CYCLON Car 4000 From Electronic Model - Instructions

Congratulations, you have just acquired a Brushless motor from Electronic Model. This motor is designed for use in car models of 1/10 & 1/12 Scale.This motor is intended only for powering cars. This motor is not for use in a boat, in a helicopter or a plane. The motor is best powered by 4 to 7 sub-c cells 1200 to 3300 mAh capacity. The main technical features of this motor were studied and calculated in order to acceleration on the ground and not just to look good on a bench test. The range of Cyclon Car motors use the NFS Principle (Noro Fabrice System). This process allows the motor to attain considerable power for very low weight. This Cyclon Motor has a record power to weight ratio, it develops up to 420 watts peak under hard acceleration, all this in a package weighing only 120 gms .

Characteristics of the motor using timing of 4-15 °

Power with 6 Cells : 270 W continuous , 420 W peak (30 seconds)
Efficiency : 80 % At 7.5V – 35A. , Timing 4 °
Current : 45 A Continuous, 60 A peak (30 seconds).
Winding Resistance : 0,010 Ohm /Phase , 0,021 Ohm total.
KV = 3740 tours/ Min / Volt Io = 3.5 A (6v)
Dimensions : Diameter 36 mm , Length 43 mm (without shaft) , weight : 120 gms

Controller

Like all brushless sensorless motors (without sensors), this motor needs to be used with an adequate controller. The utilisation of a maladjusted controller can greatly lower the performance of your motor at the same time overheat it, creating irreparable damage. The output is directly bound to the compatibility of the whole Motor/Controller/Battery combination. Being given the important number of available controllers on the market, It is difficult of prepare an exhaustive list, more so as many have a variety of programming options, which can make them compatible or not compatible. In all events, we advise you to use a controller of variable timing. Attention, it doesn't mean to say that these motors could be controlled by all the controllers with variable timing!!
The timing is only one of the numerous features of a controller! It is important that the controller is also designed to control a Multi pole motor.

The timing to use is from 4 to 15°

Battery

Choice of battery for propulsion is just as important as the other components in the chain of propulsion. Never forget that the batteries constitute the reservoir of your motor. The capacity of the battery plays on its structure and its internal resistance as a check on the output. On these grounds, always use batteries designed for high output. E.g.: A battery of 1800 mAh with low output of LR type is unusable. Preference therefore is for cells of RC type 1200, RC 1600, RC 2400, RC 3000 HV, RC 3300 HV, GP 1100 SCH, GP 2200 SCHR, GP 3000 SCHR, GP 3300 SCHR or all other cells having a low internal resistance. Attention do not use cells designed, for example, to supply low currents for the use in transmitters or receivers.

Installation

Your CYCLON motor has M3 threaded holes for fixing a mount to the stationary part of the motor. It will fit in the same space as a 540 can motor. It is recommended that you use these as your method for mounting the motor. It is important that the length of the screws is such that they do not pass further than 3 mm in to the interior of motor. It is greatly advised against fixing your motor by a system of a clamp or collar around the stationary cover of the motor.
Your CYCLON motor can be easily disassembled for exchange of the shaft or in order to change the exit end of the shaft. If you want to disassemble your motor in order to switch the shaft around or for any other reason, it is essential to replace the hexagonal screw that keeps the end bell in place on the shaft, on every re-assembly. On re-assembly this screw must be new and very tight because the forces passing through this fixing are very high on this part. A bad assembly could cause the destruction of the motor! We recommend you also regularly check that this fixing is very tight.
To clean the motor will be able to Spray motor cleaning agents or compressed air through the ventilation apertures of the motor.
Attention, the bell of this motor could reach of very high speeds of active rotation up to 40000 Revs/ minute.
It is indispensable to take all precautions in order to protect the health of motor and the security of the user.

Never run this motor unconnected to the drive chain of your car.

The motor must be connected to the controller by the 3 wires. We recommend you solder the wires of the motor to the wires of the controller. In case you would wish to use connectors, it is indispensable that they are of quality, of PK 4 mm or PP 3.5 mm types. It is indispensable to have a length of flexible wire between the motor and the controller. Never join the cables of motor directly on to the controller, use some flexible wire.
If no flexible wire is used there is a high possibility that the stiff motor wires will fracture due to the vibration with the possibility of damage to controller and motor.
The controller needs to be fixed on the chassis of the car as if it displaces or vibrates during use, as it could drag and break the motor cables.
The motor & controller need ventilation. The apertures in the motor are there for this reason, to assure correct cooling. Never close this apertures , it should over heat your motor winding .

Transmission connection & gearing ratio

The choice of reduction is very important. It must be adapted to your car, to the motor, to the number of cells, to the track, and has your style of driving. It is very important to adjust the gearing to the high practicable for the track and car. Let the motor rev! DON'T LOAD THE MOTOR WITH LOW GEARING as all this will do is produce slow acceleration, consume a lot of amps, and have the danger of burning out your motor and controller.
You have been warned!

The nearest comparison for your Cyclon 4000 motor is a brushed motor of 16 – 17 Turns. All this is an indication of the speed of rotation, and not a comparison of power. Your Cyclon motor is of course much more powerful, as it can provide up to two times more torque.
In case of doubt with the gearing, always begin by using a smaller pinion on the motor, and then increase teeth gradually.

The power and the speed of rotation of this motor mean that it can be used for example in the following cars.

Car	Power
Buggy TT 1/10 Scale 4x2 6 cells	Very good for the leisure, Excellent for competition.
Buggy TT 1/10 Scale 4x4 6 cells	Well suited for leisure. Very flexible Driving in competition.
Truck TT 1/10 Scale 4x2 6 cells	Very good for the leisure, Excellent for competition
Track Cars 1 / 10 Scale 4x4 DTM 6 cells	Very good for leisure.