

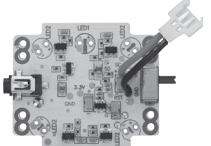
RadioShack
DIY Drone Starter Kit

Starting with
STEM

We hope you enjoy your DIY Drone Starter Kit from RadioShack. This kit comes with everything you need to build and fly a Quad-Rotor Drone. Please read this user's guide before using your new kit.

Package Contents

Check you have all the components before you start.

 PCB	 3.7V 250mAh Lithium Polymer Battery
 Top Body Cover	 Bottom Body Cover
 Motor 1 (Red/Black Wires) (3)	 Motor 2 (White/Black Wires) (3)
 Red/Red LED1 (1)	 White/Green LED2 (4)
 1.2 x 4mm Screws (16)	 Suspension Pads (6)
 Propellers A: Red (2), Black (2)	 Propellers B: Red (2), Black (2)

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User's Guide

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Required Tools

- Soldering Iron
- Lead-free Solder
- Diagonal Cutter

Notes: This kit contains electronic components that may contain hazardous substance and may be harmful if misused. This activity is not intended for children under the age of 12. Not to be used by children except under adult supervision. Wash hands after soldering.

Before You Begin

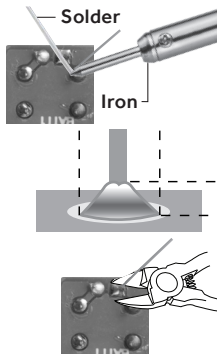
Instill good working habits. A soldering iron is not a toy.

- Prepare a clean, uncluttered workspace with no distractions.
- Verify all tools and parts.
- Review instructions. Attention to detail is critical.

Soldering

1. Insert the component leads through the correct pads on the PCB.
2. Press the iron to the pad to heat the pad. Do not move the iron. Instead, touch the solder to the pad. Flow enough solder to fill the hole and hold the component, but not too much.
3. Trim the excess lead as closely as possible to the PCB.

Caution: Be careful when soldering and trimming leads. Protective eyewear is recommended.

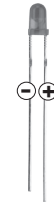


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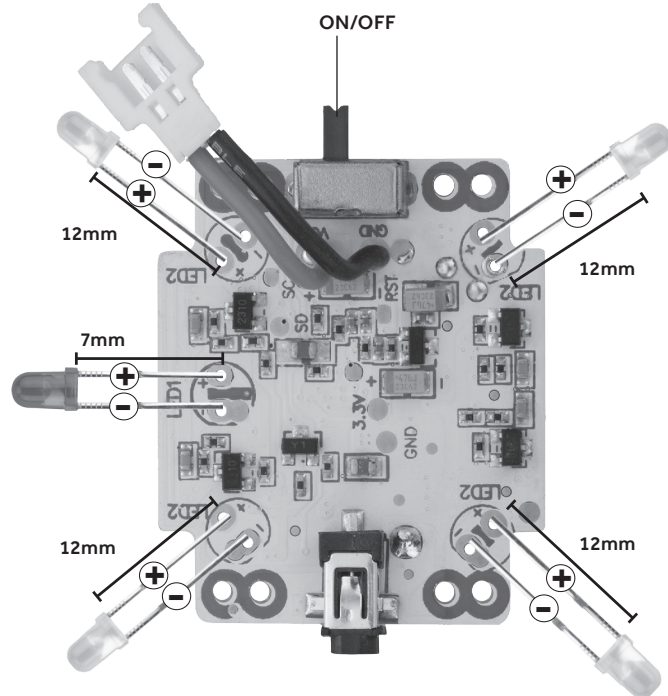
Solder LEDs

	Red/Red LED1 (1)	LED1
	White/Green LED2 (4)	LED2

LEDs are polarized and **MUST** match the position printed on the PCB. The longer pin is positive and the shorter pin is negative.



