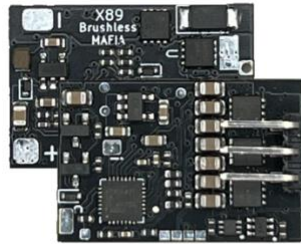# BRUSHLESS MAFIA REMORA ESC

Background

The Brushless Mafia Remora is a development from the pioneers that brought brushless technology to slot cars. Listening to the market we have many racers that have requested a plug-n-play solution for ease of assembly. In response the Brushless Mafia Remora is equipped with header pins for plug in brushless motors and leads to connect to the guide brushes. The ESC manufacturing is championed by the folks at X89 who manufacturer the renowned original X89, X89Drag and X89Pro ESCs. The X89Pro competed in the 2024 ISRA World Championship in Italy.

The Brushless Mafia is created for club or track events where the ESC does not have the ability to be changed to keep all of the racers on equal footing. This is carried out by dropping the WiFi connector. Settings for the Brushless Mafia Remora are found to be beneficial with motors up to 6500Kv.

There is no LED on the REMORA ESCs to show power being applied to the ESC.

Connecting a Motor

The header pins are designed to accept a JST Xh 2.5mm male connector with female pins. This connector comes standard with leading brushless motors. Connecting the motor is as simple as plugging the motor connector onto the ESC header pins. There is a fifty/fifty chance that you'll connect the motor so that it spins in the desired direction to move the car forward. If the motor runs in the opposite direction unplug the connector, flip it over and reconnect. The 3-wire connector selected for this application is rated at 3 amps per pin and more than adequate for racing.

Note: the board itself is capable of carrying up to 18vdc, and current of 18amps - for a short duration. Slot car motors are capable of drawing a lot of current especially when they start if they do not synchronize and stutter.

Wiring to the Guide

The Brushless Mafia REMORA is equipped with super flexible silicone jacketed 22-gauge wiring to the track side of the ESC. In the US connect the positive (+) red wire to the right side of the guide and the negative (-) black wire to the left side of the guide. There is reverse polarity protection on the REMORA.
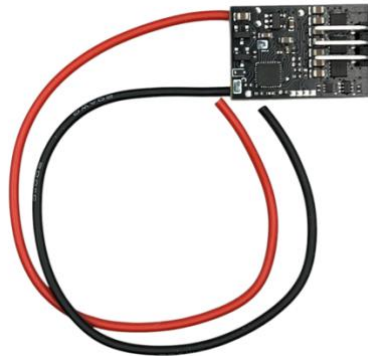
Mounting the ESC to the chassis

We suggest using the Brushless Mafia Carrier (p/n KCR-RC3) to mount the ESC to the chassis. On the bottom of the carrier use 3M Double Sided #5925 Tape with gray foam. This ensures that the wire pads, wiring and ESC traces **DO NOT** touch the chassis. In the case the chassis has moving parts, as in a flexi, make sure you move the pan, and it does not come in contact with the ESC carrier or wiring. The ESC should have high temperature Kapton tape installed to cover the top of the ESC to prevent track debris from shorting out the circuit board traces or components. (Kapton tape is available at Amazon.)

If you elect not to use the ESC carrier, make certain that the ESC is isolated from the chassis and covered with shrink tubing for protection.

Important Information

Track calls are particularly difficult for starting an uncensored brushless motor when you have the controller at full throttle. The explanation of this process is quite detailed and covered in other documents. It is recommended that on a track call you start at zero or a low partial throttle so the ESC can perform the sync of the ESC to the motor. Failure to follow this procedure can result in the motor stuttering (moving back and forth looking for the correct direction to rotate).

At any time if you continue to power the motor when it's stuttering both the motor, and the ESC will get extremely hot. You run the risk of burning out not only the motor, but also the ESC. This can happen within milliseconds! When stuttering occurs let off the throttle and reapply. If it continues to stutter remove the car from the track and investigate the cause.

If you are new to brushless slot cars, we suggest you read the various white papers available at www.KCRacing.net/Tech for additional information on Brushless Technology.

ESC Specifications

ESC footprint: 0.654" x 0.976" [16.6mm x 24.8mm]
Weight with wiring: 4.7 grams