

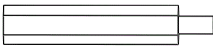
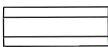










# Arducopter 3DR-B

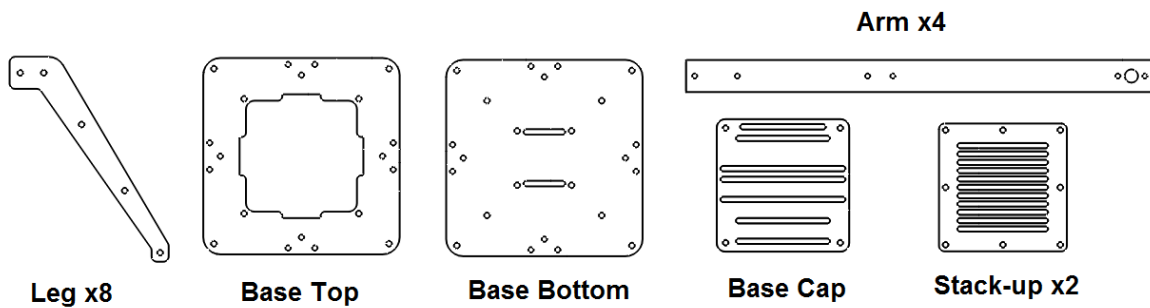


Thank you for purchasing an Arducopter 3DR kit. The Arducopter 3DR is a stable and supported quadrotor frame in the ongoing development of the Arducopter code on DIYDrones. It features a very durable Aluminum and G10 FR4 frame that can withstand hard impacts. The wide legged stand allows for more stable takeoffs and landings and provides an unobstructed view for a bottom mounted camera. The latest revision of this frame (revision B) features a removable base for easy access to the PDB and APM mounting slots. The Arducopter 3DR-B is designed and manufactured at the 3D Robotics headquarters in San Diego, California.



