

## Overview

The Alltrax Motor controllers utilize a computer program to provide the motor drive functions, motor field current mapping, and a myriad of other customizable features such as speed, current, throttles, etc.

A majority of the Alltrax motor controllers also have the ability to be re-programmed with upgraded software. In most cases, it is not necessary to upgrade the unit's software for stock or aftermarket replacements unless a specific revision is needed for a particular application.

Upgrading the software is only allowed at authorized Distributors, Dealers, and OEM (Original Equipment Manufacturer). This technical note describes how to connect to the controller, download the upgrade program, and verify the units operation. **See Controller Pro Operators manual for more detailed operation.**



**WARNING:** Using the wrong software will destroy the unit and render it non-operational and not covered by warranty.

## The Controllers:

The Alltrax controllers are segmented into families of products, the AXE, and DCX series allow for field upgrades, but the NPX and NCX series units are not field programmable. They must be sent to Alltrax customer service or an authorized repair facility such as D&D Motor systems, Nivel and HT Inter-coastal. [1]



The controllers discussed in this procedure have the 9-pin RS232 field programmable communications port under the black cover port on the top cover.

## Connecting the Controller:

The programming package shown below assumes you purchased the recommended serial and USB adapter cable. The USB eliminates Com-Port issues with most computers. A 9-pin "straight pass through" cable is used with the recommended serial to USB adapter:

- Cables to Go, Port Authority™ 2 USB to Serial Adapter. [www.cablestogo.com](http://www.cablestogo.com)
- Radio Shack, 6 Ft. (1.8m) USB-to-Serial Port Cable, Model: 26-183, Catalog #: 26-183



## Tools required:

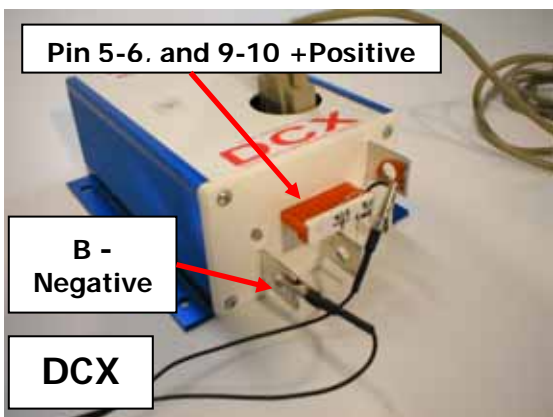
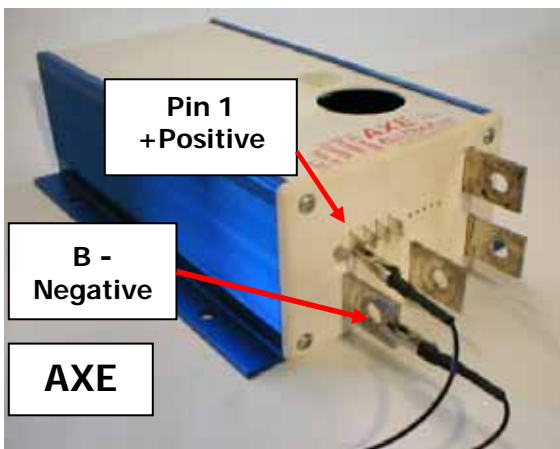
- A computer with Windows® 98, 2000, or XP.
- 9-Pin straight pass through serial cable and the 9-pin serial to USB adapter cable (or the 6' RS232-USB cable)
- Controller Pro Software (see [www.alltraxinc.com](http://www.alltraxinc.com) and download <http://www.alltraxinc.com/old/Software/WEBControllerPRO.zip>)
- 15 to 20volt DC wall adapter, 250 milliamp or more. Two alligator clips are needed
- Voltmeter

The wall transformer (sometimes called a wall-wart) provide power to the micro processor for programming.



## Connecting the Cables:

1. Connecting power. The AXE and DCX have two basic versions of output control pins. Connect the power supply positive and negative wires as shown below. Be very careful the polarity is correct, damage to the controller can occur is connected improperly.



2. Before installing the USB cable into the computer, the USB adapter "driver CD" must be inserted and installed BEFORE plugging the cable into the computer. Follow the manufacturer's recommendations.
3. After the USB adapter drivers are installed, restart the computer to load the new USB drivers into the Windows® program.

