

DoSlot Remora™ ESC



Anomalies

Unlike most ESCs, there is no LED on the Remora™ to show power being applied to the ESC.

Wiring to the Guide

The wiring to the track side of the ESC is opposite most ESCs. There is reverse polarity protection on the Remora™. The (+) solder pad on the ESC should be connected to the right-hand side brush to the track. You can place the top of the ESC facing down when mounting so the (+) pad lines up with the right side brush.

Connecting a Motor

Before attaching the three motor phase wires you might want to use a couple of leads with crocodile clips on each end to rig the wires to the pads to ensure the motor rotates in the correct direction. You will notice the board has the characters "U", "V" and "W" printed next to a pad. These indicate the corresponding motor phase that the pad drives. For most of the motors you'll find the wires are lined up in this order.

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 either: reverse two motor wires or [change the motor's direction](#) in the settings (requires WiFi link).

You'll notice that the motor phase soldering pads are drilled to accept connectors to help you if you'd like to use them. So, instead of soldering wires to the power pads you could solder on connectors. If you choose to do this, make sure the connectors you choose have appropriate mechanical and electrical properties. Note: the board itself is capable of carrying up to 18V, and current of 18amps - for a short duration. Slot car motors are capable of drawing a lot of current especially when they start especially if they do not synchronize and 'cog'.

Soldering is a better solution because it's electrically and mechanically sound. And in an accident there is, if you've done it right, less chance of a connector coming loose.

Soldering Tips

- When you solder to the pads - BE CAREFUL.
- Use a high-quality soldering iron.
- Make sure it's not carrying any electrical charge.
- Use an iron with enough power to solder electrical contacts - say less than 50 watts.
- Use good quality 60/40 lead/tin, fluxed electrical solder, with less than about .030" [.8mm] diameter - it's expensive these days but the investment is worth it.
- Use a small $3/16''$ [5mm] chisel point bit on the iron.
- Get the iron hot - to about 806°F [430°C]. Some irons have a temperature indicator on them.
- Clean the tip on a sponge.
- Tin the tip with a small amount of solder.
- Hold the solder wire above the pad, touch the iron on the pad and quickly feed in a tiny blob of solder.
- If the solder does not melt lift the iron off at once. Check the iron is hot and repeat the process.
- If you do it right, the solder will melt on the pad in <math><1/2</math> second.
- Take the iron away quickly as soon as the solder melts on the pad to leave a small shiny lump. **DO NOT KEEP THE IRON ON THE PAD.**

Mounting the ESC to the chassis

To mount the ESC to the chassis 3M Double Sided #5925 Tape with gray foam is suggested. Make sure 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 or wiring. The ESC should have tape or shrink tube covering the ESC to prevent track debris from shorting out the circuit board traces or components.

Connecting a High K_v Motor

Motors up to 22,000 K_v will work without any changes to the Remora™. However, when you first connect a motor, **DO NOT** immediately apply full power. Work up to doing this until you know the motor will successfully synchronize on start. If a motor "cogs" or stutters when it starts, or this happens after it's running - **STOP APPLYING POWER IMMEDIATELY** and try [increasing the timing](#) (requires WiFi link). Very high K_v (say 22,000 K_v and above) motors are hard to start because they generate a very low back emf (BEMF). The BEMF is used to synchronize and start a motor, and if this value is low it's hard to measure and difficult to start a motor. The greater a motor's K_v the greater the number of revolutions needed to generate a volt of electricity.

If you continue to power the motor when it's stuttering both the motor and eCom will get hot, because the motor will draw a huge amount of current and you run the risk of burning out not only the motor, but also the eCom.

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KC Racing sells DoSlot Remora™ ESCs, which are compatible versions based on the original open-source Remora design from AART. These are not AART produced products.