

CYCLON ELITE 18 From Electronic Model Instructions

Congratulations you have just acquired a brushless motor Produced by Electronic Model. This motor is intended to power aircraft of motor glider/hotliner propellers. This motor is not for use in boats, cars or helicopters. It can be used in a plane if you follow certain conditions. The range Elite uses the NFS Principle (Noro Fabrice System). This process gives considerable power for very low weight.

Your Cyclon Motor Elite 18, possesses a record power to weight ratio, as it can develop 1000 W in continuous, for a weight of only 250 gms.

This motor is mainly dedicated to the motor gliders/hotliners up to 7-8 kg, but can to be used also on much lighter aircraft of about 2-kg because its weight is very low.

On a plane, it is recommended for 3D planes of less than 3.5 kg, because it won't be permanently using full power. On a standard plane, it is recommended up to 4.5-kg weight. This motor is recommended with 3300 cells from 12 to 18 pack sizes, but also can be used with GP type 2200 up to 20 cells of small size.

Technical features of motor using timing at 4-15 °

Output: efficiency 89%, Timing 4 ° winding resistance 0.019 Ohm total.

KV= 390 towers/ Min/ Volt after gearbox, Io= 2.7A (6v) without gear

Size: Diameter 36 mm, Length 82 mm, Weight: about. 250 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°

Using a timing of 4 °, your motor will turn less quickly and will give higher torque, this who allows turning propellers a little bigger. The timing setting of 4 or 5 °, is the one that gives the best efficiency for the motor. A more advanced timing 10 or 15 °, will increase the speed using the same propeller and therefore the power, but the consumption will increase.

Intalation

Your CYCLON Elite motor is mounted using long screws of M 3 on the stationary part of the gearbox casing. This motor must be mounted from the front gearbox area and the screws must fit securely in the mounting holes. Please use the mountings in the way they have been designed to be used. Do not use a clamp or a collar around the stationary parts of the motor for mounting as this can cause damage!.

We recommend you also check the tightness the hexagonal screws that maintain the end bell on its shaft. The propeller shaft has a diameter of 5mm.

During the installation you will need to be careful that nothing can touch the rear of the motor. This part of the motor rotates when running. It is important that nothing touches or rubs against it. Attention to this that nothing moves in your fuselage. If something comes into contact with the rear of the motor (a pack of cells at the time of a difficult landing), it can distort the external rotor, and give you an unusable motor. With this motor having a gearbox, the bell can reach speeds up to 40000 revs/ min. It is essential to take all possible precautions for the motor and for the user. Never run this motor without a propeller.

The motor must be connected to the controller by the 3 wires. We recommend you of solder the wires of motor to the wires of the controller. In the 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 of having 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 motor needs ventilation. The apertures in the motor are there for this reason, to assure correct cooling. Thus if the motor is enclosed you need to make sure you have apertures to feed the motor with an airflow, it is as important to have an exit for the air as well, this should be at least 1.5 times the area of the inlet. This is most important if the current exceeds 40 Amps.

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.

Your Cyclon Elite can of course be powered by Lithium Polymer. The number of cells accepted by the motor is 2 or 3. Attention always verify that the consumption of your motor doesn't go over the discharge capability of your Li-Po cells! These must be capable of supplying the continuous current that the motor would consume in static running.

Gearbox Maintenance

Your Cyclon ELITE motor incorporates a gearbox. The NFS process combined with this gearbox gives exceptional performance. However, it is necessary to maintain your gearbox regularly, by cleaning and re-greasing it. The time scale at which you have to perform maintenance on the gearbox will depend on the use you put it. It is very difficult to give a number of flights or time of motor use before upkeep is needed, because in use this will depend on how you use the motor power and in which model you fit the gearbox.

So that you don't risk damaging your gearbox, it is recommended to follow these instructions to set-up your maintenance schedule 1/check the state of lubrication after 10 minutes of working. 2/ Clean, re-grease then use for 20 minutes. 3/ If you don't note of lack of grease, you can repeat the operation and lengthen the time of use. Attention, the maximum time of use before maintenance is 1 hour of use.

In order to disassemble your gearbox, you must remove the 4 screws on the front of the gearbox, then pull on the shaft.

Once you have removed the gearbox. Clean the shaft, and the case of gearbox as well as the gears. Re-grease the shafts of the planetary gears as well as the holes in the planetary gears, then put back the planetary gears on their shafts. Place 2 balls of grease of size« grain of coffee», in the centre between the 3 planetary gears, then re-assemble the gearbox. Do not use more grease than stated in the gearbox, because a surplus of grease will increase the load and slow the motor/gearbox. Take care to refit the components in the gearbox as you found them. Attention, The grease you use is very important .Use of the wrong grease could cause the destruction of the gearbox. Always use the recommended grease: SNR-LUB GV. This grease is available at your ElectronicModel dealer.

Propeller/ Power/ Consumption

The choice of the propeller could change the behaviour of your aircraft. This must be adapted to the type of plane, and correspond to the performances of motor. The possible amp consumption of the motor is :55 amps continuous, 70 amps for up to 30 second burst. It can accept peaks of 80 Amps for up to 10 seconds max.

Here some combinations to give you a basis in order to start and will give you a good indication of performance.

Tours / amp	12x 3300 GP	14 x 3300 GP	16 x 3300 GP	18 x 3300 GP
15 / 13 Aeronaut	28 / 4700	34 / 5400	37 / 5700	39 / 5900
16 / 10 Aeronaut	25 / 4800	30 / 5500	34 / 5800	37 / 6100
16 / 13 Aeronaut	31 / 4400	37 / 5200	41 / 5400	45 / 5600
17 / 11 Aeronaut	29 / 4500	35 / 5300	40 / 5500	45 / 5700
17 / 13 Aeronaut	34 / 4300	42 / 4900	46 / 5100	49 / 5300
18 / 11 Aeronaut	28 / 4500	37 / 4300	40 / 5600	43 / 5800

Attention, all the propellers do not work alike! An AERONAUT 11/ 6 will load your motor as much as a Graupner 13/ 7. It is therefore indispensable to verify your consumption if the propeller is not represented in the above list. A power consumption to high can permanently damage your motor.

GOOD FLYING!