



# BRUSHLESS ESC EX-4



## INSTRUCTION MANUAL

TENSHOCK

### INTRODUCTION

Congratulations and thank you for purchasing Tenshock, Short Course(SC), high performance brushless motor electronic speed control. The Tenshock SC,brushless ESC represents a latest technologies, providing all the features and robust design qualities.

- **WATER & ELECTRONICS DON'T MIX!**  
Never allow water, moisture, or other foreign materials to get inside ESC, motor, or on the PC Boards. Water damage will void the warranty!
- **NO REVERSE VOLTAGE!**  
Reverse battery polarity can damage ESC & void warranty. Disconnect battery immediately if a reverse connection occurs.
- **DISCONNECT BATTERIES WHEN NOT IN USE**  
Always disconnect the battery pack from the speed control when not in use to avoid short circuits and possible fire hazard.
- **2 - 4 LI-PO CELLS ONLY**  
Never use fewer than 2 or more than 4 LIPO cells in the vehicle's main battery pack. The TENSHOCK EX-4 handles up to 4S LIPO input (16.8 Volts MAX).
- **TRANSMITTER ON FIRST**  
Turn on the transmitter first THEN turn on the speed control
- **INSULATE WIRES**  
Always insulate exposed wiring with heat shrink tubing or electrical tape to prevent short circuits, which can damage ESC.
- **SHORT COURSE OR SMALLER**  
The TENSHOCK EX-4 is intended for 4x4 Short Course or Smaller.

### ESC/TRANSMITTER CALIBRATION

**IMPORTANT NOTE: Calibration is necessary for the first use of the ESC, or whenever used with a new/different transmitter. For users with a Futaba Transmitter, you must reverse the throttle channel signal on your transmitter. Please refer to your Futaba instructions.**

Individual transmitter's signals for full throttle, full brake and neutral vary. You must calibrate your ESC so that it will operate more effectively with you transmitter.

### How to Calibrate ESC

- ESC switch OFF.
- Turn on the Transmitter.



Hold full throttle on your transmitter and turn the ESC's switch ON. Keep holding full throttle on the transmitter. The ESC will flash LED and ring the initialization tones.

- Wait 2 seconds
- Green LED blinks rapidly and the motor will ring 1 second indicating full throttle measured.
- Red LED blinks while beeping, indicating it's time to push full brake. Move throttle trigger to full brake and wait few seconds, the ESC will blink red LED and ring 1 second indicating full brake measure.
- Orange LED blinks while beeping, indicating it's time for neutral. Relax trigger to neutral (center). The ESC flash the orange LED rapidly to accept the neutral position.
- ESC rings 1 second indicating neutral position measure.
- After calibration ESC will ring 1 second indicating that it is armed.

From this point on, when you connect batteries and turn on the switch, the ESC will give the initialization tone and flash, and the arming tone will ring second or two later. If the ESC is programmed for the Auto-Lipo setting, it will beep the number of cells in you Lipo pack between the initialization tones and the arming tones. After the arming tone plays, the ESC will ACTIVE and will respond to the throttle application.

### SPEED CONTROL SPECIFICATION

Brushless KV ≤ 6000	Up to 2S(8.4Volt), ideal for 1/10 short course
Brushless KV ≤ 4000	Up to 3S(12.6Volt), for 1/10 buggies and short course
Brushless KV ≤ 3000	Up to 4S(16.8Volt), ideal for 1/8 buggies
On Resistance, Brushless	0.0004 Ohms per phase at 25°C (77°F) Trans.Temp
Continuous /Burst Current	120Amp / 760Amp
Switching BEC	6V 5Amp
Status LED	1 with 3 color (Red, Green & Orange)
Thermal Overload Protection	Yes
Dimensions(LxWxH)	55x37.6x38.4mm (2.17x1.47x1.51in)
Weight (Without wires)	87g (3.07oz)