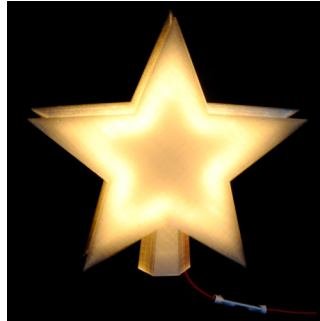




3D Printed Christmas Star Assembly Manual



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For best results, print this star in PET / PETG / T-Glase; it has been tested for many hours with this material and transmits the light beautifully. Clear ABS should work also. PLA **has not** been tested and it is unknown if it will withstand the heat generated by the LEDs. It may work, but use at your own risk. The two halves are a tight fit. You must have your extrusion factor calibrated nearly perfectly.

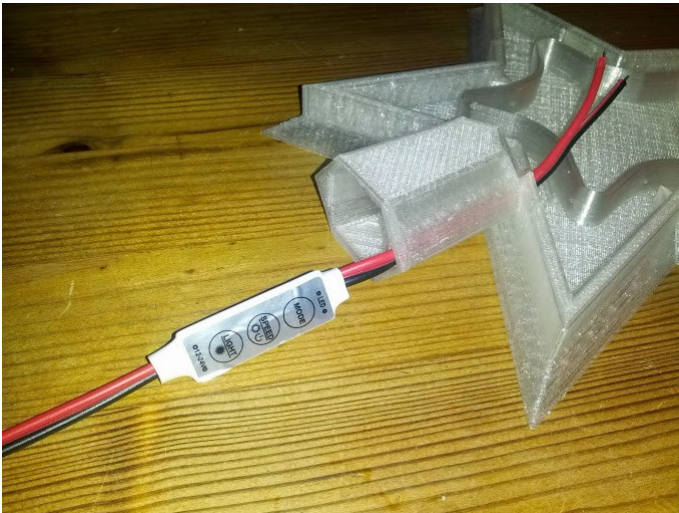
Bill of Materials:

- 1x star bottom, 1x star top
- 1x 3528 LED strip (do not use 5050, they get too hot), 120 LEDs / m looks best
- 1x 5.5 x 2.1mm female DC power plug connector cable
- 1x LED dimmer switch, 12V (optional)
- 1x DC adapter, 12V, min 0.5A, 1A best
- 2x heat shrink tubing, 25 mm x 2mm ID
- 1x heat shrink tubing, 45 mm x 5mm ID
- 1x heat shrink tubing (white is best, other colours may show through the star), 15mm x 7mm ID
- Thermal paste (optional but recommended)

Equipment:

- Soldering iron
- Wire strippers
- Heat gun (optional, you can use your soldering iron to melt heat shrink tubing but be careful)

1. Cut LED strip to 27.5mm, or to the closest cut line. Do not remove the backing.
2. Thread the dimmer through the star. Make sure the black wire is the to rear of the star, the dimmer buttons are facing to the outside of the star, and the writing on the dimmer is right side up (not upside down). Pull it through as far as you can.

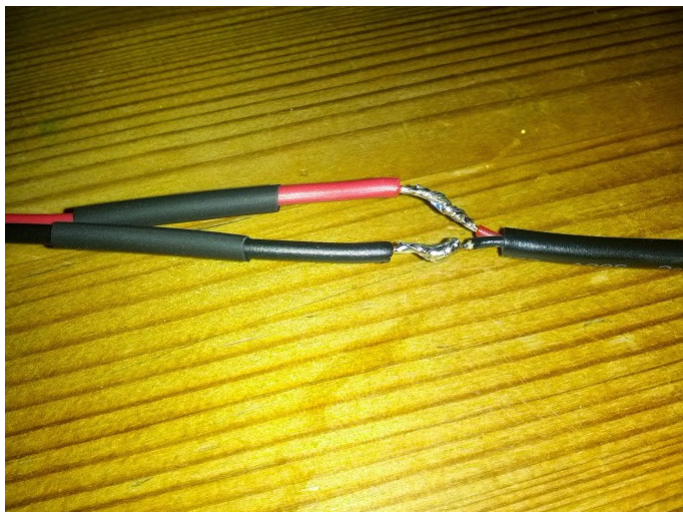


3. Separate the bottom dimmer wires about an inch from the ends.
4. Cut off the small bit of tinned wire and then strip 1 cm of the stranded wire.
5. Trim and strip an equal amount of wire from the end of the DC plug. Be careful not to cut through the wire or you will have to start trimming the larger outer sheath.
6. Add a strip of the 2mm ID heat shrink to each of the dimmer wires and get them as far away from the ends as possible so that they don't shrink while soldering.
7. Add the strip of 5mm ID heat shrink to the DC plug and get it as far away from the end as possible.

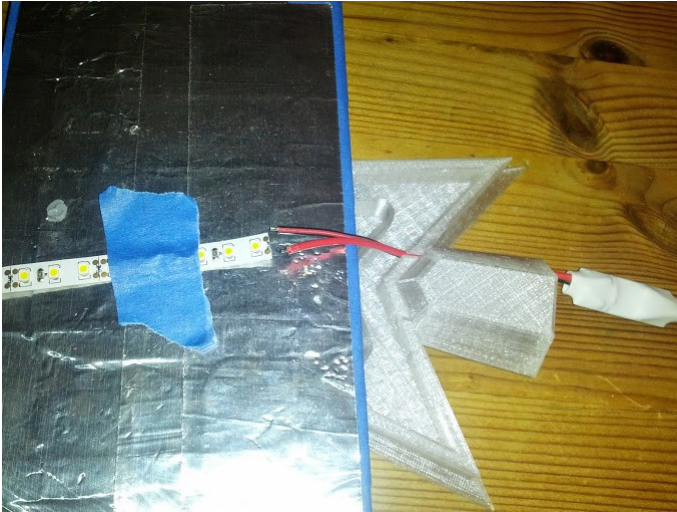


8. Solder the dimmer wires and the DC plug wires together. Try to make the solder joints as straight as possible for a clean looking cable.
9. Cover each solder joint with the smaller heat shrink.

