BRUSHLESS SPEED CONTROLLER

YOKOMO
RC MODEL CARS
www.teamyokomo.com

Yokomo BL-SP3 Electronic Speed Controller (ESC) Instruction Manual

Key Features

● Proportionally-controlled forward, brake, and reverse movement
● Smooth throttle response
● Compatible only with sensored brushless motors
● Supports LiPo, LiFe, NiMH (NiCd) batteries
● Rich braking features (Speed mixing brakes – Auto/Min/Max)
● Supports "Forward only" and "Forward & Reverse" control modes
● Easy set-up using an optional programming card
● Operating frequency: 2 kHz
● Built-in overheating protection

Precautions

※Be sure to understand the instructions fully before using this product.

※Do not drive through water and puddles, as it can cause the product to malfunction or break.

※This product supports 6 NiCd or NiMH cells, or 2 LiPo cells, or 2 LiFe cells.

※Turn the power switch off after use.

※Follow the proper order of turning on the ESC. First, verify that the ESC is properly connected to the receiver then turn the transmitter on. Finally, turn the ESC on.

※Beware of the battery polarity. The ESC will be damaged when the polarity is reversed.

※Do not touch the ESC and other parts after running, as they can become very hot.

※Do not short circuit.

※Do not attach to parts where grease, moisture or oil can enter.

※When drifting, please use a brushless motor which has a turn count of 10.5 T or higher.

ESC Throttle Setting Setup

1.Turn the transmitter on.

A note about throttle reversal settings:

* Futaba and KO transmitters are usually in Reverse position, but some models may be in the Normal position.

* Sanwa transmitters are usually in the Normal position, but some models may be in the Reverse position.

2.Connect the motor and the ESC, and turn the ESC on.

3.If ESC is properly connected, a beep melody ("♪Do Re ¯ Do Re Mi") will play.

If the ESC is improperly connected, the melody will not play.

4.Press the Setup Button for over 1 second. The green LED will start blinking. At this point, let go of the Setup Button, and then the green LED will stop blinking and will stay lit. Then, a beep melody ("♪So So La La So So") will play. Now, place the transmitter's throttle to neutral, move to full forward, then full brake, then back to neutral.

5.The red and green LEDs will then alternate, and the melody ("♪So Fa Mi Re Do") will play, and the green LED will stay lit. At this point, the ESC setup is complete.

Caution:

1.When changing the transmitters or ESC settings, please repeat the above steps to configure the throttle settings.

2.Please do not touch the transmitter from the time between turning the ESC on and pressing the Setup Button. Once the throttle is moved, the throttle position setup cannot be performed. To perform the throttle setup, please turn the ESC off and turn it back on to commence to the setup mode.

3.When performing the throttle setup, please perform it in Normal mode. When performing it in High Response mode, the setup may not work properly.

4.Always connect the sensor cable.

Note: If the transmitter's throttle trim settings are changed after the throttle setup has been performed, the ESC will not operate. Please perform the ESC throttle setup again.

Advanced Usage

●Program Setup

1.Turn the transmitter on.

2.Connect the motor and battery to the ESC, and turn the ESC on.

(Program setup and the ESC throttle setup cannot be performed in succession. The ESC must be turned off once before performing a setup.)

3.If the connections are properly made, the ESC will play one of the following melodies to notify the throttle position:

"♪Do Re ˉ Do Re Mi"　---Throttle trim is in the neutral position.

"♪Do Re ˉ"　　　　　　---Throttle trim is not in the neutral position.

4.Press the Setup Button for over 1 second. The green LED will blink for 2 seconds, and the red LED will light up. At this point, let go of the Setup Button, and a beep melody ("♪Mi Re Do Re Mi") will play and the red LED will blink once. The ESC is now ready to be programmed.

5.The throttle will be used to change the program and the configurations.

●The number of times the red LED blinks will change by moving the throttle from full brake (full reverse) to full forward and back to full brake positions.

●The number of times the red LED blinks will indicate the settings.

Program (# of times the red LED blinks)	Settings (# of times the green & red LED blinks)	Initial setting
① Battery Type (1)	LiPo (1) ／ LiFe (2) ／ NiMh (NiCd) (3)	LiPo
② Cutoff Voltage (2)	Auto (1) / 3.0V (2) ˉ 6.5V (9) ["Auto" is recommended]	Auto
③ Throttle Curve (3)	Soft (1) / Linear (2) / Hard (3)	Linear
④ Advance Timing (4)	0` (1) ～ 10 (11)	10
⑤ Power (5)	Lowest (1) / Low (2) / Medium (3) / High (4) / Highest (5)	Medium
⑥ Start Power (6)	Lowest (1) / Low (2) / Medium (3) / High (4) / Highest (5)	Lowest
⑦ Start Current Limit (7)	Off (1) / 10 (2) ˉ 100 (11)	Off
⑧ Current Limit (8)	Off (1) / 10 (2) ˉ 100 (11)	Off
⑨ Reverse Mode (9)	Forward only (1) / Forward and Reverse (2)	Forward and Reverse
⑩ Reverse Delay (10)	0.5 sec (1) / 1.3 sec (2) / 2.5 sec. (3)	2.5 sec.
⑪ Neutral Width (11)	Narrow (1) / Normal (2) / Wide (3)	Normal
⑫ Speed Mixing Brake (12)	0 (1) ～ 10 (11)	0
⑬ Auto Brake Amount (13)	0 (1) ～ 10 (11)　　0%～50%	0
⑭ Min Brake Amount (14)	0 (1) ～ 10 (11)　　0%~100%	3
⑮ Max Brake Amount (15)	0 (1) ～ 10 (11)　　0%~100%	5
⑯ Restore Factory Settings (16)	Reset all programs to factory settings (2)	-

※The number in the parenthesis indicates the number of times the LED blinks.

