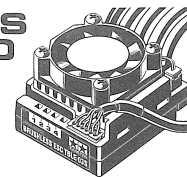


# TBLE-03S

## TAMIYA BRUSHLESS ELECTRONIC SPEED CONTROLLER 03 (SENSORED)



Thank you for purchasing the Tamiya Brushless ESC 03 (Sensored). This electronic speed controller is designated for use with the Tamiya Brushless Motor (Sensored) series, and also brushed motors over 23 turns. Read carefully and fully understand instructions prior to use. Make sure to read the following safety precautions as breakage and accidents due to improper use will void your warranty.

★Item is initially set up in Brushless Motor Mode. If using with a brushed motor, change mode referring to «6. Motor Mode Setup» section.

★Always follow instructions in «1.High Point Setup» to ensure that the high point setup is appropriate for your transmitter before use.

★Using digital servos with a current exceeding 1.5A may cause damage to the ESC.

**Factory Settings**  
 Neutral Brake: Setting 2 (5%)  
 Brake Output: Setting 10 (100%)  
 Reverse Function: Enabled  
 Battery Cut-Off: Enabled  
 Motor: Brushless Motor Mode  
 Preset Profile: 5

※ESC is initially set up in Preset Profile 5.  
 ★Please note that this ESC is not equipped with any boost functions.

**Specifications**  
 ESC: Forward / Brake / Reverse  
 Max. continuous current: 120A  
 Input voltage: 6.6-7.2V  
 Output: Forward - 100%  
           Reverse - 50%  
 Dimensions: 37.2 x 30.5 x 26mm  
 Weight: 53g  
 Compatible Motors: Tamiya Brushless Motors (Sensored) series, brushed motors over 23 turns  
 Receiver Output Voltage: 6V/1.5A

### ⚠ WARNING

Pay close attention to the following safety precautions as improper use can destroy the product and void your warranty or lead to property damage and personal injuries.

- This speed controller is intended for use with R/C models that operate on the ground. Do not use with other models.
- Connect receiver to ESC and servos securely. Connectors may become loose due to vibrations while running.
- Never operate any R/C model in electrical storms.
- Avoid running in rain or through surface water. Water in the equipment may cause loss of control.
- Disconnect and remove battery pack when car is not being used. If left connected the car may run out of control, causing damage or injury.
- Keep receiver, battery pack and model etc. out of reach of small children.

### ⚠ CAUTION

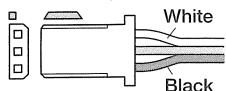
- Make sure the polarity is correct when connecting a battery pack and motor to prevent damage to ESC and receiver.
- Continuous running may damage battery connectors. Battery pack, motor and ESC become extremely hot during or after operation and can cause burns if touched.
- Never short circuit battery or motor cables as it may damage the R/C unit.
- This speed controller contains precise electronic equipment. Shocks, impacts, water and humidity are all possible causes of damage and should be avoided.
- Do not disassemble or modify the ESC. This ESC is only for use with Tamiya battery packs and motors. Use of other products may damage the R/C unit.
- Never run an R/C model on roads or streets, or in crowded areas.
- Never connect to a brushed motor when ESC is in brushless mode and vice versa, as this may damage the ESC.

### «Part names»

#### «CAUTION»

★Always turn on transmitter first, then receiver. After use, always turn off receiver first, then transmitter. Failing to do so may lead to the model running out of control.

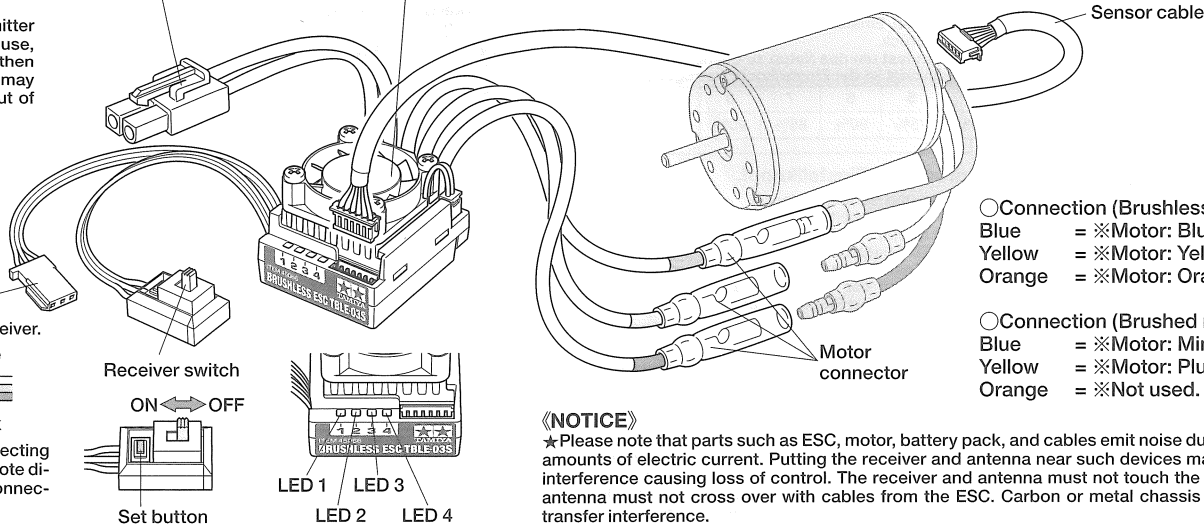
Receiver connector  
 ★Connect to 2 (CH.2) on receiver.