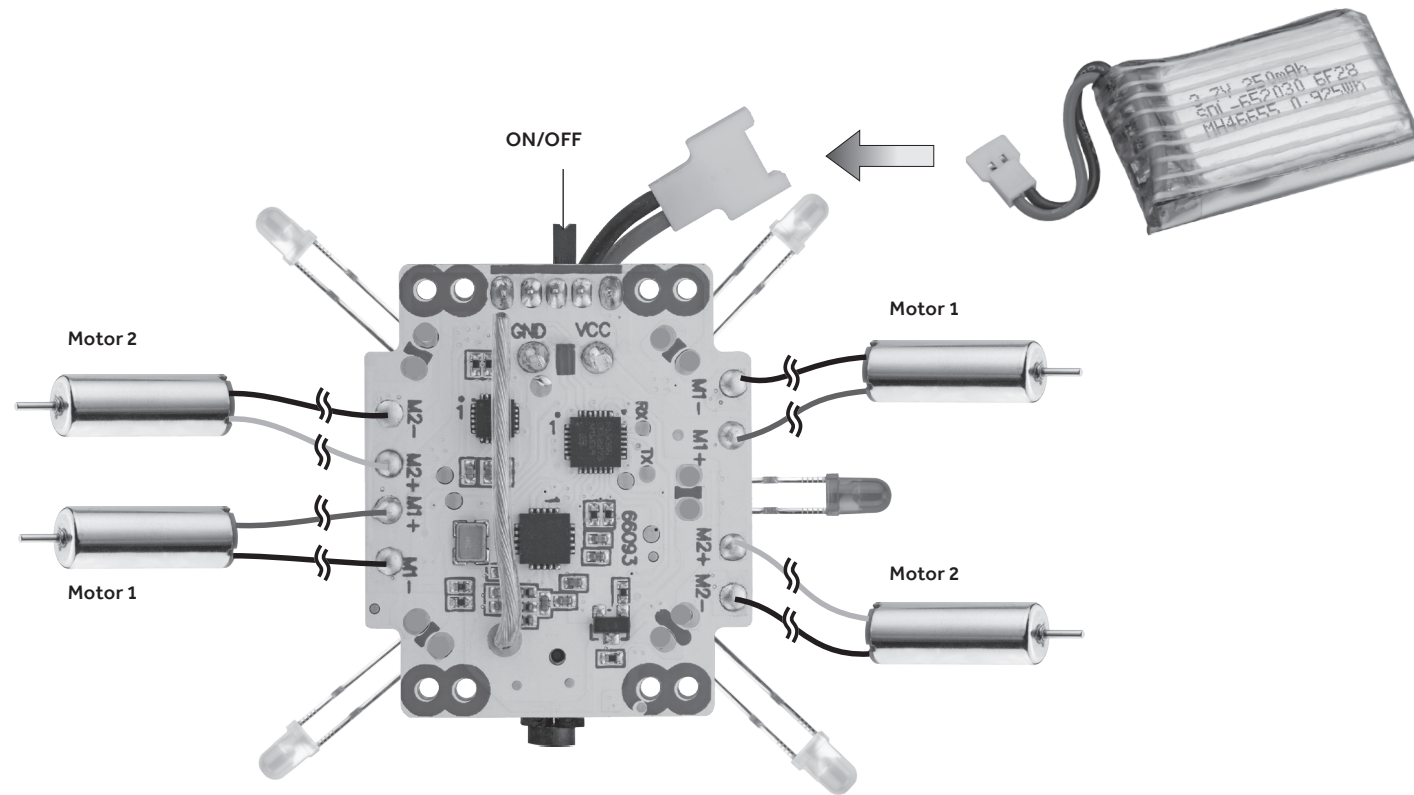
Insert leads into the correct pads, bend the LEDs so they extend from the board as indicated below, solder, then trim leads.



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Solder Motor Wires

Motor 1 (2)	Red	M1+	Motor 2 (2)	White	M2+
	Black	M1-		Black	M2-



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Connect Battery

	3.7V 250mAh Lithium Polymer Battery (1)
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Turn on the PCB to test LED connections.

