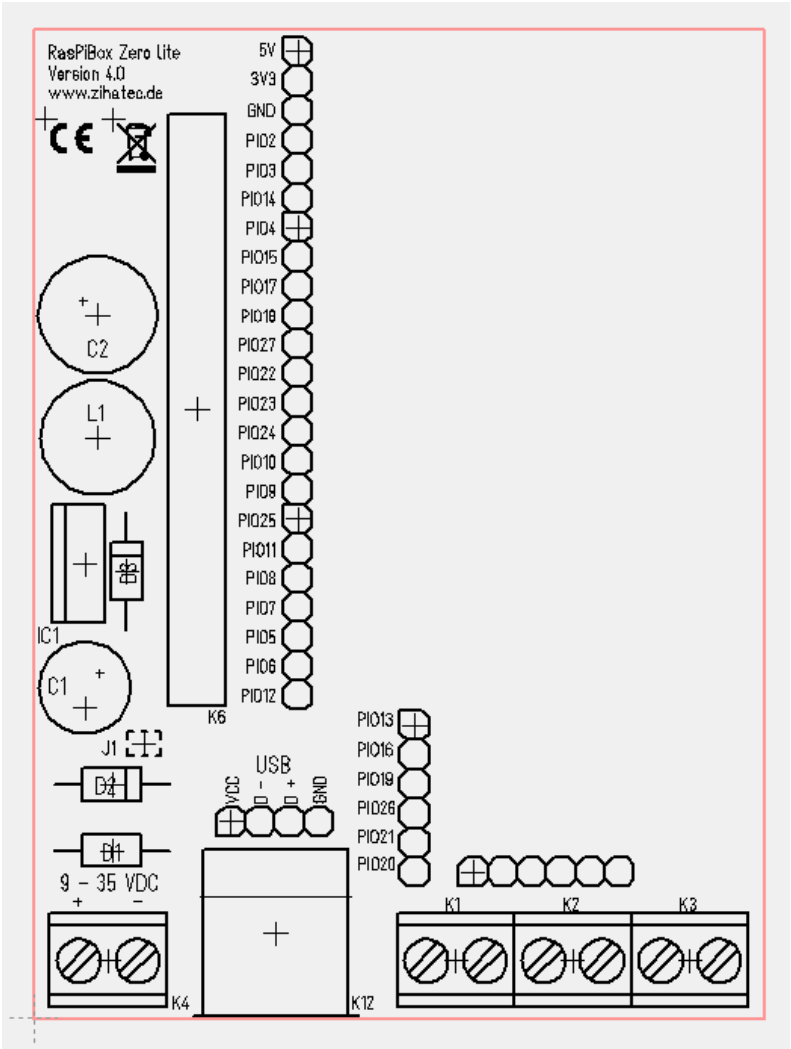
Additional parts of Standard Version:

 1x inductor 100uH/1.4A (L1)	 1x Schottky diode SB260 (D3)	 1x overvoltage limiting diode P6KE36CA (D1)
 1x voltage regulator TL2576-5 (IC1)	 1x electrolytic capacitor 100...220uF/35V (C1)	 1x electrolytic capacitor 1000uF/16V (C2)
 1x USB-A socket (K12)		

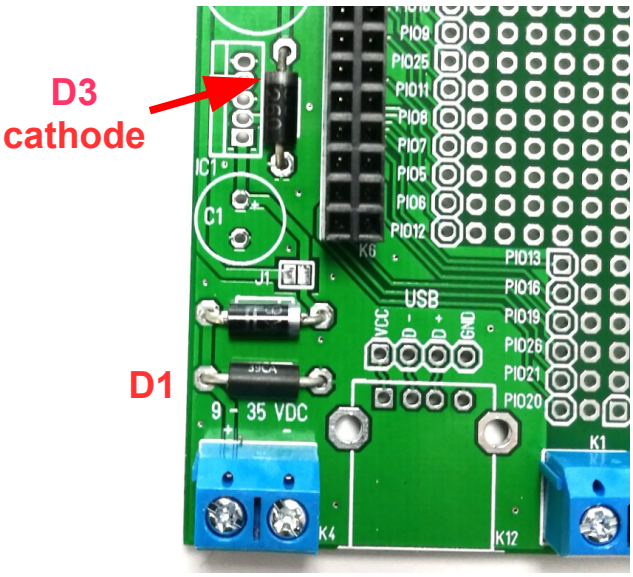
Power supply circuit:



Placement:

