

This manual has been machine translated from German to English. If anything is unclear, please contact me.

Info

For the flame I used the model from "Jay" with the name "Flame Insert". Thanks Jay, at this point. I changed the settings so that it has only one wall thickness and is hollow inside and that the size is 170% of the original. I also cut off the cylinder at the bottom of the flame in the Prusa slicer. The base then has to be broken out. You must be careful here, because you still need about 4mm of base from the wall to be able to glue it on.

I have never tried the maximum running time, but I estimate it to be around 5 hours.

Tools

Soldering iron

hot glue

Superglue

Pointed pliers

Spray (if necessary)

Lighter or heat gun

PC/laptop

Programs

Thonny editor

Assembly instructions

Printing

The two handle parts, the adapter part in the upper handle, the middle piece and the torch holder can be printed without a support. Only the crown needs support. Organic support is useful here.

Sanding the thread

The threads may not engage properly after printing. In this case, you will need to sand them down a little with approximately 120 grit sandpaper. But not too much, otherwise it will become loose over time.

Gluing the adapter

The next step is to clamp the adapter piece into the upper part of the handle. To do this, place the adapter in the handle. Then insert the battery shield with the battery inside into the handle so that the micro USB socket is approximately in the middle of the hole. Once you have achieved this, you know the approximate position. Be careful, the adapter is not

symmetrical and must be turned so that the USB socket is close to the hole. Then take everything out again and use pliers or tweezers to insert the adapter afterwards. Then apply some hot glue to the two curved surfaces and insert the adapter. The adapter must be positioned with the battery shield before the hot glue hardens. Then remove the battery from the shield.

Spraying

If you want to spray the torch, you should do this before you assemble it. Remember, however, that you will then have to glue the centerpiece and the crown together. The glue may not hold properly afterwards, so you should cover the gluing surfaces and spray again after gluing.

Gluing the crown and the middle section

When you now glue the centerpiece and the crown together, you must first check whether the square decorations lie cleanly on the surface of the crowns. If this is not the case, it is worth using a slightly thicker glue or adhesive.

Soldering

It is best to screw the whole torch together. Then place the battery shield next to the Handle, the switch next to the opening for the switch, the Pico next to the middle section and the Neopixel ring next to the crown.

The wiring can be seen in the diagram. Now you can roughly estimate the length of the strands. You can now solder the 5V, Data and 0V on the Pico. On the Neopixel ring 5V, the data wire from the Pico and 0V. Make sure that you solder the wires as flat as possible on the ring and lead them towards the center, as the ring will be glued on later. Solder to the COM switch. The wires must be long enough to allow the battery shield to be completely removed from the upper Handle.

Once you have done this, screw the upper Handle and the middle piece together. Then place the Pico in the crown from above and glue the Neopixel circle to the center of the crown. Then lead the strands from the pico and the ring out of the center piece at the bottom. The two 5V wires are then threaded through the top Handle and out of the switch opening. You can then solder them to the switch at NO. After this step, lead all the wires out at the bottom of the upper Handle. Then you can solder 0V to the battery shield. 5V should then be isolated, unless you have already uploaded the code to the Pico, in which case you can skip the next step "Upload code".

Upload code

The torch is now ready to upload the code to the Pico. To do this, connect the Pico to a PC using a data micro-USB cable. I did it directly in the Thonny editor. If you are not familiar with it, there are good videos that describe everything.

Important: The code MUST be called main.py, otherwise the Pico will not execute it automatically when Power ON! You also need the neopixel.py code from Github for micropython. This must be saved with neopixel.py on the Pico.

https://github.com/blaz-r/pi_pico_neopixel

Once this is done, you can test the code in the Thonny Editor and unplug the Pico and plug it in again to make sure that it starts automatically. It may have a slight delay when switching on.

Yes, the code from me is poorly programmed as coding is not my forte. It should work though. If anyone wants to rework the code, I won't say no.

Finish

Now you have to solder the 5V wire to the battery shield, insert the battery and screw the torch shut. Make sure that the shield sits properly in the socket. This can be recognized by the fact that the USB port sits approximately in the middle of the hole. You can then insert some stuffing material to prevent the battery shield from wobbling. Then take the lower part of the Handle and place some stuffing material on the intermediate base so that the shield is pressed slightly upwards when the torch is screwed together, but not too hard, otherwise the shield could be damaged. Then screw on the lower Handle.

Now the torch is almost finished, and you just must glue the flame on top of the torch. Once you have done this, you are finished and can have fun with it.

Wall bracket (optional)

If necessary, you can print out the holder files and glue them together. You just have to make sure that the part with the screw holes sticks out further at the top than at the bottom and that the other part has a larger opening at the top than at the bottom. When you glue it, you will realize that only this orientation makes sense.

By Jojo