Tahmazo Pro.C (S Series) Speed Controller
S-13, S-25, S-35, S-45 Manuals

Thank you for purchasing Tahmazo Pro.C (S Series) Speed Controller. Pro.C (S Series) Electronic Speed Controllers (ESCs) are designed with a highly efficient switching system. The built-in BEC (Battery Eliminator Circuit) allows the ESC's battery to also supply power to the receiver and servos, eliminating the need for a separate battery to the receiver. The ESC can be used directly without the hassle of complex programming.

Designed with the latest technology, the ESC is built with the option to use brake (or not) with a flick of the throttle stick. It is best suited for modelers who want simplicity and ease of use.

Product Features

Safety Switch
To prevent accidental start of a connected motor, a safety switch is incorporated in the ESC unit. This switch cuts the power supplied to the motor when not required.

Safe Start Feature
This safety feature in the Tahmazo Pro.C ESC prevents the motor from running when the battery is first connected if the throttle stick not at the lowest (OFF) position. It can help avoid any accidents that may occur with the sudden motor rotation.

Low Voltage Cutoff Feature
The voltage will be cut off at 67 percent (of the initial voltage measured when the battery pack is connected) to prevent the motor from drawing current continuously from the battery. This feature helps prevent damage done to the battery.

BEC
The built-in BEC cuts down the voltage of 6V-17V (equivalent to 2 to 4-cell) Li-Po battery packs to output at 5V. Tahmazo Pro.C S-25, S-35 and S-45 are able to supply 2.5A continuous, whereas S-13 can supply 1.5A continuous.

Operating Data *(Specifications are subject to change without notice)*	
Operating Environment Temperature:	0 to 40°
Motor control:	PWM8.5kHz
Control signal:	1.5 ± 0.5 micro-second
User configuration parameters:	Brakes On - Off (by default, has no brakes)
Automatic configuration parameters:	Cut-off voltage (starting voltage using 67%)
BEC:	5V switching scheme
Maximum continuous current:	BEC 2.5A (S-13 max. continuous at 1.5A)
Suitable for motor type:	Brushless motors

Using Tahmazo Pro.C (S Series) Speed Controllers with number of servos

The type of battery and number of cells connected is an important consideration when using with a BEC, whether built into the controller or as a stand-alone unit. A higher number of cells connected will result in a reduced power rating and therefore a lower number of servos supported by an integrated BEC. Please use the following table as a guide for the number of servo used in your model:

Battery Voltage	2 Cell Lipo (Up to 10v)	3 Cell Lipo (Up to 13v)	4 Cell Lipo (Up to 16v)
S-13	5	5	5
S-25	8	8	8
S-35	8	8	8
S-45	8	8	8

This table is used as an approximation. Factors that will affect the performance of the built-in BEC can include:

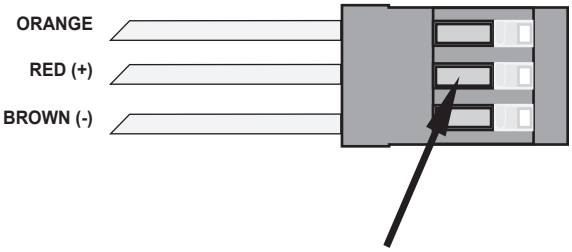
- Too many servo used.
- Higher powered or digital servos used (high current drain).
- Higher voltage battery packed used.
- When your model is for extreme 3D maneuvers.

A BEC reset can occur in the above-mentioned situations. The throttle channel (not other surface control) will be affected. A ‘re-arm’ of the throttle channel is required to regain control again. It is necessary to do the following when experiencing throttle channel resets:

- Use lesser servos.
- Use lower powered servos.
- Disable the built-in BEC and power the receiver and servos with a separate battery pack.

Note: Types of servo used and linkages to the servo can affect current flowing through the entire connected circuit. It is advisable to measure the actual current before use.