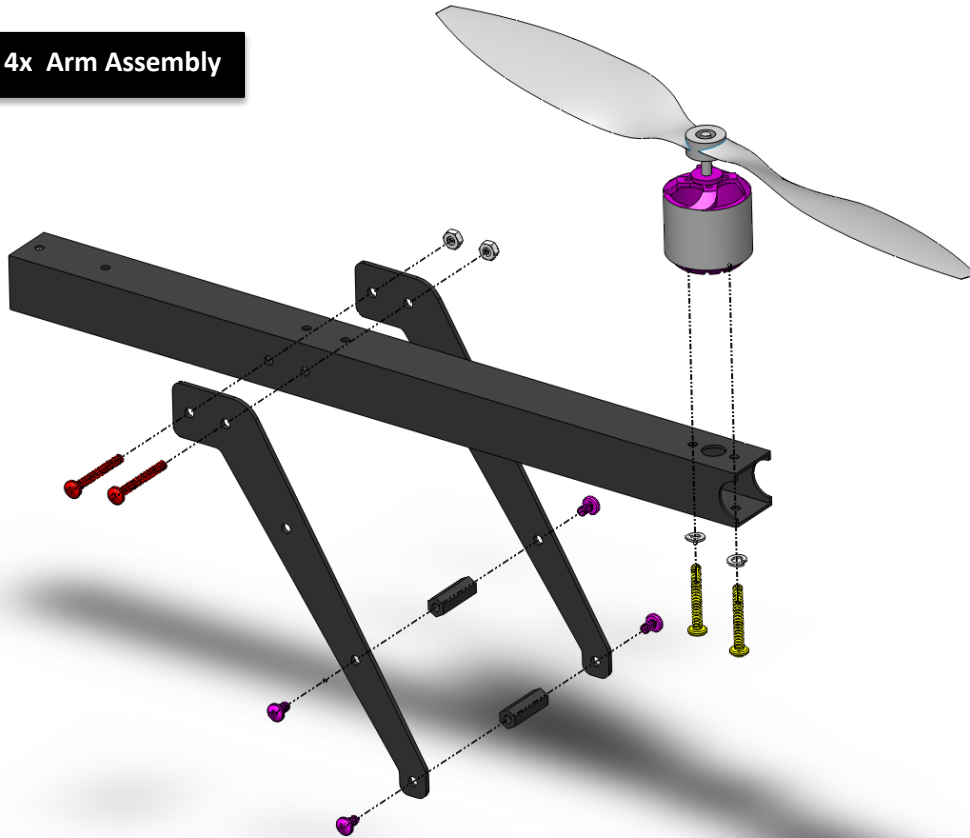
## Arducopter 3DR-B Hardware

Name		Qty.
M3x30mm Spacer.....		04
M3x18mm Spacer.....		12
M3x08mm Spacer.....		04
<span style="color: blue;">■</span> M3x30mm SS Screw.....		04
<span style="color: red;">■</span> M3x25mm SS Screw.....		12
<span style="color: yellow;">■</span> M3x22mm Zinc Screw.....		08
<span style="color: magenta;">■</span> M3x05mm SS Screw.....		16
<span style="color: green;">■</span> M3x05mm Nylon Screw.....		08
Rubber Washer.....		04
M3 Metal Hex Nut.....		16
M3 Nylon Hex Nut.....		04
M3 Lock Washer.....		08

