AS-12-40 RW BEC
TRUCK LIPO
User Manual ver 1.00

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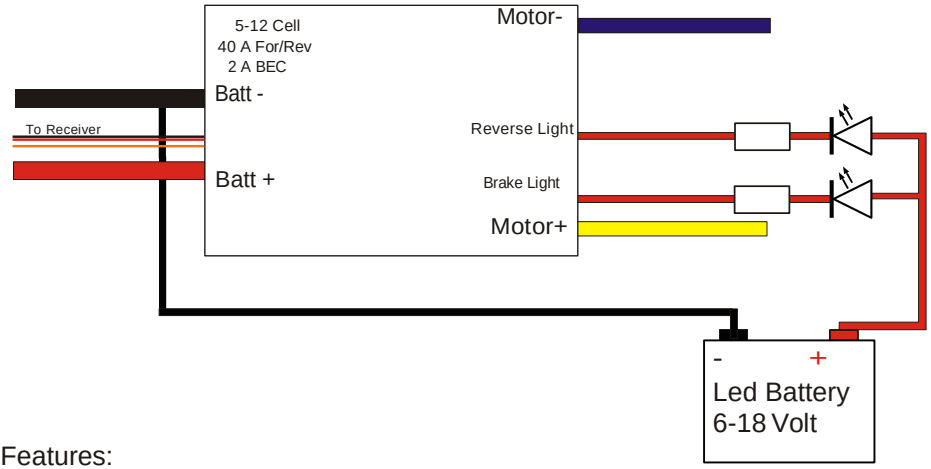

Features:
Operating Voltage:
5-12 Nimh/Nicad Cells or 2-3s Lipos.
Max Current: 40A continuous, 50A burst.
BEC: 5 volts 2Amp (max).
Auto-setup, Failsafe, Led Monitor, LIPO low voltage cut-off (3.3v per cell), Brake function, 1amp outputs for brake and reversing lights, Reverse can be limited to 50%, ESC Thermal protection,
Full 18 KHz HF output for electronic noiseless operation.
Dynamic brake & Parking brake function!

AS 12-40 Setup Procedure.

Note* The ESC must be setup before its first use or on changing the radio transmitter or receiver.

WARNING!
Please read all of this guide before attempting to set up the controller. And ensure that the controller is set up for the correct type of battery you wish to use.

Reverse polarity connection of the battery or connecting the battery to the motor (blue and yellow) leads will result in immediate damage to the controller and will void the warranty.

Any delays in moving the throttle stick, when required, may result in the set-up procedure having to be repeated.

Auto Set Up Procedure:

1. Set the transmitter throttle stick to "zero".
2. Connect the AS speed controller to the receiver throttle channel and switch on your transmitter.
3. Taking care to observe the correct polarity, connect the battery (minimum of 5 NIMH/NICAD or 2s Lipo and a maximum of 12 NIMH/NICAD cells or 3s Lipo) to the controller battery leads.
4. **Within 3 seconds** after connecting the battery to the speed controller, press the programming button (located directly below the LED).
5. The LED will change to **red**.
6. Quickly move the throttle stick to the "full throttle" position and hold it in this position until the LED changes to **red**+**green.**
7. Return the throttle stick to the zero or motor off position.
8. Both the **red**+**green** LED's will extinguish and the speed controller will beep once to indicate that the throttle and stick positions have been stored.

2 seconds after the **red**+**green** LED's extinguish in sequence 8 (or the next time you connect the battery without setting up the controller), the **green** LED

will illuminate. 3 seconds after the **green** LED illuminates, with the motor connected, the **motor** will emit 3 short beeps. **The controller has now stored the settings and is now ready for NIMH/NICAD operation.**

50% Reverse Limit:

9. If you wish the motor reverse power to be limited to 50%, move the throttle stick to the full throttle position within 2 seconds of the 3 beeps in item 8 above.

10. When the controller has successfully stored the 50% reverse limit, the motor will emit 2 long beeps. If the controller does not emit the 2 beeps, repeat the set-up procedure.

11. 2 seconds after the 2 long beeps in 10 above (or the next time you connect the battery without setting up the controller), the green LED will illuminate. A further 3 seconds after the green LED illuminates, with the motor connected, the motor will emit 3 short beeps. **The controller now has stored the settings and is now ready for operation with a 50% reverse limit.**

12. To remove the 50% reverse motor limit simply, repeat the set-up procedure sections 1 – 8 only.

Lipo Operation:

13. If the controller is to be used with LIPO battery packs/Lipo Low Voltage Cut-off, simply remove the 2 pin jumper and insert it into the Lipo position.

14. When connecting Lipo battery packs to the controller, ensure the number of engine beeps and LED flashes correspond to the number of Lipo cells connected (i.e. for a 2s Lipo pack the controller LED will flash 3 times and the motor will beep 2 times).

Notes:

Programming should be carried out with the motor connected. This ensures that the controller's motor leads do not short out and that the motor's audible beeps can be heard while setting up the controller.

If the program button is pressed while operating the motor, or if more than three seconds have elapsed after the battery was connected, the controller will not enter programming mode.

