

# Hyperion Titan PSB Series Brushless ESC READ CAUTIONS ON REVERSE

## Transmitter Stick Programmable Functions \* indicates default

Brake Modes: On / Off\*  
 Battery Type: NiMH-NiCd / 2S-6S Li-Po  
 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\*  
 Governor Mode: Off\* / Range 1 / Range 2 / Range 3



## Additional Functions Programmable by Hyperion Emeter

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

Hardware Specs:	Dimensions:		
	Controller	Board Size L x W x H mm	Weight *
*5.3V nom, 5.0V min, 4.0A SWITCH-MODE BEC Circuit (6A max peak, 8 analog servo or 5 digital servos max, see cautions)	TITAN 50 PSB	58 x 27.5 x 7.5	43.5g
*Over-Temp Protection: Soft Cutoff@80C	TITAN 80 PSB	57 x 28 x 11.4	57.5g
*Max Motor RPM (2-pole): 100,000	* figures include 2.8g BEC switch (on/off for Rx and Servos)		
*Voltage Ranges: 5~18 cells Ni~, 2~6 Cells Lithium	<b>Governor Mode:</b> Active RPM control		
Continuous Amperage is rated at 25 degrees Celsius (77f) ambient temperature, with cooling airflow to ESC. Reduce continuous rating 10% if ambient exceeds 35 degrees Celsius (95f); reduce a further 20% if cooling airflow is poor.	- <b>range 1</b> up to 20,000 electrical rpm		
Amperage Peak 10 sec: Rated, + 20%	- <b>range 2</b> up to 50,000 electrical rpm		
	- <b>range 3</b> up to 100,000 electrical rpm		
	Max Motor RPM = [ electrical RPM*2 / # of 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.
- 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

NiMH/NiCd: . . . . .

2S Lithium: .. . . . . .

3S Lithium: ... . . . . . (this is the normal default setting, but see also tech note on back page)

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

5S Lithium: ..... . . . . .

6S Lithium: ..... . . . . .

### 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** is also programmable, via Emeter or PC Cable and software

(continued on reverse page)

### 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**     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 (Governor Mode)

rpm control off:                - - - - -  
low rpm range:                 - - - - -  
middle rpm range:              - - - - -  
high rpm range:                - - - - -

## **CAUTIONS!**

**THE SERVO LOAD RATINGS FOR THE SWITCH MODE BEC CIRCUIT ASSUME SERVOS WHICH ARE AVERAGE IN CURRENT DRAWN AT IDLE AND UNDER LOAD, WHICH ARE IN GOOD CONDITION, AND WHICH ARE OPERATING NON-BINDING CONTROL SURFACES. IF YOU HAVE REASON TO BELIEVE ANY OF THESE ARE NOT TRUE, REPLACE SERVOS and REPAIR CONTROL LINKAGES BEFORE FLIGHT**

- **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". **If you are using anything other than 3S - you MUST program the battery type before using the Titan ESC. (and see note below)**

**TECH NOTE:** Initial production of PSB ESC was shipped with BATTERY TYPE set to 6S rather than 3S as factory default. As such, you should **be sure to set the Lithium Cell count** via stick programming (or check it with Emeter or PC Cable) to match your battery, before first use.

### 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