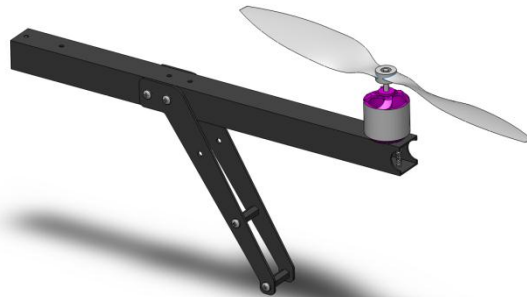


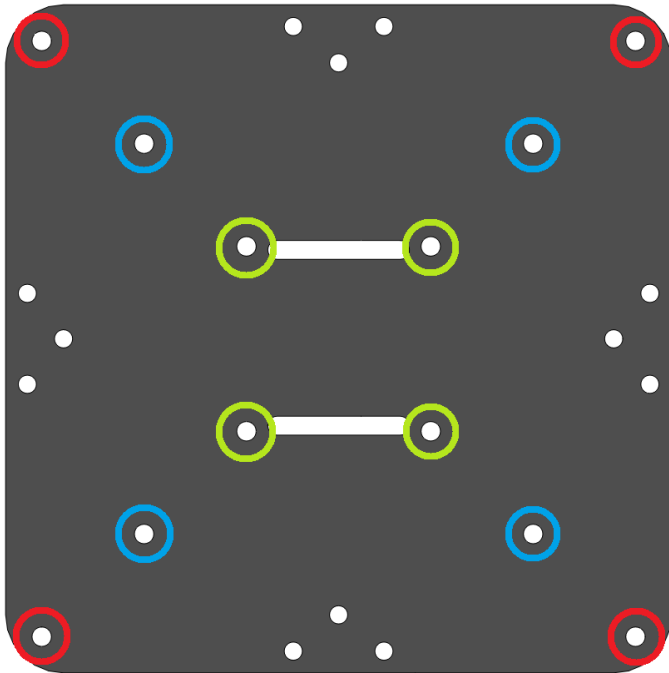
# Assembly Guide

## 4x Arm Assembly




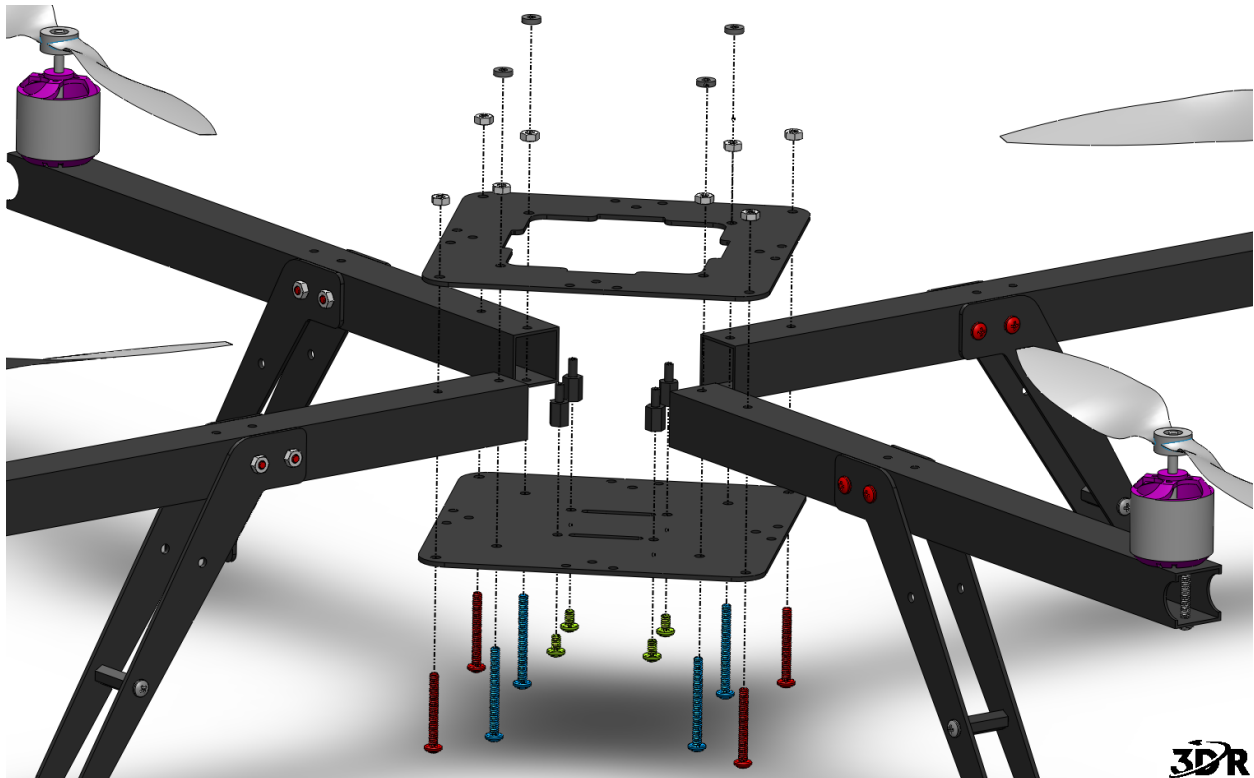
Make sure the motor holes on the arm are facing up. The legs are mounted to the arms using 2x M3x25mm SS Screws (Red) and 2x M3 Metal Hex Nuts. Insert two M3x18mm spacers in between the legs and fasten with 4x M3x5mm screws (Purple) for support. The motors are attached to the arms with 2x M3x22mm zinc plated screws (Yellow) and 2x M3 Lock Washers (Make sure the screws go into the threaded holes in the motors and not the ventilation grooves). Complete the assembly of all four arms.





**Main Body Assembly**

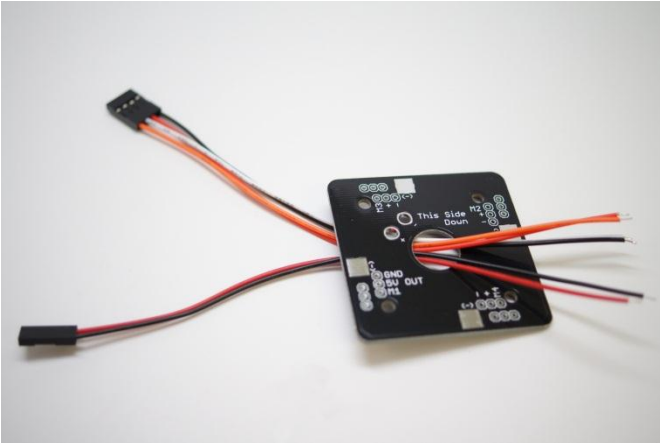
-  M3x25mm SS Screw
-  M3x30mm SS Screw
-  M3x05mm Nylon Screw



Assemble the main body of the Arducopter 3DR-B as shown above. The top and bottom bases are fastened to the four Arm sub-assemblies using the hardware indicated on the previous figures. The outermost screws (shown in Red) are M3x25mm SS Screws fastened to a M3 Metal Hex Nut. The screws shown in Blue are longer (M3x30mm) and will be used to support the stack-up later. These are also fastened with a M3 Metal Hex Nut, but a Rubber Washer is also added on top of the Hex Nut. Finally, install 4x M3x08 Nylon Spacers in the middle using M3x05mm Nylon Screws (Shown in Green). Slide the velcro strap through the grooves in the center. This will be used to hold the battery in place.

