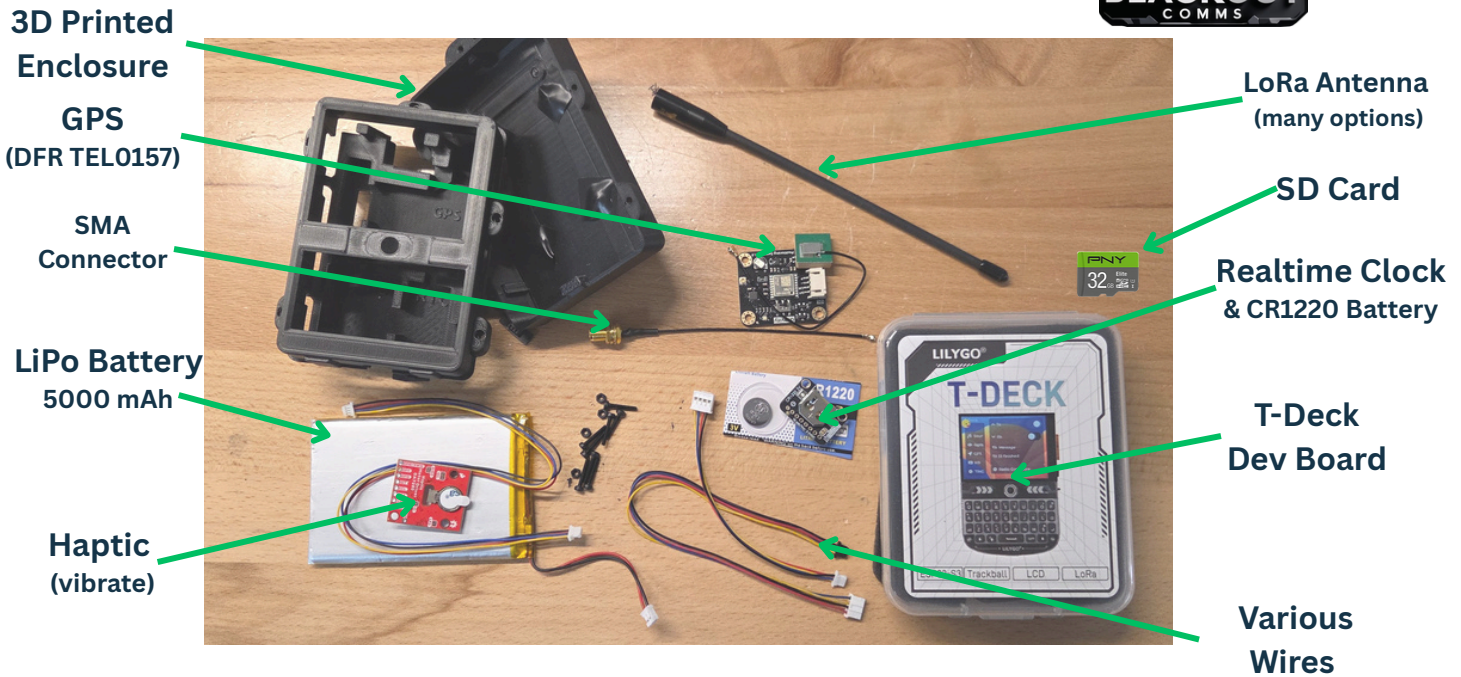


# DIY Blackout Comms Communicator



↓ See Full Component List & Links / Sources On The Last Page ↓

## You Are Building and Encrypted Off-Grid Mesh Communicator

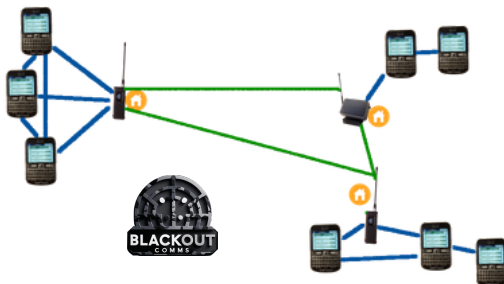


Blackout Comms firmware allows you to **communicate securely off-grid**. It can run on various devices, including, Lilygo T-Deck, Lilygo Pager, Altware Pager, and more.

Instead of internet & cell service, it uses LoRa, meshing, encryption, and digital signatures for local communication and **does not require service or infrastructure** and works during a grid outage, using local RF signals, encryption, and mesh techniques.



