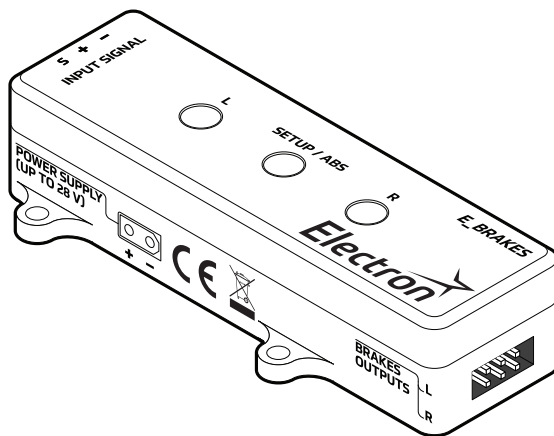




E-Brakes

USER MANUAL AND INSTALLATION INSTRUCTIONS



Contents

PAGE

Part A: Product info and characteristics

Wiring diagram	3
Technical Specifications	4

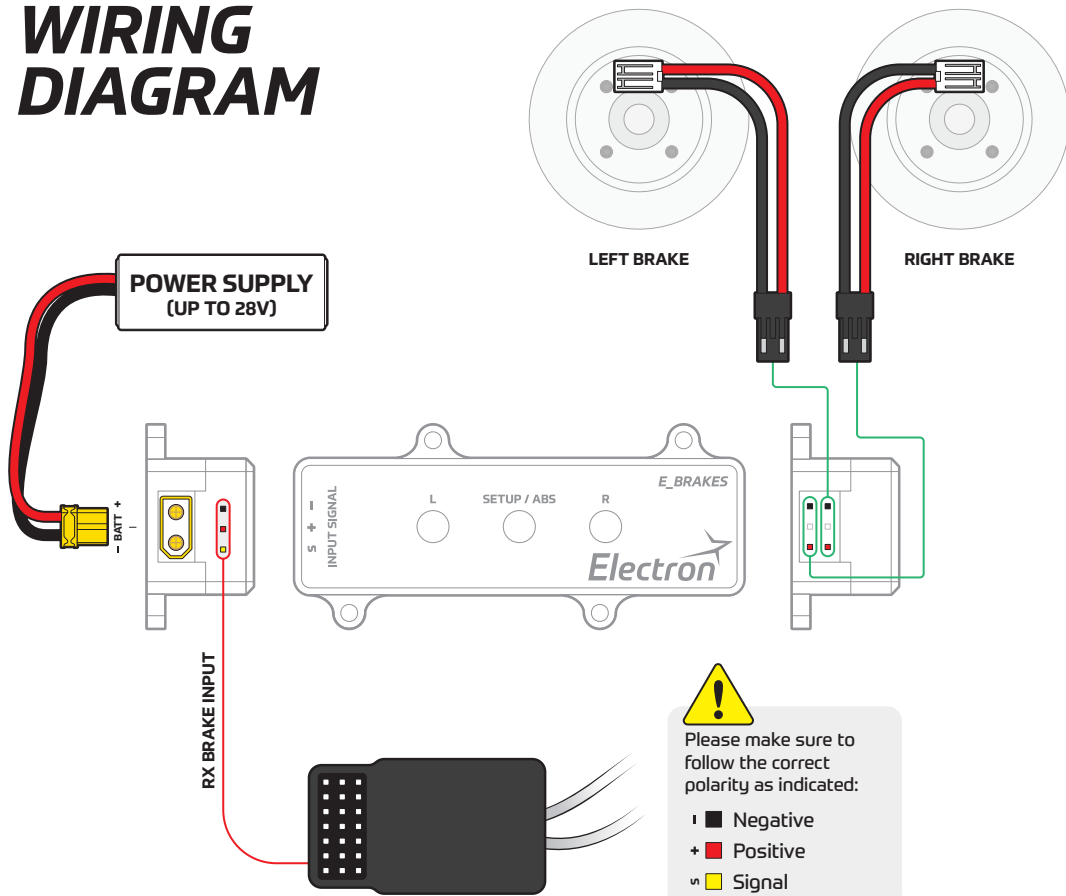
Part B: Step by step connection guide

Connect the brakes	6
Connect the battery.....	7
Connect RX brake input	8

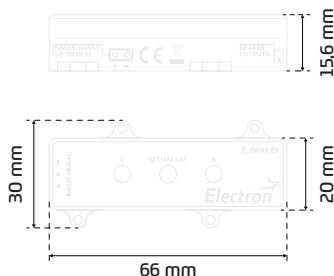
Part C: Controller setup and operation

Controller setup	9
Enter programming mode	10
Continuous brake and ABS modes.....	11
Balance adjustment / Compensation.....	12

