

Antweight Electronic Speed Controller – Instructions

This speed controller has been designed to survive the rigours of combat robotics at the **antweight** class. It has not been tested, nor is it designed, for any higher weight class.

Making connections

On the Antweight speed controller, there are twelve pads on the top side of the controller, four on one end (the “West” edge - for outputs), six on the other (the “East edge” - for inputs) and two in the middle of the “North” edge. You will need to make connections to, at minimum, ten of these pads.

The bottom side of the board has the programming header for the board. Do not permanently connect anything to the programming header – you **may** need it for activating calibration mode.

The “West” edge - output group

The West edge has two, two pad connections. These are for the motors. Note that only brushed DC micro gear motors are officially supported.

The connections can be made either way around. If a motor turns the wrong way, reverse the polarity of that motor’s connections.

The “East” edge – input group

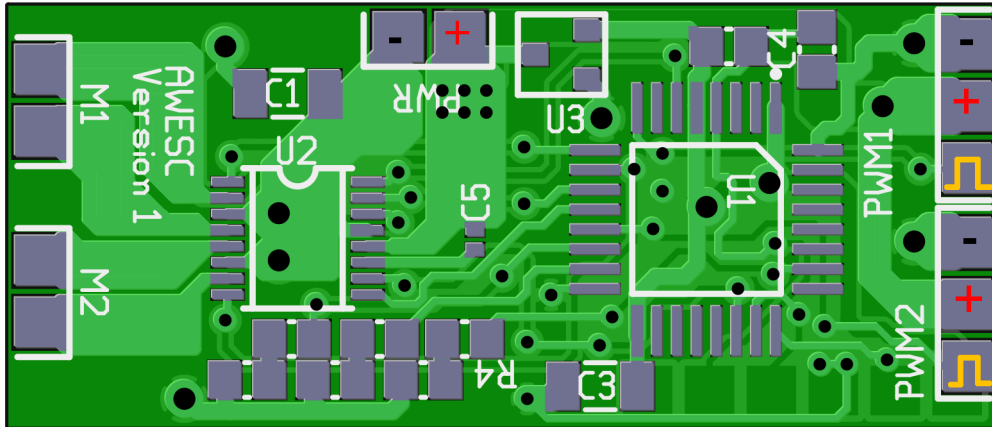
The East edge of the board has two three-pad connectors. These are designed for connection to a LemonRX radio receiver or other receiver that emits no more than 3.3V on its signal wires. Other receivers may use 5V or even the input voltage. **We will not provide warranty where the receiver has been used with a non 3.3V receiver. If you are using something other than a LemonRX, please fit a 100K resistor between your receiver output and the signal input to avoid damage.**

Each of the input connectors has three pins. From North to South these are: 0V, +5V, Signal on each connector. Note that your receiver must accept 5V as a power input. **If you have a mixing firmware, the North set of pads are for acceleration, and the South set of pads are for Left/Right direction.**

The “North” edge – power group

The North edge of the board has the power connection with a pair of pads. The Western pad is 0V, the Eastern pad is +V.

Connection diagram



Calibrating the ESC

Calibration of the ESC is very simple. Ensure your model is not making contact with the ground on its wheels and that it cannot run away if the motors are inadvertently powered. Although the firmware on the ESC makes every effort to shut down the driver before calibration occurs, there is still the possibility of the calibration causing motors to turn. Note that in order to trigger the next stage of calibration you may have to take the stick beyond the midpoint before it registers that the midpoint has been reached.

To perform calibration, follow these steps:

1. Power on your ESC, receiver and transmitter.
2. On the underside of the ESC, using a flat bladed screwdriver, or other metallic item, short the two pads nearest the corner of the board. (You can solder a jumper if needed, however, we do not recommend it as it only requires a very brief pulse to trigger calibration mode).
3. The ESC should flash its LEDs in the pattern: Green, Yellow, Red, Green, Yellow, Red, Green, Yellow, Red. While this is happening, take channel A/throttle channel to full forwards.
4. The Green LED will illuminate while the maximum channel A position is calibrated.
5. The Green LED will start to blink once calibration is complete.
6. Move channel A/throttle to full reverse. The Green and Amber LEDs will illuminate.
7. The LEDs will blink once calibration is complete.
8. Move channel B/direction to +100% (i.e. full right). The Red LED will illuminate.

9. The Red LED will start to blink once calibration is complete.
10. Move channel B/direction to -100% (i.e. full left). The Red and Yellow LEDs will illuminate.
11. The LEDs will blink once calibration is complete.
12. Return the stick to the central position. All three LEDs will illuminate.
13. The ESC should flash its LEDs in the pattern: Green, Yellow, Red, Green, Yellow, Red, Green, Yellow, Red. The calibration has been stored.
14. The ESC will reboot, load the new configuration and begin operating normally.

Alternative calibration entry method

There is an alternative way to enter calibration mode. Power on the ESC and receiver but do **not** power on your transmitter. Check if the yellow LED is flickering. If so, you **cannot** use the alternative calibration entry mode and must use the method described above. If the yellow LED is not flickering, you should take one channel of your controller to the maximum extent of travel. Then power it on. The ESC should enter calibration mode. This way of entering calibration is **not officially supported from the AWESC HV v4 onwards. We may remove this functionality from speed controllers in future software updates.**

Getting support

The AWESC HV v4 is manufactured by Delta V Technologies Limited (Company number: 11006104). All support & warranty queries should be raised directly to us **and not the retailer you bought the product from.**

Telephone: 03333 402 406

Email: support@deltav-tech.co.uk

Write to us: Delta V Technologies Limited
17 Elm Close
Bassett Avenue
Southampton
SO16 7DT

Our support department is available Monday to Friday, 9AM to 6PM and all queries are typically answered within 1-2 working days.

Summary of LED indicators

In normal operation

<u>Green LED</u>	<u>Yellow LED</u>	<u>Red LED</u>	<u>Description</u>
Off	Off	Off	No power to ESC
On	Off	Off	ESC powered, no signal, no fault
On	Flickering	Off	ESC powered, signal being received, no fault
Off	Flickering	On	ESC powered, signal being received, fault detected
Off	Off	On	ESC powered, no signal, fault detected

In calibration mode

<u>Green LED</u>	<u>Yellow LED</u>	<u>Red LED</u>	<u>Description</u>
On	Off	Off	Calibrating channel A/acceleration +100% position
Flashing	Off	Off	Channel A/acceleration +100% position calibrated
On	On	Off	Calibrating channel A/acceleration -100% position
Flashing	Flashing	Off	Channel A/acceleration -100% position calibrated
Off	Off	On	Calibrating channel B/direction +100% position
Off	Off	Flashing	Channel B/direction +100% position calibrated
Off	On	On	Calibrating channel B/direction -100% position
Off	Flashing	Flashing	Channel B/direction -100% position calibrated
On	On	On	Calibrating 0% position (both channels)