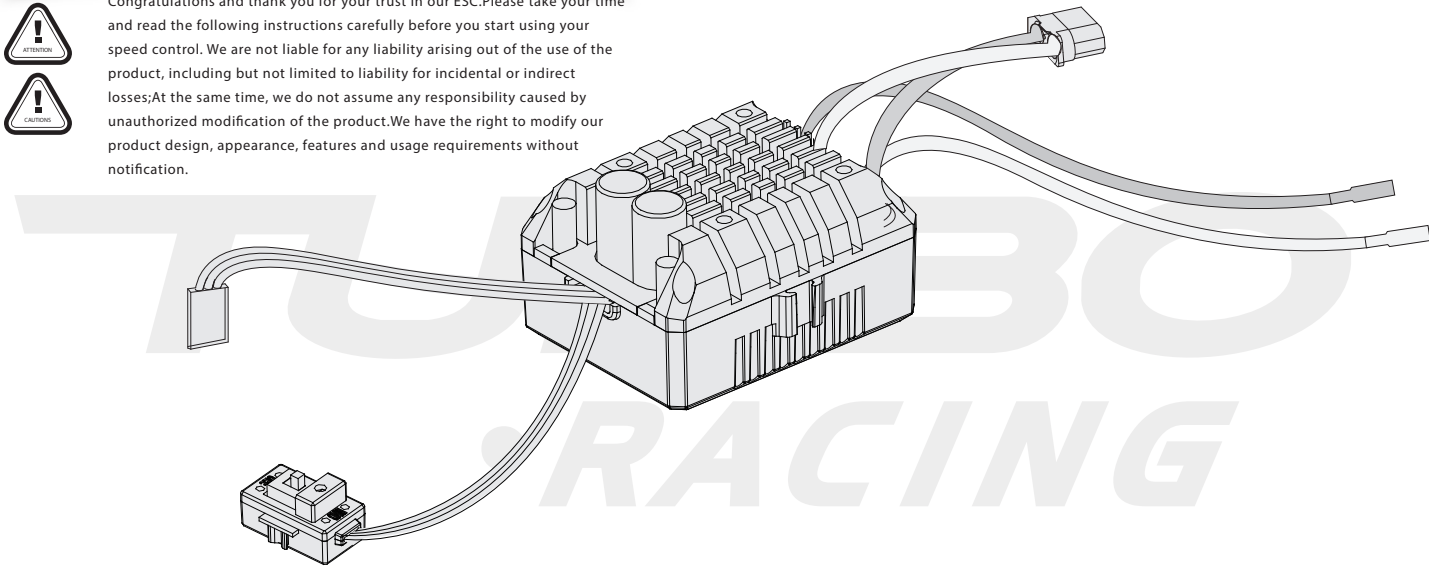


01 Introduction

Congratulations and thank you for your trust in our ESC.Please take your time and read the following instructions carefully before you start using your speed control. We are not liable for any liability arising out of the use of the product, including but not limited to liability for incidental or indirect losses;At the same time, we do not assume any responsibility caused by unauthorized modification of the product.We have the right to modify our product design, appearance, features and usage requirements without notification.



02 Attentions

- Ensure that all wires and connections must be well insulated before connecting the ESC to related devices,short circuits will ruin the ESC.
- Read through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit to avoid overload of motor due to wrong power combination, and finally damage the ESC.
- Please use a soldering iron with the power of at least 60W to solder all input/output wires and connectors to ensure solder reliable.
- For the your own and others safety, please conduct wiring debugging when your car is suspended;
- Stop immediate usage once the casing of the ESC exceeds 90 C/194 F, high temperature may cause damages to both the ESC and motor;

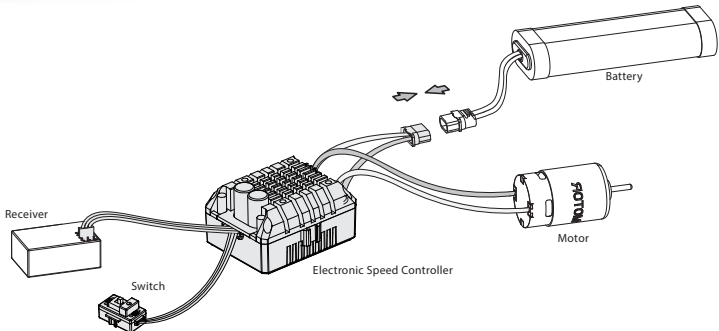
03 Features

- Fully waterproof design for all conditions. (Note: please clean and dry it after use for avoiding rusty connectors)
- Built-in powerful switch-mode BEC, The continuous current reaches 8A and the instantaneous current reaches 10A,with switchable voltage of 6V/7.4V,easy to drive all kinds of high torque and high voltage servos.
- Tunable drag brake and drag brake rate for different vehicles, grounds and control feels.
- Proportional brake:9 levels of initial brake force,9 levels of maximum brake force,9 levels of drag brake force.
- Multiple protection functions: low voltage protection, overtemperature protection
- With independent parameter setting connector, it is more convenient to connect the parameter setting card without unplugging the ESC control line from the receiver.

