

# Micro drone build and set-up instructions

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# What is in the kit



### SPARE STICKY PAD

A spare sticky pad has been provided that can be cut to size for mounting the receiver

- 1. Frame
- 2. 4x Propellers
- 3. Flight controller with nano camera and receiver
- 4. Canopy with camera clip
- 5. Elastic bands
- Tools required: Small tip crosshead screwdriver.

- 6. Spare sticky pad for the receiver
- 7. 4x Screws
- 8. 4x Rubber frame mounts
- 9. Counter-Clockwise CCW motors
- 10. Clockwise CW motors

### **Building the drone**

### Connecting the camera to the canopy



If not already done, connect the camera and the board connectors together.

Insert the camera into the hole provided in the canopy. The camera is secured in position by fitting the camera clip.







Insert the two screws to hold camera in place with the camera clip. Secure the clip to the inside top of the canopy using one of the screws, then secure the clip to the rear of the canopy below the camera using the other screw.

Make sure the camera is the correct way round - Wires pointing down

### Connecting the Board to the frame



2

Push fit the rubber frame mounts onto the four corners of the flight controller.



Insert the two screws through the canopy into the frame, to secure the canopy in position.

You might want to leave fitting of the canopy, until Binding the Drone to the Transmitter has been done ( see page 6).



Gently push the board onto the frame aligning the pegs on the frame with the rubber frame mounts. Make sure the frame and the board are facing the right direction (see below).

Notch in frame indicates front



Battery cable and ariel indicates the back of the board

### **Building the drone**

### Attaching the motors

3



Select the two Clockwise CW motors (Red and Blue wires). Place a motor on top left and bottom right of the frame (as shown). Feed the motor cable through the hole and out of theside, then slowly push the motor through the hole as far as it will go. Repeat for the second motor.



Select the other two Counter-Clockwise CCW motors (Black and White wires) and fit the motors in the two spare slots, as described in Step 1.



Turn the drone upside down and plug the motors into the board. Take care to connect each motor to the connector closest to that motor (as shown).



Place an elastic band around each of the frame motor holders and the cable to keep the cable held tight to the frame.

### **Building the drone**

### Attaching the propellers

4



Add the propellers by gently pushing them down onto the motor spindles.

**IMPORTANT:** Make sure that orientation of the propellers on the motors is correct as shown in the image above. When fitted, the curved part of the blade faces in the direction of rotation for each motor, as shown in the image on the right.



Double check that the propeller blades are correctly attached. The curved part of the blades should be facing the direction of rotation (as shown above).

# Binding the drone to the transmitter





Remove the canopy from the frame by unscrewing the two screws

TIP: Get someone to help you with this step. The battery needs to be connected at the same time as pressing the button on the receiver board to bind correctly. While pressing down on the button on the receiver connect the battery, as shown. Hold down the button on the receiver until the green LED (fast blink) comes ON (see Step3).



Turn on the transmitter by pressing the two ON/OFF buttons located either side of the screen. Make sure that all switches are in the up position and the lefthand control stick is down.

# Binding the drone to the transmitter



On the Transmitter touch screen, Press the spanner/screwdriver icon and select **SYSTEM**.



Select **MODEL** (if this is the only model you are using on this transmitter select **MODEL 1**). Then press the back arrow (top left of screen).



Select model **RX BIND**, this puts the transmitter into bind mode.



The green LED on the receiver will turn off and the red LED will illuminate to indicate that binding is complete.



Exit the transmitter from bind mode, by pressing the back arrow (top left of screen). The green LED on the receiver will be now illuminate to indicate that it is working normally. Refit the canopy (see page 3, Step3).

### Setting up the failsafe



Turn on the transmitter, by pressing the two ON/OFF buttons located either side of the screen. Press the spanner/ screwdriver icon on the screen, then select **FUNCTION**. Scroll down to the bottom and select **Failsafe**.







#### Select FAILSAFE for Ch1, by pressing OFF.

#### On the next screen select **ON**.

**NOTE:** Ch1 controls the left/right movement of the right-hand control stick. You can test this by moving the control stick left and right, the movement should be indicated in the bar across the bottom of the screen as the stick moves.

Make sure that the stick is in the neutral (centre) position and press **SETUP**. Then use the back arrow to go back to the Failsafe -channel select menu. You should now see that **Ch1** is set to 0%.

Repeat the setup procedure for **Ch2** and **Ch4**.

**NOTE:** Ch2 controls the forward/backward movement on the right-hand control stick. Ch4 controls the left/right movement of the lefthand control stick.

Use the back arrow to go back to the Failsafe channel select menu. You should now see that Ch3 is set to -100% and Ch1, 2 and 4 are set to 0%.

Failsafe is now set up. Use the back arrow to return to the main menu.



**IMPORTANT**: Setting the Failsafe mode allows the drone to stop flying and drop to the ground in the event of loss of transmission.



#### Select FAILSAFE for Ch3, select ON.

**NOTE:** Ch3 controls the up/down (throttle) movement of the left-hand control stick.

Make sure the left-hand control stick is all the way down. Press SETUP (-100% shows on screen).