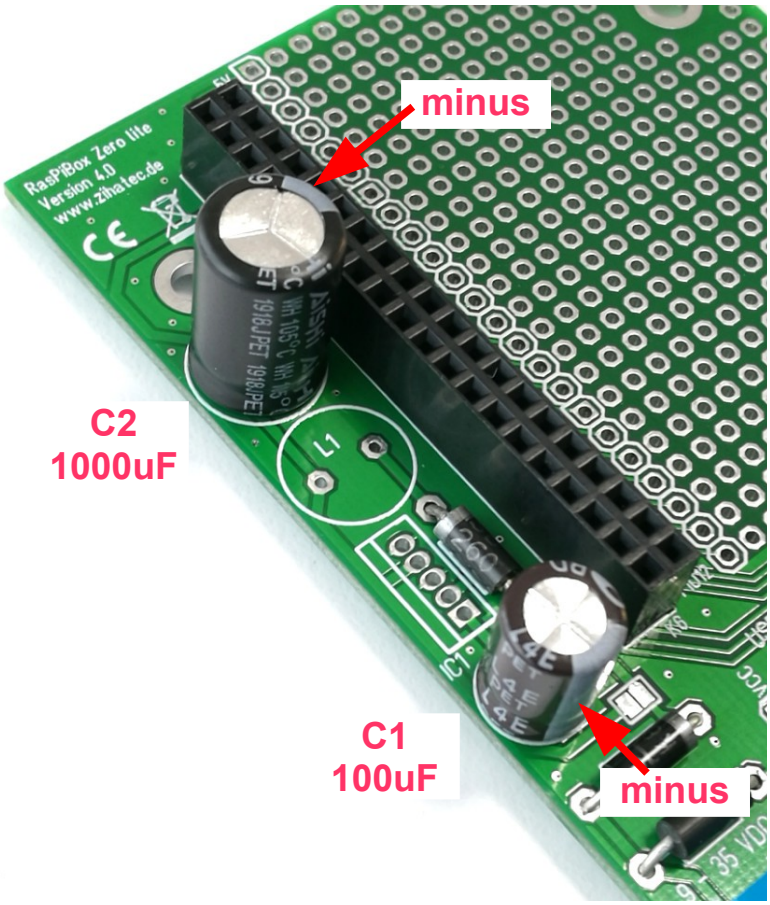


6.) Assemble Diode D1 and D3

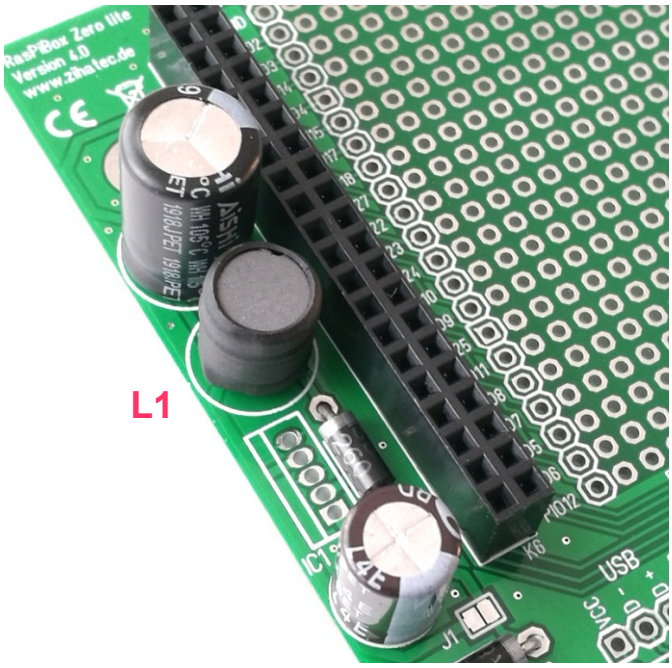


PIs Note: D1 has no polarity!

