



1. Power button (S1). Press briefly to turn on. Power/BT LED (5) will flash. Hold to turn off. Power/BT LED will turn off.
2. PTT switch (S2). Facing switch with components up
 1. Push to right for Kenwood/TNC style PTT, with PTT on separate pin.
 2. Push left for common HT style PTT, with PTT multiplexed on MIC signal (Yeasu, Vertex, Icom, Alinco).
3. 3.5mm TRRS connector for Radio.
 1. Tip = Speaker (audio input to TNC)
 2. Ring 1 = PTT (with S2 to right)
 3. Ring 2 = Mic (and PTT with S2 to left)
 4. Sleeve = GND/Common
4. Mini USB connector for charging/power
5. Power/BT LED indicator (Blue). Flashes fast when pairing and slow when paired.
6. Charge LED indicator (Red). On when connected to USB and charging, otherwise off.

Before First Use

The battery will not be fully charged when you receive the TNC. It is always best to plug in a mini-USB cable and charge the battery before first use. When the Red LED turns off, the battery is charged. The battery will typically last 2 days when paired to another device.

Before connecting the TNC to a radio, it is best to pair the TNC to a device and to configure the software without a radio connected.

Connecting/Pairing

1. Press S1 briefly to turn on TNC. Blue LED will flash rapidly.
2. Ensure Bluetooth is enabled on other device.
3. On other device, scan for Bluetooth devices. You should see “Mobilinkd TNC1”.
4. Connect to “Mobilinkd TNC1”. Use password “1234” when prompted.

Recommendations For Use with APRSdroid

This assumes that you know how to pair a Bluetooth device with your Android device and have followed the “Connecting/Pairing” steps above. This is a good first-time setup and should be customized to your needs once you are familiar with APRS and APRSdroid.

You are encouraged to download the [APRSdroid software from Google Play](#). You can also find the software at <http://aprsdroid.org/>.

It is recommended that this be done without a radio connected to the TNC. Ensure the TNC is on and paired with the Android device.

1. Start APRSdroid.
2. Go into Menu|More|Preferences
 1. Set your SSID. SSID 7 is common for hand-held radios.
 2. Set your APRS symbol. If you don't know which one to use, choose /[for now. That will put a “jogger” symbol on the map for your position. See also <http://www.aprs.net/vm/DOS/SYMBOLS.HTM>
 3. Personalize the comment field.
 4. Under “Location Source”, select “Periodic GPS/Network Position”.
 5. Under “Location Settings|GPS Precision”, select “Low”. If this device connects to a mobile phone network, select “Use network position”.
 6. Under “Connection Protocol”, select “Bluetooth TNC”.
 7. Under “Connection Preferences|TNC Bluetooth Device”, select “Mobilinkd TNC1”
 8. Under “Connection Preferences|APRS digi path”, enter “WIDE1-1,WIDE2-1”
 9. Enable “Connection Logging”
3. Return to the main screen.
4. There are three views: Hub, Map, and Log. Ensure you are in Log view.
5. Select “Start Tracking”.
6. The blue LED should start blinking more slowly (two brief blinks every 2 seconds).
7. You should see a green line in the APRSdroid log where it sent a position report to the TNC.

Connecting the TNC to a Radio

1. Ensure the TNC and radio are both turned off.
2. Plug the cable into the radio.
3. Plug the cable into the TNC.
4. Route the TNC and the cable away from the antenna. (Excess RF energy in the cable and TNC can cause the TNC to latch the PTT circuit with some radios.)

5. Ensure the PTT switch (S2) is set appropriately for your radio.
6. Power on the Radio, setting the volume level to about 25-50%.
7. Tune the radio to the desired frequency.
8. Press S1 briefly to turn on the TNC. The blue LED will flash rapidly.
9. Start APRSdroid and select “Start Tracking”. The LED will flash slowly when connected. This will immediately beacon your position.

Setup and Configuration

When testing the TNC, it is best to ensure that a digipeater is nearby or that you have another APRS/Packet AFSK 1200 baud radio device to test with. A hand-held radio will typically need line of sight to a digipeater within 3-5km (2-3 miles) in order to have the signal digipeated.

Listen to the audio on the local APRS frequency. If at least some of the signals are clear and free from static or audio distortion, the TNC should be able to decode those APRS packets.

Some adjustment of the audio level may be required to get optimum packet decoding. Every radio model is different and the volume levels necessary may vary considerably. It is best to start lower and slowly increase the volume until the packet decoding is optimized.

An app to help find the proper audio level will be made available in the future.

Software Customization

The TNC has a AVR109-compatible bootloader. Firmware can be updated using the open source program “avrdude”. For the more adventurous types, the TNC has a 6-pin ISP connector. The ISP is programmed using a 6-pin pogo-pin adapter (such as [Digi-Key ED8179-06-ND](#)) that is pressed onto the 6 pin connector. Or a standard 2.54mm 6-pin header can be soldered in place for programming.

The code running on the TNC is based on KISS TNC code contributed to BeRTOS by Robin Gilks G8ECJ. The code has been modified for the hardware. The code is available from GitHub. See <http://www.mobilinkd.com/> and follow the links to GitHub.

This code is released under the GPL. Hacking (AKA “voiding your warranty”) is highly encouraged.

<https://github.com/g8ecj/bertos/tree/g8ecj/hdlc> – original version

<https://github.com/mobilinkd/tnc1> – latest firmware