# Setting up the auxiliary switches on the transmitter



# Setting up the auxiliary switches on the transmitter

**IMPORTANT**: The Auxiliary (Aux) Switches need to be Set-up, so that drone will fly correctly using the channels set on the transmitter.

STEP 4



STEP 2 Aligheers Models Model 1 Reset Model (1) (1)

Alielhee

annel 5

(1)

the Model number that the drone has been binded to. Then return to the **SYSTEM** menu, using the back arrow at top left of the screen.



Select MODEL, and select

Select CHANNEL 5 and

# Setting up the auxiliary switches on the transmitter



Select **SWx**.



Press **SwA** and change **SwA** to **SwD**. **Channel 5** is now set-up on **SwD**.



Now select **CHANNEL 6**, then press the no entry symbol and select **SWx**.



Press **SwA** and change **SwA** to **SwC**. **Channel 6** is now set-up on **SwC**.

Return to the main menu using the back arrow at top left of the screen.

# **Betaflight settings**

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# **Betaflight settings**

Turn OFF AIRMODE

2

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						Enable Expert Mode Firmware						
1-22 @12:30:30 - Arming D	Disabled											
	Barometer (if supported)			0 3	Accelerometer Roll Trim							
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nfiguration	Personalization			Detroit 9	Configuration							
	LDARC Craft name			DSHOLD	eacon configuration							
				1		Beacon Tone						
	Camera				RX_LOST Beeps wh	en TX is turned off or signal lost (repeat until TX is okay)						
	0 \$ FPV Camera Angle [degrees]				RX_SET Beeps wh	en aux channel is set for beep						
	Arming		0	Beeper	Configuration							
	45 C Maximum ARM Angle [degrees]		0		GYRO_CALIBRATED	Beeps when gyro has been calibrated						
	Other Features				RX_LOST	Beeps when TX is turned off or signal lost (repeat until TX is okay)						
					RX_LOST_LANDING	Beeps SOS when armed and TX is turned off or signal lost (autolanding/autodisarm)						
	Note: Not all features are supported by all flight controlle means that this feature is not supported on your board.	s. If you enable a specific feature, and it is disabled after you nit save	and Repoot, it		DISARMING	Beep when disarming the flightcontroller						
	INFLIGHT_ACC_CAL	In-flight level calibration			ARMING	Beep when arming the flightcontroller						
	SERVO_TILT	Servo gimbal	0		ARMING_GPS_FIX	Beep a special tone when arming the board and GPS has fix						
	SOFTSERIAL	Enable CPU based serial ports	0		BAT_CRIT_LOW	Longer warning beeps when battery is critically low (repeats)						
	SONAR	Sonar			BAT_LOW	Warning beeps when battery is getting low (repeats)						
	LED_STRIP	Multi-color RGB LED strip support			GPS_STATUS	Use the number of beeps to indicate how many GPS satellites were found						
	DISPLAY	OLED Screen Display	0		RX_SET	Beeps when aux channel is set for beep						
	CHANNEL_FORWARDING	Forward aux channels to servo outputs			ACC_CALIBRATION	Accelerometer inflight calibration completed confirmation						
	TRANSPONDER	Race Transponder	0	_	AC CALIBRATION_FAIL	Accelerometer inflight calibration failed						
	AIRMODE	Permanently enable Airmode				Ring a tone when GPS is locked and ready						
	OSD OSD	On Screen Display			DI RM_REPEAT	Beeps sounded while stick held in disarm position						
	DYNAMIC_FILTER	Dynamic gyro notch filtering			ARMED	Warning beeps when board is armed with motors off when idle (repeats until board is disarmed or throttle is increased)						

**IMPORTANT:** Make sure that AIRMODE is turned OFF before attempting to fly the drone.

### **Betaflight settings**

### **3** Turn ON MOTOR\_STOP

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022-11-22 @12:30:30 - Arming i	Disabled										Show Lo
	Motors										WIK
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	ESC/Motor Features		1000	1000	1000	1000					
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Make sure you have MOTOR\_STOP turned on, as this will stop the motors spinning when armed.

**NOTE:** The advantage of having this turned off is that you know the drone is armed. The disadvantage is that if you flip the drone in a crash the motors will keep spinning until you disarm the drone. This feature is important to have switched off for larger drones but is not necessary on these micro-drones.

### **VTX frequencies**

Single click on the FC board button to change the VTX channel when powered on to the frequency you require.

	CH1	CH2	СНЗ	CH4	CH5	CH6	CH7	CH8
BAND 1								
BAND 2				5790MHz				
BAND 3								
BAND 4	5740MHz	5760MHz	5780MHz		5820MHz		5860MHz	
BAND 5			5732MHz	5769MHz	5806MHz	5843MHz		

### **VTX frequencies**



Bottom of flight controller board

### VTX channel button

Click this button to change between the VTX channels.

**NOTE:** Press and hold button and power on to put the board into direct firmware update (DFU) mode(STM32 boot mode) if you need to update the board software.

### VTX channel LED

This LED indicates the VTX frquency you have selected, see chart below.

Channel	5806MHZ	5780MHZ	5790MHZ
5769MHZ	5843MHZ	5740MHZ	5820MHZ
5732MHZ	5760MHZ	5860MHZ	