

Feature 4 - Servo Tester

The ESC Programmer can also work as a servo driver to test the operation of servos, and be able to accurately center them, before installing them in your model.

1. Connect the ESC control lead to the 4-pin port, and the servo into the 3-pin port of the Programmer as shown below in Figure 9.
2. After you plug in the motor battery, press and hold both arrow buttons down at the same time for 3 seconds and then select the Output Signal mode. The display will show the pulse width being generated by the programmer.
3. Pressing the up arrow button will increase the width of the pulse output in 1uS increments, and pressing the down arrow button will decrease the width of the pulse output in 1uS increments.
4. If you press and hold the up arrow button, the pulse width will rapidly increase until you release the button. If you press and hold the down arrow button, the pulse width will rapidly decrease until the button is released.
5. To change the value in larger steps, pressing the **OK** button will increase the PWM output in 100uS steps and pressing the **ITEM** button will decrease the PWM output in 100uS steps.
6. Setting the pulse output to 1500uS will center a standard servo prior to installing it in your model.
7. When testing is done, unplug the Motor Battery and disconnect the ESC and Servo from the Programmer.

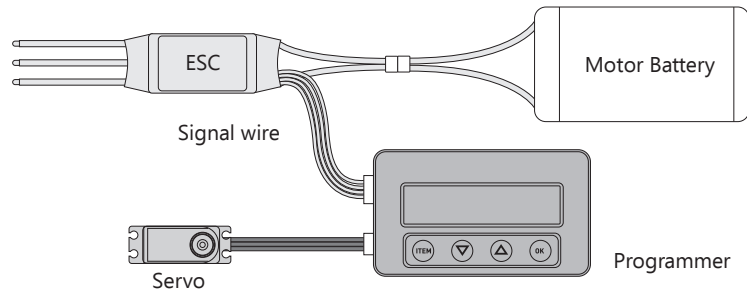


Figure 9

Feature 5 - Battery Tester

The Programmer also works as a Battery Tester to measure the overall voltage of a pack, as well as the individual cell voltages. It works with 2 to 8-cell LiPo, LiFe, Li-Ion and HV LiPo battery packs with a standard XH-Style balance plug. To use the Battery Tester feature, simply plug the balance lead from your battery into the 9-pin Battery Port on the right side of the programmer as seen in Figure 10 below. Be sure to line up the negative side of the balance connector with the "-" symbol on the side of the Battery Port. When you plug in the battery you will see the display cycle through 4 screens. First will be the Software Version screen followed by the Total Battery Voltage screen. After that, the individual voltages of cells 1-4 will be displayed followed by the individual voltages of cells 5-8. After that, the cycle will repeat until you unplug the battery.

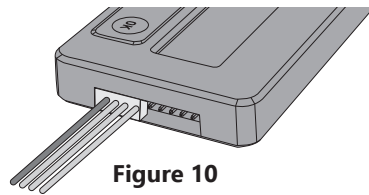


Figure 10

BadAss Power Systems V1.00	Battery Voltage 11.87V	1:3.96V 2:3.96V 3:3.95V 4:0.00V	5:0.00V 6:0.00V 7:0.00V 8:0.00V
-------------------------------	---------------------------	------------------------------------	------------------------------------

BADASS POWER SYSTEMS

V2 SERIES ESC PROGRAMMER MANUAL

Thank you for purchasing the V2 Programmer for the BadAss Electronic Speed Controllers. Please read the information contained in this manual carefully before using the product. BadAss Power Systems has no control over the installation, use or maintenance of these products, and therefore assumes no liability or responsibility for any damages, losses, injury or associated costs resulting from the use of the products. It is the sole responsibility of the user to ensure that the products are used in a safe manner.

The BadAss V2 Series Programming box works with all of the V2 series Rebel and Renegade Series ESC's. In addition to programming all of the various parameters in the V2 Speed Controllers, this multi-function device will also operate as a Servo PWM Pulse Meter, a Servo Tester and a 2 to 8-Cell LiPo Battery Meter.