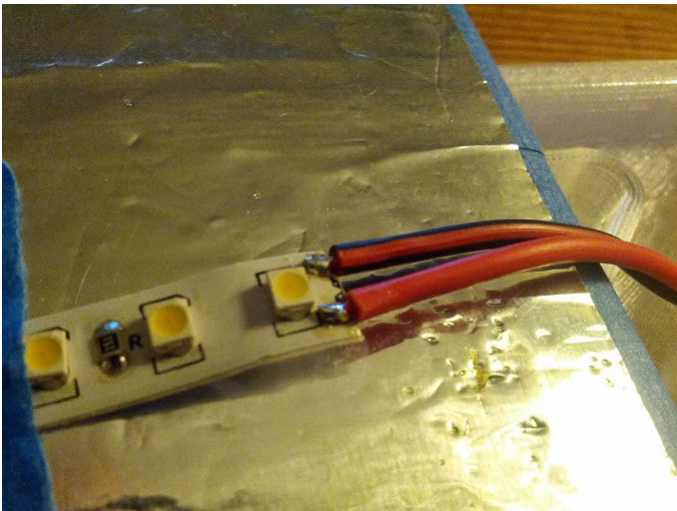
10. Cover both wires with the larger heat shrink.



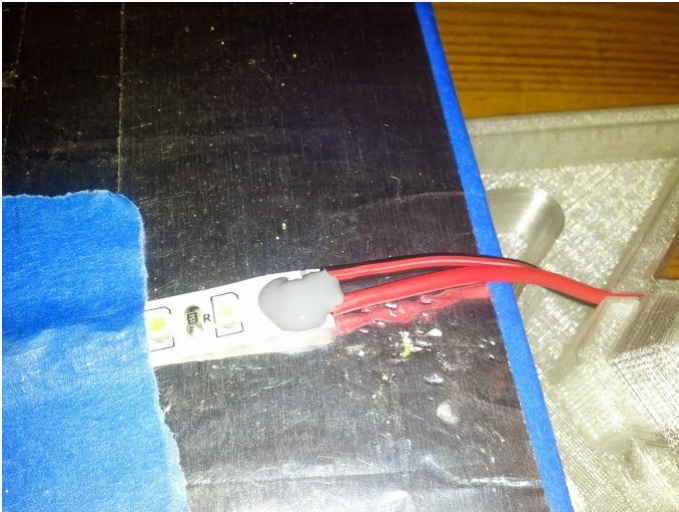
11. Plug in the DC power adapter and touch the leads to the LED solder pads to confirm the polarity. DO NOT LET THE DIMMER LEADS TOUCH EACH OTHER or you will most likely fry the dimmer.
12. Tape the LED strip to something that will hold it flat and protect the 3D printed star from the heat of the soldering iron.



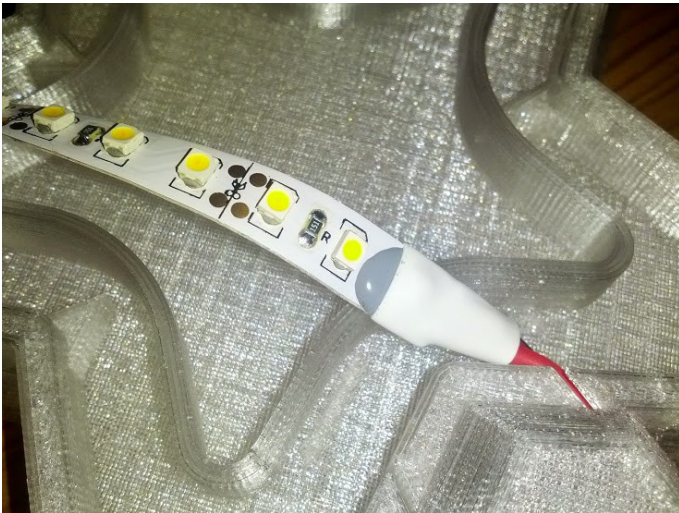
13. Apply a dab of solder to the LED pads and then press the wires onto the pads. Hold the wires with tweezers or pliers and press the lead down with the soldering iron.
14. Test that you have made a strong solder connection.



15. Plug in the LEDs to make sure everything works as expected.
16. Apply a dab of thermal paste to where the dimmer wires join the LEDs. Let dry according to the directions on the tube. The thermal paste is not entirely necessary if you don't have any, but it's inexpensive, provides strain relief, and ensures that the wires will not touch each other if your solder joint fails.



17. When the thermal paste has dried, thread the 7mm ID heat shrink tubing over the LEDs and cover the solder joint and thermal paste.
18. Pull the wires back so that the heat shrink is almost touching the wall of the star. Remove the LED backing and fit the LEDs to the light wall. Work your way around slowly, pressing the LED strip flush with the wall before turning each corner. Stiff tweezers help. Make sure each end of the LED strip is tucked securely behind the short retaining walls and that there is a small gap between the two LED ends.





19. Fit the star front and snap each corner in place. Note that one inner corner of the star top does not have bumps, this goes at the bottom.



20. If you need to open the star, use a knife to gently separate the two halves.
21. Place on top of your tree and enjoy!