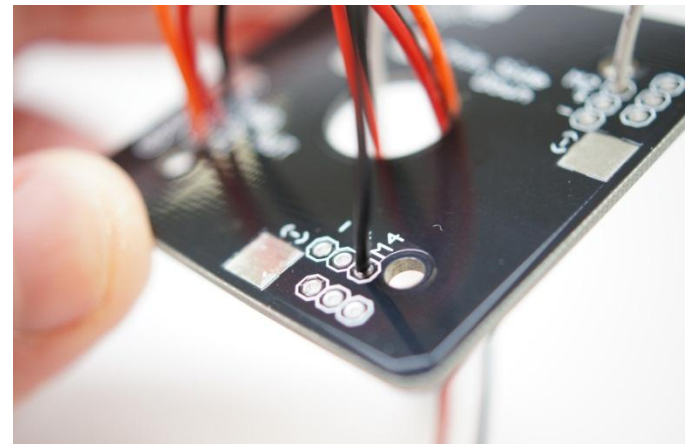
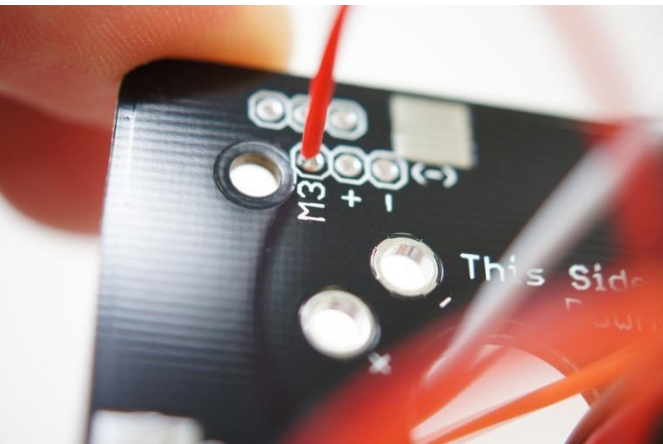
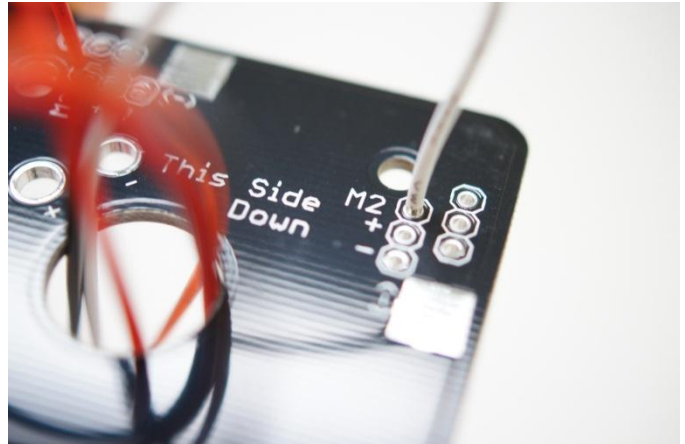
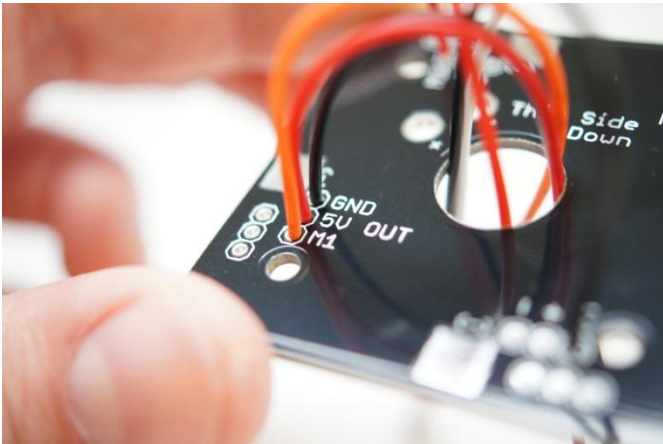


