

Assembly Instructions

Circuit Board – Reference List



NETZWERK
TEILCHENWELT

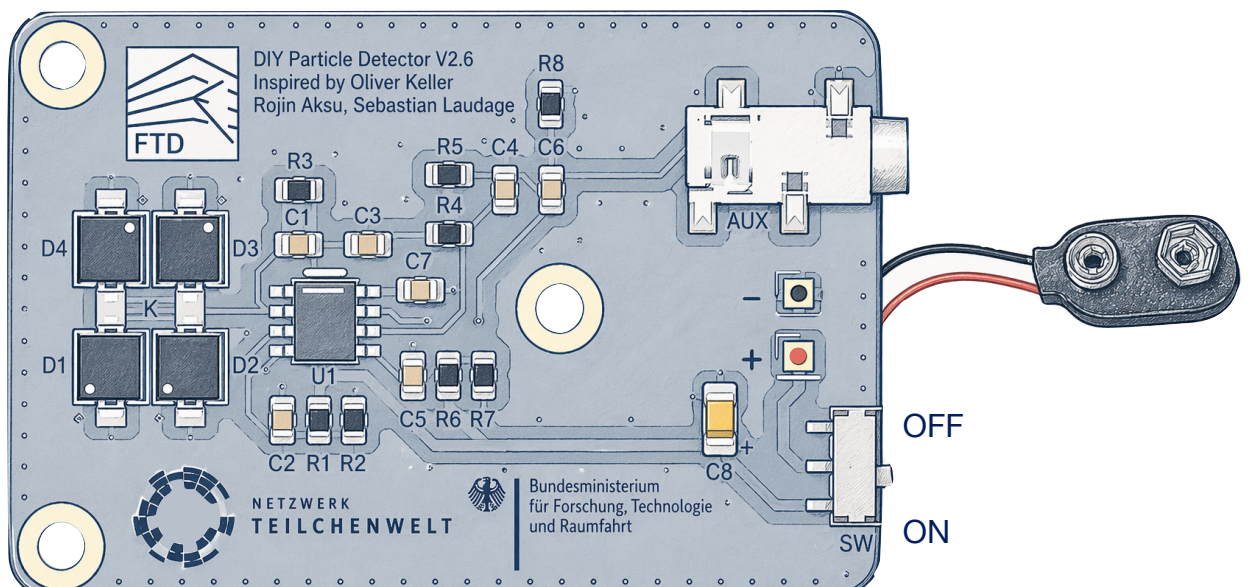


For components marked with an asterisk (*), pay attention to the orientation.



Komponentenübersicht

Bauteil	Wert/Hinweis	✓
R1, R6, R7	10 k Ω	
R2	15 k Ω	
R3	15 M Ω	
R4	1 k Ω	
R5	100 k Ω	
R8	2.2 k Ω	
C1	2.2 pF	
C4	68 pF	
C2, C3, C5, C6, C7	100 nF	
C8*	10 μ F, stripe toward +	
D1*, D2*, D3*, D4*	BPW34 diodes, dot to dot	
SW	Switch	
J1	AUX input	
Have a tutor check the detector before continuing.		
U1*	Operational amplifier, stripe to stripe	
+/-*	9V adapter, mount from the back	



Assembly Instructions

Testing, Installation and Measurement

1 Function Check

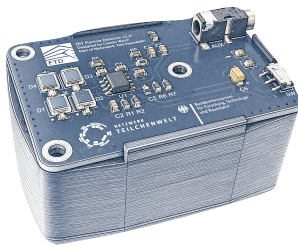


Measure the total resistance between the positive and negative terminals with a multimeter.

If the value is about $10.8 \pm 1 \text{ k}\Omega$, you can continue with the case. Otherwise, go to troubleshooting.

2 Case

- Set the switch to “Off”
- Connect the 9V battery
- Set the switch to “On”
- If the battery gets warm
=> switch it off and troubleshoot
- Place the battery in the case
- Slide the board into the rails with the diodes facing upward

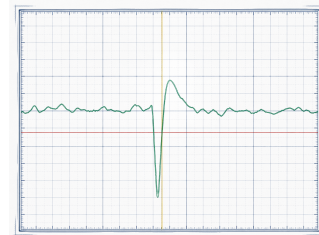


- Attach the lid to the board and case using 2 screws
- For better shielding, apply aluminum tape to the inside of the lid
- Avoid short circuits caused by the tape
- Ensure contact between the tape, screws and screw holes for good grounding



3 Measurement

- <https://openprocessing.org/sketch/2931559>
- Connect the detector to the PC using an AUX cable
- Set the threshold just below the noise level
- No pulses visible with a source? → Troubleshooting



4 Troubleshooting

Total resistance too high:

- Briefly reheat dull solder joints
- Check resistor values

Total resistance too low:

- Clean the board
- Briefly resolder dull solder joints
- Check resistor values
- Ask for help

No pulses visible:

- Test the AUX cable by tapping it
- Check the battery charge level
- Rule out short circuits
- Rule out light entering the detector
- Check all solder joints

No measurable total resistance or battery gets warm:

- Check the battery adapter connection
- Check the solder joints on the switch
- Measure 9V at C8, R6, R1 and C7