WIRING DIAGRAM



TECHNICAL SPECIFICATIONS



Dimensions (mm)	66 x 20 x 15,6
Weight (g)	23
Power Input Voltage	5-28 V
Signal Input Voltage	5-15 V
Inputs	• BRAKE signal input (PWM) • Battery Input (XT-30 male socket)
Outputs	• 2x Brake outputs (JR-servo male socket)
Max. current per output	5 A

ORIENTATION AND PLACEMENT

The E-Brakes orientation is irrelevant and it does not affect its functioning. Additionally, it does not need to be installed on a flat surface parallel to the ground.

We recommend placing the E-Brakes in a position that allows for the shortest possible connections with the brakes. The wires that are used for this purpose can be as long as required, however if using wire extensions, these must be at least of the same gauge as the original ones provided, to avoid voltage drops. The shorter the wire can be, the better.

The E-Brakes must be fixed to its mounting surface to avoid the wires from being disconnected while in flight. For this purpose, the case features four mounting holes for M2,5 screws.



CAUTION: AUTOMATIC SHUT-DOWN

Please be aware that electromagnetic brakes should not be powered for long periods of time, and therefore are not suitable as parking brakes. The heat generated if they remain active for too long can damage the brake, rendering it useless. Because of this, **the E-Brakes features a 90 seconds timer**, which is triggered each time the brakes are powered. After this time has passed, **the E-Brakes will automatically shut-down the brakes**. In order to engage the brakes once again, the input signal must return to the minimum brake value.

RECOMMENDED BATTERY TYPES FOR ELECTRON BRAKES

BRAKE SIZE	BATTERY TYPE (VOLTAGE*)
32 mm	2S LiPo (7,4 V)
39 mm	3S LiPo (11,1 V)
50 mm	3S LiPo (11,1 V)
80 mm	6S LiPo (22,2 V)