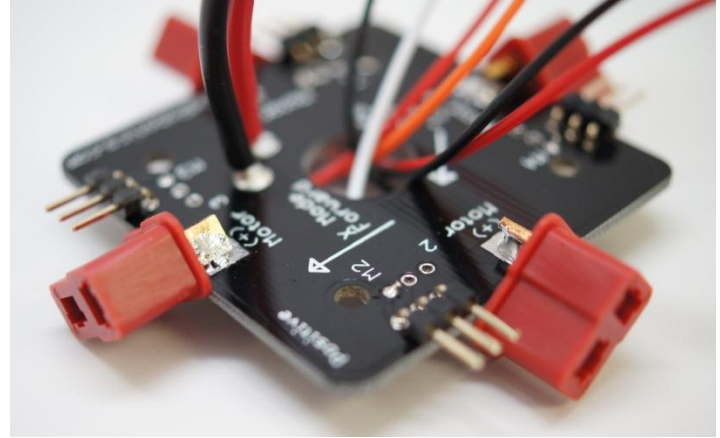
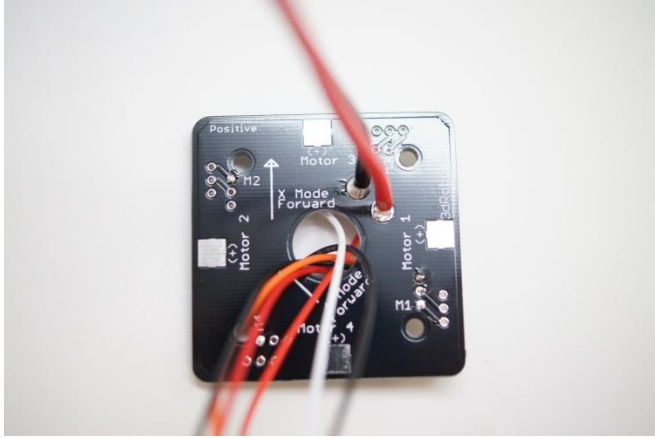
## PDB Assembly



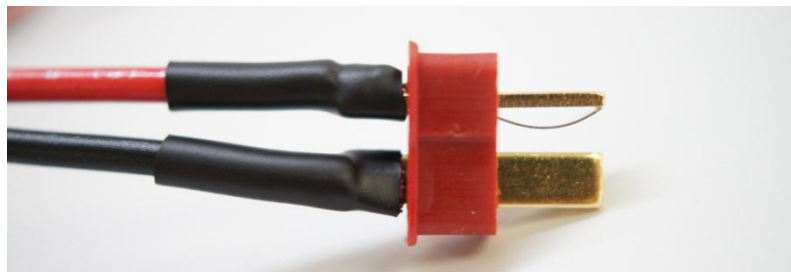
Run the two sets of narrow gauge wire through the central hole. The stripped ends of the wires should all emerge on the bottom side of the PDB, the side that says "This Side Down". Solder the two wire red and black connector to 5V Out and GND respectively.

Next solder the four wire connector starting with the orange cable to **M1**, white to **M2**, red to **M3**, and black to **M4**. Use the pictures below for reference.

