

Hyperion TITAN ESC Programming Interface PC Software

Guide by Rod Badcock for Hyperion HK Ltd.

What does this software do?

With Hyperion interface cable and a Windows-based PC you can program the full range of TITAN Electronic Speed Controller (ESC) options, for quick and easy setting of:

- BRAKE
- BATTERY TYPE
- Ni CUTOFF V/CELL, Li CUTOFF V/CELL
- AUTOCUT MODE
- SOFT START
- TIMING MODE
- FREQUENCY (for ESC without TI-WARN System)
- WARN VOLTAGE (for TI-WARN type ESC)
- MOTOR REVERSE
- RPM CONTROL (heli governor mode)

See TITAN ESC Manuals for details on available settings, depending on ESC model type and Hardware revision

What are the software and hardware requirements?

- An Hyperion TITAN Series ESC
- A Hyperion PC Interface Cable (USB #HP-TI-PRGUSB, or SERIAL #HP-EM-PCCABLE)

The software itself will run on very simple hardware, common even in older PC:

- A PC with Intel Pentium processor (equivalent, or higher)
- A free serial port, if using serial cable #HP-EM-PCCABLE....OR
A free USB Port, if using #HP-TI-PRGUSB
- 5 MB free hard disk space
- 32 MB memory
- Windows 98SE or higher OS (Windows 2000, XP, etc...)*

NOTE: If using Hyperion TI-PRGUSB USB Adapter, the Adapter MUST be connected to PC USB Port and Driver Installed before running TITAN PROGRAMMING PC SOFTWARE. See <http://media.hyperion.hk/dn/pc/all.htm> for CABLES and CONNECTIVITY Guidelines. Drivers for TI-PRGUSB are also available from same page, for Win98SE, 2000, XP, and 2003. *Selected Mac and Linux drivers are also available. Users report that the TITAN SOFTWARE can run under non-Windows OS via emulation, but this is not guaranteed.

Installation

The software is supplied in compressed 'ZIP' format in order to save space, in a folder called **TitanProg210**. Save the ZIP file to a known location and 'unzip' the TitanProg210 folder. Following 'unzipping' you should see five installation files inside the TitanProg210 folder, including SETUP.EXE, and using about 4.85MB of disk space in total.

To start the installation of the software 'double-click' the setup program 'setup.exe' and follow the on-screen instructions.

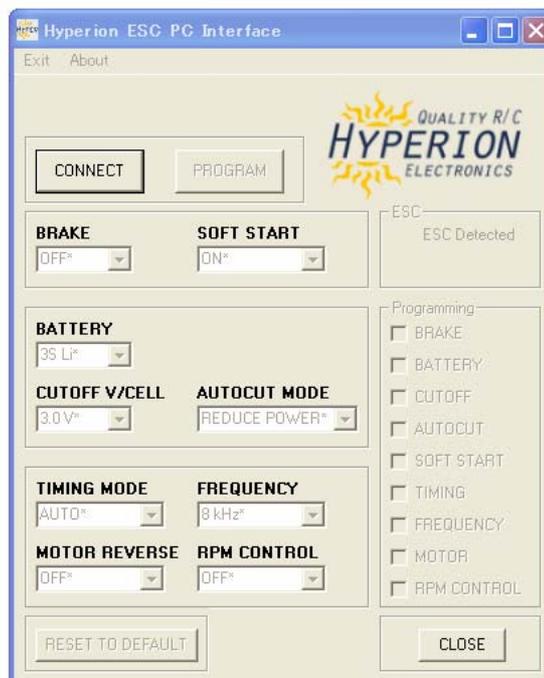
The installation program will create the following:

- A shortcut called 'Hyperion ESC' on the desktop
- A folder in START menu called 'Hyperion', with 'Hyperion ESC' shortcut inside

Running the software

Before beginning with the TITAN Software, be sure that either a Hyperion Serial Adapter Cable is properly connected to a free and enabled COM port, or that you have installed your HP-TI-PRGUSB Adapter and USB Adapter DRIVERS properly on your PC.

From the 'start' menu of Windows select 'Programs', 'Hyperion', and click on the 'Hyperion ESC' shortcut. This will start the software and you will be presented with the software front-panel similar to that at right, with all possible selections greyed out until after connection with the ESC:



Connecting to the Titan ESC

The four pin connector of the Hyperion interface cable should be inserted into the Titan ESC, as shown in the picture right:

The blanked pin-out on the connector (see arrow) is always next to the GRD connector on the Titan ESC. **Note:** the polarity information on the adapter (GND V+ Tx Rx) may not match particular wire colors on your adapter's connector.