※When setting the "Cutoff Voltage" to "Auto", the following settings will be used:

LiPo – the higher of 6.4V (2 cell) or 66% of the fully-charged voltage, when the power switch is turned on.

LiFe – the higher of 4.4V (2 cell) or 67% of the fully-charged voltage, when the power switch is turned on.

NiMH/NiCd – the higher of 3.00 V or 50% of the fully-charged voltage, when the power switch is turned on.

●To change the configuration value of the selected program, place the throttle in full forward for 4 seconds. The red and green LEDs will blink. The number of times the LEDs blink indicates the current setting. (Please keep the throttle in full forward.)
●To change the configuration value, return the throttle to neutral, and within 4 seconds, move the throttle to the full forward position. While the throttle is in full forward, the number of times the red and green LEDs to blink will change.(Please refer to the above table to determine the configuration indicated by the LEDs.)
●When the number of times the LEDs blinks corresponds to the desired configuration value, return the throttle to the neutral position. If the throttle is in neutral for more than 4 seconds, the ESC will play a melody ("♪Mi Re Do Re Mi"), and the selected configuration value will be stored.
●At this point, another program can be selected for configuration.
●Once you have finished programming the ESC, briefly pressing the Setup Button will place the ESC in standby mode. Please turn the ESC off if no further configurations are needed.

Caution: When entering the ESC throttle setup or programming setup, please press the Setup Button after turning on the ESC, before making any throttle inputs.

LED indicators when operating the ESC	
Full throttle	Red LED lit
Neutral	Green LED lit
Full reverse/brake	Both LEDs lit
Error	Red LED blinking

Error indications	
No signal	Red LED turns off for 1 sec., and blinks for 5 sec., then turns off.
Low battery	Red LED turns off for 1 sec., and blinks for 2 consecutive times
Sensor error	Red LED turns off for 1 sec., and blinks for 3 consecutive times
High temperature	Red LED turns off for 1 sec., and blinks for 4 consecutive times

●Even after returning all the programs to their factory settings, the motor type and throttle position settings will remain.
●The blinking LEDs when turning the ESC indicates the current Battery Mode.

Green LED blinking 3 times: LiPo mode	Red LED blinking 3 times: LiFe mode	Red and Green LEDs blinking 3 times: NiMH/NiCd mode

■Connection between the ESC and the motor

to battery

SENSOR

ORANGE

YELLOW

BLUE

BRUSHLESS MOTOR
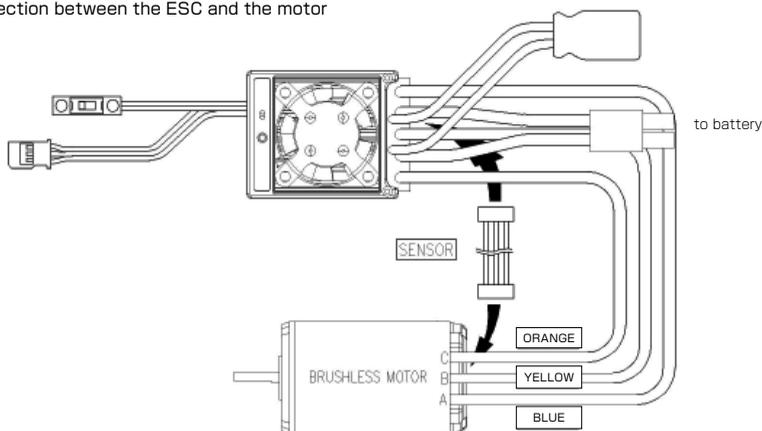
※ Always connect the sensor cable.　　　　　　　　　　　　　　　　※ This is a diagram of the BL-PRO2

■Be sure that the ESC and motor is connected correctly. Improper connections can cause damage to the ESC.

When attaching wires onto the ESC, please complete the soldering within 5 seconds. If soldering takes longer, it may damage the ESC.

■Customer Support
Our Customer Support staff can answer questions and address concerns regarding Yokomo products, including inquiries about repairs.

Customer Support can be contacted via e-mail at support@teamyokomo.com.

Caution: We do not provide any support for products which have been modified and/or disassembled. Hobby shops and distributors do not have the authority to decide whether a product is defective.

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■Contact Information
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(Inquiries by phone can only be answered during business hours: 9 AM ˉ 12PM and 1 PM ˉ 5 PM JST on weekdays, excluding holidays)

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