CAUTION:
During operation, the motor (yellow and blue) leads/terminals must not be allowed to become shorted together.
More than one controller can be operated from same receiver (i.e. multi-motors and channels). In this case all controllers except for a single controller must have their servo lead's red (or positive/+) wire/pin removed from the servo plug and isolated.
If the controller is to be operated with a separate receiver battery pack, the servo plug red wire/pin must also be removed and isolated.

LIPO Operation:
The AS12-40 contains detection circuitry that recognises the number of LIPO cells connected to the controller. When a LIPO battery is connected, the controller reads the voltage of the battery, determines the number of cells and sets a corresponding low voltage cut-off value. To ensure the controller determines the correct number of cells and cut-off value, always connect a fully charged LIPO when setting up or operating the controller.

Ensure that when a LIPO battery is connected that the number of LED flashes and the number of motor beeps correspond correctly to the number of LIPO cells connected. If you are unsure un-plug and then re-connect the LIPO battery to the controller and re-check.

The low voltage cut-off circuit is designed to prevent damage to LIPO cells due to over discharging. If the wrong number of LIPO cells are detected, the low voltage shutdown values will be incorrect. NEVER use or operate a model with the controller, when the number of cells have been incorrectly detected. **On delivery, the LIPO auto cut-off function is disabled**.

Braking & Reverse Lights:
The reverse light will illuminate when the throttle stick is in the reverse position and the motor is running in reverse.

The brake-light illuminates when the vehicle is moving forward and the throttle is moved to the brake position. Once the vehicle comes to a full stop, or the throttle stick is moved off of braking, the light will go out.
The light outputs can supply up to a 1Amp load current, and the lights can be either incandescent bulbs, or LEDs with a suitable resistor.
The lights must be powered by a separate battery.
We recommend using servo leads/plugs for connecting the lights to the outputs. Suitable leads can be purchased from our accessories department.
Wires for the lights must not be soldered direct to the output pins or the controller may be damaged.
Please refer to the diagram on the front page for wiring of the lights.

Thermal Protection:
In the event that the controller's thermal protection circuit detects the controller getting hot due to overloading, it will quickly reduce the power available to the motor by approximately 90%. The remaining approx. 10% allows the model to be returned under control. The controller should then be turned off, allowed to cool down, and the cause should be investigated and rectified.
Repeated overloading and thermal shut downs can lead to permanent damage of the controller.

HF Final Stage Filter:
The AS12/40RW-Truck controller is equipped with a final output stage 18 kHz high frequency electrical noise filter.
This filter results in a speed controller that, due to its excellent RF noise rejection/cancellation circuitry, provides the user with extremely precise motor control at all speeds but in particular at lower speeds. The effects of the HF filter can be identified by the lack of audible motor squeak/squeal noises when the motor is turning at low speeds.

50% Reverse Motor Limit:
Many modelers request or require the facility of limiting the motor's speed whilst reversing their vehicle. The controller can be programmed so that it regulates the motors reversing speed to 50% over the full reverse throttle stick movement.
This results in very accurate reversing maneuvers and a more scale like

appearance.

Motor (dynamic) Brake/Parking brake function:

When driving forward and the throttle stick is quickly moved to the full brake position, the initial braking force is limited to 50% for 2 seconds. This prevents the wheels from skidding and also protects the drive battery from high currents being generated by the motor under braking conditions. After a further 2 seconds of braking, full braking power is available.

After the vehicle is stopped and the throttle stick has been at the centre (throttle off) position for 4 seconds, an electronic parking brake is automatically applied by the controller. The vehicle will now resist the tendency to roll down slopes and will be more difficult to move by hand.

The braking effect is dependent on the number of motor turns, therefore the higher the number of motor turns the stronger the braking effect.

LED Monitor:

The controllers LED provides a visual indication of the operational state of your controller.

A steady green LED indicates the controller is in normal operational mode.

A steady red LED **i**s shown when the controller and motor are at full throttle.

The red LED will flash on the loss of transmitter signal.

When switching on with the controller in Lipo mode, the LED's will flash (and the engine will beep) a number of times corresponding with the number if Lipo cells connected.

Recommendations:

In order to prevent interference, position the AS-12/40RW at a sufficient distance from the receiver.

Do not overload the BEC circuits. Excessive loading on the BEC can lead to a reduced supply voltage for the receiver and will result in the controller overheating.

When operating the controller with 12 cells or 3 LIPO's, we recommend the use of one servo only.

Caution:

Before connecting the battery, make sure the transmitter is switched on with the throttle stick at neutral and that nothing could foul or be dragged into the

wheels.

The controller must not be used in situations where personal injury or damage to property may occur as a result.

Do not use unsealed, damaged or faulty batteries as this may result in the subsequent malfunction of the controller

The speed controller must only be powered from batteries. Operating the controller on bench power supplies or an AC power supply will damage the unit and void your warranty.

Warranty:

In the event that your AS -12/40 RW BEC fails or malfunctions as a result of workmanship or manufacturing processes, it is covered by a 24 months warranty.

This warranty does not cover wear and tear, crash damage, modifications, failure to carry out routine maintenance, installation in any model type other than model land vehicles, or any damage as a result of improper use. This applies in particular, but not limited, to:

Operating the ESC on voltages outside the minimum or maximum number of cells, operating on excessive current values and operating outside the intended model range.

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