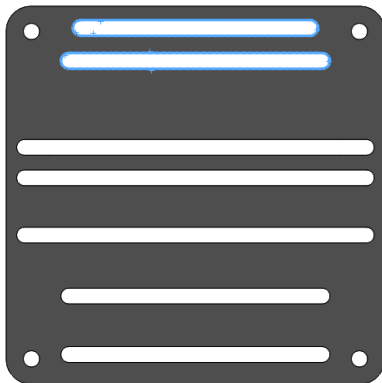
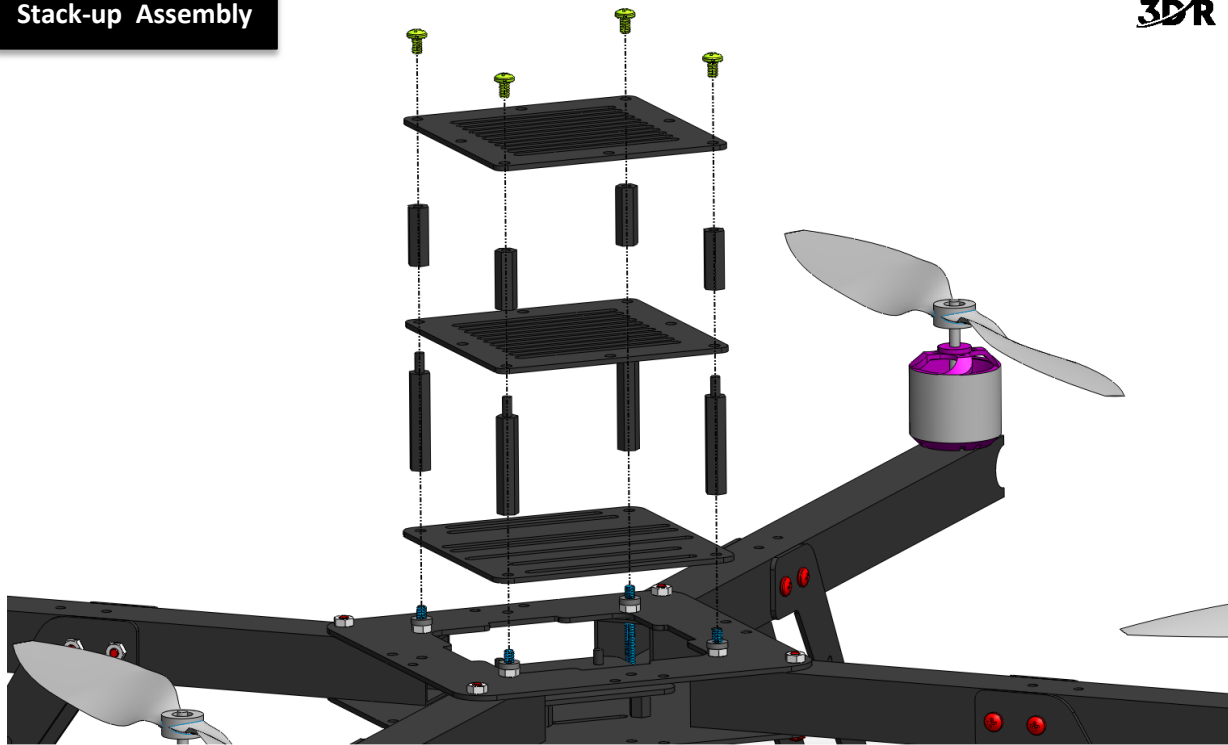




Next, strip both ends of the thick gauge red and black wires about 4mm. Solder the black wire into the large diameter hole marked “-” and the red wire into the one marked “+” . Slide a piece of shrink tubing into each cable but don’t shrink it yet. Solder a Male Dean’s Plug to the other end of the thick wires matching the red wire to the “+” on the connector and the black wire to the “-” sign. Pull the shrink tubing over the exposed connector leads and shrink it. Finally solder 3 pin headers into the open holes and female Dean’s connectors onto the exposed pads on edge of the PDB board. Make sure to match the “+”, “-” markings on the Dean’s connector.



