



tado Smart Radiator Thermostat v3 Plus

Teardown

This guide will completely dismantle the tado Smart Radiator Thermostat v3+

Written By: Dennis



Step 1 — Dismanteling the Basics



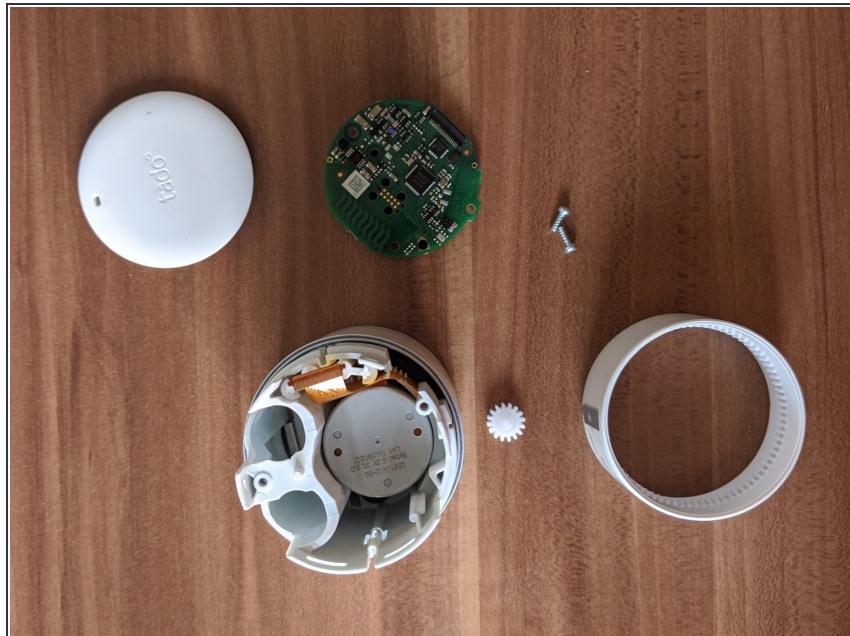
- This is one of those thermostats.
- The first disassembly step is quite straight forward as it's the way to **pair** and to **swap the batteries**.

Step 2 — Getting Into the Shell



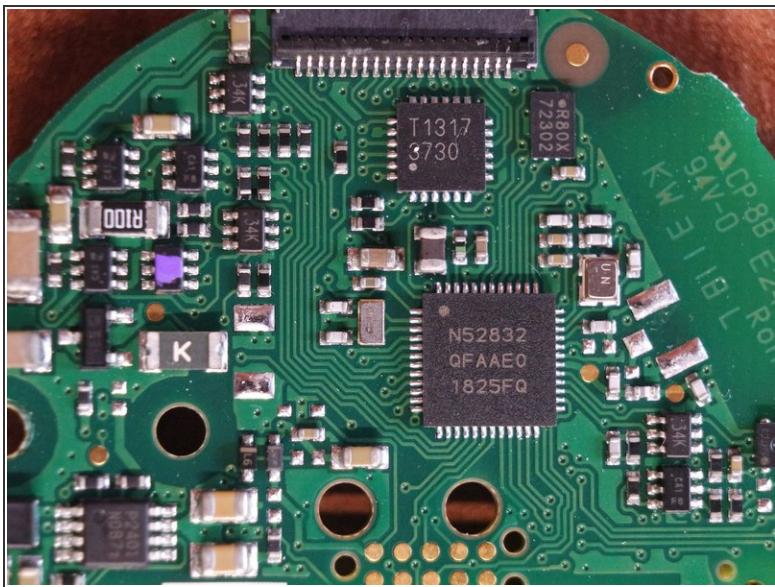
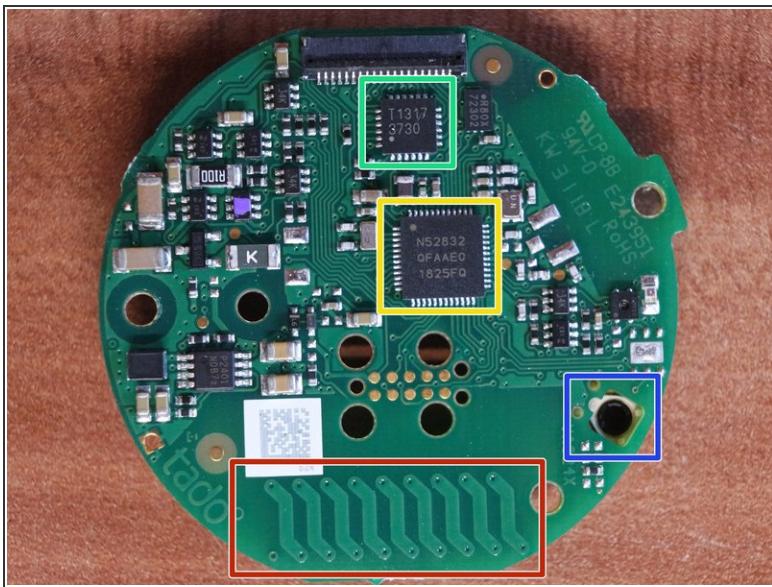
- The cover having the "tado" logo embossed is the first step to get into the thermostat.
- It is secured with 3 clips.
 - One right next to the little opening for the temperature sensor .
 - Two other on the opposite side.
- Once you removed the cover you can easily pry off the serrated ring. This serratation is connected to a little cogweehl which transfers the turning motion to a electrical signal for setting the temperature.

