DIAMONDBACK

Waterproof BRUSHLESS ESC

PRECAUTIONS

1. Maclan Racing Diamondback series sensorless ESCs produce a lot of motor power. We recommend using Diamondback series ESCs with MX series sensorless brushless motors for the best performance result.
2. Always check the vehicles' manufacture gearing recommendation before you set up the system. If you were not sure about the gear set up, please contact Maclan Racing directly at technical@hobbyauthority-dist.com for suggestions. Over and under gear will both result damage on the brushless system.
3. Do not test the motor without loading. This means without a pinion gear on the motor and running the motor at full power.
4. Do not connect reversed voltage. This will damage the ESC and battery, also void factory warranty.
5. Always monitor both the ESC and motor temperature after running them. Temperature should never exceed 180 degrees Fahrenheit.
6. Although Diamondback series ESCs are waterproof, it is not designed and not intended for operation while submerged in water. Please always clean the ESC properly and dry the unit after using under wet and dirt conditions.
7. Please note the cooling fan is not waterproof. The cooling fan is not covered by warranty with water or dirt damage.

FEATURES

- Optimized Maclan Racing brushless technology firmware that offers the smoothest start up and acceleration power.
- Aluminum waterproof case structure.
- Bullet connectors and pre-soldered T style connector that makes the Diamondback combo a plug-n-play system out of the box.
- Maclan Racing ProLink (sold separately) allows all parameters for detailed adjustment, ESC firmware update, and PC Software.
- Waterproof aluminum case with forced cooling fan (Diamondback 120 only) for the optimized thermal performance and most robust structure.
- Auto Li-Po count and low-voltage-cut protection, ESC thermal protection.

BATTERY CHOICE

Diamondback ESC can handle up to 3S Li-Po. It does not mean to work with all motor KV. If you intend to use your Diamondback ESC with 3S Li-Po for extreme speed, please make sure your motor also has 3S rating. As a safety guideline, Maclan Racing recommends using 3S Li-Po with motor KV rating under 4000KV with proper gear setting.

Diamondback system is an extremely high performance product. You must use high discharge rate battery packs for best results.

SPECIFICATIONS

	Diamondback 80	Diamondback 120
Continues/Burst Current	80A/450A	120A/600A
BEC Output	6V/5A Linear	
ON Resistance	0.0009Ω * 2	0.0005Ω * 2
Support Motor Type	Sensorless Brushless Motors	
Support Battery	Ni-Cd/Ni-MH 6 ~ 9 cells Li-Po 2~3S	
Max Input Voltage	12.6V	12.6V
Support Motor Spec	540 class KV less than 6000 for 2S	550 class KV less than 5000 for 2S
	540 class KV less than 4000 for 3S	550 class KV less than 4000 for 3S
Support Vehicle Weight	≤6 lb	≥6 lb
Motor Connector	3.5mm Bullets	4.0mm Bullets
Dimension	52.5x39.8x25mm	52.5x39.8x29.25mm
Weight (with battery wires and connector)	78g	97g
Waterproof	Yes	Yes
Fan	Optional	Yes

ESC/RADIO CALIBRATION

Note: You must calibrate your Diamondback ESC to your radio before first run.

1. Connect Diamondback ESC to a fully charged battery pack
2. Power on your radio transmitter and apply full throttle
3. While applying full throttle on your transmitter, turn on the power switch on your Diamondback ESC. Your will hear calibration tones and see fleshing blue color LED on the Diamondback ESC. It will become solid blue color after multiple flashes.
4. After 2 seconds of solid blue color, the LED indicator on the ESC will flash red color with tones. Apply full brake until ESC LED becomes solid red color.
5. After 2 seconds of solid red color, the LED indicator on the ESC will flash purple color. Now release the throttle to neutral position. After few seconds you will hear the completion tones.

IMPORTANT: The LED will show solid purple as neutral position, solid blue as full throttle, and solid red as full brake (or full reverse).

USING THE PROLINK (SOLD SEPERATELY)

Diamondback ESC is ready to run out of box with default auto Li-Po voltage and ESC temperature protection.

You can purchase Maclan Racing ProLink programming card (MCL4001) to fine tune all ESC parameters via the ESC programming port.

The ProLink also allows you to connect your Diamondback ESC to PC USB for updating ESC firmware and changing settings on PC.

USING THE PROLINK (SOLD SEPERATELY)

1. Connect Diamondback ESC to a fully charged battery pack and power on ESC.
2. Connect ProLink to the ESC via the programming port.
3. Select "ESC Settings" on the ProLink, then the screen will display Diamondback ESC firmware version
4. Select "Change Settings" to enter below options for fine tuning:

- **Brake Menu**
  - ∗ Brake Strength Level 1 to 10 (default 5)
  - ∗ Drag Brake Level 1 to 10 (default 1)
  - ∗ Brake Curve -EXP/Linear/+EXP (default Linear)
- **Throttle Menu**
  - ∗ Throttle Punch Level 1 to 10 (default 5)
  - ∗ Throttle Curve –EXP/Linear/+EXP (default Linear)
  - ∗ Dead band Narrow/Middle/Wide (default Middle)
- **Motor Timing** Level 1 to 10 (default 3)
- **Misc Control**
  - ∗ Run Mode
  - ∗ Motor Direction
  - ∗ Start Power Level 1 to 10 (default 5)
  - ∗ Forward Power Level 1 to 10 (default 10)
  - ∗ Reverse Power Level 1 to 10 (default 5)
- **Voltage Cutoff** 9.6V/ 6.4V/Auto Li-Po/ NiMH (default auto Li-Po)

PROTECTION & ERROR CODES

The Diamondback ESC has default temperature protection. When the ESC reaches 200F (93C), The ESC will reduce power output with fast RED and BLUE LED flashes.

When the battery voltage drops to the cutoff setting, the ESC will reduce power output with slow RED and BLUE LED flashes.

PRODUCT WARRANTY

Your Maclan Racing Diamondback series ESC is guaranteed to be free from defects in materials and workmanship for a period of 120 days. Your **original receipt** showing the item, date and place of purchase is required with your warranty service application. An ESC that is found to have been mishandled, abused or used incorrectly, including use in an application other than that for which the ESC is intended, will not be covered under the warranty. Maclan Racing has no control over the use of the ESC application. Maclan Racing is not liable for any loss or damage, whether direct or indirect, incidental, or consequential, or any situation from the use, misuse or abuse of the product. Your Maclan Racing Diamondback ESC is not a toy. This product is not in-tended for use by a child under age of 14 without adult supervision. The Diamondback ESC generates a lot of power that could result physical injuries. By setting up, connecting or operating the product, the user accepts all related liabilities.

SERVICE & SUPPORT

1. All requests for warranty service require the original proof of purchase showing the item, date, price, and dealer info. Warranty is not transferrable.

2. For warranty service, please visit http://hadrma.com and follow the service instructions for the quickest turnaround time. Or call us at 1-866-2068558.

Maclan