Preparation for use with separate receiver battery (Disabling the built-in BEC)



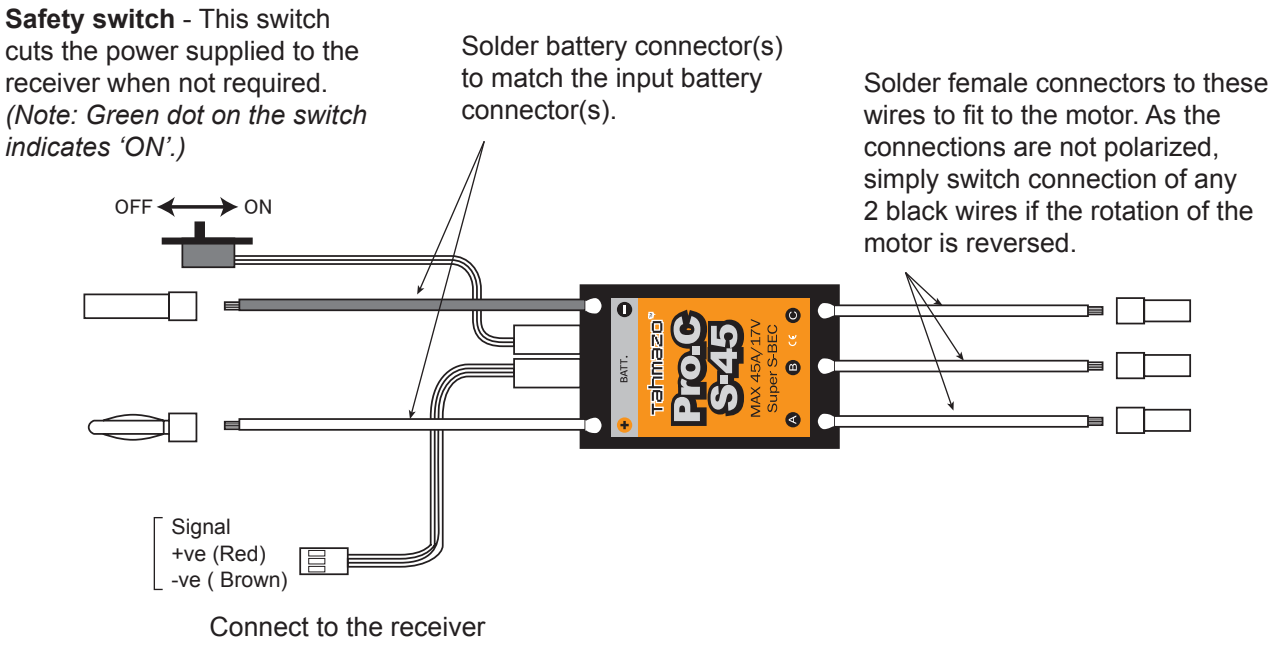
Lift plastic tab here
to remove red cable

Diagram shows the
red cable removed

Do not use the built-in BEC if you are using a separate receiver battery.

- Before using a receiver battery, please unplug the red cable by lifting the plastic tab (with a small flat screw driver) in the middle of the connector. See illustration above.
- The exposed pin should be covered with insulating tape or heat shrink tube to prevent short-circuit.
- Connect the ESC's receiver plug into the throttle channel on the receiver.
- Connect a receiver battery to the receiver's battery slot.
- Turn on the transmitter, followed by the receiver's switch harness. Connect the motor battery to the ESC. Order to be in reverse sequence for shutting the receiver off.

Quick Setup



1. Preparation for the use

Solder your preferred connectors to battery and ESC. Ensure that the polarity on the connectors of the ESC matches those on the battery. We recommend gold-plated connectors for better connectivity. Connectors should be insulated properly to prevent damage due to short circuit.

2. Mounting the ESC to your model

Ensure that the ESC is well ventilated for proper dissipation of heat. It should not be wrapped in sponge wrap which do not promote cooling. Overheating can cause damage the circuit components. The ESC can be mounted easily and safely on your model with Velcro®.

3. Transmitter Setting

It is important to have the correct transmitter throttle channel adjustments in order for the ESC to operate properly. Please ensure the following is done:

- Set the throttle channel's travel adjustment (ATV, EPA or ATL) to 100%.
- Set the throttle trim and sub-trim to neutral or zero.
- Set the throttle channel's reversing switch to reverse on Futaba transmitters. Other brands of transmitter may need the throttle reversing switch to be set to normal.