Step 3 — Removing the Main Electronics



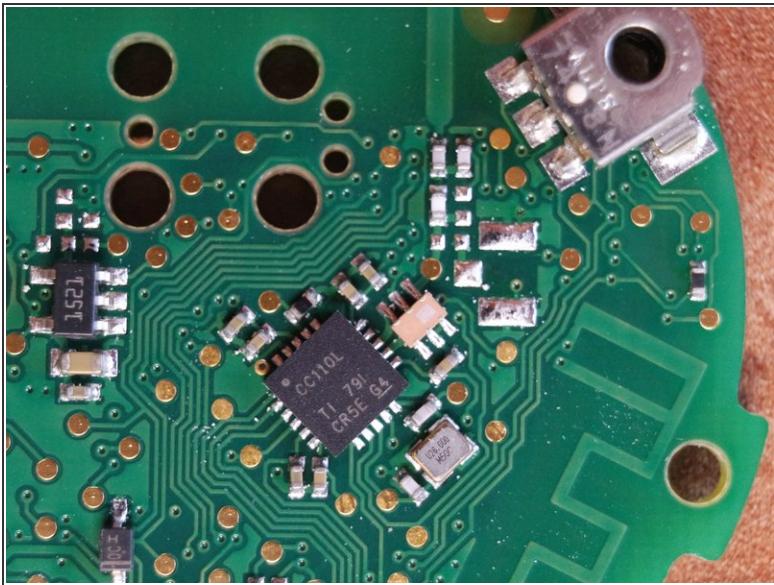
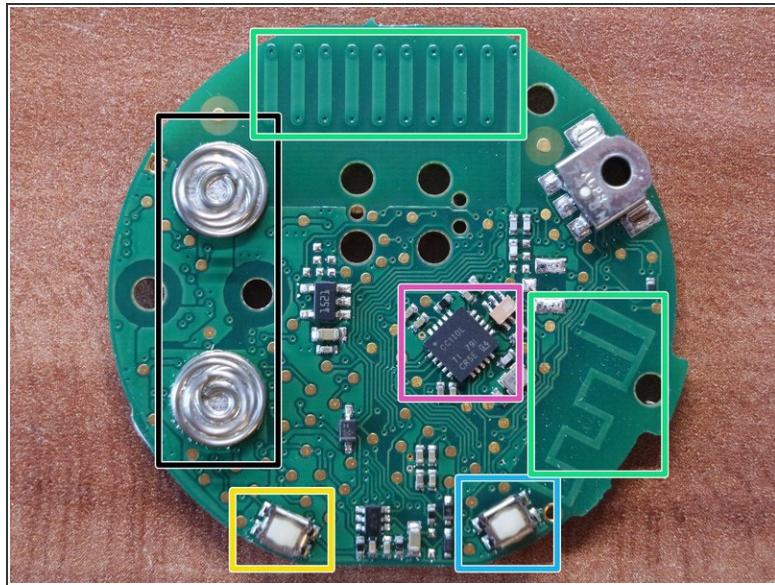
- The single PCB is secured in with 2 standard screws and a ribbon cable which leads to the "display".
- By lifting the tightening cover of the ribbon cable you can remove it.
- By removing the 2 standard screws you can finally completely remove the PCB from the assembly.
- Pay attention to the before mentioned cogwheel. It will also fall out.
- Additionally there are two plastic pins which transfer button pushes from to the PCB. More for that to come when looking at the PCBs.