● Cut off the tab when connecting to a SANWA or JR receiver. Note direction and polarity when connecting.

Battery connector  
 ※for Tamiya Battery Pack

Cooling fan ★Cooling fan runs briefly as a test when ESC is turned on. After that, it starts to run after a few seconds of throttle input, and stops again after throttle has returned to neutral for a short time.



○ Connection (Brushless motors)  
 Blue = ※Motor: Blue  
 Yellow = ※Motor: Yellow  
 Orange = ※Motor: Orange

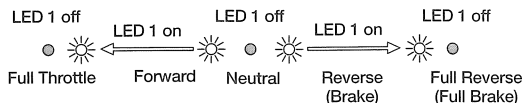
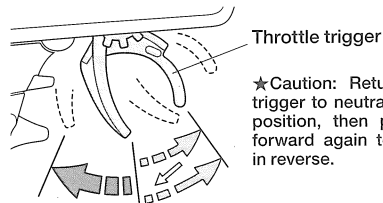
○ Connection (Brushed motors)  
 Blue = ※Motor: Minus (-)  
 Yellow = ※Motor: Plus (+)  
 Orange = ※Not used.

#### «NOTICE»

★Please note that parts such as ESC, motor, battery pack, and cables emit noise due to large amounts of electric current. Putting the receiver and antenna near such devices may lead to interference causing loss of control. The receiver and antenna must not touch the ESC. The antenna must not cross over with cables from the ESC. Carbon or metal chassis may also transfer interference.

### «Throttle Operation and LED Indicator»

● LED 1 remains off while throttle trigger is in neutral position, and turns on when trigger is moved forwards or backwards. When trigger reaches full throttle or full brake, LED 1 turns off.



### «Adjusting Settings»

The 2 procedures listed at right are used to set up the various functions.

★Connect equipment as shown above, and always ensure the model cannot move before adjusting settings, by placing it in a position where wheels are not in contact with the ground, removing the pinion gear, etc.

★A beep tone is emitted if the motor is connected.

※LEDs light up in order, for roughly 1 second at a time.

#### A. Hold down Set button when transmitter and receiver are already turned on.

- LED 1 lights up Red → Release Set button to enter «1. High Point Setup»
- ↓
- LED 2 lights up Red → Release Set button to enter «2. Neutral Brake Setup»
- ↓
- LED 3 lights up Red → Release Set button to enter «3. Brake Setup»

#### B. Switch on receiver while holding down set button.

- LED 1 lights up Red → Release Set button to enter «4. Reverse Setup»
- ↓
- LED 2 lights up Red → Release Set button to enter «5. Battery Cut-Off Setup»
- ↓
- LED 3 lights up Red → Release Set button to enter «6. Motor Mode Setup»
- ↓
- LED 4 lights up Red → Release Set button to enter «7. Preset Profile Setup»

**A. Hold down Set button when transmitter and receiver are already turned on.**  
 ★Settings can not be adjusted if there is no signal or there is a sensor error. Refer to the «LED Flashing Pattern» section below.

**«1. High Point Setup»** (Brushless and Brushed Motor Modes)

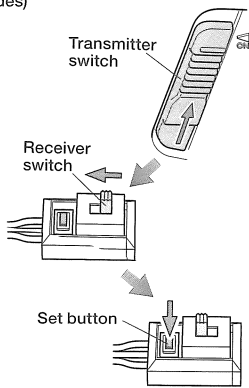
Always perform to ensure that the high point setup is appropriate to your transmitter, allowing you to get the most out of the motor.

★If transmitter throttle range has been adjusted, reset to factory settings. Turn off any ABS or acceleration functions.