## Stack-up Assembly



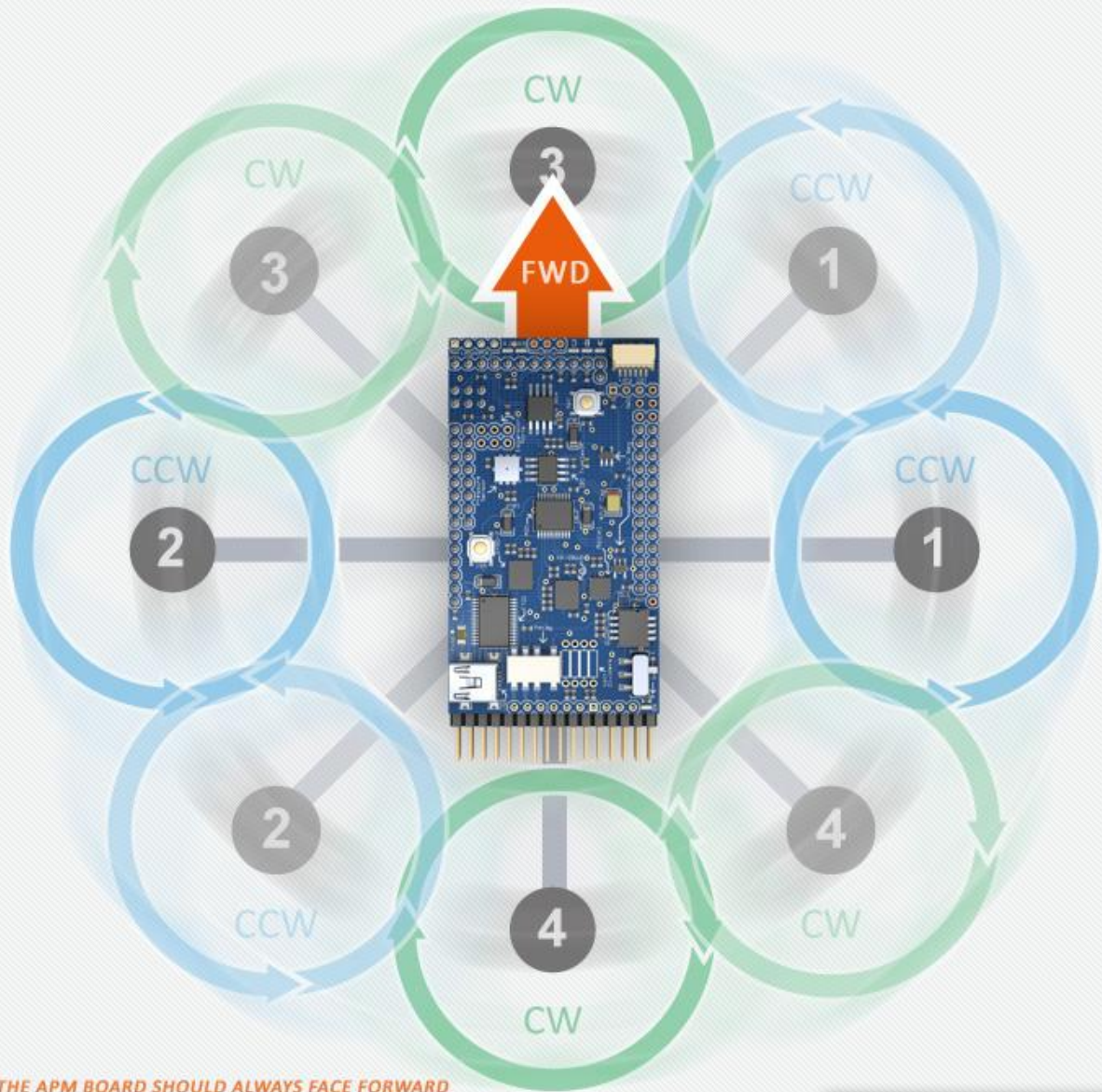
Install the PDB in the center and secure using 4x M3 Nylon Hex nuts. Next install the Base Cap, note that the two slots close together (marked in **Blue**) mark the front side of the quad. Align them with the front arrow on your pdb. For setting correct motor orientation please visit the arducopter wiki (<http://code.google.com/p/arducopter>). The Base Cap allows for easy access to the PDB as well as the motor wires. Screw 4x M3x30mm Spacers to hold the Base Cap in place. The stack-ups fit right on top secured on top by 4x M3x05mm Nylon screws (**Green**).