Step 4 — A Quick Look at the Front of the PCB



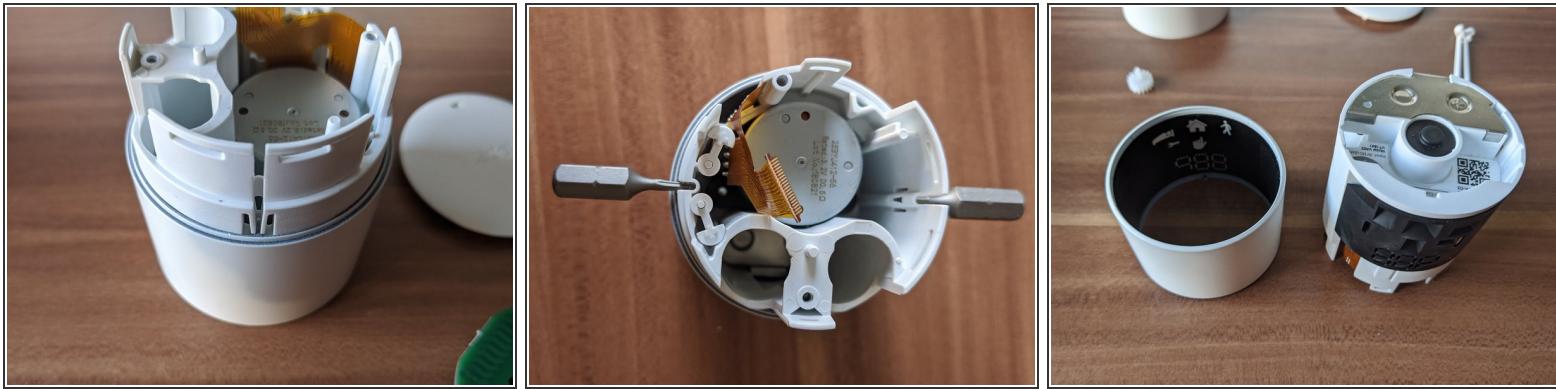
- On this side of the PCB you can see several important objects.
- The red section is the sub-GHz antenna which is the main communication antenna to the base station.
- The blue section is where the cogwheel for setting the temperature is positioned.
- The T1317 chip (green) I could not assign to anything. If sb. has an idea what it is, please let me know.
- Now the interesting thing: As far as I know, the tado thermostats have no means of communicating via Bluetooth but the N52832 IC (yellow) is a [low power bluetooth transceiver](#).

Step 5 — A Quick Look at the Back of the PCB



- On this side of the PCB you can see several more important objects.
- In black you see the both AA connections.
- The first button (yellow) is the button which is pressed when you screw lock the adapter plate back into the main unit when pairing or changing the batteries. It indicates to the device that it is mounted to a radiator.
- The second button (teal) is the pairing button.
- The RF antenna (red) already mentioned in the last step is connected to the CC110L IC (magenta), which is a [sub-GHz transceiver](#).
- In the last step on the other side of the PCB we saw a Bluetooth IC. On this side of the PCB we can also find the antenna for it (green).

Step 6 — Dismantelling the Rest



- The shell consists of two parts. The other one is painted black inside to block the light from the self-made LED display. The inner one houses all the rest.
- To separate the two, you have to remove two opposite clips by driving sth. between them - these might be toothpicks, but also can be bits like in this case.
- When you spread the clips apart, you can slide the other shell off - revealing the self-made LED display and its cover.

Step 7 — The Self-Made Display



- Here you can see how the managed to implement a bent "display". The black part is made out of rubber, blocking all the light of the LEDs in the ribbon cable behind.

Step 8 — Removing the Motor



- Removal of the motor is quite simple.
- Behind the sticker there are two more screws, securing the 25BYJ412-56 motor.
- Remove them and the motor including the ribbon cable and ribbon-display falls out.

Step 9 — The Full Disassembly



- And that is it, the completely disassembled tado Smart Radiator Thermostat v3+.