### Example Blackout Comms Private Mesh Cluster



Learn more at <https://chatters.io>



### Notice: Assemble at Your Own Risk

You should be familiar with electronics and soldering before attempting this project. This document may contain mistakes. *Mistakes or faulty/incorrect hardware could result in injury, fire, or other damage.*



## Print Your Case

Download [printable enclosure](#) files (includes 3MF and STL formats). **Search @ printables: "blackout comms"**

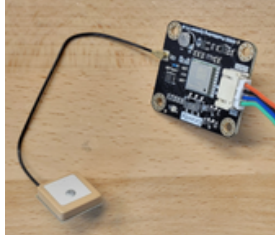
PETG and ABS are both good options.



## Attach Backplate & Belt Clip

Push M2 Nuts into the hex-shaped holes of the case back. Attach the small back plate using M2 screws. If you're adding a belt clip, attach that now as well.

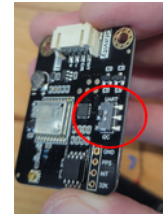
Finally, add some protective tape over any sharp edges.



## Prepare the DFRobot GNSS

Move the DFR's switch to **IIC**, and then use a wire cutter/clipper to clip the long plastic switch much shorter. It will just be in the way later on if you don't.

Also, attach the GPS antenna, as well as the cable you just made.

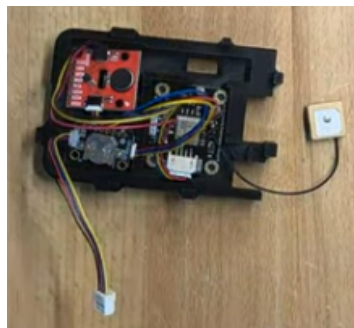
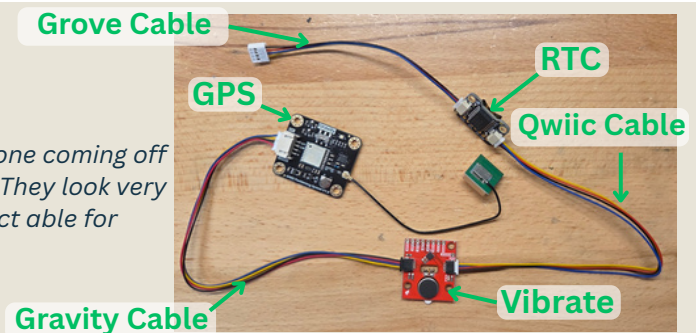


## Connect all Components

Connect components in the order shown.

*Be careful not to mix up the T-Deck connector (the one coming off the realtime clock) and the DFRobot Gravity cable. They look very similar, but they are not, and you must use the correct cable for both.*

Add the RTC battery (CR1220)

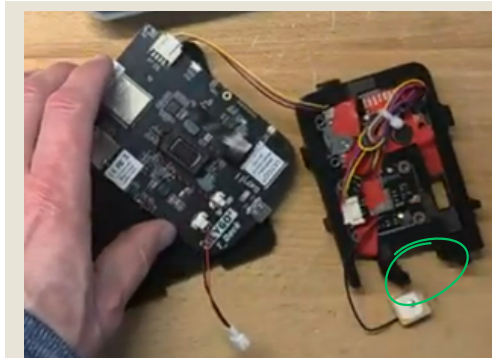


## Place Components into Tray

The 3D-printed component tray has labels showing you which component should be placed in each area.

It's a good idea to tape, glue, or rubber-cement these components into place so they can't move and rattle around.

It's a good idea to zip tie excess wiring out of the way as well.



## Connect Components to T-Deck

- Connect T-Deck to Grove Plug (nearest the RTC)
- Attach the antenna SMA pigtail connector
- Plug in battery adapter (not the battery yet)
- Remove the screen protective film

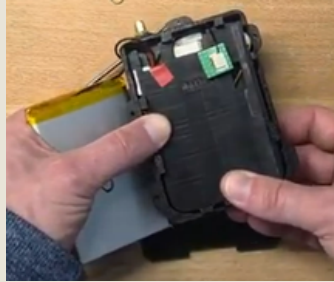
**Note - When you connect the battery, double-check polarity. The image shown does not reflect the polarity of your T-Deck! Use a multimeter/continuity test to see which side of the battery connector is ground.**



## Install the T-Deck

Carefully press the T-Deck into the front of the case.

Press the SMA antenna connector through the opening for it, and use the SMA nut to secure it in place.