- 1 Turn on transmitter and receiver in order.
- 2 Press and hold down Set button. Release Set button when LED 1 lights up Red. LED 1 will then begin to flash Red.
- 3 Apply full throttle and press Set button once. If procedure has been performed correctly, LED 1 will start to double flash.
- 4 Apply full brake and press Set button once. If procedure has been performed correctly, LED 1 will turn off.

★All settings are saved once setup is complete, and can not be stored separately.

★Settings will not be saved if the speed controller is turned off during setup, and previous settings will remain.



**«2. Neutral Brake Setup»** (Brushless Motor Mode Only)

Perform to adjust brake effect when throttle is in neutral. Always check settings by driving the model. Please note that adjustments to neutral brake setup will not be reflected in Brushed Motor Mode.

- 1 Turn on transmitter and receiver in order.
- 2 Press and hold down Set button. Release Set button when LED 2 lights up Red. LED 2 will then begin to flash Red. Count the number of flashes of LED 2 to check the setting. For example, 2 flashes means Setting 2.
- 3 Press the Set button to cycle up through the Settings. It returns to Setting 1 after Setting 10.
- 4 Push and hold Set button to end setup. When LED 2 lights up Green to show setup is complete, release Set button.

Setting	1	2	3	4	5	6	7	8	9	10
Output	0	5%	10%	15%	20%	25%	30%	35%	40%	45%

**«3. Brake Setup»** (Brushless Motor Mode Only)

Perform to adjust Brake. Always check settings by driving the model. Please note that changes to Brake setup will not be reflected in Brushed Motor Mode.

- 1 Turn on transmitter and receiver in order.
- 2 Press and hold down Set button. Release Set button when LED 3 lights up Red. LED 3 will then begin to flash Red. Count the number of flashes of LED 3 to check the setting. For example, 2 flashes means Setting 2.
- 3 Press the Set button to cycle up through the Settings. It returns to Setting 1 after Setting 10.
- 4 Push and hold Set button to end setup. When LED 3 lights up Green to show setup is complete, release Set button.

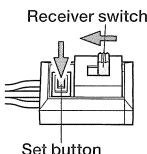
Setting	1	2	3	4	5	6	7	8	9	10
Output	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%

**B. Switch on receiver while holding down set button.**

**«4. Reverse Setup»** (Brushless and Brushed Motor Modes)

Perform to enable or disable Reverse.

- 1 Switch on receiver while holding down set button.
- 2 Release Set button when LED 1 lights up Red, to change Reverse setting. In setup confirmation, LED 1 flashes once accompanied by a single beep tone to show Reverse is enabled. It double flashes accompanied by a double beep tone to show Reverse is disabled. See «LED Flashing Pattern» section.



**«5. Battery Cut-Off Setup»** (Brushless and Brushed Motor Modes)

Perform to enable or disable Battery Cut-Off, which prevents the battery pack from over-discharging.

★Always ensure that Battery Cut-Off is enabled when using LF battery packs.

※Please note that enabling Battery Cut-Off may reduce model running time provided by battery pack.

- 1 Switch on receiver while holding down set button.
- 2 Release Set button when LED 2 lights up Red, to change Battery Cut-Off setting. In setup confirmation, LED 1 emits short flash(es) accompanied by short beep tones to show Battery Cut-Off is enabled. It emits long flash(es) accompanied by long beep tones to show Battery Cut-Off is disabled. See «LED Flashing Pattern» section.

**«6. Motor Mode Setup»** (Brushless and Brushed Motor Modes)

Perform to select Brushless or Brushed Mode.

- 1 Switch on receiver while holding down set button.
- 2 Release Set button when LED 3 lights up Red.
- 3 LED 3 flashes Green → Red → Green when in Motor Mode Setup.
- 4 (Selecting Brushed Motor Mode)

Press Set button when LED 3 lights up Green. LED 3 will then flash Green. Press the Set button once more and LED 3 will go out, signifying Brushed Mode has been selected.

(Selecting Brushless Motor Mode)

Press Set button when LED 3 lights up Red. LED 3 will then flash Red. Press the Set button once more and LED 3 will go out, signifying Brushless Mode has been selected.

★To quit without storing settings, turn off receiver without pressing set button.

**«7. Preset Profile Setup»** (Brushless and Brushed Motor Modes)

Perform to select one of 5 handy preset profiles. Use as a base for your individual settings.

- 1 Switch on receiver while holding down set button.
- 2 Release Set button when LED 4 lights up Red. LED 4 will then begin to flash Red. Count the number of flashes of LED 4 to check the currently selected Profile. For example, 2 flashes means Profile 2.
- 3 Press the Set button to cycle up through the Profiles. It returns to Profile 1 after Profile 5.
- 4 Push and hold Set button to end setup. When LED 4 lights up Green to show setup is complete, release Set button.

