



Waterproof

Electronic Speed Control (ESC)
with Reverse

Instruction Manual

Thank you for choosing the Pro Boat brand. Your satisfaction is our number one priority. With this in mind, we have produced this product to be of the highest quality, performance and reliability. We hope it provides you with hours of enjoyment in your next RC project.

Features

- High-power FET control with proportional forward and reverse
- High-frequency design delivers smooth acceleration
- Prewired with Tamiya battery plug, bullet-style motor connectors and universal receiver plug that fit JR, Hitec, Airtronics Z, Futaba and new KO radios
- Designed to operate with stock to modified motors (15 turns or higher)
- Automatic programming makes setup a breeze

Specifications

Operation: Proportional forward and reverse
Input Voltage: 6-cell (7.2 volts) to 10-cell (12 volts) DC
Forward Current: 50 amps
Reverse Current: 20 amps
Full-On Resistance: 0.070 Ohms
Frequency: 1000 Hz
BEC output: 6 VDC, 1 amp max
Dimensions: 1.68" x 1.88" x 0.52" (42mm x 47mm x 13mm)
Weight: 3.0 oz. (89g)

Mounting the Speed Control

Note: Be sure all wiring connections can be reached prior to mounting.

Mount the Pro Boat ESC in the location specified by your boats instruction manual. Use double-sided foam tape (not included) to secure the speed control in position.

Diagram

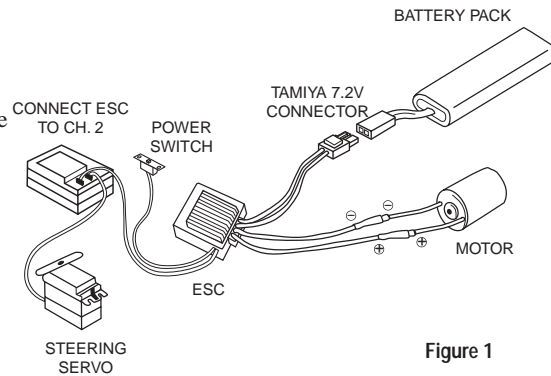


Figure 1

Wiring the Receiver

Note: The Pro Boat ESC uses the motor battery to supply power to the receiver through the servo wires. There is no need for a separate receiver battery.

- See your radio's instruction manual for proper connection. Typically, channel 2 is used to control the throttle.
- There are three wires involved in the universal receiver connector. It is directly compatible with JR, Hitec, Airtronics Z, Futaba and new KO systems.
- Older Airtronics or KO radio systems must use a modified wiring order:

1. The positive (red) and negative (brown) wires must be reversed to operate with these radio systems. To remove the wires from the plug use a small jewelers screwdriver to pry up the plastic tab associated with each wire. Gently slide the brown wire out of the plug. Repeat on the red wire and replace in the opposite positions.
2. Install the plug referencing the wire colors on the steering servo for proper polarity.
3. Install the plug. Reference the wire colors on the steering servo for proper polarity.

Motor Capacitors

If the motor (15 turns or more) you are using does not have three capacitors already attached, you must install them. Check with your local hobby shop for more information. The supplied monolithic capacitors help prevent motor noise, which lessens radio glitches.

1. Using a small file, scuff up an area on the motor can between the positive and negative tabs (see Figure 2).

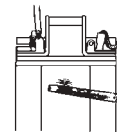


Figure 2

Motor Capacitors

2. Take one of the capacitors and solder one wire to the positive motor tab with the other wire positioned over the scuffed area on the motor housing (see Figure 3).
3. Use another capacitor and solder one wire to the negative motor tab with the other wire positioned over the scuffed area as well.
4. Solder both wires to the motor housing (see Figure 4). A high-wattage soldering iron may be necessary.
5. Solder the third capacitor from the positive to the negative motor tabs (see Figure 5).
6. Use side cutters to remove excess capacitor wires.



Figure 3

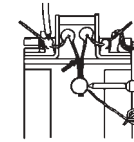


Figure 4

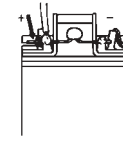


Figure 5

Some forward-only ESCs require a Shottky diode attached to the motor for noise suppression. Be certain there is not a diode attached to the motor when using the Pro Boat ESC or any other reversing electronic speed control.

Connecting the Motor Wires

If your motor has pre-attached male bullet connectors, press the red motor wire into the plug that is wired to the positive motor terminal. The purple wire is connected in the same manner to the negative motor tab (see Figure 6).

If your motor does not have male bullet connectors, you may purchase a Motor Connector Wire (DLR1055) from your local hobby shop .

Connecting the Motor Wires

Caution: To detour glitches caused by RF (radio frequency) noise, route all wires and the receiver antenna away from motor leads. Secure with tie wraps (not included).