Note: For RS232 users without USB – please see Controller Pro operators manual.

4. Connect the USB Serial adapter to the computer, Windows should find "New Hardware".

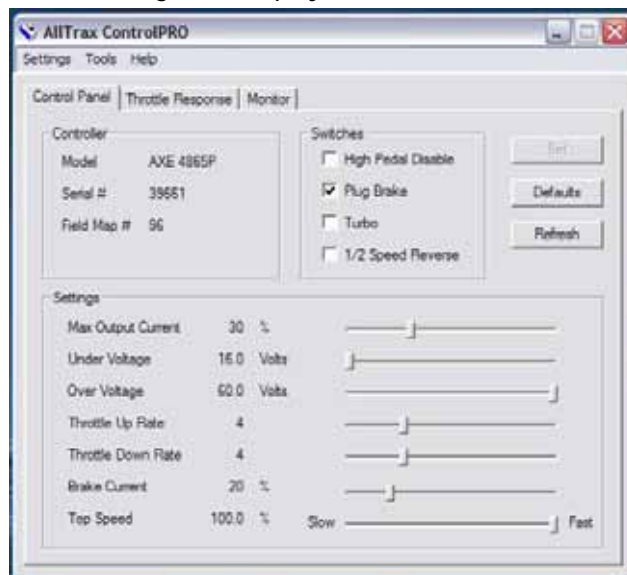


5. Connect the 9-pin serial adapter cable and USB adapter to the Alltrax controller:

## Controller Program:

Unzip and copy the Controller Pro program onto your desktop. This program is self contained and does not need to install any files. It will Unzip and run.

From your desktop, click on and start Controller Pro. The unit will talk with Controller Pro and load the default settings and display on the screen.

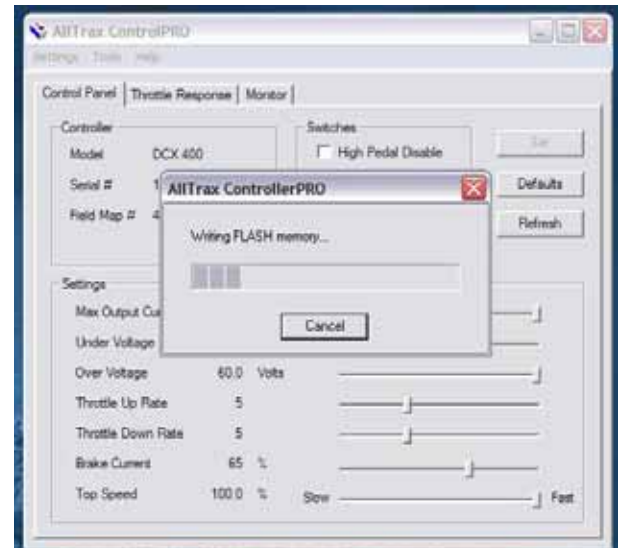
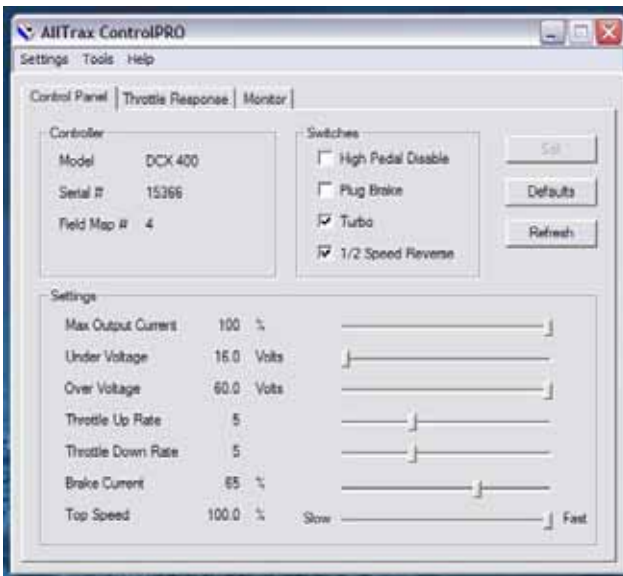


From the Controller Pro screen, the settings can be adjusted using your "mouse over", dragging slider bars, or checking boxes. In the example shown above, the Plug Brake is checked.

