

Amp a Lilygo Pager



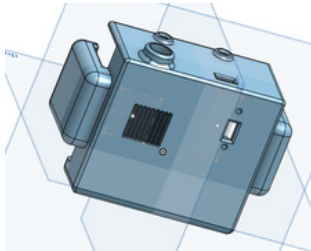
Warning: For informational purposes only. Modifying radio devices can be dangerous. Do this at your own risk.

DO NOT ATTEMPT THIS EXPERIMENTAL PROJECT UNLESS YOU ACCEPT ALL RISK AND KNOW WHAT YOU'RE DOING!

- 2x or more distance
- Increased signal penetration



See the full parts list at the end of this document

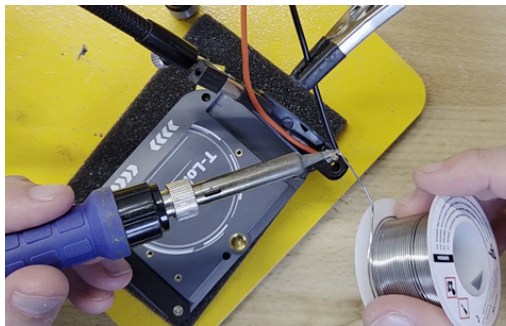


1. 3D Print the Amp's Enclosure

Download files at [printables](#)

2. Remove Pager Antenna

Carefully unscrew the pager's antenna, open its enclosure, and remove the copper coil.



3. Replace with new wires

Attach new positive/negative wires to the antenna's PCB and ground. Red (+) is inserted and soldered where you removed the coil. Black (gnd) can attach to the top of the pigtail connector.



4. Cut a notch for the wires

Use a dremel or file to cut a notch in the antenna housing so the new wires can fit through.

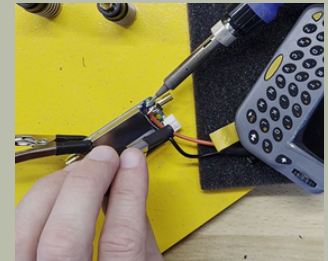


5. Close & re-attach housing

Close and replace the antenna housing, as it was before, with your new wires coming out of the housing.

6. Connect antenna wires to Amp IN

The new Red(+) wire goes to the Amp IN center post. The new Black(gnd) wire goes to one of the amp's ground posts (NOT the center)



7. Test Antenna Connections

Test for continuity between new ground connector and any ground, as well as new antenna red wire and the SMA's internal connection. Ensure no short between them.

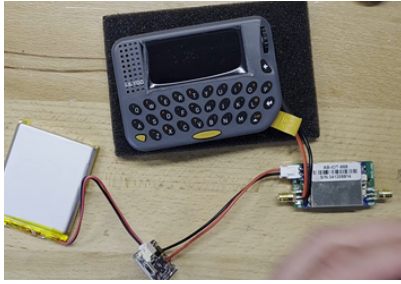
8. Attach Switch & Wires to Charge Controller

You only need 2 switch posts, so I cut one of the extra's off (just using what I had). The switch solders to EN and GND.

Red → 5v+

Black → (-) / GND





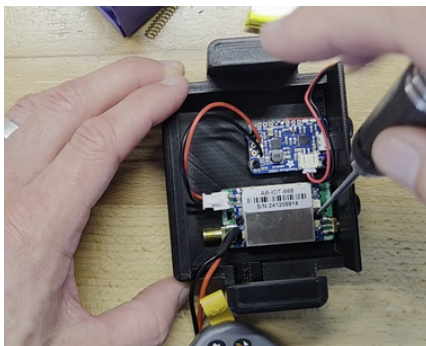
9. Connect all Components

Soldering is done. Connect the components as shown. If you want to test, add an antenna and power the amp on momentarily. Both the amp and charge controller should light up.

10. Insert Heat Nuts

Insert heat nuts into all 8 locations on the enclosure.

I use soldering tips for that. There are other ways.



11. Mount Components

Insert the amp and charge controller into the enclosure, using m2 screws to hold them in place.

The amp's heatsink should be facing the vent of the enclosure.

12. Insert Battery & Pager

The battery lays over top of the components. I use thick electrical tape as insulation, so no short can happen if a component scratches the battery.



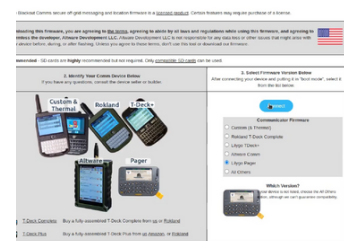
13. Snap in Pager

- Snap the pager into place
- Use m2 screws to attach the enclosure to the top of the pager
- Add new antenna



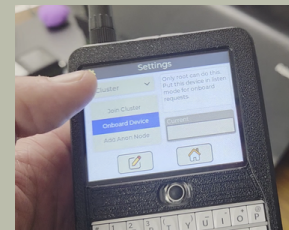
14. Add SD & flash firmware

- Add a compatible SD card
- Visit the Blackout Comms firmware page and flash the device



15. Onboard to your Cluster

On your root device, choose “Onboard Device” and on your pager, select “Join Cluster”. Don’t forget to power the amp on.



Components

Lilygo Pager	<u>Rokland</u> or Lilygo	
Amp Enclosure	<u>You must 3d print this</u>	<u>3D Print Files</u>
AirBuddy Amp	<u>Amazon</u> or <u>Ali Express</u>	1 Watt 915 / 5v Amp
Micro SD Card	<u>Amazon</u>	<u>Compatablity list</u>
Charge Controller	<u>Adafruit</u>	PowerBoost 1000c
Antenna	<u>Amazon</u>	<u>Rubber Ducky</u>
Amp Battery	<u>Adafruit</u>	3.7 LiPo, 2500 mAh
Toggle Switch	<u>Amazon</u>	
Nuts/Bolts	<u>M2 Heat Insert Nuts, M2 Screws</u>	Small PCB-Type Toggle