The other end of the interface cable should be inserted either into one of the PC's 9-pin serial ports or USB Port depending on your cable type. **Note below about cable types:**

* **If SERIAL CABLE**, in order to recognise and program the Titan ESC a battery pack **must** be connected to the ESC. Connect a main power pack (the one that powers your model) to the "battery" side RED/BLACK wires on the Titan ESC. Be SURE that polarity is correct, and pack voltage is between 6V and 12V. REMOVE propeller before starting, or disconnect motor.

* **If TI-PRGUSB type USB Adapter**, the USB circuit provides power to the TITAN ESC, and you must NOT connect a battery to TITAN ESC during programming.

Now press the CONNECT Button. After a few seconds delay, the screen should look similar to right, under HYPERION logo:

* Green 'LED' lit, and 'ESC Detected' Text

* Hardware Revision and Max Lithium Cell Count Supported, like:
TITAN V3 3S

Otherwise, see last page for troubleshooting tips.

General Overview of ESC Settings

(See TITAN Manuals for Specifics)

BRAKE: This function sets whether the controller will physically stop the propeller (brake) when throttle is cut. It is usual to set this to 'OFF' for most models (esp. to avoid shock when using ducted fans) but 'ON' for gliders with folding props.

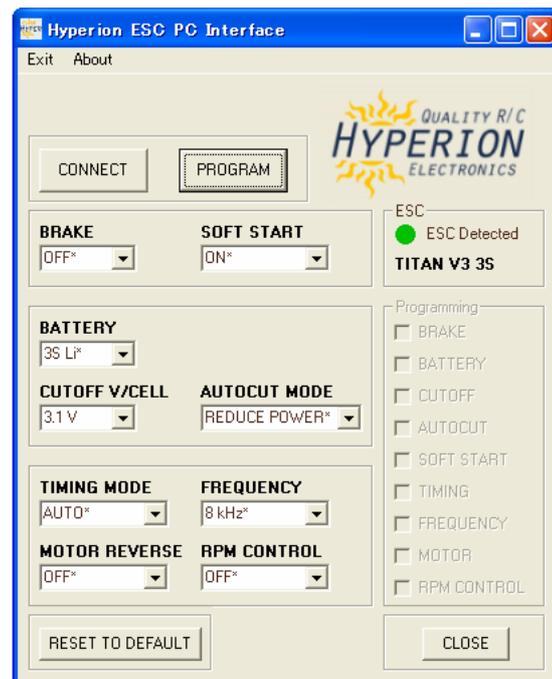
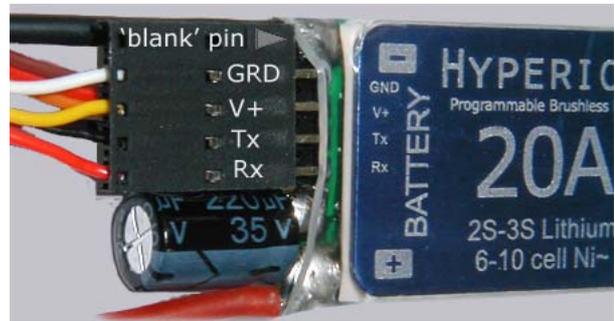
SOFT START: For most models, the default of ON is best. When Heli RPM Control is turned ON for TITAN ESC V3 or higher, Soft Start automatically becomes very soft, with 15-second spool up.

BATTERY: This section allows the chemistry of either Lithium (Li) OR NiMH-NiCd (Ni) to be chosen. For Lithium, the software automatically detects the Titan ESC type, and offers appropriate choices of Series Cell Count, up to 12S for HV-Type ESC. For Ni~, the ESC automatically detects cell count on battery connection, so we need not set it here.

TIMING MODE: The controllers have three timing modes, except HV types which have six options in total. Automatic works for ALL types of brushless motors. But for some high-pole-count or homemade brushless motors, you may want to try hard timing for optimal efficiency and power.

FREQUENCY: Titan ESC (except 'W' types) have two switching frequency modes. The default 8 kHz works well with virtually all motors. But you could see a small gain in efficiency at 16 kHz setting for some very-high-pole-count motors.