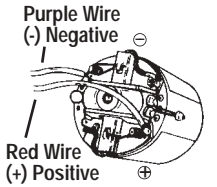


Figure 6

Connecting the Battery

The Pro Boat ESC comes prewired with a Tamiya-style connector that is compatible with most battery packs. Use a 6 to 10 cell battery pack.

1. Be sure the On/Off switch is in the Off position.
2. Connect a fully charged battery pack to the speed control's battery connector.

Adjusting the Transmitter

Note: Refer to the radio instructions for specific information on transmitter setup.

1. Set the Throttle Reversing switch to the NORMAL position. (This may need to be reversed on some brands of radios).
2. Set the Throttle Trim to the CENTER position.
3. Set the Throttle Exponential (if applicable) to minimum or zero.

Adjusting the Transmitter (cont.)

- Set the "ATV" (if applicable) to 100%.
- If your transmitter has an adjustable trigger (or stick) position, move it to the 50/50 position.

Speed Control Programming

- Turn on the transmitter's power switch. Be sure the transmitter batteries are fully charged.
- Place the boat in position to allow the propeller to move freely or disconnect one of the motor wires from the motor.
- Turn on the receiver switch. Move the throttle trigger (stick) to full throttle, then to full reverse. The ESC will automatically memorize the initial movement of the throttle channel each time the receiver switch is turned on.
- To reset the maximum throttle setting, simply turn the ESC's power switch off then on and move the throttle stick to full movements again.
- When operation is complete, turn off the receiver, then the transmitter.

Note:

Do not turn off the transmitter first or the receiver may pick up stray signals and run out of control.

Troubleshooting Guide

Symptom	Solution
Steering servo operates but the motor does not run	<p>Programming is not complete. Reprogram the ESC by following the programming instructions.</p> <p>Speed control connected to receiver incorrectly. Refer to manufacturer's instructions.</p> <p>Motor defective. Test motor independently, repair or replace as needed.</p> <p>Low batteries. Charge as needed.</p>
Steering and motor do not function	<p>Receiver wired incorrectly. Check polarity and orientation of control plugs.</p> <p>Radio inoperational. See radio instruction manual.</p> <p>Batteries discharged. Recharge or replace.</p>
Full speed not attainable	<p>Transmitter adjusted improperly. See radio instructions for proper adjustment.</p> <p>ESC programmed incorrectly. Reprogram.</p>
Motor slows but will not stop	<p>Throttle trim may be set improperly. See radio instruction manual.</p> <p>ESC program does not match transmitter. Reprogram ESC.</p>
Reduced radio range/interference	<p>Motor capacitors broken/missing. Repair or replace.</p> <p>Motor noise. Move receiver further away from ESC, motor and wiring.</p> <p>Transmitter batteries low. Replace batteries.</p> <p>Interference transmitted on or near radio frequency. Relocate or change radio channels (see manufacturer's instructions).</p>

Warranty Information

Limited Warranty

Pro Boat warranties this product to be free from defects in materials and workmanship at the date of purchase. This warranty is limited to the original purchaser of this electronic speed control and is not transferable. This warranty will not cover ESCs that have been modified, misused or serviced by an unauthorized service center.

Your warranty may be voided if:

- Reverse voltage is applied to your Pro Boat ESC e.g., connecting battery pack backward, plugging battery into the motor connector wires, etc
- Alteration or removal of the battery plug or connectors
- Allowing your wires to become frayed or shorted
- Use of less than 5-cell (6.0 volt) or more than 10-cell (12 volt) battery packs
- Tampering with any of the electronic components

Under no circumstances will the buyer be entitled to consequential or incidental damages. This limited warranty gives you specific legal rights; you also have other rights that may vary from state to state. If your Pro Boat ESC is in need of repair, please ship it freight prepaid to:

Horizon Service Center
 ATTN: PRO BOAT Service
 4105 Fieldstone Road
 Champaign, Illinois 61822
 Phone toll-free 1-877-504-0233

Warranty Information (cont.)

Include your complete name and address information inside the carton, as well as on the return address area. Include a brief summary of the problem. Date your correspondence and be sure your name and address appear on this enclosure. Also, include a phone number where you can be reached during the business day.

To receive warranty service, your original dated sales receipt must be included to verify your proof-of purchase date. Providing warranty conditions have been met, your SC-1 ESC will be repaired or replaced free of charge.

Non-Warranty Repairs

Should your repair cost exceed 50% of the retail purchase price, you will be provided with an estimate advising you of your options. Any return freight for non-warranty repairs will be billed to the consumer.

For non-warranty repairs, please advise the payment option you prefer to use. Specify VISA or MasterCard and include your card number and the expiration date.

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