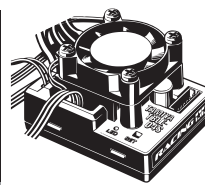


TAMIYA R/C SYSTEMS

# TBLE-04SR

TAMIYA BRUSHLESS ELECTRONIC SPEED CONTROLLER04SR (SENSORED)



Thank you for purchasing the Tamiya Brushless ESC 04SR (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.

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

**Specifications**  
 ESC: Forward / Brake / Reverse  
 Max. continuous current: 75A  
 Input voltage: 6.6-7.2V  
 Output: Forward - 100% Reverse - 50%  
 Dimensions: 41.5 x 33.4 x 27mm  
 Weight: 56g  
 Compatible Motors: Tamiya Brushless Motors (Sensored) series, Tamiya brushed motors 23 turns or over.  
 Receiver Output Voltage: 6V/1.5A

★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 or those with current exceeding 1.5A may damage the ESC.

### 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 model is not being used. If left connected the model 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

● Battery connector  
 ※for Tamiya Battery Pack

● Cooling fan  
 ★Cooling fan runs when ESC is on. Turn off ESC or disconnect battery connector when not in use.

● Sensor cable

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

● LED  
 ● Set button

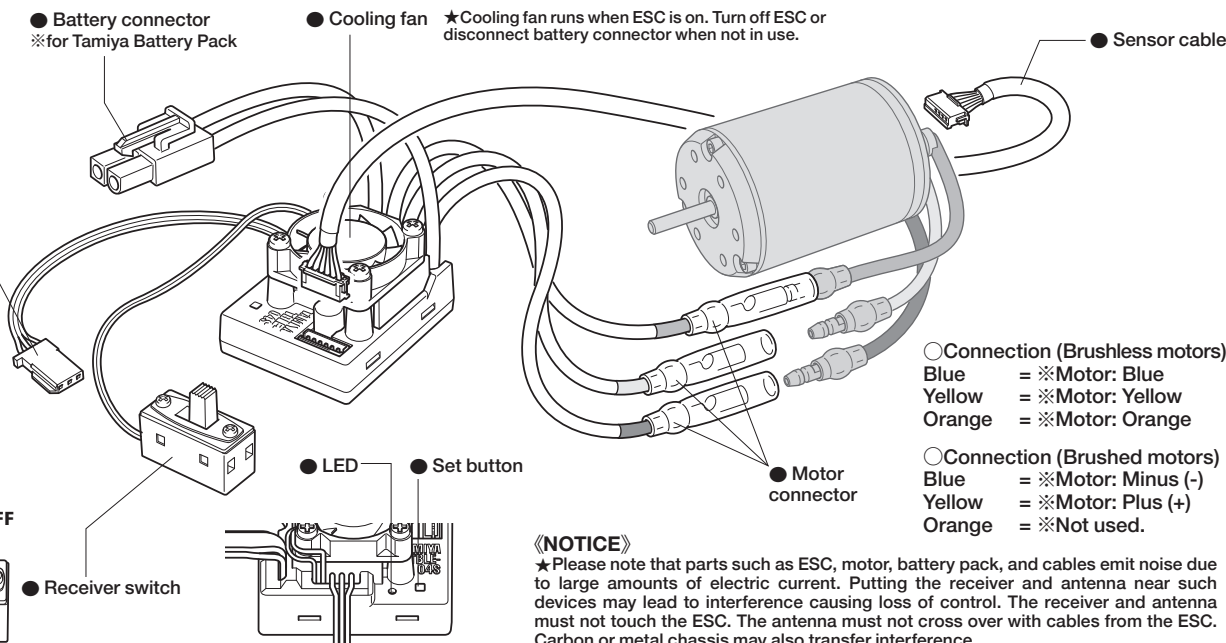
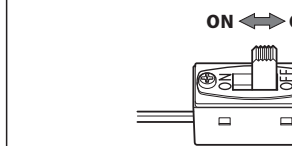
● Motor connector