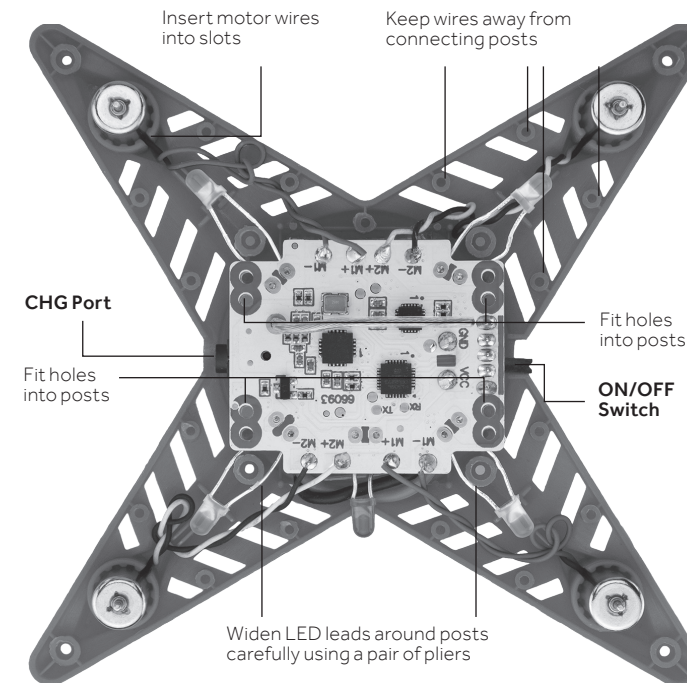


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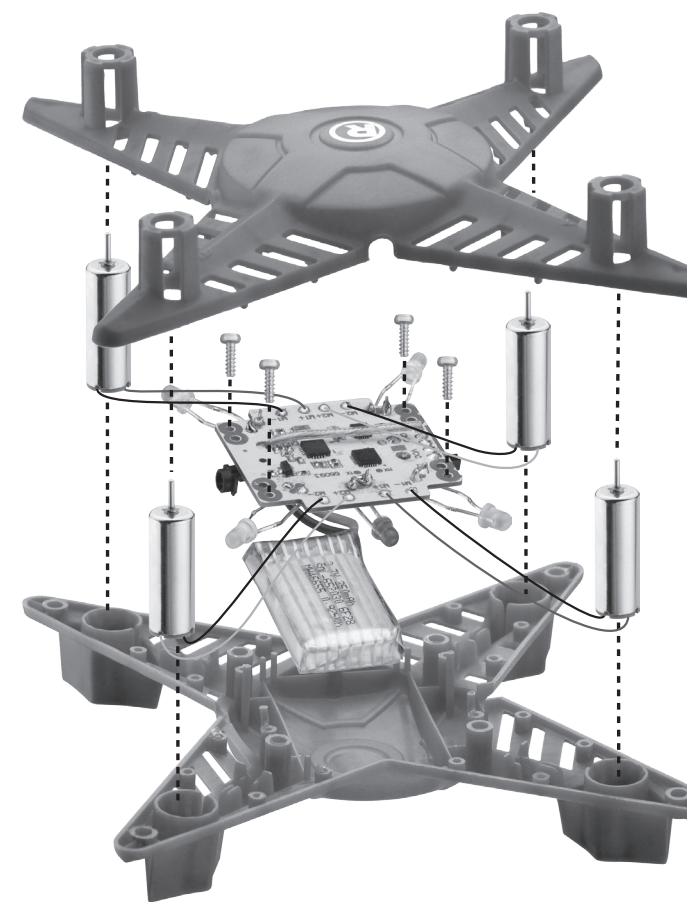
Assemble Body

	Top Body Cover		Bottom Body Cover
	1.2 x 4mm Screws (4)		

Observe direction!