04 Specifications

Model	TB-60080		
Cont. / Peak Current	80A/400A		
Motor Type	tor (540 / 550 / 775 size motors)		
Applications	1:10、 1/8crawler、 Big foot、 buggy、 off-road、 on-road		
Motor Limit	Brushed Motor Limit with 25 LiPo / 6S NiMH: ≥ 12T or RPM<30000@7.4V (540/550/590 size motors) Brushed Motor Limit with 3S LiPo / 9S NiMH: ≥ 16T or RPM<20000@7.4V (540/550/590 size motors)		
LiPo / NiMH Cells	2-3S LiPo / 5-9 NiMH		
BEC Output	6V/7.4V @ 8A (Switch-mode)		
Size / Weight	50.0 x 42.9 x 26.5 mm / 58.5g		
Programming Port	Separate Port/Fan power supply		

05 Begin to Use a New Brushed ESC



For your safety and the safety of those around you,please turn on the control switch on the ESC with the wheels in the air!When the ESC switch is off, and the wiring is as shown below. After the correct

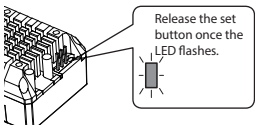
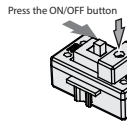
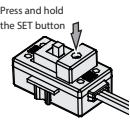
- Motor Wiring :
There is no polarityon the M+/M- two ESC-to-motor wires, hence, do not worry on how you connect them initially. You may find it necessary to swap two wires if the motor runs in reverse
- Receiver Wiring :
Plug the throttle control cable on the ESC into the throttle (TH) channel at receiver. The throttle control cable will output the voltage of 6V/7.4V to the receiver and steering servo. Hence, no separate battery can be connected to the receiver. Otherwise, your ESC may be damaged.
- Battery Wiring :
Proper polarity is esential. Please ensure positive (+) connects to positive (+), and negative (-) connects to negative (-) when plugging in the battery! When reverse polarity is applied to your ESC from the battery, it WILL damage your ESC. This WILL NOT be covered under warranty!

06 ESC Setup

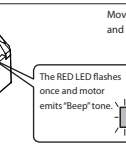
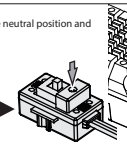
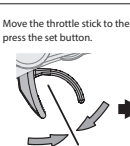
1 Radio Calibration



Begin using your ESC by calibrating with your tramister. We strongly recommend Hobbywing users to use the "Fail Safe" function on the radio system and set (F/S) to "Output OFF" or "Neutral Position". Example of calibrating Neutral range and Endpoint.



1. Turn on the transmitter, ensure all parameters (D/R, Curve, ATL) on the throttle channel are at default (100%). For transmitter without LCD, please turn the knob to the maximum, and the throttle "TRIM" to 0. Please also turn the corresponding knob to the neutral position. For FutabaTM transmitter, the direction of throttle channel shall be set to "REV", while other radio systems shall be set to "NOR". Please ensure the "ABS/braking function" of your transmitter must be DISABLED.
2. Start with transmitter on and the ESC turned off but connected to a battery. Holding the SET button and press the ON/OFF button to turn on the ESC, the RED LED on the ESC starts to flash (Note: the motor beeps at the same time), and then release the SET button immediately!(The ESC will enter the programming mode if the SET button is not released in 3 seconds, please restart from step 1.).
Note: Beeps from the motor may be low sometimes, and you can check the LED status instead.



2 Power ON/OFF & Warning Tones

- Power ON/OFF :
(Start with the ESC turned off), press the ON/OFF button to turn on the ESC.
(Start with the ESC turned on) press and hold the ON/OFF button to turn off the ESC.
- Warning Tones :
With the ESC is turned on in the normal way (that is turn it on without pressing and holding the SET button): if you set the "Battery Type" to "LiPo", the motor will beep N (number) beeps to indicate the number of LiPo cells you have plugged in (i.e. 2 beeps indicates a 2S LiPo, 3 beeps indicates a 3S LiPo.) and then a long beep to inform you that your ESC is ready to work. If you set the "Battery Type" to "NiMH", the motor will only beep a beep to indicate the ESC is in NiMH mode and then another beep to inform you that your ESC is ready to function.