To attach your APM board to the Base Cap use double sided tape or screws. The Base cap slot pattern allows for your APM1 or APM2 to be mounted in either "X" or "+" configurations. Refer to the figures in the following pages for correct motor numbering and plug in the signal cables from your ESCs to the PDB accordingly. Remember on the four wire connector, the orange cable is connected to **M1**. Use this as a reference when connecting the four wire connector to the APM outputs. **Orange** should go to output 1.





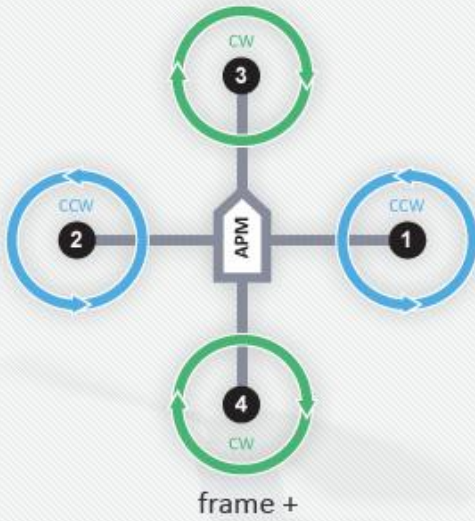
# APM BOARD ORIENTATION



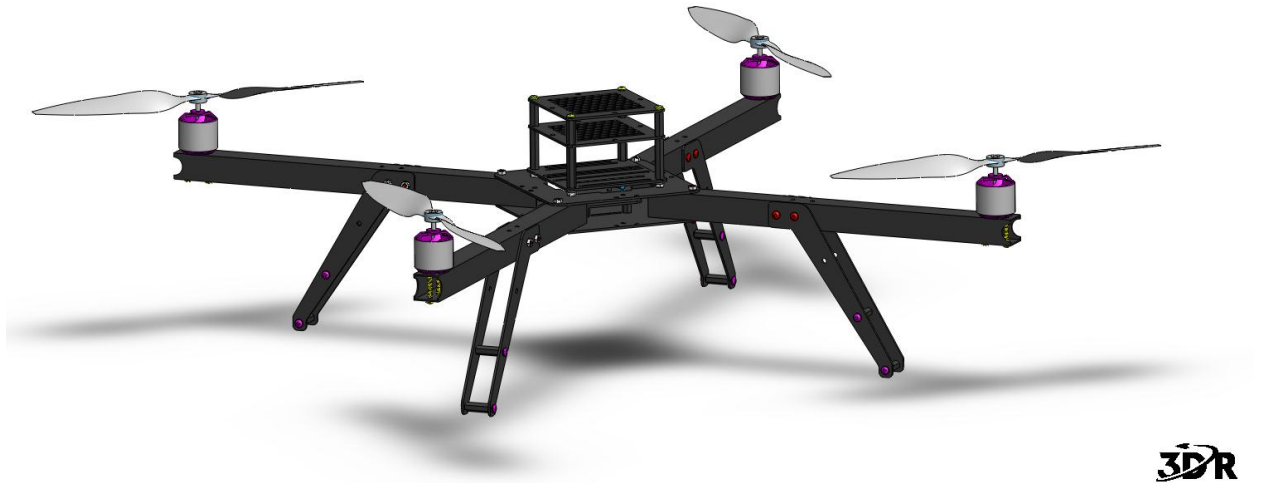
THE APM BOARD SHOULD ALWAYS FACE FORWARD  
REGARDLESS OF THE FRAME TYPE AND ORIENTATION

DIY DRONES

# PROPELLERS ORIENTATION



DIY DRONES



We hope you enjoy your Arducopter 3DR-B. If you have any questions or concerns please feel free to contact us via email at :

[help@3drobotics.com](mailto:help@3drobotics.com)

For additional information on how to set up your Arducopter 3DR and more information on the Arducopter codebase please visit the Arducopter wiki at:

<http://code.google.com/p/arducopter>