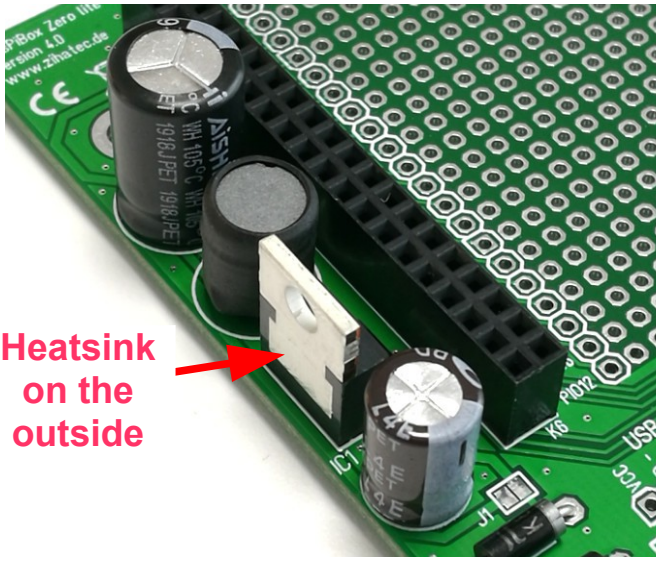
7.) Assemble the capacitors C1 and C2



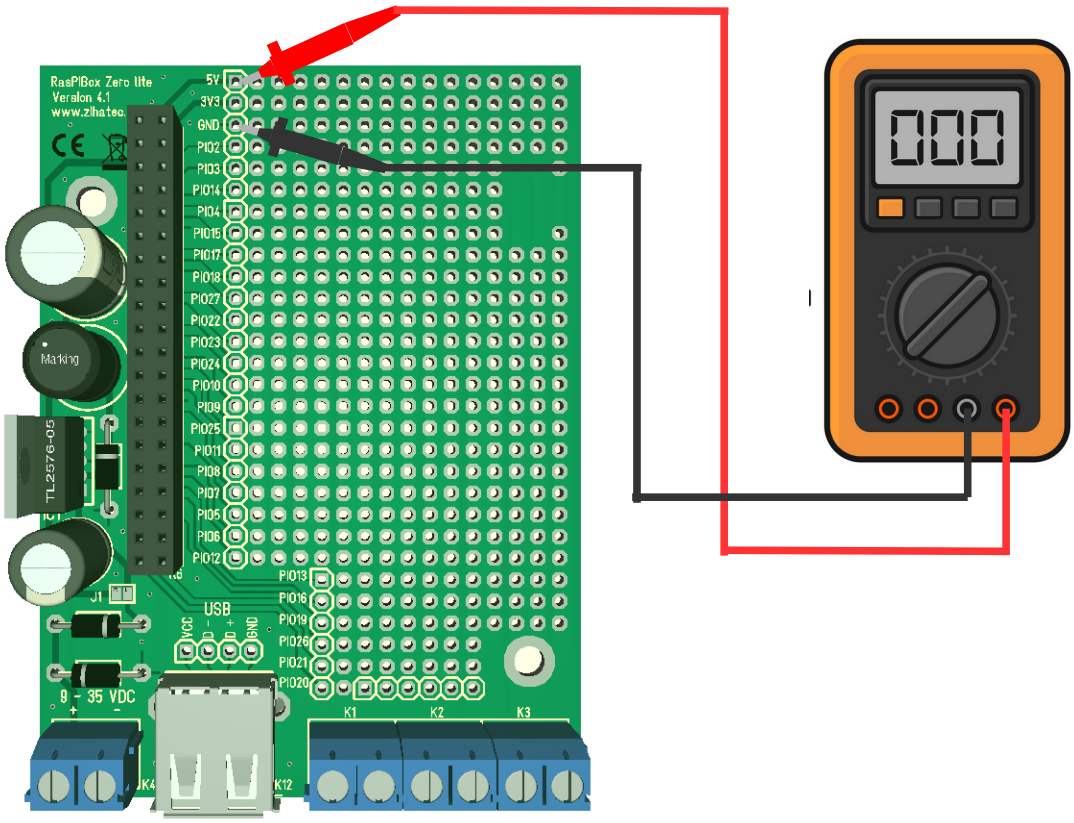
8.) Assemble the inductance L1



9.) Assemble the voltage regulator IC1

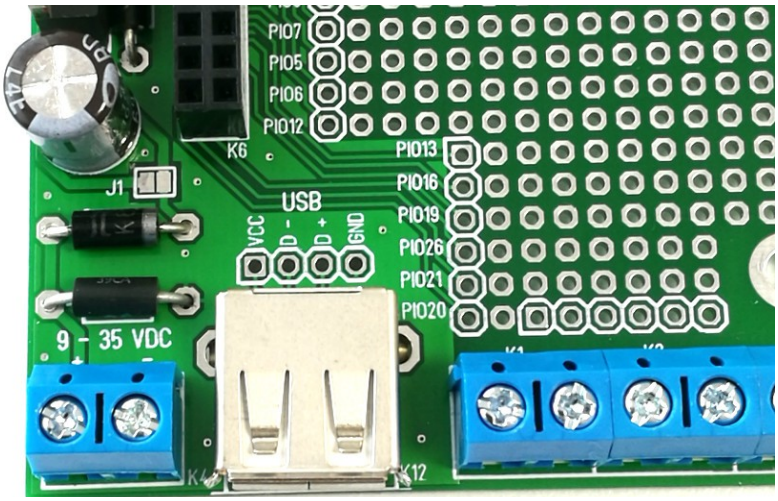


10.) Test of voltage regulator



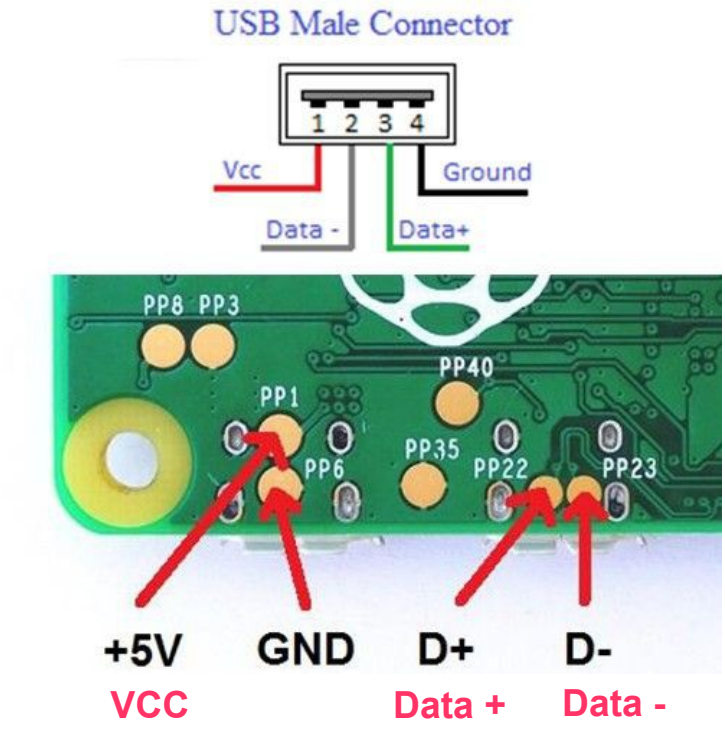
You have to measure a voltage between 4.9 – 5.1V!

11.) Assemble the USB socket K12 (option)



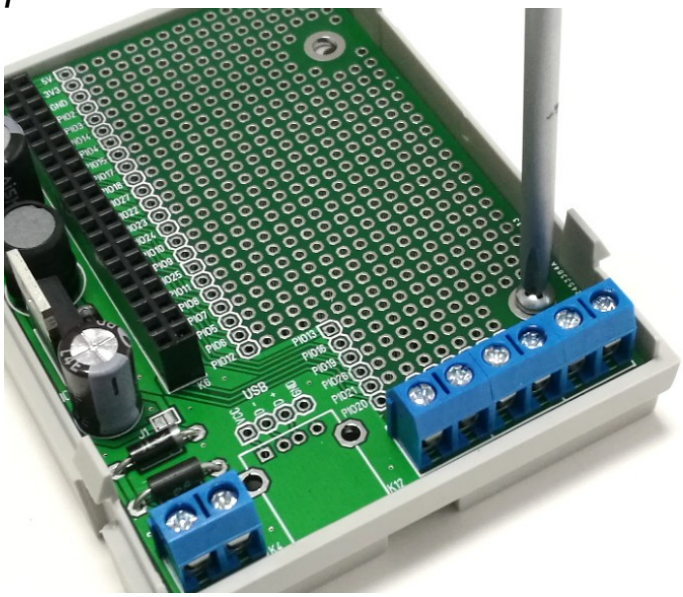
12.) Connecting the USB socket to the PiZero (option)