## Press the Component Tray Into Place

After double-checking battery polarity, connect the battery.

Next, press the component tray against the back of the T-Deck.

Position the GPS antenna so it's in the hollow area of the center/top of the enclosure front. You can "glue" into place with silicone if you want.



## Install Battery & Close the Case

The battery should fit perfectly. If you've chosen a smaller battery, you may need to use double-sided tape to keep it in place.

Finally, install the back of the case with M2 screws. Blue thread lock is a good idea.



## Add the Antenna + SD Card

Insert a compatible SD card.

Now you are ready to flash the firmware.

*The USB-C port on the bottom is for both charging and flashing the firmware.*

**Now you are ready to flash the firmware and create your cluster!**

### Custom Comm - Blackout Comms Tested Distances

*Assuming decent line-of-sight. Results will vary based on conditions.*

Custom Communicator

3-4 Miles

4-6 Miles

7+ Miles

Amped Kits & Comms

BLACKOUT COMMS

**Your cluster is also an encrypted, off-grid decentralized mesh cache**



# Blackout Comms Firmware

DOWNLOAD 

After assembling this device, download the firmware for free from *chatters.io*.



## User Guide

How to use the T-Deck with Blackout Comms



## How it Works

How messaging works in Blackout Comms



## Firmware

T-Deck firmware flash page



## Firmware Download Mirrors

<https://chatters.io/firmware>

<https://content.chatters.io/esp32/index.html>

<https://www.meshcomms.club/firmware/esp32/>

<https://www.offgridcomms.club/firmware/esp32/>

## Sources used for this build:

### Multimeter

The only thing you need a multimeter for is to make sure your polarity is correct when connectin the battery.

### Other Supplies

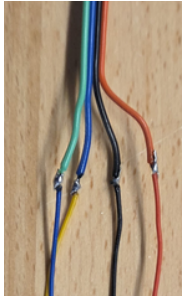
A 1.5mm hex screwdriver makes this easier.

Rubber cement and blue thread locker are a good idea as well.

TDeck	<a href="#">Rokland</a> , <a href="#">Amazon</a>	Dev board (not complete)
T-Deck Battery	<a href="#">Amazon</a>	3.7 LiPo, 5000 mAh
Realtime Clock	<a href="#">Adafruit</a>	DS3231 (Stemma QT)
GNSS/GPS	<a href="#">DFRobot 1103</a> , <a href="#">DFRobot TEL0157</a>	Either option works, often available at Digikey
Vibrate / Haptic	<a href="#">Digikey</a>	Optional - enables vibrate alerts
Antenna & Connector	<a href="#">Rubber Ducky Antenna</a> , <a href="#">IPEX to SMA Male</a>	Antenna + pigtail connector between T-Deck & Amp
Micro SD Card	<a href="#">Amazon</a>	Check <a href="#">compatablity list</a>
Wires	<a href="#">Qwiic Battery Connector</a> <a href="#">Grove Stemma to Qwiic</a> <a href="#">Gravity Qwiic Cable</a>	<i>Be sure to get exactly the Grove &amp; Gravity cables linked. Others that look similar may short your board! If you can't get the Gravity cable, see how to make one further down.</i>
Nuts/Bolts	<a href="#">M2 Screws</a>	You need nuts (9), 5mm screws (4), and 12mm screws (5).
USB Cables	<a href="#">Amazon</a>	High quality USB-C data cable.
Belt Clip	<a href="#">Ebay</a>	Optional

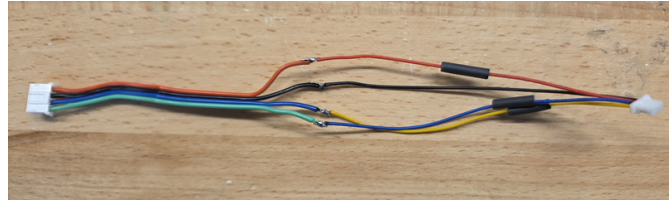


## Optional - If you can't get a Gravity / Qwiic Cable Adapter



Create an adapter wire that will allow the DFR cables to attach directly to any Stemma/Qwiic plug. I heat-shrink wrap the connections (they must be insulated). This one there is no pre-made adapter I could find with correct wiring. Beware of any you *do* find as *one* I found has ground/VCC reversed!

Qwiic Yellow/Clock → DFR Blue/Clock  
Qwiic Blue/Data → DFR Green/Data  
Qwiic Red → DFR Red  
Qwiic Black → DFR Black



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