

Thank you for purchasing RHINO ESC series.

CAUTION

The power of brushless power system is powerful. Any improper use may cause personal injury and damage to the product and related devices. We strongly recommend reading through this user manual before use and strictly abide by the specified operating procedures. We shall not be liable for any liability arising from the use of this product, including but not limited to reimbursement for incidental or indirect losses.

Meanwhile, we do not assume any responsibility caused by unauthorized modification of the product. We have the right to change the product design, appearance, performance and use requirements without notice.

SPECIFICATION

Product Name	VE80A	VE40A	VE30A
Part Number	A3100	A3110	A3140
Motor Type	BLDC / Brushed motor		
Li-po Cells	2~8S	2~4S	2~5S
Cont. Current	80A	40A	30A
BEC Current	10A	3A	6A
BEC Voltage	5.2/6.0V/7.4V/8.2v		6.0/6.8/7.4/8.2v
PCB Dimension	43x28mm	30x25mm	28x19mm
Power switch	Electronic switch		

CONNECTION

1 Motor wiring

- Connect senseless brushless motor:
A/B/C wires on the ESC used to connect to brushless motor, you can swap any two of wires to change motor direction. Alternatively, reverse motor direction in the AM32 config tool software.
- Connect brushed motor:
Two motor poles can be connected to any two wires from ESC if the ESC supports brushed motors.

2 Battery wiring

Please check that the positive pole or red wire of the ESC is connected to the positive pole or red wire of the battery.
If the connection is reversed, it will cause irreversible damage.

3 Receiver

Be sure to insert plug with correct polarity.
Normally the signal plug will be connected to CH2 on the receiver.
Do not connect a battery or external BEC to the receiver unless the red wire is removed from the ESC's plug, otherwise it may cause ESC damage.

Important Notice: Pre-power Check for ESC

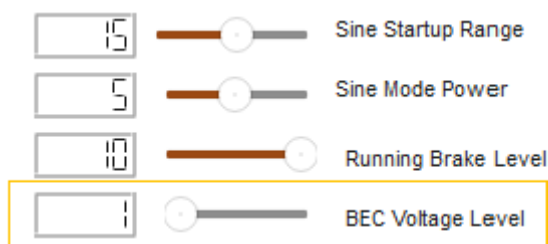
1. Double-check all wiring connections at least twice, especially the battery plug polarity. Run the motor with no load initially, or elevate the chassis to keep wheels off the ground.
2. Verify the voltage rating requirements of your receiver, servos and other electronic components. For VE80A / VE40A, BEC voltage is selected via DIP switches; the default setting is 5.2V. For VE30A, BEC voltage is adjusted through the config tool software, with a default value of 6V. It is strongly recommended to set the BEC voltage before connecting any electronics, and confirm the output voltage with a multimeter.

BEC Output voltage

BEC voltage adjustment for VE80A / VE40A is via DIP switches. The switch positions corresponding to the four voltage options are listed below:

1	2		Output Voltage
OFF	OFF		5.2V
OFF	ON		6.0V
ON	OFF		7.4V
ON	ON		8.2V

For VE30A BEC voltage adjustment, refer to the **BEC Voltage Level** option in the configuration software. Levels 1 to 4 correspond to 6.0V / 6.8V / 7.4V / 8.2V respectively.

