

umma85/95 Setup

Check out this FB group for more info:

<https://www.facebook.com/groups/1786964794772748/>

★

REMEMBER!

Only paste the values listed here if you are using the SAME EXACT FC shown below. If you're using a different FC, you can still follow this guide so long as you use your own values.

F4 Brushless Flight Controller and ESC V2.0 (BLHeli_32)



BetaFPV F4 F405 4s FC

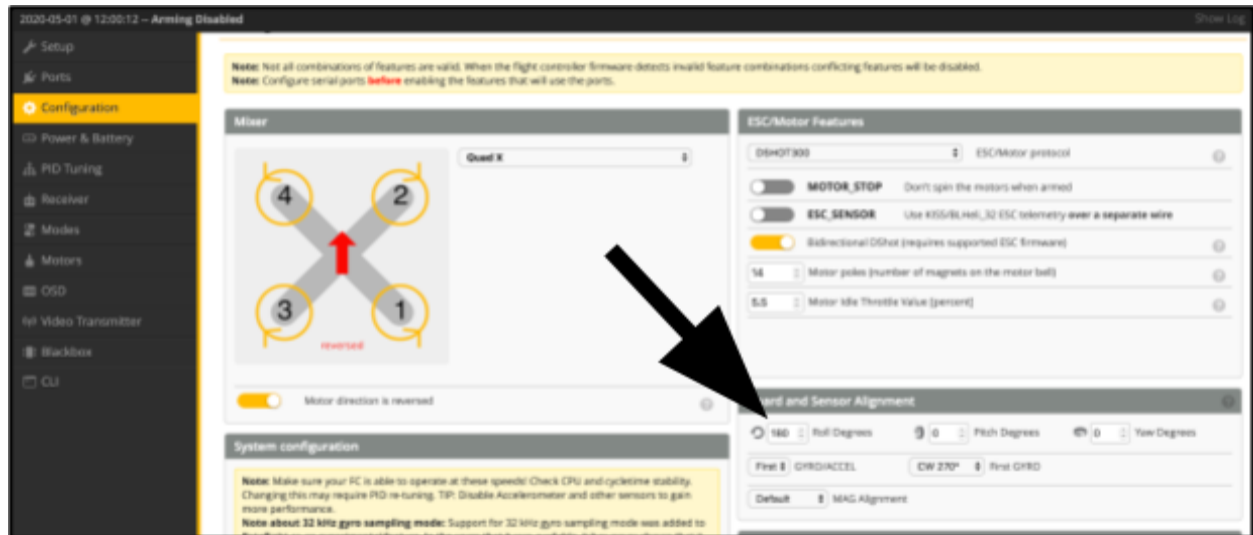
Product link:

https://betafpv.com/collections/components/products/f405-4s-brushless-flight-controller-and-esc-blheli_32

CONVERTING TO PUSHER

You're basically flipping the quad upside down, so you need to do the following changes:

1. Set board roll = 180



2. Remap motors so that motor 1 becomes motor 3, and motor 2 becomes motor 4. Go into the CLI and follow these steps:

- Type 'resource' and take note of the values for motors 1-4
- Type 'resource motor 1 **X**' where **X = value for motor 3**
- Type 'resource motor 2 **X**' where **X = value for motor 4**
- Type 'resource motor 3 **X**' where **X = value for motor 1**
- Type 'resource motor 4 **X**' where **X = value for motor 2**
- **If you have the same F405 FC, you should be able to paste the following values:**

```
resource MOTOR 1 A03
resource MOTOR 2 A02
resource MOTOR 3 B00
resource MOTOR 4 B01
save
```

Test your motors!

Setting up radio to control start/stop record button

You need to make sure your FC has a buzzer pad, and then follow the instructions in this video:

https://youtu.be/7qb8l_ip-rc

1 - Setup PINIO. If you have the same F405 FC, then your CLI values will be:

Resource beeper 1 none

Resource pinio 2 B04

Set pinio_box = -1, 40, -1, -1

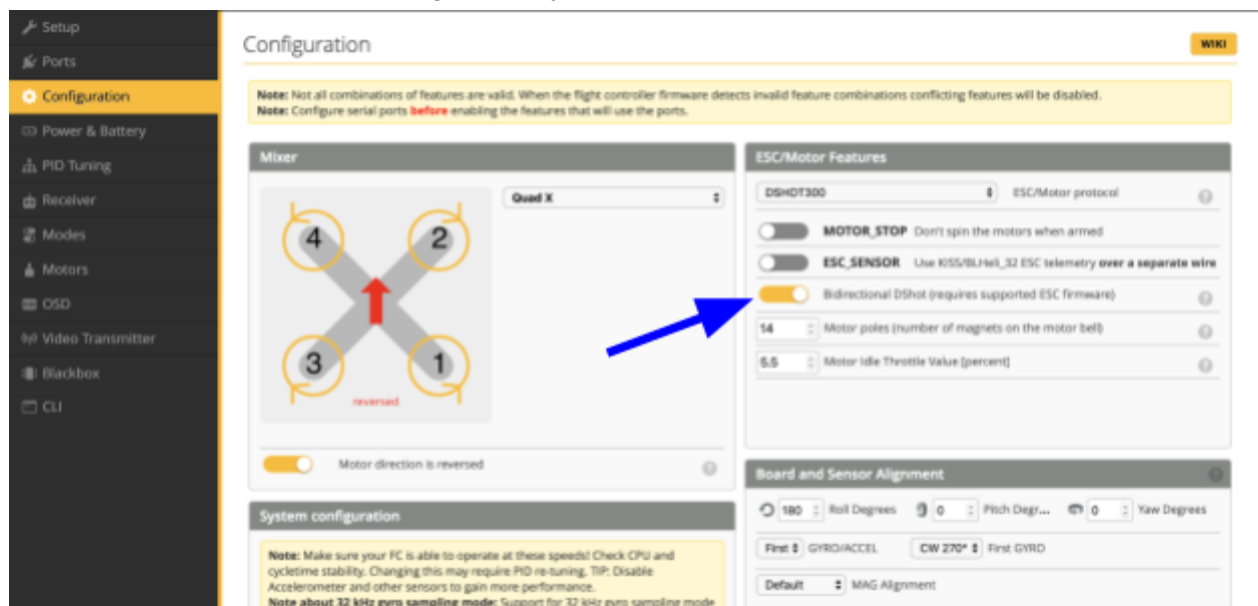
Save

2 - Setup a switch in 'modes' tab. If you have the same F405 FC, then you will set "USER 1" to a corresponding aux switch/button on your radio.

OTHER CONFIG

It's best to setup RPM filtering if you have bl_heli 32 ESCs (or BLheli_S on JESC firmware).

1. Ensure BL32 ESCs on latest firmware (32.7)
2. Set PWM frequency to 48mHz
3. Enable bidirectional d-shot on config tab (set to DSHOT300) and confirm YOUR motor pole value (it's the number of magnets on your motor):






- Set system configuration to 4k/4k

System configuration

Note: Make sure your FC is able to operate at these speeds! Check CPU and cycletime stability. Changing this may require PID re-tuning. TIP: Disable Accelerometer and other sensors to gain more performance.

Note about 32 kHz gyro sampling mode: Support for 32 kHz gyro sampling mode was added to Betaflight as an experimental feature. In the years that it was available, it has never shown that it has any advantage over 8 kHz gyro sampling mode, due to its susceptibility to vibrations, and its high noise level which require aggressive filtering, causing delays in the control loop. For this reason, **support for 32 kHz gyro sampling mode has been dropped** in Betaflight 4.0.

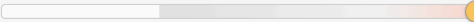

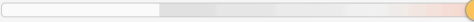

4 kHz  gyro update frequency

4 kHz  PID loop frequency 

- Copy these values in the PID/Filter Tab















Note: Changing profiles will only change the D-term filter settings. Gyro filter settings are the same for all profiles.

Note: Sliders range is restricted because you are not in expert mode. This range should be suitable for most builds and beginners.









	More Filtering	Default Filtering	Less Filtering	
Gyro Filter Multiplier:	1.2			
D Term Filter Multiplier:	1.2			

Profile independent Filter Settings





Gyro Lowpass Filters

	240	Gyro Lowpass 1 Dynamic Min Cutoff Frequency [Hz]	
	600	Gyro Lowpass 1 Dynamic Max Cutoff Frequency [Hz]	
	PT1	Gyro Lowpass 1 Dynamic Filter Type	
	200	Gyro Lowpass 1 Cutoff Frequency [Hz]	
	PT1	Gyro Lowpass 1 Filter Type	
	300	Gyro Lowpass 2 Cutoff Frequency [Hz]	
	PT1	Gyro Lowpass 2 Filter Type	









Gyro Notch Filters

	0	Gyro Notch Filter 1 Center Frequency [Hz]	
	0	Gyro Notch Filter 1 Cutoff Frequency [Hz]	
	0	Gyro Notch Filter 2 Center Frequency [Hz]	
	0	Gyro Notch Filter 2 Cutoff Frequency [Hz]	

Gyro RPM Filter















	3	Gyro RPM Filter Harmonics Number	
	100	Gyro RPM Filter Min Frequency [Hz]	

Dynamic Notch Filter





	LOW	Dynamic Notch Filter Range	
	0	Dynamic Notch Width Percent	
	250	Dynamic Notch Q	
	90	Dynamic Notch Min Hz	

Profile dependent Filter Settings



D Term Lowpass Filters

	84	D Term Lowpass 1 Dynamic Min Cutoff Frequency [Hz]	
	204	D Term Lowpass 1 Dynamic Max Cutoff Frequency [Hz]	
	PT1	D Term Lowpass 1 Dynamic Filter Type	
	150	D Term Lowpass 1 Cutoff Frequency [Hz]	
	PT1	D Term Lowpass 1 Filter Type	
	180	D Term Lowpass 2 Cutoff Frequency [Hz]	
	PT1	D Term Lowpass 2 Filter Type	

D Term Notch Filters

	0	D Term Notch Filter Center Frequency [Hz]	
	0	D Term Notch Filter Cutoff Frequency [Hz]	

Yaw Lowpass Filters

	0	Yaw Lowpass Cutoff Frequency [Hz]	
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HIT SAVE!

THE END :)