Hyperion Titan Series Brushless ESC v3

READ CAUTIONS ON REVERSE

Transmitter Stick Programmable Functions * indicates default

Brake Modes:	On / Off*
Battery Type:	NiMH-NiCd / 2S-3S* Li-Po (2S~6S for 50A, 80A)
Soft Start:	On* / Off
Switching Frequency:	8 kHz* / 16 kHz
Timing Modes:	Auto* / 7 deg / 30 deg
Motor Rotation:	Reverse Off */ Reverse On
LVC Cutoff Modes:	Hard - Stop / Soft - Reduce Power* / NO CUT
RPM Control (Governor):	Off* / Range 1 / Range 2 / Range 3

Hyperion Emeter or PC Software for TITAN can also program the settings below

NiCd/NiMH per cell cutoff voltage: 0.6V* / 0.7V / 0.8V / 0.9V

Lithium per cell cutoff voltage: 2.0V to 3.2V, in 0.1V steps (3.1V per cell, Lithium Battery Type are default)

Hardware Specs:

*5.0V 1.0~3.0A BEC Circuit
(5 servos max at 7.4V)
*Over-Temp Protection: Soft Cutoff@80C
*Max Motor RPM (2-pole): 100,000
*Voltage Ranges:
10A-30A: 5~10 cells Ni~, 2~3 Cells Lithium
50A, 80A BEC: 5~12 cells Ni~, 2~3 Cells Lithium[1]
50A, 80A OPTO: 5~16 cells Ni~, 2~5 Cells Lithium
Current Continuous / Peak: As Rated / +20%

[1] BEC 50A/80A 4S~6S OK, with Red Rx wire removed

Dimensions:

Controller	Board Size L x W x H mm	Weight *
TITAN 10 P	22 x 21 x 5.5	10.1g
TITAN 20 P	38 x 24 x 7.5	18.1g
TITAN 30 P	44 x 27 x 8.0	27.1g
TITAN 50 PB	58 x 27.5 x 7.5	41.3g / 38.4g
TITAN 50 PO	58 x 27.5 x 7.5	38.0g
TITAN 80 PB	57 x 28 x 11.4	52.5g /49.6g
TITAN 80 PO	57 x 28 x 11.4	47.9g

*lighter weight figure is with BEC switch removed

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.
- Switch on the transmitter and set **the throttle stick to full throttle.**
- Connect the flight battery pack to TITAN ESC
- 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. 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)

Brake mode changed to ON _ (single tone)

Battery type (4S~6S Lithium for TITAN 50A and 80A only) SEE TECH NOTE REVERSE PAGE

NiMH/NiCd: **. . . . .**

2S Lithium: **.. .. ..**

3S Lithium: **... ... ...** (3-tone series, 5 times)

4S Lithium: **.... ....**

5S Lithium: **..... ....** **for Std. BEC type 50~80A controllers using 4S+, disconnect the red**

6S Lithium: **...... ....** **center wire from receiver connector, and use 4.8V flight pack**

LVC AutoCut Mode (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 your model! Note that setting NO CUT means the V/cell setting is irrelevant, and that the pilot must determine when to land to avoid over-discharge of the flight pack.

Soft Auto-Cut (reduce rpm)**:** **- _ - _ - _ - _ - _** (normal for sport models)

Hard Auto-Cut (full stop)**:** **_ - _ - _ - _ - _ -** (normal for gliders)

NO Cut: **__ - __ - __ - __ - __ -** (competition gliders, sometimes helicopters and 3D aerobatic models)

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** (note: when rpm control is ON, soft start becomes super soft, with 15 second spool up)

Disable: **VV VV VV VV VV**

(continued on reverse page)

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 7~30 degrees**: *** - - - - -

Soft 7 degrees**:** -- -- -- -- --

Hard 22 ~ 30 degrees**:** --- --- --- --- ---

Switching Frequency

The controller has two switching frequency modes. The default 8 kHz works well with almost all motors.

8 kHz: * \ \ \ \ \

16 kHz: / / / / /

Rotation reverse

Reverse Motor Rotation: W W W W W

Active RPM Control (Helicopter Governor Mode) Max Motor RPM = [electrical RPM*2 / # of magnet poles]

Off: *	_·_ _·_ _·_ _·_ _·_	
range 1:	_··_ _··_ _··_ _··_ _··_	20,000 electrical rpm max
range 2:	_···_ _···_ _···_ _···_ _···_	50,000 electrical rpm max
range 3:	_····_ _····_ _····_ _····_ _····_	100,000 electrical rpm max

Note: When RPM Control is turned ON, some other settings are also automatically changed, as below:
1) LVC Mode changes to SOFT if currently set HARD; if LVC is currently set to SOFT or NO CUT, LVC is unchanged.
2) If SOFT START is currently disabled, it is turned ON. Whenever RPM Control is ON, Soft Start is a very soft 15-second spool up of motor

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.
- To avoid inadvertent damage to your expensive lithium pack, the default setting for battery type is “3S Lithium”. **You MUST program the battery type before using the Titan ESC. (see note below)**

TROUBLESHOOTING and TIPS:

* If OPTO ESC type, receiver must be powered by a separate 4.8~6.0V battery before flight pack is connected to ESC
* Check condition of Motor/ESC/Battery Wires and Connectors carefully. Re-solder connectors if startup is rough
*** Default BATTERY TYPE setting is LI 3S. If your pack is not LITHIUM 3S, program Battery Type first**
* For high-rate lithium (16C or higher) 3.1V LCV setting is best to avoid pack damage and reserve some power for landing
* LCV settings start at 2.0V, allowing v3 TITAN ESC to work with any cell chemistry, including A123 brand packs

Warranty

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