

New ESC Technology from Modellfun

Modellfun speed controllers for brushless in-and outrunner synchronous RC motors are designed for the use in vehicles. The extreme efficiency as well as the performance of the controller itself make it a very special product. The fuzzy logic controller can be programmed through the radiocontrol as well as with the additionally available programming card. The controller supports the use of NiCD, NiMH batteries, and also can be used with LIPO batteries, including deep-discharge protections. The controller works with all available in- and outrunners available at the moment perfectly.

Specifications:

1. Max. RPMs: 2pole (240000 RPM), 4pole (120000RPM), 6pole (80000RPM), 8pole (60000 RPM), 12pole (40000 RPM), 14pole (34000 RPM)
2. Overtemperature protection: 120°C, Overdischarge protection NI-XX (4.5V cutoff, protection LI-XX (3.2V triggers intermittent power cut off, 2.9V triggers complete cut-off)
3. Operating voltages: 2S-3S Li-XX, 6S-10S Ni-XX
4. Continuous current load: CSC30 (30A), CSC45 (45A), CSC70 (70A), CSC120 (120A)
5. Peak current load (15 Sek.): CSC30 (45A), CSC45 (60A), CSC70 (90A), CSC 120 (145A)
6. BEC current load: 2A continuous, 3A peak

Attention:

The usage of proper dimensioned wires and connectors is strongly recommended. Calibrate your throttle channel before first use to ensure maximum performance. The on-off switch does not prevent a slow discharge of the battery, therefore always disconnect the battery packs from the controller after usage.

Throttle channel calibration and programming via radio control

Connect the controller with the motor, receiver and battery. Make sure that moving parts are in the air, so no undesired movement of your car will occur. The controller emits beeping tones via the motor coils for programming and status information while not running the motor, which will be shown as (*) in the following instructions.

1. Set your RCs throttle lever to full throttle position.
2. Turn on the radio control.
3. Turn the ESC on, you will hear (* * * * *) after a short while.
4. Release your RCs throttle lever, so it can return into the neutral (stop) position. You will hear (* * * *) after a short while.
5. Now move your throttle lever to full reverse and hold it there until you hear (* * * *).
6. Release the throttle lever, so it can return to the neutral position. The throttle channel calibration is now completed. The ESC now switches into the programming mode. If you just want to calibrate the throttle channel and not further program the ESC, switch the ESC now off.
7. In programming mode, there are 4 adjustable values:

Function 1: Brake power

- 1-1 60% Brake power (* *)
- 1-2 100% Brake power (* * *)

Function 2: Drag Brake (guided brake according to throttle lever position)

- 2-1 0% Brake power (* * *)
- 2-2 10% Brake power (* * * *)

Function 3: Battery protection

- 3-1 NiMH-NiCD 4.5V Cut-off (* * * *)
- 3-2 LI-XX 3.2V / 2.9V Cut-off (* * * * *)

Function 4: Operation mode

- 4-1 Forward only (* * * * *)
- 4-2 Reverse with stop required (* * * * *)

Attention: stop required=The motor will be stopped first, before it will be turned in reverse direction. This prevents mechanical overloads and damage of the drive chain of your equipment.

Drag Brake= Guided brake. If you, while driving, reduce the throttle, instead of just supplying less power to the motor, the motor will be guided towards a lower rpm, which is similar to braking. This take action while you are still in the forward driving area with your throttle lever.

8. After adjusting the parameters, you have to switch the controller off and on again, to enter the drive mode.
9. Programming using the PG card:



- (1) Connect the controller to the PG card via the servo connector.
- (2) Connect the controller to the battery.
- (3) Turn the controller on.
- (4) Program the controller by pressing the according buttons.
- (5) Switch the controller off and disconnect the PG card from it.
- (6) Reconnect the servo connector to the receiver of your car.
- (7) Now you can use the controller to drive the car.

Warning:

High power drive systems are dangerous. High current loads may, in case your wires, connectors, etc. are wrong dimensioned, lead to extreme temperatures. Please do control the wiring and battery after the first use for unnormal overheating. If available, use silicon insulated wires instead of PVC insulated wires to prevent melting of insulation. Check new installed set ups after 1-2 minutes of use for overheating. Especially NiCd racing packs and LiPo batteries can deliver currents, which are definitely going to damage the batteries, lead to overheating, fire or explosion of the cells. Therefore you must check, that the current loads is within the batteries specifications. Please check for correct layout of the components to each other. If you are not sure or don't understand how to dimension the circuitry properly, please ask for professional support through your seller or the manufacturer.

Mounting of the controller:

Mount the ESC in a well ventilated location on your vehicle. Use double side adhesive foam tape to mount the ESC and secure it with wire straps or steel wire again. Do not mount the power wires near to the receiver, antenna or the other servo wires to prevent jamming..

Integrated security circuits - Troubleshooting

The CSC controller series come along with a package of built in security measures, to prevent the damage of the equipment. The ESC has a built in overtemperature protection, which shuts off the motor immediately, but not the receiver or steering servos. Please take into consideration, that this ESC may destroy a underdimensioned motor, as it can only monitor its own temperature, but not the temperature of the motor. Do not connect the battery with wrong polarity, the buffer condensators in the supply line will short circuit the battery immediately. After such misuse, the condensators will be damaged and have to be replaced. Do not short-circuit the motor wires. The ESC has a built in short circuit protection, which will prevent damage to the ESC, but the high current may still damage your battery. Please have in mind that a too small or too old battery may not support enough power and result in a voltage drop, which will lead to a shut off of the motors or lead even to a complete reset of the controller.