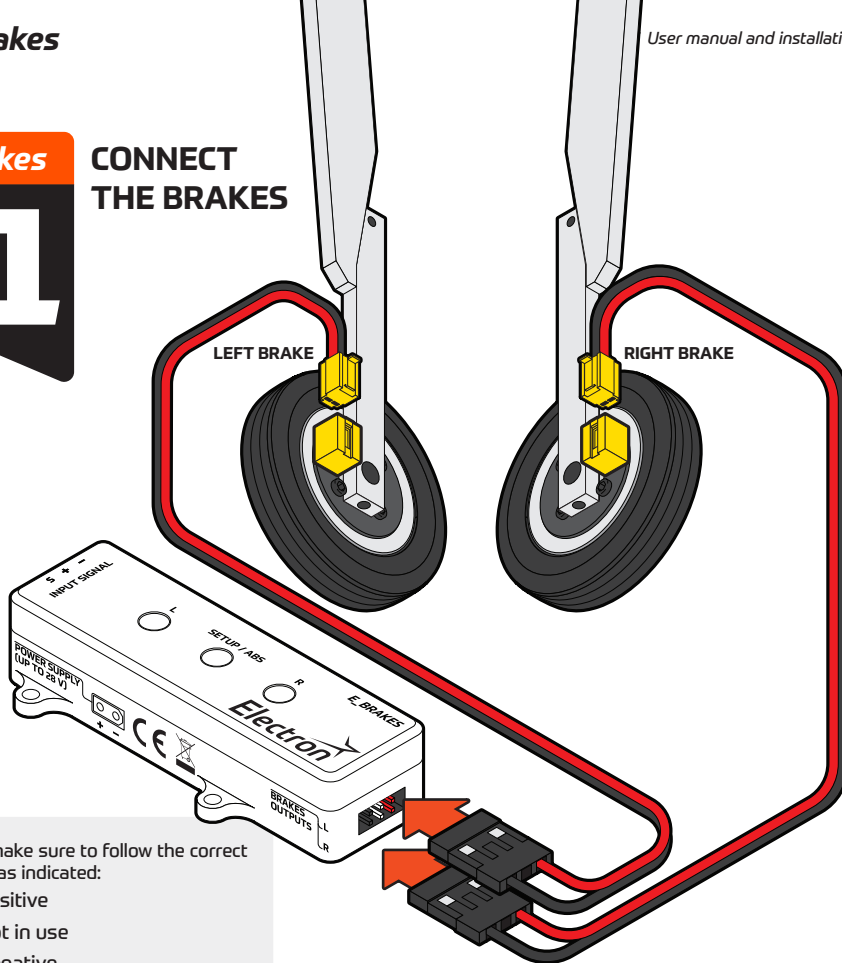


*These voltages are the maximum battery input voltage recommended for these brakes. Using a lower voltage is possible, however the brakes will not perform at their maximum capacity. Voltages higher than the recommended will not provide any benefits to the performance, and will overheat the brakes.

Brakes

STEP 1

**CONNECT
THE BRAKES**



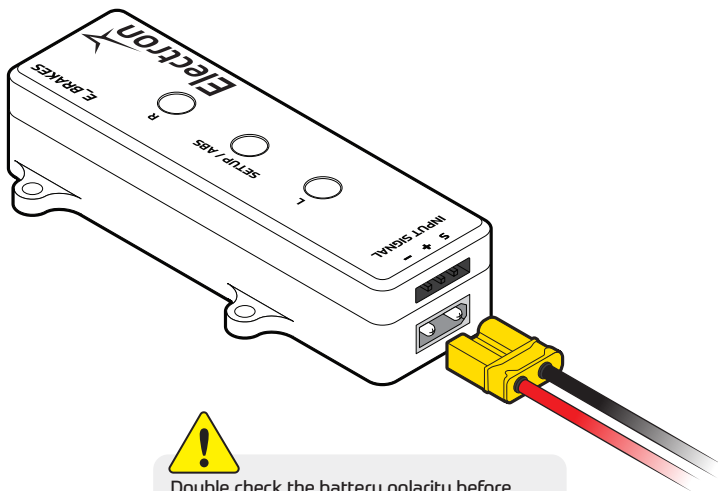
Please make sure to follow the correct polarity as indicated:

- + ■ Positive
- Not in use
- Negative

Power
SupplySTEP
2

CONNECT THE BATTERY

The E-Brakes features a XT-30u male socket for power input. A compatible female connector for the battery is provided with this device. The battery is used **only** to power up the brakes, while the E-Brakes itself is powered with the voltage provided by the signal input from the receiver. Make sure to check the power input polarity when preparing your battery connector.

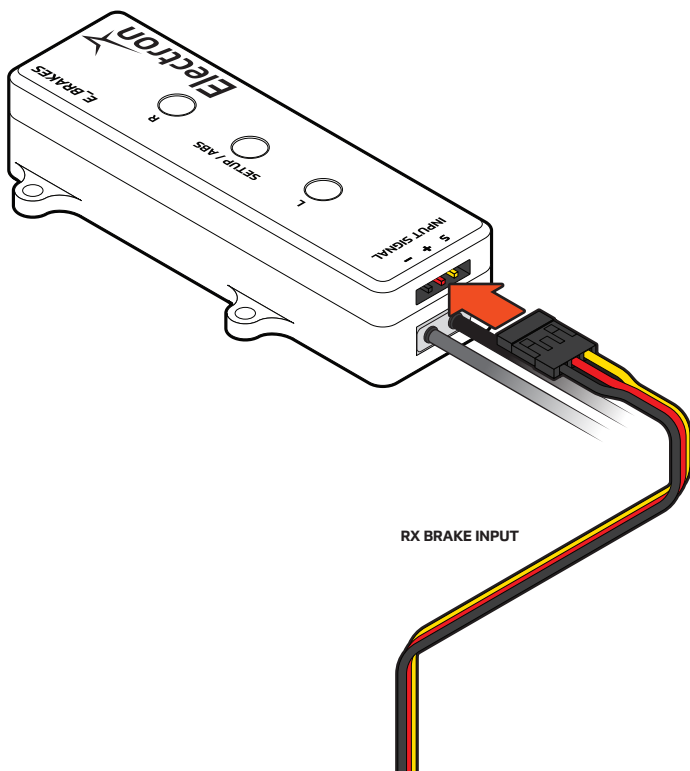


Double check the battery polarity before connecting it to the device. A reverse polarity connection will damage the controller.