3 Programmable Items

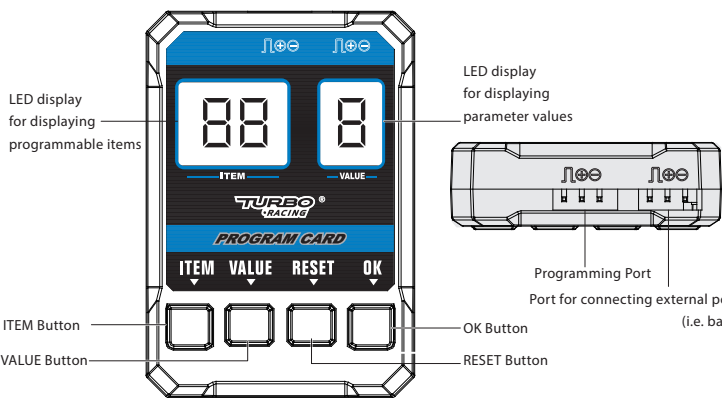
Those "black background and white text" options are the factory default settings.

Programmable Item	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Option 7	Option 8	Option 9
1. Running Mode	F/B	F/B/R	F/R	BOAT					
2. Battery Type	NIMH	Lipo							
3. Cutoff Voltage	0V/Cell	2.8V/Cell	3.0V/Cell	3.2V/Cell	3.4V/Cell				
4. Initial Start Force	0%	2%	4%	6%	8%	10%	12%	14%	16%
5. Max. Forward Force	25%	50%	75%	100%					
6. Max. Reverse Force	25%	50%	75%	100%					
7. Max. Brake Force	0%	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%
8. Drag Brake	0%	5%	10%	50%	60%	70%	80%	90%	100%
9. Neutral Range	0.02ms	0.02ms	0.04ms	0.05ms	0.06ms	0.07ms	0.08ms	0.10ms	0.12ms
10. Throttle curve	1	2	3	4	5	6	7	8	9
11. BEC Voltage	6V	7.4V							

1. Running Mode :
Option 1: Forward with Brake.
It's a racing mode. It has only forward and brake functions no reverse functions.
Option 2: Forward/ Reverse with Brake.
This option is known to be the "training" mode with "Forward/ Reverse with Brake" functions. It has adopted the "DOUBLE-CLICK" method, that is your vehicle only brakes on the 1st time you push the throttle trigger forward (brake) (1st push). The motor stops when you quickly release the throttle trigger and then re-push the trigger quickly (2nd push), only then the vehicle will reverse. The reverse function will not work if your car does not come to a complete stop. The vehicle only reverses after the motor stops. This method is for preventing vehicle from being accidentally reversed.
Option 3: Forward and Reverse.
This mode is often used by special vehicles (rock crawler). It adopts the "SINGLE-CLICK" method. The vehicle will brake immediately when you push the throttle trigger forward (brake).
Option 4: Ship mode
This mode is "Forward/ Reverse with no Brake" mode, mainly use for ship model. Low voltage, temperature protection will only be half power output, it will not stop under this mode.
2. Battery Type :
This ESC offers two types of batteries, LiPo and NiMH battery, please set different cutoff voltage for different battery types according to the actual usage
3. Cutoff Voltage :
Sets the voltage at which the ESC lowers or removes power to the motor in order to either keep the battery at a safe minimum voltage (for LiPo batteries). The ESC monitors the battery voltage all the time; it will immediately cut off the output when the voltage goes below the cutoff threshold. The RED LED will flash a short, single flash that repeats (☆~, ☆~) to indicate the low-voltage cutoff protection is activated.
Option 1 : 0V
The ESC does not cut the power off due to low voltage. Please pay attention to the power change of your vehicle. In general, the battery voltage gets pretty low when your vehicle is severely losing power, then you should stop using that pack.
Option 2 : 2.8V
Option 3 : 3.0V
Option 3 : 3.2V
Option 4 : 3.4V
4. Initial Start Force :
It's the initial force when you pull the throttle trigger from neutral position toward non-throttle throttle position. A suitable start force can effectively prevent vehicle from sliding when you apply a low throttle amount.
5. Max. Forward Force :
It's the force when throttle trigger is at the full throttle position. It's adjustable among 25%, 50%, 75% and 100% (by default). You can lower down the value for better driving feel/control when you drive a crawler (simulation model) over difficult terrains (and don't have any requirement against the maximum speed).
6. Max. Reverse Force :
Different reverse amount will bring different reversing speed. For the safety of your vehicle, we recommend using a low amount.
7. Max. Brake Force :
The ESC provides proportional braking function; the braking effect is decided by the position of the throttle trigger. It sets what percentage of available braking power when full brake is applied. Large amount will shorten the braking time but it may damage your pinion and spur. Please select the most suitable brake amount as per your car condition and your preference.
8. Drag Brake
Drag brake is the braking power produced when releasing the throttle trigger from full speed to neutral zone.
Attention! Drag brake will consume much power, so apply it cautiously.
9. Neutral Range :
As not all transmitters have the same stability at "neutral position", please adjust this parameter as per your preference. You can adjust to a bigger value when this happens
10. Throttle curve :
This function is mainly applicable to the model in different application sites, which is equivalent to the EXP function on the transmitter.
11. BEC Voltage :
Option 1: 6.0V.
It's applicable to ordinary servos. Do not use this option with high voltage servos; otherwise your servos may not function normally due to insufficient voltage.
Option 2: 7.4V.
It's applicable to high voltage servos. Do not use this option with ordinary servos; otherwise your servos may be burnt due to high voltage.