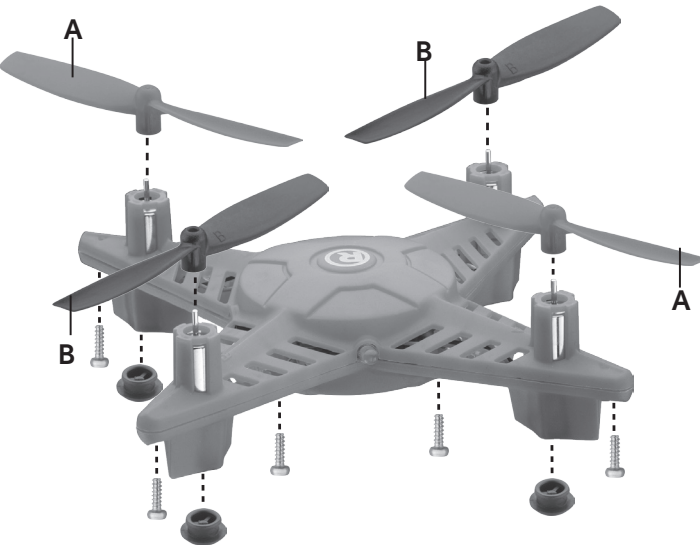
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	Propellers A (2)		1.2 x 4mm Screws (8)
	Propellers B (2)		Suspension Pads (4)

The left and right propellers are different (see **A** and **B** markings on the drone and propellers). Make sure you insert the correct propeller in the correct location to fly properly.



Charge the Drone Battery

1. Make sure your drone is switched off. Plug the USB charging cable into your drone's charging port (**CHG**) and a USB power source. The LED on the USB connector lights red during charging, and turns off when charging is complete.

A full charge takes about 45 minutes, and provides up to 5 minutes of flight time.

2. After charging, unplug the charging cable. Do not attempt to overcharge.



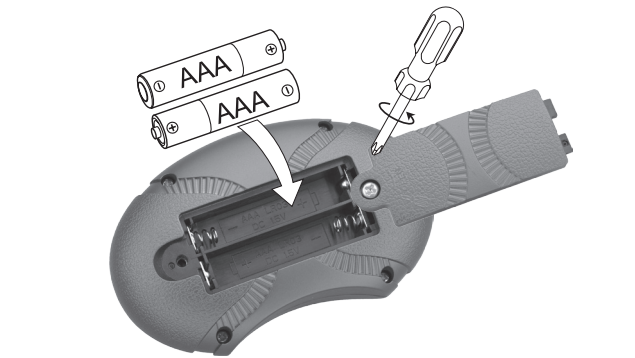
CAUTION:

- Use only the supplied lithium battery and cable, or ones with the same specification to charge. Using any other batteries, cables or different specifications may damage the drone.
- After playing, let the battery cool for at least 20 minutes before charging.

Install Batteries in the Remote Control

1. Set the remote control's **ON/OFF** switch to **OFF**.
2. Open the battery compartment and insert two AAA batteries (not included), matching the polarities (+ and -) marked inside. Replace the cover.

Note: If the remote control's LED flashes during use, the batteries are low and should be replaced.



Battery Notes

- Dispose of old batteries promptly and properly. Do not burn or bury them. Use only fresh batteries of the required size and recommended type.
- Do not mix old and new batteries, different types of batteries (standard, alkaline, or rechargeable), or rechargeable batteries of different capacities.
- Remove batteries during longer storage periods.

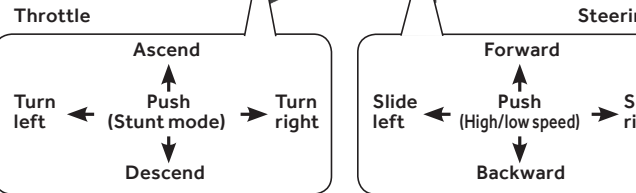
Ready to Fly

LED
Flashing = Searching
On = Paired

Forward/Reverse Movement Trim

ON/OFF

Left/Right Slide Trim



Pairing

1. Turn on the drone. The LEDs flash.
2. Place the drone on level ground.
3. Turn on the remote control. The remote control's LED flashes.
4. Move the throttle all the way up and then down to pair the remote control with the drone. The drone's blades remain still during pairing. When paired, the LEDs on both the remote control and drone light steadily.

Note: If pairing fails, turn off the drone and remote control and repeat the steps above, or change locations to avoid electrical interference.