4. ESC Operation before flight

- Switch the transmitter ON.
- Move the throttle stick to lowest (OFF) position.
- Connect the battery to the ESC.
- Ensure that the ESC safety switch is OFF and battery is fully charged. Battery can be damaged if the voltage is too low.
- Switch ON the ESC safety switch.
- The motor will beep once or twice depending on the brake setting. (Once for brakes OFF & twice for brakes ON)
- Move the throttle stick to full position. The motor will again beep once or twice.
- Move the throttle stick back to the lowest (OFF) position and the motor will beep 4 times. This indicates that the motor is armed.
- Simply switch connection of any 2 black wires between motor and ESC if the rotation of the motor is reversed.
- It is now ready for flight.

Note: If the ESC is not working properly or making continuous short beeps, disconnect the battery from the ESC, reverse the throttle setting on the transmitter and go through the ESC configuration.

Safe Start feature

To prevent motor from operating when the battery is connected, the ESC must be 'armed' every time the battery is connected. The motor should not rotate unless the ESC is armed. To arm the ESC, move the throttle from lowest (OFF) to highest (ON) and then to OFF again. The motor should rotate now when the throttle stick is move from the lowest position.

Configuring the ESC

The ESC can be used directly without having the need to change any settings. You can set the transmitter to change the brakes only. By default, it is configured to have no brakes. Any settings made are stored even when the ESC is turned off.

Preparation before connection:

- Connect the motor to the ESC.
- Connect the ESC to the receiver.
- Ensure that the ESC is switched off before connecting the battery. Regardless of the number of battery cells used.

<table>
<tr><th>To set brake 'ON'</th><th>To set brake 'OFF'</th></tr>
<tr><td colspan="2">Move the transmitter stick to full throttle, turn on the transmitter</td></tr>
<tr><td colspan="2">Connect the battery to the ESC</td></tr>
<tr><td colspan="2">Turn on the safety switch on the ESC</td></tr>
<tr><td>The motor will beep twice after 5 seconds</td><td>The motor will beep once after 5 seconds.</td></tr>
<tr><td colspan="2">Unplug the battery from the ESC.</td></tr>
<tr><td>Now you have the new setting -i.e., Brake 'ON'</td><td>Now you have the new setting- i.e., Brake 'OFF'</td></tr>
<tr><td colspan="2">You can turn off the ESC's safety switch.
This setting is saved even when you have disconnect the battery.</td></tr>
</table>

Important Precautions to Note

Power is supplied to the receiver as long as the safety switch is not turned off or wires are connected. Turn off the safety switch before disconnecting the wires, and then remove the battery. This will help prevent any accidents that may occur.

Precautions:

- Please have the battery removed from the ESC when not flying.
- ESC safety switch in the OFF state, current is still consumed. It is advisable to disconnect the battery.
- Ensure that no propeller is mounted onto the motor before connecting the battery.
- Do not use more than the specified number of cells on the ESC.
- Do not reverse connection of the battery to the ESC.
- Do not disassemble the ESC.
- Keep the ESC away from water and moisture.
- Ensure that the battery is fully charged before connecting to motor. This allows the low voltage cutoff feature to function properly.
- Always remove the propeller from the motor when you are working on the model.
- Do not remove the battery when the motor is rotating. Use the safety switch.

Tahmazo Pro.C (S Series) Speed Controller

Specifications:

	S-13	S-25	S-35	S-45
Motor Type	Brushless	Brushless	Brushless	Brushless
Input Voltage	2-4 Li-Po 6-12 NiMH/NiCd	2-4 Li-Po 6-12 NiMH/NiCd	2-4 Li-Po 6-12 NiMH/NiCd	2-4 Li-Po 6-12 NiMH/NiCd
Max. Current	13A	25A	35A	45A
Max. Power	250W	500W	700W	900W
BEC	5V/1.5A	5V/2.5A	5V/2.5A	5V/2.5A
No. of Std Servos	Up to 5 Analog	Up to 8 Analog	Up to 8 Analog	Up to 8 Analog
Controller Pulse	1.5±0.5μ sec	1.5±0.5μ sec	1.5±0.5μ sec	1.5±0.5μ sec
Automatic low voltage cutoff	At 67%	At 67%	At 67%	At 67%
Cutoff Temp.	110°C	110°C	110°C	110°C
Brake	On/Off	On/Off	On/Off	On/Off
Dimensions	33x6x23mm	41x9x26mm	52x9x26mm	70x11x34mm
Weight	15.5g	26.5g	28.5g	45.0g

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