4 ESC Programming

1. Functions & Explanations



3. Specifications

- Working Voltage: 5.0V-8.0V
- Size: 38.9x12.0x55.9mm
- Weight: 40g

5 Factory Reset

1. Restore the default values with a LED program card.
After connecting the LED program card to the ESC, press the "RESET" button and the "OK" button to factory reset your ESC.

07 Explanation for LED Status

- The Red LED dies out when the throttle trigger is in throttle neutral zone.
- The Red LED flashes when your vehicle runs forward and it turns solid Red when you pull the throttle trigger to the full throttle endpoint.
- The Red LED flashes when your vehicle brakes and it turns solid Red when you push the throttle trigger to the full brake endpoint and set the "maximum brake force" to 100%.
- The Red LED flashes when your vehicle runs backward and it turns solid Red when you push the throttle trigger to the full brake endpoint and set the "maximum reverse force" to 100%.

08 Protection functions

1. Voltage protection: when the battery voltage is lower than the protection threshold for 2 seconds, the battery will enter the low-voltage protection state (normally, there are two stages of low-voltage protection in the electric regulation, the first stage is to reduce the output power, and the second stage is to completely shut down the output), and the red light on the ESC will flash continuous.
2. Overtemperature protection: when the ESC internal temperature is higher than 100°C, the power will be reduced until the output is cut off (When overtemperature protection occurs, the ESC will not suddenly cut off the output, so as to avoid sudden stop and cause accidents.). The green light will flash after the stop and return to normal output power when the temperature is below 80°C. half power output
Note: When it is on ship mode, the motor will be half power output when enter low voltage protection. LED flash quickly, please stop the boat immediately.

09 Troubleshooting

Trouble(s)	Possible Causes	Solution(s)
The ESC was unable to start the status LED; the motor after it was powered on	1. No power was supplied to the ESC. 2. The ESC switch was damaged	1. Check if all ESC & battery joints or connections have been well soldered or firmly connected. 2. Replace the broken switch.
The ESC was unable to start the motor (but the Red status LED flashed) after it was powered on	The throttle control cable was reversely plugged in or in the wrong channel on the receiver.	Please plug the throttle control cable in the TH channel (usually CH2) on receiver or recalibrate the throttle range.
The vehicle moved forward or backward slowly when the throttle trigger was at the neutral position	The throttle range was not calibrated properly.	Please recalibrate the throttle range or fine-tune the neutral position on the transmitter.
The vehicle ran backward when you pulled the throttle trigger towards you	1. The ESC-to-motor wiring order was incorrect. 2. Incorrectly set the direction of the throttle channel.	1. Swap motor wires. 2. Change the direction of the throttle channel from "NOR" to "REV" or "REV" to "NOR".
The motor suddenly stopped or significantly reduced its output in operation	1. The receiver was influenced by some foreign interference. 2. The LVC protection was activated. 3. The ESC thermal protection was activated.	1. Check all devices and try to find out all possible causes, and check the transmitter's battery voltage. 2. The Red LED keeps flashing indicating the LVC protection is activated, so please replace your battery pack. 3. The Red LED keeps flashing indicating the ESC thermal protection is activated, please let your ESC cool down before using it again.
The vehicle could run forward but could not reverse	The throttle neutral position on your transmitter was actually in the braking zone.	Recalibrate the throttle neutral position. No LED on the ESC will come on when the throttle trigger is at the neutral position.