Hyperion Titan HV Brushless ESC   **READ CAUTIONS ON REVERSE**

Transmitter Stick Programmable Functions * indicates default

Brake Modes:	On /Soft/ Off*
Battery Type:	NiMH-NiCd / 5S~12S Li-Po (8S default*)
Soft Start:	On* / Off
Switching Frequency:	8 kHz* / 16 kHz (Z series motors use 8 kHz)
Timing Modes:	Auto* / Soft 2 deg / Hard 30 deg
Motor Rotation:	Reverse Off */ Reverse On
LVC Cutoff Modes:	Hard -Stop / Soft -Reduce Power*
Governor Mode:	Off* / Range 1 / Range 2 / Range 3

Additional Functions Programmable by Hyperion Emeter, or by Hyperion PCCABLE with free PC software

NiCd/NiMH per cell cutoff voltage:	0.6V* / 0.7V / 0.8V / 0.9V
Lithium per cell cutoff voltage:	2.7V / 2.8V / 2.9V / 3.0V* / 3.1V
Additional Timing Modes:	8 deg / 15 deg / 22 degrees (Z series motors : suggest "auto")

Auto Cut Mode: NO CUT (preferred for glider comp and sometimes helicopters)

Hardware Specs:

- OPTO Noise Isolation (No BEC)
- Over-Temp Protection: Soft Cutoff@80C
- Max Motor RPM (2-pole): 100,000
- Voltage Ranges: 16~36 cells Ni~, 5~12 Cell LiPo
- Current Continuous: As Rated
  Current Peak 10 sec: rating + 20%

Dimensions:

Controller	Board Size L x W x H mm	Weight *
TITAN 85HV PO	60.0 x 28 x 11.0	71g
TITAN 90HV PO	66.5 x 52 x 17.4	106g

Max Motor RPM = [200,000 / # of motor magnet poles]

Programming the Titan ESC via Transmitter Stick

- For Tx stick programming, the motor serves as the speaker - so connect your brushless motor to the Titan ESC first.
- Remove the propeller from the motor before starting programming!
- Futaba Transmitters should have the throttle set to servo REVERSE before using the Titan ESC.
- Connect the Titan 90 Throttle connector to the correct channel on your receiver
- Switch on the transmitter and set **the throttle stick to full throttle.**
- Connect a 4.8V Receiver flight pack to receiver with proper polarity
- Connect the flight battery pack to TITAN ESC with proper polarity (never reverse RED/BLACK wires!)
- Wait for 5 seconds; you'll hear these tones **__ --** when setup mode is entered.
- Follow the tones listed below for each programming function.
- When you hear the tones for your desired function, pull the throttle down, then you'll hear confirmation tone. The setting is now memorized. You can only change one setting at a time, if you need to change more settings, disconnect the motor battery pack and wait 5 seconds, and repeat the procedure for next setting.

It is really very easy to program the Titan Controllers via transmitter stick. To familiarize yourself with the ESC, let it go through all the tones once, as you follow the text below.

Brake Mode On/Off
To change brake mode, pull the throttle stick within 5 seconds of first setup mode tones **__ --**
After changing the brake mode, the ESC responds with these confirmations:
Brake mode changed to OFF **_ -**   (double tone, rising)
Brake mode changed to ON **_**   (single tone)

Battery type (each series repeats 5 times)
NiMH/NiCd: . . . . .
5S Lithium: ....   (5-tone series, five times)
6S Lithium: ....   (6-tone series, five times
7S to 10S   continues as above, with 7 tones for 7S, 8 tones for 8S, etc...

Low Voltage Cutoff Behavior
If the motor battery pack drops to the programmed cut-off voltage, the controller will **reduce the motor speed** or **stop the motor**, depending on the setting below, to ensure that there is enough power for the receiver and servos. You can resume full power by setting throttle to full stop for a moment and return to full throttle, but remember that it's time to land!

Soft Auto-Cut (reduce rpm)**:**   **- _ - _ - _ - _ - _**   (normal for sport models)
Hard Auto-Cut (full stop)**:**   **_ - _ - _ - _ - _ -**   (normal for gliders)
NO CUT selectable via Emeter or PCCABLE with Hyperion Software

[Soft start](#) (Acceleration)

When gearbox drive system is used it is highly recommended to enable the Soft start.

Disable the soft start function when direct drive system is used or being in speed competition

Enable: V V V V V

Disable: VV VV VV VV VV

[Timing](#) (advance timing)

The controller has three timing modes; 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.

Auto	2~30 degrees**:**	- - - - -	(8, 15, and 22 deg also available via Emeter or PC programming)
Soft	2 degrees**:**	-- -- -- -- --	
Hard	30 degrees**:**	--- --- --- --- ---	

[Switching Frequency](#)

The controller has two switching frequency modes. The default 8 kHz works well with almost all motors, but you may see a gain in efficiency at 16 kHz setting for high-pole-count motors such as Hyperion Z Series Outrunners.

8 kHz: \ \ \ \ \

16 kHz: / / / / /

[Rotation reverse](#)

Reverse Motor Rotation: W W W W W

[Active RPM Control (Governor Mode)](#)

rpm control off: _·_ _·_ _·_ _·_ _·_

low rpm range: _··_ _··_ _··_ _··_ _··_

middle rpm range: _···_ _···_ _···_ _···_ _···_

high rpm range: _····_ _····_ _····_ _····_ _····_

CAUTIONS!

- **NEVER reverse the polarity from battery to Titan ESC! Be careful, please.**
- Futaba transmitters should have throttle channel set to "reverse".
  Always test the Titan ESC with your transmitter and receiver before actual use.
- When testing, be sure the motor is properly mounted, **without propeller attached**.
- Be sure to check that no one is using your frequency before flight.
- Always position yourself behind a spinning propeller, not in front.
- Switch off the Titan ESC AND disconnect the battery pack immediately after your flight has ended.
- RC aircraft power systems are dangerous. Please act accordingly.
- The default setting for battery type is "8S Lithium". **If you are using a different voltage or NiMH/NiCd packs, you MUST program the battery type before using the Titan ESC.**

TECH NOTE: Some HV 12S ESC were shipped with BATTERY TYPE set other than the default value. For example, a 90A ESC should be 8S default, but the setting was actually 12S from the factory. As such, you should **be sure to set the Lithium Cell count** via stick programming (or with Emeter or PC Cable) to match your battery, before first use.

<u>Warranty</u>

Hyperion Titan brushless speed controllers are fully guaranteed against defects in material or workmanship for 12 months from date of purchase. The warranty does NOT cover damage to reverse-polarity connection of the battery, over-spec use, water or crash damage, nor any other claim not arising from a defect in materials or assembly. **You must contact your selling dealer with details of the problem before making a return.** In most cases, the problem is an issue with radio or controller setup, and can easily be resolved at no expense to you. Controllers returned without notice in which defects are not found will only be returned to the sender at his expense.

Crash, water, or reverse-polarity damaged Hyperion Titan ESC may be exchanged with your seller for a 40% discount on new replacement, from manufacturers suggested retail.

Many Happy Flights!

The Hyperion Team