Fly

1. After pairing, push the steering control in to switch between advanced mode to fly in high speed (double beep) and beginner mode to fly in low speed (single beep).
2. With the drone on the ground, move the throttle forward to ascend. To avoid ground air turbulence, fly the drone at least 1 ft. (30cm) off the ground.

IMPORTANT: If your drone crashes upside down, pull the throttle down and switch off the remote control first. Never touch the drone when propellers are still moving.

Trim

Move the throttle forward and see how the drone reacts.

Forward/Reverse Movement If the drone tends to move forward, press ; if it tends to move backward, press .

Left/Right Slide Trim: If the drone tends to slide right, press ; if it tends to slide left, press .



Note: The remote control beeps when you press a trim control but stops beeping when you reach maximum trim adjustment.

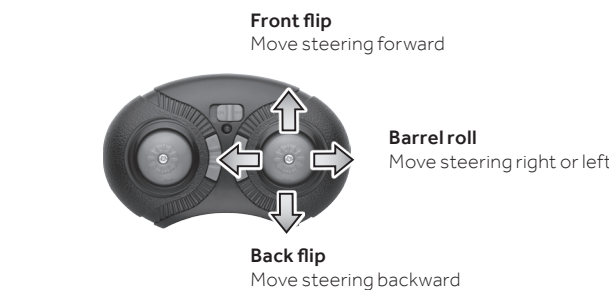
Land

1. Slowly move the throttle backward to descend. Avoid moving the throttle too quickly, as it can stop the blades instantly and cause the drone to crash.
2. After playing, turn off the remote control and drone.

Stunts

IMPORTANT: Make sure there is enough space for the drone to perform stunts without crashing into objects or people.

1. Push the throttle control in so that the remote control beeps repeatedly to enter stunt mode.
2. Use the steering control to perform stunts:
3. The drone automatically exits stunt mode after performing a stunt.



WARNING:

- To avoid injury and damage, inspect the propellers for nicks and breaks and make sure they are securely attached before and after each flight. Replace nicked, chipped, cracked or broken propellers. (See details on page 9)
- To replace a damaged propeller, remove the old one and press the new one onto the propeller axle. If you cannot remove the old propeller by hand, carefully use pliers.
- Use only the supplied propellers. Do not alter, modify, or customize the propellers.

Troubleshooting

Drone does not respond

- Make sure the drone and remote control are switched on and paired.
- Drone battery maybe low. Fully charge the battery. See **"Charge the Drone Battery."**
- Make sure the drone is within the control range (65 ft./20 m) and in line of sight.

Drone difficult to control

- Adjust the propellers by hand. If you cannot adjust them, replace with the spare propellers.
- The throttle control is very sensitive. Use small, fine movements to control.
- Practice at low speed mode. See **"Fly."**

Drone swerves / runs erratically before take off

- The gyroscope inside your drone needs calibrating. Do the following:
 1. With your drone and remote control switched on and paired, place the drone on level ground.
 2. Move the throttle all the way down and the steering forward at the same time. Hold this position for a few seconds until the drone LEDs start to blink.
 3. When the LEDs light steadily, release the controls. Calibration is complete and you are now ready for takeoff.

- See **"Trim"** if necessary to fine tune and improve control of your drone after calibration.

Fly Safely

- When flying outdoors, keep the drone away from power lines, trees, weeds, and water.
- When flying indoors, keep the drone away from walls, air conditioning, air vents, fans, breakable objects, and other obstacles.
- Do not fly the drone near or at other people or animals.
- Keep eyes, hands, hair, and loose clothing away from moving propellers.
- Adult supervision is recommended at all times.
- Do not fly your drone over private property where you are not welcomed.
- Do not fly your drone where emergency responders are working, or emergency aircraft are operating.

FCC Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult your dealer or an experienced radio/TV technician for help.

If you cannot eliminate the interference, the FCC requires that you stop using your equipment. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Limited Warranty

Go to www.radioshack.com/help for details.

RadioShack Customer Relations
300 RadioShack Circle, Fort Worth, TX 76102

RoHS

Complies with the European Union's "Restriction of Hazardous Substances Directive," which protects the environment by restricting specific hazardous materials and products.

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