**Upgrading the Software:**

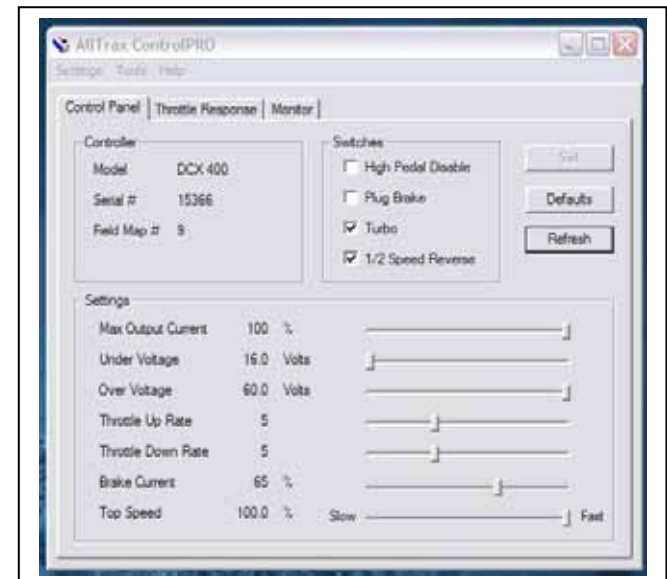
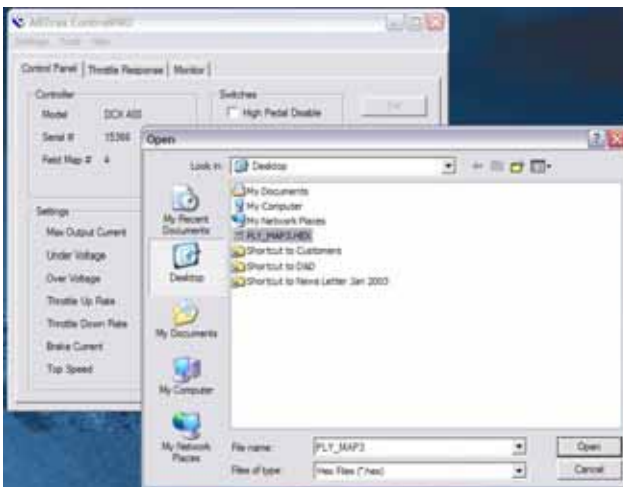
After the unit is recognized by the software, select UPGRADE from the Tools Menu. In this example we are changing a DCX from a Field Map 4 to a Field Map 9.

The Upgrade will program the unit with the new Field Map program and show the controller is writing the program into flash memory:



Select the "HEX" file located on your desk top (or other location that you saved the file that was provided by Alltrax). This is the program for the controller.

After the program is finished writing the memory locations, hit REFRESH to re-read the controller status. The field map now shows #9. The HEX file name used to up\grade the controller may have a different file number than the actual field map number. Don't confuse these two when programming. Contact Alltrax tech support is there are any questions.



## Conclusion

Programming the Alltrax Controllers allows the flexibility to change settings without re-shipping units around the world. However, improper settings, programming, or wiring connections can damage the unit, cause personal injury, or render the unit inoperable. It is imperative the programming be performed only by qualified and authorized personnel under the supervision of Alltrax Technical Services.

For more information contact Alltrax or the authorized distributors listed below.

## References

[1] Authorized Centers for Upgrade Programming:

- D&D Motor Systems:  
<http://www.ddmotorsystems.com>
- Nivel: <http://www.nivelparts.com>
- Intercoastal Manufacturing Co.  
<http://www.imcgolf.com/index.html>

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### ALLTRAX Inc., Company History:

The company founder developed our core technology at the race track for high power electric vehicles. Throughout the 90's, the market demanded robust and high performance electronic controllers. In 2001 ALLTRAX was formed based on the E-race car developed technology.

Today, Power Conversion Engineering (PCE) is the research and development arm and ALLTRAX provides the industry a powerful and robust controller to meet all your recreational, industrial, and commercial electrical vehicle needs.

For more information please go to <http://www.alltraxinc.com>



*"The company was founded at the track"*