WARN VOLTAGE: For TITAN 'W' type ESC with Titan Warning LED system, FREQUENCY selection is replaced by WARN VOLTAGE. This determines the voltage above AUTOCUT V/CELL at which the LED system becomes active. See TITAN Manual for details.



CUT-OFF V/CELL: is selectable from the two ranges presented for either Ni~ or Li~ chemistry. For Lithium-Polymer 3.1V is now the suggested cut-off for all TITAN ESC. For TI-WARN (W) type TITAN ESC, this setting controls both when AutoCut occurs, and the point at which WARN LED is activated.

AUTOCUT MODE: The action when low voltage cut-off is reached is designed to prevent damage to your battery packs. REDUCE and STOP modes can be reset when they occur by moving throttle to 'zero' position momentarily, and then throttle UP again for immediate landing.

REDUCE: Most Models. Reduces motor power gradually when CutOff V/cell is reached.

STOP: Typical for Gliders. Stops motor when CutOff V/cell is reached.

NO CUT: For competition gliders, and possibly helicopters, EDF Jets, or '3D' aircraft when sudden power loss is undesirable. NO autocut means that CutOff V/cell is essentially irrelevant, except as it pertains to TI-WARN type Titan ESC. With NO CUT set, one must use TI-WARN or a timing system to insure that the model safely lands before the battery pack is damaged by over-discharge conditions.

MOTOR REVERSE:

Motor rotation direction can be reversed with this setting.

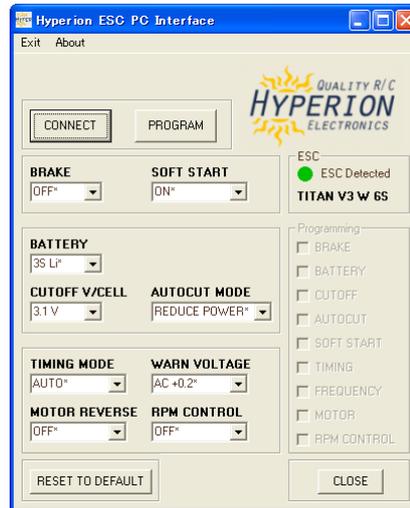
RPM CONTROL: Mainly used with Helicopters to maintain a constant rotor rpm throughout the flight. Note that when RPM Control is turned ON, some related settings are automatically made, such as BRAKE OFF, and SOFT START ON. See TITAN Manuals.

OK, you should still be connected... and the screen will generally resemble the picture right (it is from 'W' type ESC with TI WARN)

After choosing the setting, or settings, you want... simply click the PROGRAM BUTTON. If successful, a small Dialog Box will pop up to announce "TITAN ESC PROGRAMMED".

That's it! Just disconnect the battery from TITAN ESC (if using Serial Cable) and Titan ESC from the PC Adapter Cable.

Should you ever want to return to factory default settings, CONNECT as usual and click the RESET TO DEFAULT button at lower left of screen.



TROUBLESHOOTING:

If you cannot connect, but see instead a drop-down box appear, similar to the one pictured at right - either Blank or with COM port listed - then it means that the TITAN PC SOFTWARE could not find a TITAN ESC properly connected to a valid COM port.

Always check first to be sure that the TITAN ESC is connected to Adapter Cable with proper polarity.

If using HP-PCCABLE (serial) Adapter:

- *Make sure that you have a battery pack in the range of 6V~12V connected to the Red/Black INPUT wires of the TITAN ESC, and that the battery pack is in good condition and well charged.
- *It may be that your PC is set in "CMOS Setup" to disable all serial ports, or the one you are connected to, at least. Consult your PC manual for instructions on entering CMOS Setup mode. Most modern PCs have an "automatic" setting for serial ports in CMOS, and this should be tried first.
- *Check Windows Device Manager, PORTS section, to see that the COM port is loaded properly in windows.



If using HP-TI-PRGUSB (usb) Adapter:

- *Do **not** connect a battery pack to TITAN ESC!.
- *Follow the instructions for the USB Adapter to install Drivers, then
- *Check Windows Device Manager, PORTS section, to see that the COM port (CP210x) is loaded properly in windows.
- *Check Windows Device Manager, USB section, to see that the USB Driver (CP210x Composite Device) is loaded properly in windows.
- *On some systems, you may need to always connect the USB Adapter to the same USB Port. Try each USB Port to check this.

[We do not support PC setup questions, so ask a friend if you get stuck, please.]

Enjoy!

The Hyperion Team
(with thanks to Mr. Badcock)