Brushless Motor Mode	1	2	3	4	5
Neutral Brake Output	Setting 4 (15%)	Setting 3 (10%)	Setting 4 (15%)	Setting 1 (0%)	Setting 2 (5%)
Brake Output	80%	80%	90%	90%	Setting 10 (100%)
Reverse	Disabled	Enabled	Enabled	Disabled	Enabled
Battery Cut-Off	Enabled	Enabled	Enabled	Enabled	Enabled

Brushed Motor Mode	1	2	3	4	5
Neutral Brake Output	Setting 1 (0%)	Setting 1 (0%)	Setting 1 (0%)	Setting 1 (0%)	Setting 1 (0%)
Brake Output	Setting 10 (100%)	Setting 10 (100%)	Setting 10 (100%)	Setting 10 (100%)	Setting 10 (100%)
Reverse	Disabled	Enabled	Enabled	Disabled	Enabled
Battery Cut-Off	Enabled	Enabled	Enabled	Enabled	Enabled

**«LED Flashing Pattern»**

Setup confirmation

When the receiver is switched on, LED 1 will show the current settings by the color and flashing pattern to enable checking of Reverse, Battery Cut-Off and Motor Mode settings.

Motor Mode Setting	LED 1
Brushless Motor Mode	Red
Brushed Motor Mode	Green

Reverse	Battery Cut-Off	LED 1	Beep tone
Enabled	Enabled	Single flash	Single beep
Disabled	Enabled	Double flash	Double beep
Enabled	Disabled	Long single flash	Long single beep
Disabled	Disabled	Long double flash	Long double beep

○After showing the current settings, LED 1 will go out and return to indicating throttle level. Refer to «Throttle Operation and LED Indicator» section.

Activation of one of the protection functions is shown by the below LED flashing patterns.

	LED 1	LED 2	LED 3	LED 4
No signal	Flashes Red (Brushless Motor Mode) Flashes Green (Brushed Motor Mode)			
Overload protection	Flashes Red			
Low voltage protection		Flashes Red		
Overheat protection			Lights up Red	
Sensor error (Brushless Motor Mode)	Flashes Red	Flashes Red	Flashes Red	Flashes Red
Sensor error (Brushed Motor Mode)	Flashes Green	Flashes Green	Flashes Green	Flashes Green

○A beep tone is emitted if the receiver is switched on before the transmitter, and the motor is connected. No beep tone will be emitted if transmitter fail safe function is enabled.

○LED 4 flashes continuously when in Brushless Motor Mode to confirm use of unboosted equipment.

**«Protection Functions»**

This item features 2 functions to protect ESC operation.

**Overheat Protection:** Stops power to the motor being cut off when ESC overheats due to continued long running times or excessive load. Let the ESC cool down and it will automatically restart.

**Overload Protection:** If a current overload occurs, the motor will automatically shut down and will not restart automatically. Immediately switch off R/C units, check for short circuits or motor damage, and fix problem. Then, restart R/C units.

Contact your local Tamiya dealer for any questions regarding this ESC including parts, defects and repairs.

**«Troubleshooting»** ★Before sending your speed controller in for repair, check it again using the diagram below.

Symptom	LEDs	Cause / Remedy
Motor does not work.	All LEDs flash simultaneously	ESC is in Brushless Mode but sensor cable is not connected. Connect cable. ESC is in Brushed Mode with brushless motor and sensor connected. Disconnect cable. Brushless motor has shut down.
	LED 3 flashes Red slowly	Heat protection function activated. Let the ESC cool down and it will automatically restart. In case of frequent shutdowns, check gear ratio, ESC cooling, and drivetrain movement.
	LED 1 flashes Red quickly	Overload protection function activated. Turn off ESC, check for damage and repair if necessary.
	LED 2 flashes Red	Battery Cut-Off activated. Recharge the battery pack.
	LED 1 flashes Red accompanied by beep tone	ESC has no signal input. Check transmitter switch, ESC/receiver connection, and frequency band or transmitter/receiver pairing.
	LED display is normal	Motor cables are not connected or motor is defective. Check motor connection or replace motor if needed.
Model moves differently to transmitter input.	LED display is normal	High Point setup error, or transmitter settings changed after High Point setup. Perform High Point setup procedure again.
Model does not move backward.	LED display is normal	High Point setup error, or transmitter settings changed after High Point setup. Perform setup procedures again if you have changed transmitter. Also check if Reverse function has been disabled.
Cooling fan does not work.	LED display is normal	Fan is not connected. Check connection.

