TNC-X

The First TNC to Offer Both USB and Bluetooth

Just $50!

BlueTooth is Now Available for TNC-X!

--So you can now use APRS from your Android SmartPhone (details here)!

goto ordering information

goto USB driver installation information

TNC-X Documentation Page (manual, schematic, sou code, etc.)

What is a "KISS Mode" TNC and why would I want one?

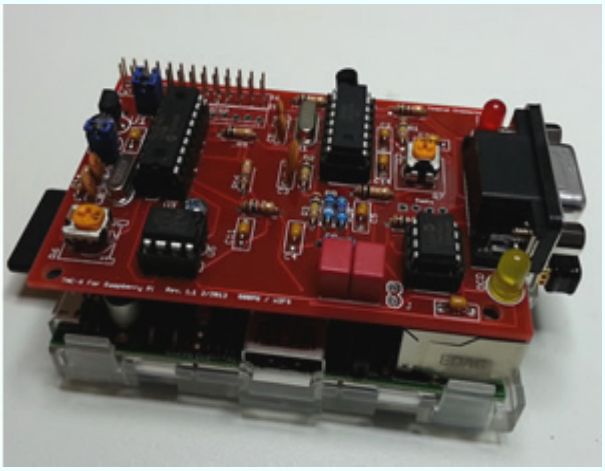
Daughter Boards for TNC-X:

X-BT: Bluetooth for the TNC-X.

APRS on Your Android Smart Phone!

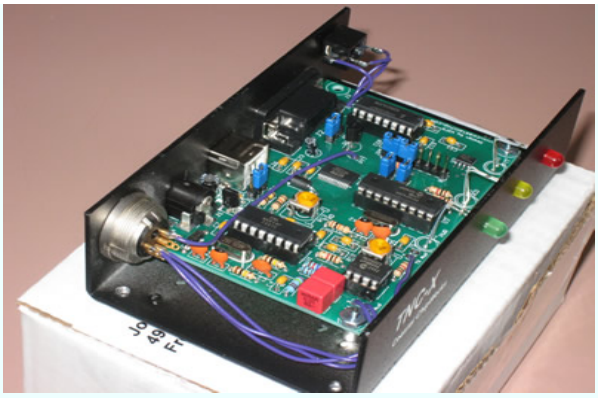
X-Digi: Add A Digipeater to TNC-X!

X-Track: Make your TNC-X a Tracker!



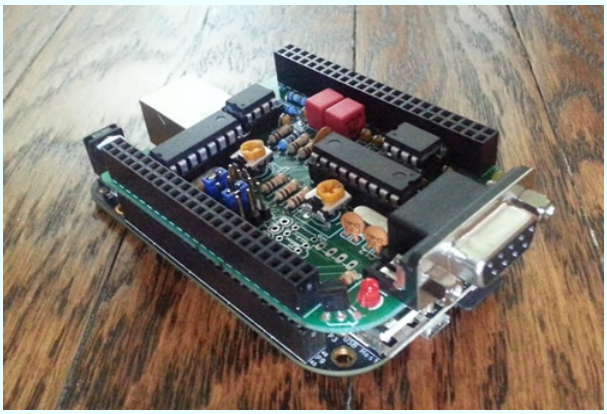
NEW!!! TN Pi A Specialize Version o TNC-X Fo the Raspberry

TNC-Pi is a spec version of TNC- designed to interf directly with the Raspberry Pi computer. It can connect to the Pi either vi Pi's serial port, or via the I2C protocol. In the latter case, a single Pi ca support multiple TNC-Pi's at the same time, since each TNC-Pi can be gi



TNC-X with USB option installed

unique I2C address.



NEW!!! TN Black A Specialize Version o TNC-X Fo the Beaglebor Black

Like the TNC-Pi, the TNC-Black is a specialized version of TNC-X. It i designed to stack on top of the Beaglebone Black. Like the Raspberry Pi Beaglebone Black is an inexpensive single board computer. But the BBE a beefer processor with better graphics and MUCH more I/O.

Connectors (Left to Right): Auxilliary Serial port, Serial Port, USB Port, External Power, Radio Connector

TNC-X is a Terminal Node Controller (kit) design based on the Chepponis/Karn KIS protocol. It is implemented using a Microchip PIC 16F628A microcontroller, a CML MX614 Bell 202 (1200 baud AX.25) modem chip, an 8K Ramtron FRAM, a MAX232 level converter chip, and an op-amp which provides active audio filtering for the mo From the beginning, this TNC was designed to be small, inexpensive, have low pow consumption, and expandable.