It's very important that the wires for D+ and D- have exactely the same length. The optimal length for the cables is 6-7 cm.



A ground connection to K12 is not needed!

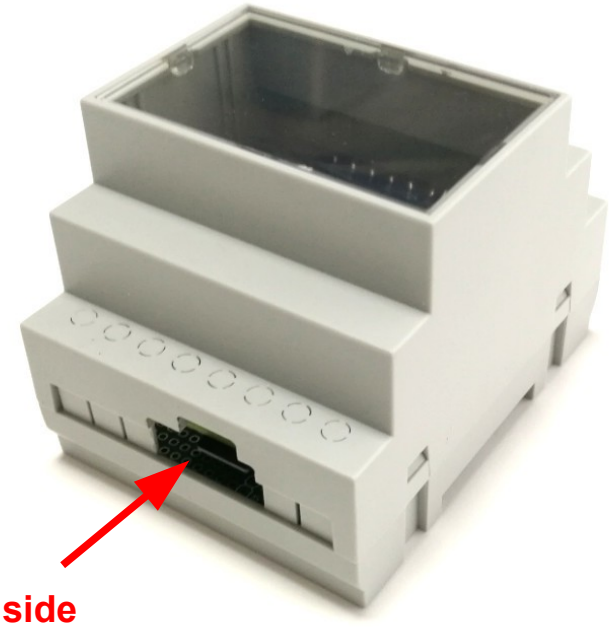
13.) Mount the pcb into the bottom shell



14.) Open the terminal covers

Depending on the used terminals you have to remove the terminal covers of the top shell. These covers comes with rated break points. You can remove it with a screw driver and a nose pliers:

15.) Mount the top shell!



Milling on top side
(sd card of PiZero)

Finish!