● Receiver switch

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

Black  
 White

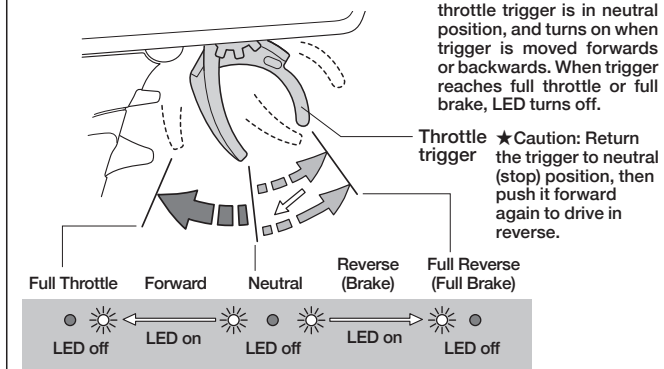
※Cut off the tab when connecting to a SANWA or JR receiver. Note direction and polarity when connecting.



### 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



### 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.

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

●LED lights up in the order Red → Green → Orange → Red.  
 → LED lights up Red → Release Set button to enter (1. High Point Setup)  
 → LED lights up Green → Release Set button to enter (2. Neutral Brake Setup)  
 → LED lights up Orange → Release Set button to enter (3. Brake Setup)

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

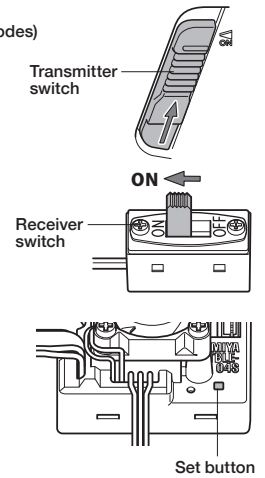
→ LED lights up Red → Release Set button to enter (4. Reverse Setup)  
 → LED lights up Green → Release Set button to enter (5. Battery Cut-Off Setup)  
 → LED lights up Orange → Release Set button to enter (6. Motor Mode Setup)

### 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.  
 ★Turn off any transmitter ABS or acceleration functions.  
 ① Turn on transmitter and receiver in order.  
 ② Press and hold down Set button. LED will light up in the order Red → Green → Orange → Red. Release the Set button when the LED is lit up Red, and it will start to flash Red.  
 ③ Apply full throttle and press Set button once. If procedure has been performed correctly, LED will start to double flash Red.  
 ④ Apply full brake and press Set button once. If procedure has been performed correctly, LED will turn off.  
 ★All settings are saved once setup is complete, and can not be saved separately. Repeat from ① above to re-define High Point.  
 ★Settings will not be saved if the speed controller is turned off during setup, and previous settings will remain.  
 ★Adjusting transmitter throttle settings can lead to loss of control - always perform High Point Setup again after adjustment.



#### 2. Neutral Brake Setup (Brushless Motor Mode Only)

Perform to adjust brake when throttle is in neutral. Always check settings by driving the model. Please note that changes to neutral brake setup cannot be made in Brushed Motor Mode.  
 ① Turn on transmitter and receiver in order.  
 ② Press and hold down Set button. Release Set button when the LED is lit up Green, and it will start to flash Green. Count the number of flashes of the LED to check the setting. For example, 2 flashes signifies 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 lights up Green to show setup is complete, release Set button.

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

\* Factory setting: 2 (5%)

#### 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 the LED is lit up Orange, and it will start to flash Orange. Count the number of flashes of the LED to check the setting. For example, 2 flashes signifies 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 lights up Orange to show setup is complete, release Set button.

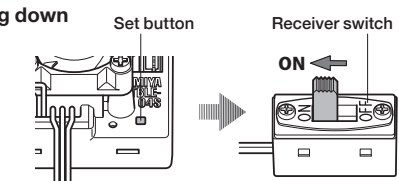
Setting	1	2	3	4	5	6	7	8	9	10
Brake	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%

\* Factory setting: 10 (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.



