



BMS Speed Control – User Guide

Thank you for choosing a Team CORALLY Electronic Speed Control (ESC) for Brushless Motors. By purchasing the CORALLY BMS you have chosen a high-performance sensorless system. Please read and understand the complete user guide before installing, connecting or running the motor for the first time.

WARNING – INCORRECT USE WILL VOID WARRANTY – PLEASE NOTE FOLLOWING:

- ▲ Keep the product out of the reach of children. Not a toy.
- ▲ Make sure all parts are wired up accordingly. Avoid incorrect connections & reversed polarity!
- ▲ All wires and connections have to be well insulated.
- ▲ Avoid contact with water or other liquid.
- ▲ Only use motors with a minimum of 8 turn Star or 13 turn Delta winding.
- ▲ Avoid excessive heat. A wrong gear ratio on the motor may overload the speed control and cause damage.

BMS FEATURES & SPECIFICATIONS:

- ▲ High Performance and Superior Efficiency.
- ▲ Trouble-free sensorless technology. Sensorless motors do not suffer from humidity or mechanical failures common by sensored motors.
- ▲ Lightweight Design.
- ▲ The speed controller is specially designed to offer high power and high efficiency combined with low weight and compact dimensions
- ▲ Automatic cut-off, auto neutral setting and auto detection of all types and number of cells.
- ▲ Perfect design for direct drive applications. The motor will respond to throttle input & accelerate instantly. There is immediately cut-off motor power when the voltage drops. Move the throttle to the neutral position & then push throttle forwards, the car will run again. Repeat above actions until the voltage drops under its battery's specific low cut-off volt, the motor will then be completely shut down.
- ▲ Over temperature protection – The motor will be intermittently turned off when the temperature reaches around 95°C. Optional vent fan is available for selection to enhance the ESC ventilation.
- ▲ Fail safe mode – While detecting out any abnormal signal or signal fail between transmitter & receiver for about 2 seconds, The controller will cut off the motor power automatically. Once the signal gets back to normal, the system will automatically turn on again.

SPECIFICATIONS:

- ▲ Input voltage : 7.2V (Ni-cd & Ni-MH) 7.4V~11.1V(Li-po)
- ▲ Output of : Power IC spec: 54A (at 25°C) 45A (at 100°C) under good ventilation
- ▲ Factory specification: 300 W (7.2V x 40A) continuous
- ▲ Support: A < 4500KV 540S(3BX50) motor
B < 4000KV 540S(3BX50) motor
- ▲ BEC : 5V 2A low distortion regulator IC, 5V 1A x 2 parallel, Mosfet (inner resistance): 0.00166MΩ
- ▲ Weight : 45g.
- ▲ Dimension : 50mmx26mmx16.5mm
- ▲ Low power battery auto-detect

BMS INSTALLATION:

- ▲ Read your motor's instructions for user directions and connecting the motor to the ESC.
- ▲ Only use sensorless motors with a minimum of 8 turn Star or 13 turn Delta winding.
- ▲ Connect the small black plug with thin black, red & white wire to the receiver.
- ▲ Connect the large red plug with 3 red wires to the motor. If the 3 motor power wires are not mounted in the right sequence the motor will not work or run in reversed direction. The ESC & Motor will not be damaged by an incorrect sequence of the motor power wires. It is safe to change the sequence if necessary.
- ▲ Connect the white plug with black & red wire to the battery. Always make sure to connect the black ESC wire to the black battery wire and the red ESC wire to the red battery wire! Never reverse the battery wire connections! Reversing the battery polarity will permanently damage the BMS Speed Control!

BMS SET-UP:

- ▲ Always start by switching on the transmitter.
- ▲ Lift the car with all wheels free from touching and switch on the ESC power.
- ▲ Immediately after switching on the ESC it will notify a series of beeps. This indicates that the ESC is starting the auto-setting of the throttle neutral. After successfully setting the throttle neutral it will notify a confirmation beep. There will be no confirmation beep if the throttle neutral setting has failed. Please check the installation and start the set-up from the beginning if the throttle neutral setting fails.
- ▲ Make sure that the wheels remain lifted and check if they turn in forward direction when pushing the throttle trigger forward. Push the throttle trigger forward to start the motor running, pull the throttle trigger backwards & hold it. If the system keeps braking, the throttle forward direction coincides with the ESC forward direction. If the system only briefly brakes and then runs reversed, the throttle and ESC forward directions do not coincide with each other. Change the throttle reverse switch on the transmitter, release the throttle switch, turn off & then turn on the ESC power again. The auto-setting of the throttle neutral will start again. Then push the throttle trigger forward and the motor should also run forward. The non-coincidence problem is now corrected. If not, change the motor wire connection so the sequence of the outer 2 wires is changed to correct the non-coincidence problem.
- ▲ Slowly apply throttle to check if the motor is rotating in the desired direction. Changing the motor wire connection so the sequence of the outer 2 wires is changed will change the direction of the motor.
Do not reverse the battery wire connections! Reversing the battery polarity will permanently damage the ESC.

BMS OPERATION:

- ▲ Start trial running with the advised motor gear ratio (see the motor's gear ratio chart) for 2~3 minutes and measure the temperature of both the ESC and the motor. The gear ratio will be too low if the ESC gets hot and the motor remains cold. Use a bigger motor pinion to reduce the motor revs. The gear ratio will be too high if the ESC remains cold but the motor gets hot. Use a smaller motor pinion to increase the motor revs. If both have about the same temperature the gear ratio is about correct. The gear ratio can now be properly adjusted and optimized to the track etc.. Always make sure to keep the temperature of both the ESC and the motor under 100 °C! Too much heat will demagnetize the motor, drop efficiency and the temperature will raise quickly. The ESC and motor could be broken and battery power is just being wasted on heat.
- ▲ Driving forward. Pull throttle trigger forward, the car will be in hard start mode, with very fast initial start, none delay acceleration, using the minimum time to reach the full speed from still. It perfectly responds to the signal by instant acceleration. The braking will be actuated by reversing throttle direction while driving forwards. Interval or spot braking can always be controlled while driving forward except when the driving speed drops to a certain low level or when slip driving happens, which will then reverse to drive backwards after reversing the throttle direction.
- ▲ Driving backwards. By reversing the throttle direction when car is in still or very low speed forward driving, the car will be driving backwards. The braking will be actuated by reversing throttle direction while driving backwards. By reversing throttle direction during driving backwards, it will get a brief braking action & then reverse to drive forwards instantly. The speed of driving backwards will be responded proportionally to the throttle input.

CAUTION:

- ▲ Once the battery pack is connected, handle the model with extreme care, make sure you are clear of all rotating parts.
- ▲ Connect the battery pack just before driving and disconnect it immediately after finishing.
- ▲ Always make sure you are connecting the ESC to a proper power source that has the correct voltage & polarity. Incorrect voltages or reversed polarity will damage the ESC.
- ▲ Avoid touching ESC heat sink or motor right after operation to avoid burning of your body or skin.

WARRANTY:

Team CORALLY declares this product to be free from manufacturing defects. No warranty can be claimed for any damage caused by the use of this product including damage caused by incorrect installation, wear, overload, dirt, rust, mechanical damage or incorrect maintenance.

DISPOSAL:



Do not dispose of these products as unsorted municipal waste. The correct method of disposal is to take it to your local collection point for recycling electrical and electronic equipment. The symbol shown here which may be found on the product itself, in the operating instructions or on the packing, indicates that this is the case.