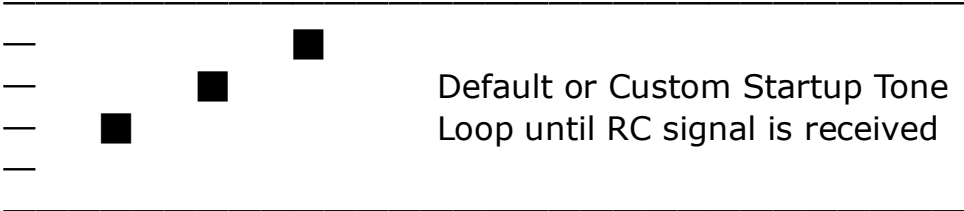


BEC Voltage Level	Output Voltage
1	6.0V
2	6.8V
3	7.4V
4	8.2V

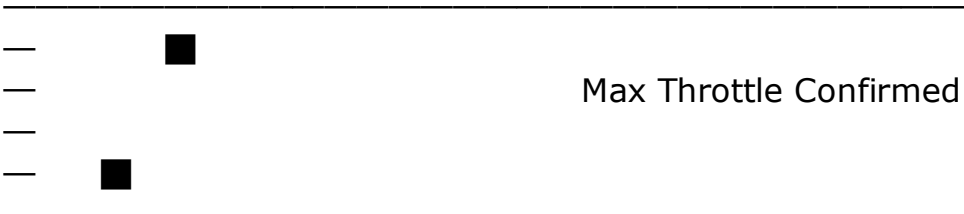
Throttle Travel Calibration

Calibration is preferably performed via your transmitter, which will meet most requirements. To enter calibration, hold the throttle at the maximum position and power on the ESC. Proceed to the next step only after hearing the confirmation beep. For unidirectional mode, the throttle recognition beep requires confirmation of the **maximum** and **minimum** positions. For bidirectional mode, an additional **neutral** position must be detected.

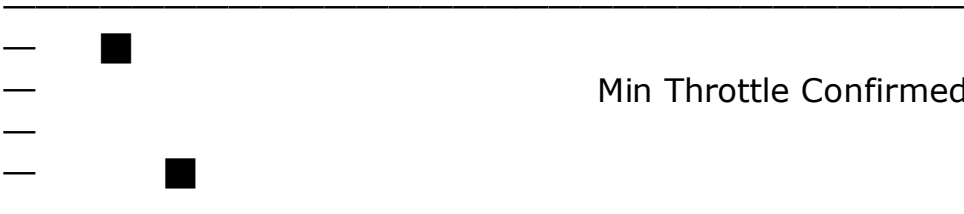
Power up:



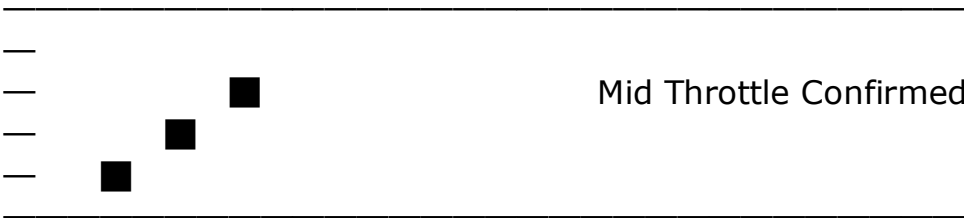
When throttle is max for 3 seconds:



When throttle is min for 3 seconds:

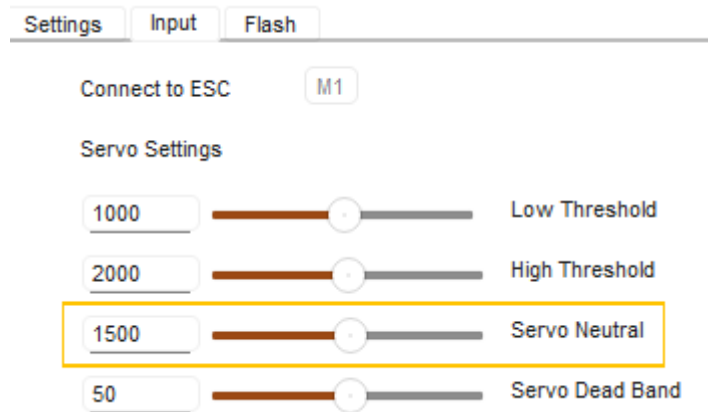


When throttle is mid for 3 seconds:



Note If the bidirectional mechanical travel ratio of your car transmitter is not 50:50, adjust the corresponding parameters on the transmitter; otherwise, auto-calibration will likely fail.

As an alternative, fine-tune via **Servo Neutral** under the **Input** tab in the configuration software.



The screenshot shows the 'Input' tab of a configuration software interface. At the top, there are three tabs: 'Settings', 'Input' (which is selected), and 'Flash'. Below the tabs, there is a 'Connect to ESC' button and a dropdown menu showing 'M1'. Under the 'Servo Settings' section, there are four sliders with input fields on the left and labels on the right. The sliders are for 'Low Threshold' (set to 1000), 'High Threshold' (set to 2000), 'Servo Neutral' (set to 1500, which is highlighted with a yellow box), and 'Servo Dead Band' (set to 50).

Parameter	Value
Low Threshold	1000
High Threshold	2000
Servo Neutral	1500
Servo Dead Band	50

Download

Please go to the download section to obtain the config tool software and corresponding firmware. <https://rhinorc.com/files/>

Config Tool Software

Preparations

Before use, connect the battery, ESC and USB-Link tool, then power on the ESC. This software is intended for Windows systems. The USB-Link will normally be automatically recognised with drivers installed.