TNC-X features an 8 pin expansion header that allows the addition of "daughter boards". Power is provided to the daughter board through the expansion header. In addition, signals that would otherwise go to or from a host PC can be intercepted by daughter board at the TTL level and processed. The I/O on the expansion header speaks "KISS" so that any daughter board only has to send and receive data packa in KISS format to access the core module. This makes the development of daughte boards fairly simple and inexpensive. For example, daughterboards are now availab that can turn TNC-X into a digitpeters (see a X-Digi) or into a stand alone Tracker (s X-Track). In addition, the expansion header provides access to a second on-board s port. The X-Track daughterboard, for example, uses this port to receive data from a GPS receiver. The data is then processed and formed into packets and an APRS beacon is sent.

TNC-X is available in two versions: with and without a USB port. Both versions contain a standard serial port, but the USB version also allows the TNC to be connected to a computer via it's USB port as well. Drivers that are shipped with the module make it appear to the PC as a standard serial port. Thus PC software that expects to see a serial port on the computer will interpret the TNC-X as being connected to such a port, even when the PC has no serial ports, or they are all used by other applications. In addition, when the USB o is used, the TNC can be powered from the USB port of the computer; no other power supply is needed.

Even without daughter boards (or the USB option) the device works as a fully functional stand alone KISS mode TNC. The idea behind expansion options was to provide a platform that would allow additional functionality to be added to the unit with the investment of very design time and very few parts.

A complete technical description of TNC-X is provided in a paper that was presented at the 2003 ARRL/TAPR Digital Communications Conference in late September in Hartford Connecticut. A copy of this paper can be accessed here. Please note that there have been a design changes since the publication of this paper. At some point I will revise the paper, but I've not as yet had an opportunity to do so.

Any questions concerning TNC-X can be directed to the developer, John Hansen, W2FS.

Are you planning to use TNC-X with a Baofeng HT (UV-5R or similar)? Read this for a discussion on connecting the Baofeng to the TN

Here are some common configurations you can order with one button press:

Complete TNC-X kit with USB and Enclosure ($88) Add to Cart

Complete Wired and Tested TNC-X including USB and Enclosure ($123) Add to Cart

Or customize your own TNC-X by ordering just the features you need:

TNC-X **rev 2.6** Kit without enclosure or USB($50 plus shipping) Add to Cart

TNC-X Wiring and Testing Service - Complete Unit ($35) Add to Cart

USB option for TNC-X ($20) Add to Cart

Note: This option works only with rev 2.6 boards and must be ordered at the same time as TNC-X.

X-BT BlueTooth Daughter Board Option for TNC-X ($25) Add to Cart

TNC-X Custom Drilled Enclosure for TNC-X ($18) Add to Cart

Note: This enclosure will only work with revision 2.2 thru 2.6 boards.

5 Pin DIN Plug ($2) Add to Cart

Note: The radio connector on the back of TNC-X is designed to work with pre-wired MFJ and BuxComm TNC to Radio cables. Or you can build one of your This plug, which used to be available at every Radio Shack store, is no longer carried there. For your convenience, you can order one here if you need it.

We generally do not sell TNC to Radio cables because there are so many different radios available. There are, however, other compan that sell these cables including BuxComm and MFJ. In addition , there is one packet connector that is used on a lot of radios (for exam ICOM IC-207, IC-208, IC-2720, IC-2800, IC-9100, IC-880H, Kenwood D-710, TM-255, TM-455, TM-733, TM-833, TM-G707, TM-V7A, 480, TM-V71, Yaesu FT-100, FT-1500, FT-300, FT-450, FT-7100, FT-7800, FT-7900, FT-8000, FT-8100, FT-817, FT-8500, FT-857, FT-8800, FT-8900, FT-897, FT-90, FT-950. The radio jack for this connection is a 6 pin mini-DIN jack (like you used to see on PS/2 keyboa and mice.). **For these radios only**, we do sell the following pre-wired cable: 5 Pin DIN to 6 Pin mini-DIN pre-wired cable. ($20).

5 Pin DIN to 6 Pin Mini-DIN TNC/Radio Cable ($20). Add to Cart

View Cart

In addition, we now offer a cable for the Baofeng UV-5R or similar:

TNC-X Cable for Baofeng UV-5R or Similar ($20). Add to Cart