### Protection Functions

This item features 2 functions to protect ESC operation.  
**Overheat protection:** Cuts off power to the motor 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 unit, check for short circuits or motor damage, and fix problem. Then, restart R/C unit.

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

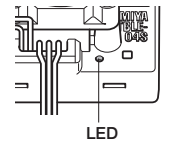


### Troubleshooting

★Before sending your ESC in for repair, check it again using the diagram below.

Symptom	LED	Cause / Remedy
Motor does not work.	LED flashes Red → Green alternately.	ESC is in Brushless Mode but sensor cable is not connected. Connect cable, or replace if faulty. ESC is in Brushed Mode with brushless motor and sensor connected. Brushless motor has shut down.
	LED flashes Red slowly	Overheat 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 flashes Red quickly	Overload protection function activated. Turn off ESC, check for damage and repair if necessary.
	LED flashes Red	Battery Cut-Off activated. Recharge the battery pack.
	LED flashes Green or Orange.	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	Contact your local Tamiya dealer.

② LED lights up in the order Red → Green → Orange → Red. Release the Set button when the LED is lit up Red.  
 ③ LED goes out, then flashes once as shown in the «LED Flashing Pattern» section to indicate the current setup.  
 ★Reverse switches between on and off every time ② is performed.



#### 5. Battery Cut-Off Setup (Brushless and Brushed Motor Modes)

Perform to switch between Lo and Hi Battery Cut-Off modes, which prevent the battery pack from over-discharging. Always set to Lo when using LF and Ni-Cd battery packs.  
 ① Switch on receiver while holding down set button.  
 ② LED lights up in the order Red → Green → Orange → Red. Release the Set button when the LED is lit up Green.  
 ③ LED goes out, then flashes once as shown in the «LED Flashing Pattern» section to indicate the current setup.  
 ★Battery Cut-Off function switches between Hi and Lo every time ② is performed.  
 ★Please note that setting to Hi may reduce model running time provided by the battery pack.

#### 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 LED lights up in the order Red → Green → Orange → Red. Release the Set button when the LED is lit up Orange.  
 ③ LED flashes Orange → Green → Orange. Press Set button when LED is Orange to select Brushless Motor Mode, or when Green to select Brushed Motor Mode.  
 ④ LED flashes Orange to signify Brushless Motor Mode, or Green to signify Brushed Motor Mode. Press Set button to confirm mode, or turn off the ESC to cancel.  
 ⑤ LED goes out, then flashes once as shown in the «LED Flashing Pattern» section to indicate the current setup.

### LED Flashing Pattern

Setup confirmation  
 When the receiver is switched on, LED 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
Brushless Motor Mode	Orange
Brushed Motor Mode	Green

Reverse	Battery Cut-Off	LED	Beep tone
Enabled	Lo	Lights up Red → Single flash	Single beep
Disabled	Lo	Lights up Red → Double flash	Double beep
Enabled	Hi	Lights up Red → Long single flash	Long single beep
Disabled	Hi	Lights up Red → Long double flash	Long double beep

○After showing the current settings, LED will go out and return to indicating throttle level. Refer to «Throttle Operation and LED Indicator» section.  
 ○A beep tone is emitted if a motor is connected.

### CAUTION (note the following information carefully.)

① Motor temperature  
 Prolonged brushless motor use at high temperatures may lead to decreased performance; keep motor surface temperature below 80°C. Always take precautions to avoid burns when handling motor.  
 ② Motor timing  
 Two increments from motor's standard position is the maximum recommended timing adjustment. Making large increases to timing (in particular, setting to maximum increment) can cause excessive current and overheating, leading to damage to motor, ESC and battery pack.  
 ③ Chassis gear ratio / Running conditions  
 Factors such as chassis gear ratio, weight, plus air and driving surface temperatures can cause overheating, leading to decreased performance and even damage. Always start driving with a gear ratio that places minimal strain on the motor.  
 ④ Using other manufacturers' transmitters  
 This ESC is not compatible with third party transmitter manufacturers' high response modes. Always set transmitter to normal mode, with reference to its user manual.  
 ○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 fail safe function is enabled.