No installation is required for the configuration tool. Extract the archive, open the folder and launch **SerialPortConnector.exe**.

Getting Started

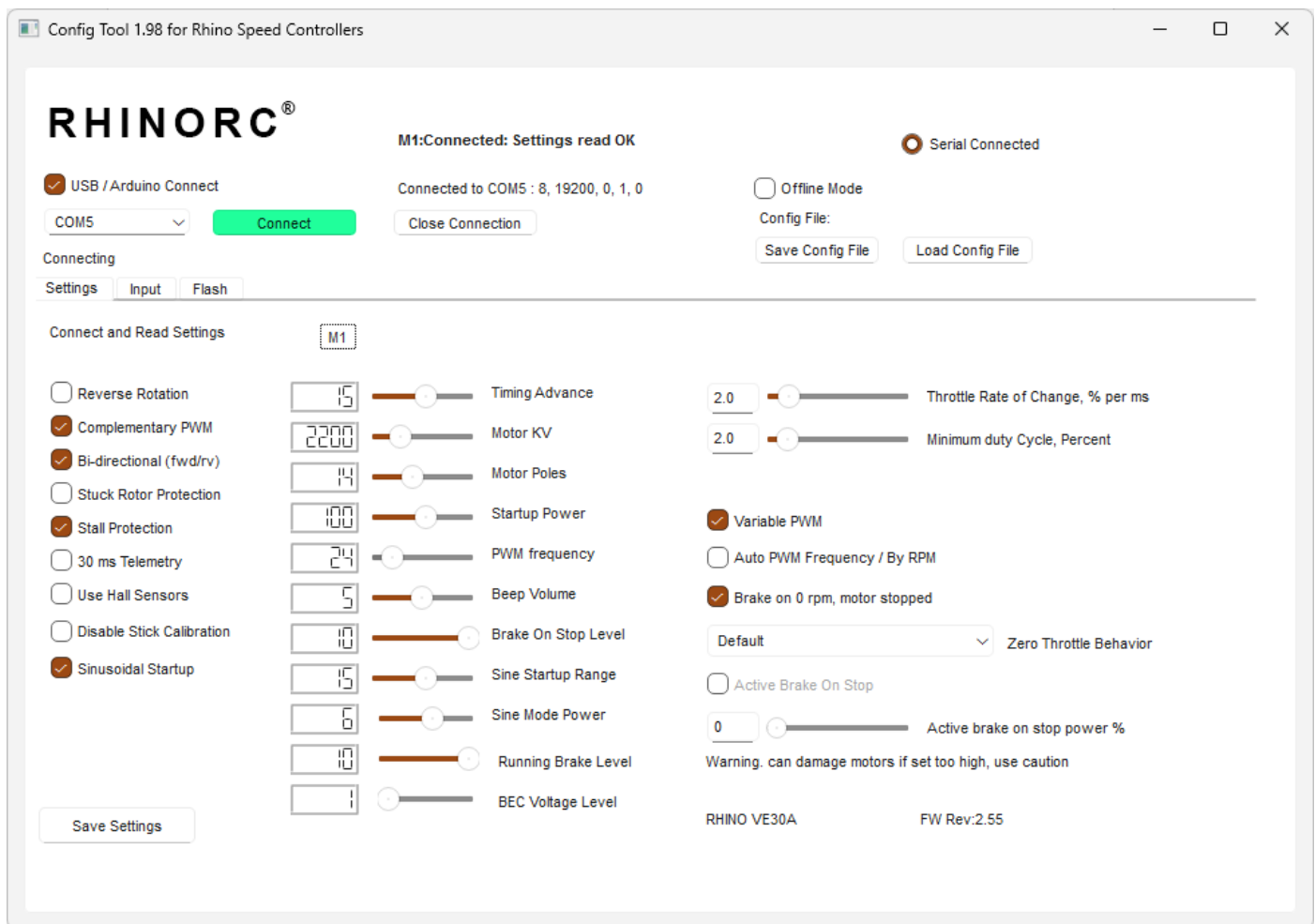
Select the COM port assigned to your USB-Link and click **Connect**. Next click **M1** to read ESC data.