Signal
InputSTEP
3

CONNECT RX BRAKE INPUT

The E-Brakes features a JR-Servo male socket for signal input (PWM). This signal will be used to program and operate the device. Additionally, the voltage provided through this connection will be used to power up the E-Brakes.



CONTROLLER SETUP

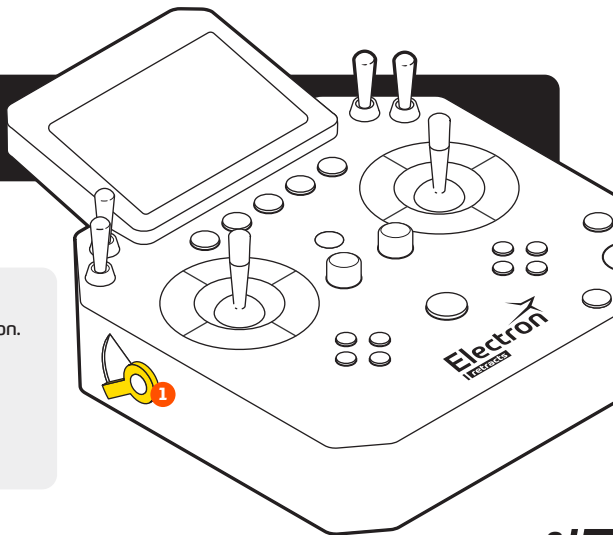
After all connections have been made, the E-Brakes needs to be programmed. In the setup, we will adjust the minimum and maximum brake force signal values.



ATTENTION!

Before you begin the setup, check the settings for the radio channel that will be used. Make sure the signal is not limited in any way. The signal value should range from -100% to +100%, otherwise the setup process may be unsuccessful.

In the example we are going to use switch 1 to control the brakes.



LED LIGHT COLOR CODES

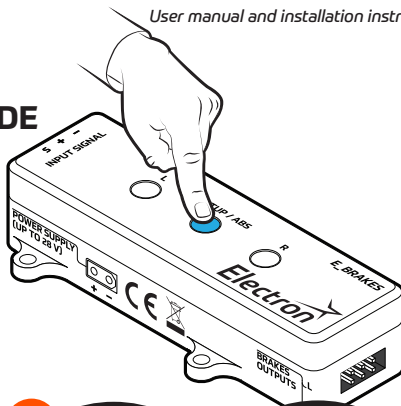
-  Blue (One flash): Set minimum brake position.
-  Blue (Two flashes): Set maximum brake position.
-  Red: Programming error.
-  Green: Continuous brake mode.
-  Green (Flashing): ABS brake mode.
-  Purple: Brake balance reset.

Setup

STEP 4

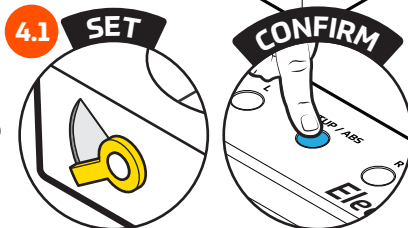
ENTER PROGRAMMING MODE

To start the Setup, the receiver must be turned OFF. Press and hold the SETUP/ABS button, and while holding it, turn ON the receiver. The SETUP/ABS LED button should lit and blinking with a blue light.



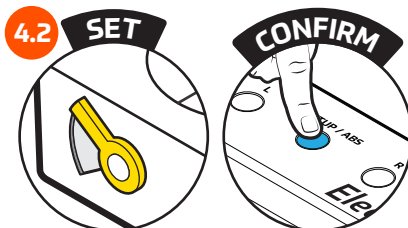
4.1 SET MINIMUM BRAKE POSITION

Adjust the switch to a position where the brakes are not powered. This is the “Minimum Brake position”, any higher signal value / switch position will engage the brakes. Once in position, press the SETUP/ABS button to confirm and move to next step.