Programming Box Features:

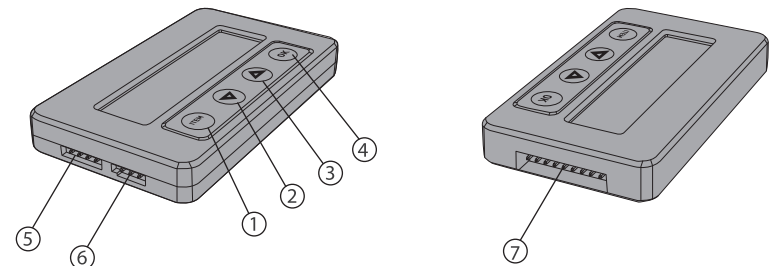
1. Works as a stand-alone device to set the various parameters for the ESC.
2. Works as a LiPo Battery Meter to measure the voltage of the entire battery pack and each individual cell.
3. For ESC's with Live Data Feature, it can display real-time data from the ESC including: voltage, current, throttle input, RPM, battery power and MOSFET temperature.
4. Built-in PWM Meter can display the throttle pulse width and frequency coming from a receiver.
5. Built-in ESC/Servo Tester can be used to control the throttle input to the ESC, without a transmitter and receiver to send a throttle signal to the ESC, or be used to test and center servos.
6. The LCD Programming Box can be upgraded by the mobile App via the optional bluetooth module.

Specifications

Size: 84x49x12 mm (3.31x1.93x0.47 inches) **Weight:** 40g (1.41 oz) **Power Supply:** 5.0 to 12.6 VDC

Button and Port Descriptions (See diagrams below)

1. **ITEM** Cycles through the available ESC Programming Options.
2. **▼** Scrolls down through all of the values available in the selected Programming Option.
3. **▲** Scrolls up through all of the values available in the selected Programming Option.
4. **OK** Saves the selected data parameter to the ESC.
5. **ESC** The Control lead from the ESC plugs into this port for programming.
6. **Power** This port is used to apply external power to the Programmer for OPTO type ESC's. It is also used as a PWM input to measure control signal pulse width and a PWM output to drive Servos and ESC's.
7. **LiPo** Plug the balance lead from a Li-XX battery into this port for voltage measurements.



Programmer Instructions

Feature 1 - ESC Programming

1. To begin, make sure that the ESC is unplugged from the battery.
2. If the ESC is still plugged into a receiver, unplug the ESC signal control lead from the receiver's throttle channel and plug it into the ESC port on the side of the Programming Box.
3. For ESC's that have an integrated Control/Programming lead see Figure 1 below. For ESC's that have a separate removable programming lead, see Figure 2 below.
4. Connect the Motor Battery to the ESC. About a second after power is applied, the display on the ESC Programmer screen should look like Figure 3 below.
5. To connect the Programming Box to the ESC press the **OK** button. The screen will then show "ESC Connect..." as seen in Figure 4 below for about 6 seconds. After that, the display screen will show the software version as seen in Figure 5 below will appear for about 4 seconds.
6. After the software version screen closes, the Programmer will be in the Data Entry Mode.
7. In the Data Entry Mode, pressing the **ITEM** button repeatedly will scroll through all of the ESC parameters which can be changed as shown in Figure 6. When the desired parameter is shown on the screen, pressing the **▼** or **▲** buttons will scroll forward or backward through the list of available options for that parameter.
8. When the desired parameter value is displayed, pressing the **OK** button will store that value in the ESC.
9. To restore the ESC to the Factory Defaults, press the **ITEM** button repeatedly until "Restore Default" shows in the display and then press the **OK** button. This will set all parameters back to the original default values.
10. When the programming is complete, disconnect the battery from the programmer and plug the throttle lead back into your radio receiver.

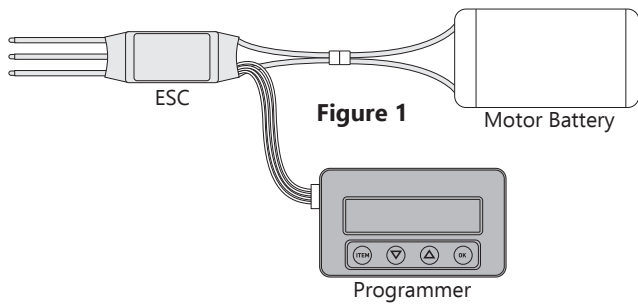


Figure 1

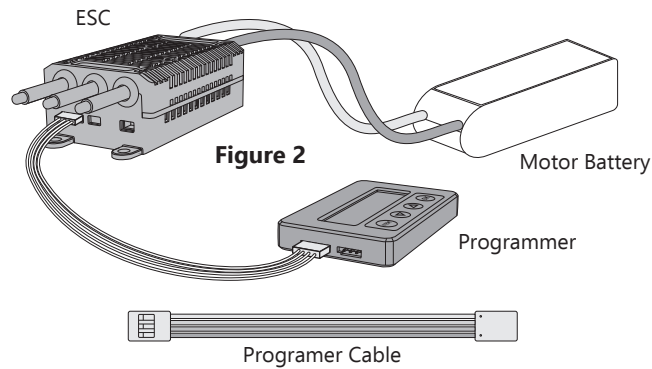


Figure 2

BadAss Power
Systems V1.00

Figure 3

ESC Connect...