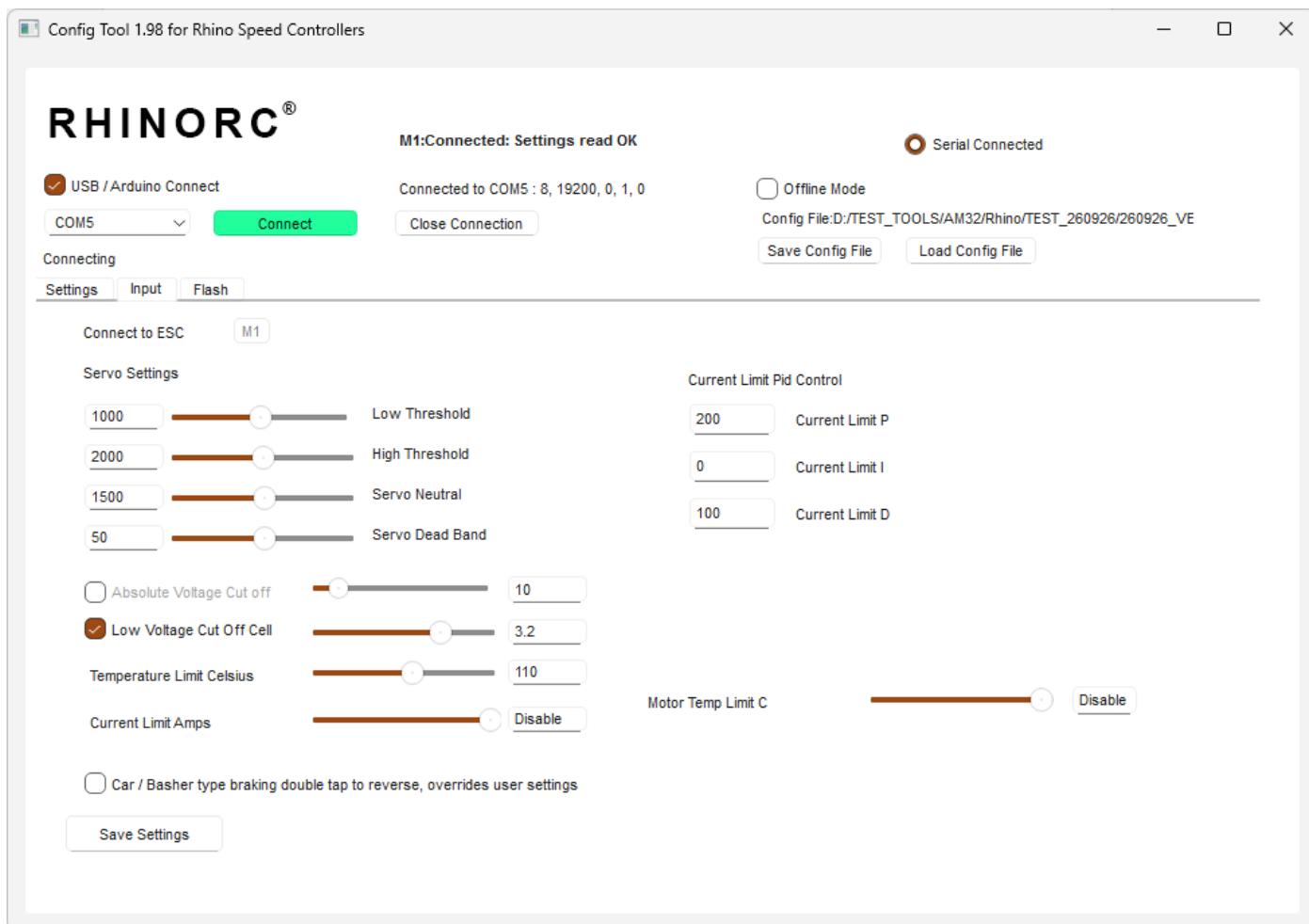
Configure functions on the **Settings** tab, including VE30A BEC voltage adjustment.

Update firmware and write default configurations on the **Flash** tab. You can conveniently apply preset parameter templates for crawler or aircraft models.

For parameter sets, use **Save Config File** to export settings or **Load Config File** to import settings.

Note Occasionally you may fail to read ESC data after saving settings. Click **Close Connection**, then reconnect.





Low Voltage Protection This function is enabled via **Low Voltage Cut Off Cell**. Please set a reasonable cut-off voltage per cell.

If this feature is enabled, the ESC will announce the number of battery cells after the startup tone/music.