

BYONICS

TinyTrak4 Firmware Manual

Version 1.1

<http://www.byonics.com/tinytrak4>

This manual explains how to manually update the firmware in the Byonics TinyTrak4. The recommended method is to use the TinyTrak4 Alpha Config application, which can both load firmware files (.TT4 extension) and also configure the settings. For those unable to run that application, the instructions below should work. Firmware can be downloaded from the TinyTrak4 website above, and programmed into a TinyTrak4 with a terminal program, and a female to female null modem cable (available from www.byonics.com)

There are currently 2 different microprocessors used by TinyTrak4 boards, and each requires a different version of the firmware. Built TinyTrak4s sold before July 2010 and TinyTrak4 kits use a MEGA644P chip and built units sold after July 2010 use a MEGA1284P. The chip type is printed on the top of the chip on the circuit board. The bootloader version (mentioned below) can also be used to identify the chip. The MEGA644P uses bootloader version 1.2b, and the MEGA1284P uses version 1.2c. All TinyTrak4 firmware published after July 2010 will include versions for both chips, one marked 644 and the other marked 1284. Only the firmware version that matches the chip on the TinyTrak4 should be loaded.

- Download **Tera Term Pro** from <http://www.ayera.com/teraterm/> or any other location. This is a free terminal program for Windows, and is known to work well. Other terminal programs may also be used, if they have the ability to upload a file in **binary mode**.
- Start TeraTermPro.
- Select "**Setup**" then "**Serial Port**" and select correct com port and **19200** baud, click **OK**.
- Connect the TinyTrak4 Serial Port (J2) to a computer serial port with a female to female null modem adapter or cable.
- Power up the TinyTrak4.
- It should send a **?**
- You have about 1 second to send back a **b** or **B**.
- If you make it, it responds with the bootloader version: **TinyTrak4 v1.2b >** for the 644 chip, or **TinyTrak4 v1.2c >** for the 1284 chip.
- If you don't make it, it runs the current code, if any. Cycle power and try again. If you have to, hold the **b** key down while powering up the TT4.
- The yellow and green LEDs will alternate flashing when in the bootloader.
- You can send a **v** or **V** to confirm you are in the bootloader. It will respond with the version.
- You send a **s** or **S** to begin to send a new TT4 firmware file. It will respond with nothing. The yellow and green LED will stop flashing for couple seconds, then begin alternate flashing again.
- In Term Term Pro, Select "**File**" and "**Send File**".
- Check the **Binary** option box at the bottom left of the send file screen.
- Select the proper file you want to send (ending with .TT4) and then **Open**. Be sure to only select a 644 firmware file for bootloader version 1.2b, and a 1284 firmware file for version 1.2c.
- It should respond with many **.** (period) as it is updating.
- It should finally end with a ***** (asterisk) to show the update was complete
- Then, you can either type **x** or **X** to run the new code, or just cycle power and don't press **b** this time.

After uploading the Alpha firmware, you should should configure your settings via the TinyTrak4AlphaConfig program, or by manually with TeraTerm Pro.