Figure 4

Version 2 ESC's
B1.0

Figure 5

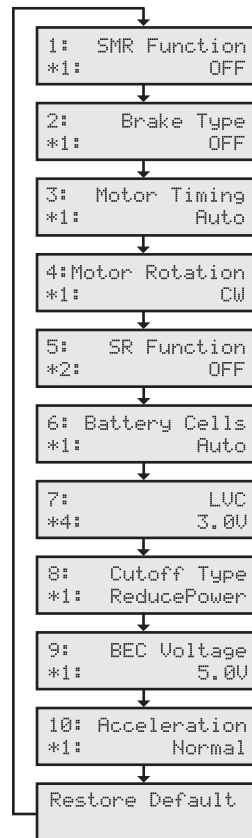


Figure 6

Feature 2 - PWM Signal Measurement

The BadAss ESC Programmer can also be used to read the value of the PWM signal coming out of the throttle channel of your radio receiver. This feature is extremely useful for troubleshooting the ESC if something is not working correctly. To read the value of the pulse, use a male to male servo extension and plug one end into the throttle channel output of your receiver and plug the other end into the 3-pin port on the side of the Programmer as seen in Figure 7 below. After powering up the transmitter and receiver, press and hold both arrow buttons down at the same time for 3 seconds, then select the Input Signal option. The display will show the width of the pulse in micro-seconds (US) and the repetition frequency of the pulse in Hertz (HZ).

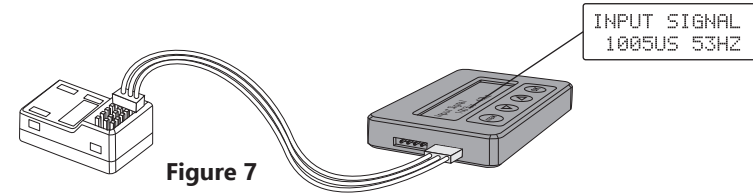


Figure 7

Feature 3 - ESC Tester

The ESC Programmer can also work as a servo driver to test the operation of a speed controller without the use of a transmitter and receiver. This can be useful to test the Motor and ESC when they are first installed into a model, as well as to verify that the motor is spinning in the proper direction during installation.

1. Connect the ESC control lead to the 3-pin port on the Programmer as shown below in Figure 8. The yellow wire from the ESC control lead is left unplugged in this mode.
2. After you plug in the Motor Battery, press and hold both arrow buttons down at the same time for 3 seconds and then select the Output Signal mode. The display will show the pulse width being generated by the programmer.
3. Pressing the up arrow button will increase the width of the pulse output in 1uS increments, and pressing the down arrow button will decrease the width of the pulse output in 1uS increments.
4. If you press and hold the up arrow button, the pulse width will rapidly increase until you release the button. If you press and hold the down arrow button, the pulse width will rapidly decrease until the button is released.
5. To change the value in larger steps, pressing the **OK** button will increase the PWM output in 100uS steps and pressing the **ITEM** button will decrease the PWM output in 100uS steps.
6. When testing is complete, unplug the Motor Battery and disconnect the programmer from the ESC.

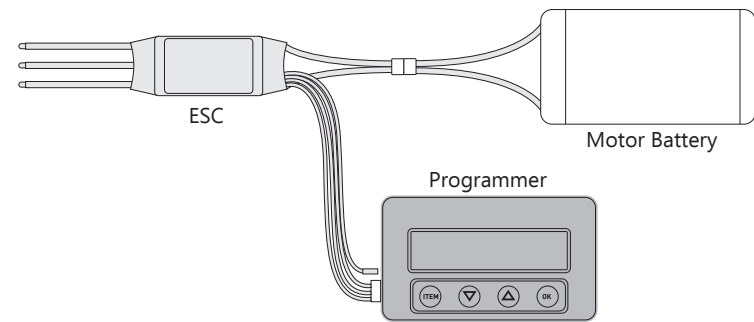


Figure 8

BadAss Speed Controllers are Distributed by Innov8tive Designs, Inc.
300 Detroit Avenue, Suite B, Monroe, Michigan 48162

Phone: 442-515-0745 Email: support@innov8tivedesigns.com Website: Innov8tiveDesigns.com