4.2 SET MAXIMUM BRAKE POSITION

Adjust the switch to a position where the brakes are fully powered. This is the “Maximum Brake position”. Once in position, press the SETUP/ABS button to confirm to complete the programming.



- **GREEN LIGHT: THE SETUP HAS BEEN SUCCESSFUL.**
- **RED LIGHT: THE SETUP COULD NOT BE COMPLETED.**

If there is any error during the programming, the LED will turn ● red for a few seconds, and then the programming will restart at step 4.1

Double check the PWM signal provided is correct and has full range.

If you are unable to complete the setup, please contact us via email at info@electron-retracts.com

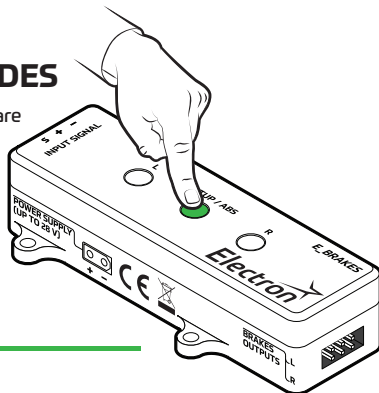
Operating

STEP 5

CONTINUOUS BRAKE AND ABS MODES

The E-Brakes offers a continuous brake mode where brakes are powered without interruption, and an ABS mode with three different presets. The ABS will release and engage the brake at different ratios, to avoid wheel blocking.

To change the brake modes, press the SETUP/ABS once to cycle between the different presets. The selected mode will be saved. When the controller is turned off, the last selected mode will be loaded upon turning on the device again.



5.1 CONTINUOUS BRAKE MODE (DEFAULT)

FIXED GREEN LIGHT



5.2 ABS MODE 1 (SOFT)

SLOW BLINKING GREEN LIGHT



5.3 ABS MODE 2 (MEDIUM)

MEDIUM BLINKING GREEN LIGHT



5.4 ABS MODE 3 (HARD)

FAST BLINKING GREEN LIGHT



5.4 PUSH BUTTON TO TO BACK TO CONTINUOUS BRAKING MODE

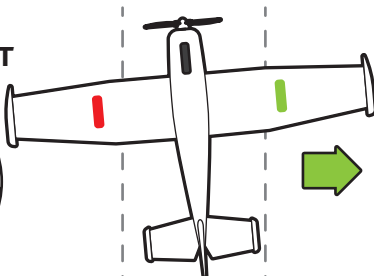
Balance

BALANCE ADJUSTMENT / COMPENSATION

In the event of an imbalance in the brakes causes the aircraft to veer, the E-Brakes allows you to correct this deviation, by adjusting the current level individually for each output.

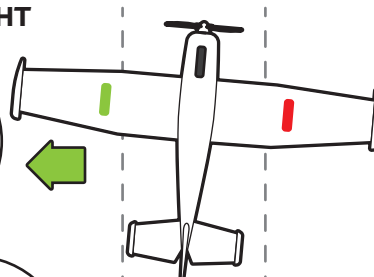
CASE 1: THE PLANE VEERS TO THE LEFT

If the plane deviates to the left when braking, it means the left brake is stronger. We must increase the brake force of the right (R) brake. Press the R button to shift the brake force and correct the deviation.



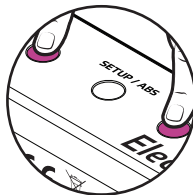
CASE 2: THE PLANE VEERS TO THE RIGHT

If the plane deviates to the right when braking, it means the right brake is stronger. We must increase the brake force of the left (L) brake. Press the L button to shift the brake force and correct the deviation.



BALANCE RESET

To reset the brake compensation and return to the default value, press both the L and R buttons at the same time, and hold until the LED light turns Purple.





www.electron-retracts.com
info@electron-retracts.com

Electron Retracts S.L.U
C.I.F. B-36539211
Pol. Inds. PPI-7, Parcela K, Nave B9 36475 – O Porriño (Spain)