



## SERVICE ADVISORY HISTORY

2/09/2021	SERVICE ADVISORY SA2021-1 UPDATE
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1/07/2021	SERVICE ADVISORY SA2021-1
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## PRODUCT USE STATEMENTS

### CALIBRATION

- Individual transmitter signals for neutral, full throttle, and full brake vary.
- You must calibrate your Castle ESC so that it will operate effectively with your transmitter.
- Anytime the ESC is powered up with a new transmitter or with different throttle channel settings, it will need to be calibrated to the transmitter's throttle settings.
- Additionally, we recommend that the ESC be calibrated after updating to new software via Castle Link.

### INPUT VOLTAGE

- Applying voltages higher than 33.6V will cause irreparable damage to your Mamba XLX2 controller.
- 8S HV LIPO PACKS CHARGED TO ABOVE 33.6V (4.2V/CELL) CANNOT NOT BE USED.

### BATTERY CAPACITY MINIMUM

- The Mamba XLX2 is a high-performance controller; you must use high-discharge cells in your high-performance application to ensure vehicle performance.
- MINIMUM battery capacity is 5000mAh and MINIMUM of 50C continuous for general use; for extreme setups (speed/drag) we recommend a MINIMUM of 70C continuous, discharge LiPo batteries.
- If the batteries you are using contain input bullets you might consider upgrading to a direct wired pack as the bullets may not be able to handle the currents that the Mamba XLX2 ESC can push out.
- If you must disable low voltage cutoff to prevent the esc from shutting down then your batteries are insufficient for your application. 3.2v/cell is the lowest a LiPo battery should ever be discharged under load. Utilize the data logging capability of the ESC to verify your batteries are not dropping below the cutoff voltage. Exceeding a LiPo batteries capabilities can lead to a catastrophic failure of the battery and/or esc. Disable low voltage cutoff at your own discretion.

*We have tested these batteries/brands in extreme setups (see connector ratings minimum section to ensure your battery connectors are appropriate) and recommend them for the Mamba XLX2:*

SMC True Spec Extreme™ v2 150C 6400mah	China Hobby™ CNHL GPLUS 6000mah (white)
Power Hobby Pro Lipo 100C 6000mah	Turnigy Graphene Panther™ 75C

### WIRING AND SOLDERING

- High strand count silicone coated copper wire is essential with higher power electric power systems. Castle Creations' wire is lower resistance than the same diameter of solid copper, meaning more power gets from the batteries to the motor with less wasted as heat.
- The ultra-high strand count and silicone coating means the wire is very flexible which prevents work hardening and breakage with use.

- Use a high quality soldering station. Soldering stations usually have a variable temperature control which lets you set the right amount of heat to be used. Too little heat will result in a cold solder joint; too much heat can seriously damage a component. The key factors in quality soldering are time and temperature. Our recommendation for the Mamba XLX2 is a temperature setting of 400° C (745° F). You want it hot and as short a time as possible. We use 250W soldering irons.
- Use a high quality rosin core solder. The rosin core solder is infused with flux which helps clean the surfaces you are soldering for better adhesion.
- Do not exceed more than 18 inches of total wire between the battery and ESC (this includes the wire already on the ESC and battery).
- Do not solder wires directly to the circuit board. Doing so will damage the ESC and void the warranty.
- Our wire is available for purchase and this link provides the appropriate wire gauge for your Castle ESC. <http://www.castlecreations.com/wire-application-chart>

## CONNECTOR RATINGS MINIMUM

- The Mamba XLX2 requires the use of connectors designed for 150+ amps continuous.
- Do not use Deans™, Traxxas™, EC3/XT60, EC5/IC5, XT90/XT90s connectors in a Mamba XLX2 setup.

*We have tested these connectors/ brands and recommend them for the Mamba XLX2:*

[Castle 6.5mm Polarized](#)

[Castle 8mm Bullet](#)

[QS8 8mm Anti Spark](#)

[QS10 10mm Anti Spark](#)

## MOTORS

- The Mamba XLX2 is capable of handling incredible amounts of power, your motor must also be up for the task. Always run your motor within the manufacturer’s specs. Monitor motor, battery, and controller temps carefully and never let the motor get above 200° F.
- Excessive heat in the motor can damage the motor, the Mamba XLX2, and your batteries.
- It is strongly recommended to not use the “Sensored Only” motor type option. The default “Smart Sense™” modes uses the sensors (if applicable motor is used) to start the motor smoothly. Once the motor is running the ESC stops using the sensors and reverts to sensorless operation.
- Sensorless mode is more efficient resulting in cooler temperatures and potentially higher motor performance. Forcing the ESC to run in sensed mode the entire time will result in reduced performance and higher than normal temperature; this can lead to unnecessary strain on the ESC, motor and batteries.
- There is no standard RC application in which sensed only mode is recommended.

## GEARING

- When you are tuning a car expect some modifications in gearing to get it exactly where you want it. The goal here is to not overheat the motor.
- Check your motor temps – never let the motor get above 200° F - invest in an infrared thermometer so you can monitor temps easily.
- You can also adjust MOTOR TEMPERATURE CUTOFF (with Sensored Motors Only) in Castle Link. When this setting is enabled, the controller will shut off if the motor reaches the specified temperature as indicated by its internal temperature sensor.
- We always recommend making small changes when gearing up.

## CASTLE LINK SETTINGS

- During the optimization of your setup it is critical to check motor and ESC temperatures after making adjustment.
- The heat limit threshold for Mamba XLX2 ESC is 200° F and Castle motors is 200° F.

- We recommend the use of the data log as you progress with the feel and power of the vehicle. You will be able to record real-time data such as motor RPM, battery current and voltage, ESC and motor temperature, throttle input, and more.
- Download and analyze the collected data via Castle Link and make adjustments to maximize both performance and battery life.
- Furthermore, we do not recommend using the same Castle Link settings from a previously installed Mamba XLX version. Start from scratch. This is how you learn your car and what it can actually handle.

## **AUXILIARY WIRE**

- The AUX wire allows you to adjust a setting “on-the-fly” using an auxiliary channel on your receiver.
- The AUX wire function is disabled by default and is programmable via Castle Link. Plug this wire into the auxiliary (#3/#4) channel on your receiver.
- You must connect the AUX wire to an open channel on your receiver even if you are not using the Auxiliary function.
- You must disconnect the AUX wire from your radio before connecting to Castle Link. Failure to do so may result in damage to your Castle Link and/or computer.

## **OPERATING ENVIRONMENT**

- Although Mamba XLX2 is waterproof, it is not intended for operation while completely submerged in liquid.
- Always rinse the ESC and motor with clean water after exposure to corrosives or dirt.
- While the motor and controller may be waterproof, we suggest users confirm that the rest of their vehicle, including the batteries, servos, radio and chassis are also waterproof before exposing them to liquids of any kind.
- The cooling fan must be removed prior to driving in wet conditions. It is not waterproof.