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CineRace20 DJI O3 HD Manual

video guide: https://youtu.be/LkkEtJFXelw



1/ drone introduction

The CineRace20 O3 edition is currently the smallest cinewhoop of FLYWOO that is equipped with the DJI O3 Air unit module, measuring only 2 inch in size.

It features neon LED lights, offering a variety of color options for added fun during races or other events.

A specially designed GM10 Nano V3 GPS module is tailored to fit the CineRace20, providing minimal weight but the ability to search up to 30 satellites.

Use TPU soft material to prevent jelly effect. Pilots can quietly enjoy the fun of shooting a video without jelly

This is a truly innovative duct design. It is designed to block certain winds, increasing the thrust of the drone. The duct completely surrounds the propeller, making flying safer.

- Sub250 (even with battery)
- Support 4K\60fps recording
- GPS up to 30 satellites
- No Propellers in view, NO Jello flight Footage, stable flight picture
- Neon LED, various options. buzzer alarm
- Built-in SanDisk Extreme microSD card 128GB
- Innovative duct design

Specifications :

Model: CineRace20 HD DJI O3 2inch Brand: FLYWOO Frame: CineRace20 O3 (Different fromCineRace20 V1.2\V2 frame) FC and ESC : GOKU GN 405S 20A AIO GPS: GOKU GM10 Nano V3 GPS Buzzer : 5PCS Active Alarm Buzzer VTX: DJI O3 Air Unit Camera: DJI O3 Propeller: D51-5 51mm Antenna: DJI O3 antenna Motor: NIN V2 1203PRO 4850Kv Weight: 139g **Recommended Battery:** Exploer 450mah 4S (flight time 5mins) Explorer 750mah 4S (flight time 6mins) CineRace 20 LED O3 Double duct design, New concept cinewhoop Sub250 | 4k 1080p | GM10 GPS V3 | Neno LED camera, you need to buy an adapter cable)





Real Duct design

This is a truly innovative duct design. It is designed to block certain winds, increasing the thrust of the drone. The duct completely surrounds the propeller, making flying safer.



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Super Compact Design

CineRace is double duct design , not a simple guard . It can fly as flexible as a racing drone, and as stable as Cinewhoop. Flywoo's classic compact design allows the CineRace20 and DJI O3 Air unit to be closely integrated.



Ultra-Light Weight Sub250

2 inch CineWhoop below 250g even if you connect with the battery, meet the current requested of FAA rules. It can fly as flexible as a racing drone, and as stable as Cinewhoop





Designing with a Focus on User Experience

Multiple careful designs, convenient for your daily use Easy to adjust flight controller settings Built-in SanDisk microSD 128GB Easy to upgrade and read SD card function



GOKU GM10 NANO GPS V3.0

Up to 30 satellites can be searched, making the rescue function more reliable. More assured flight, you can see the data of latitude and longitude, altitude, speed, distance



Race neon LED, Buzzer alarm

Allows you to control an LED light, turning it on or off as desired. It also offers a variety of color options, making it more fun to use during competitions or other events. (Changing the LED color requires soldering by yourself. If you can't solder, it is not recommended to try)



In the Box :

- 1 x CineRace20 HD DJI O3
- 8 x D51-5 props
- 2 x Battery strap 9x150mm \ 9x200mm
- 1 x Set of screws
- 1 x SanDisk Extreme microSD Card 128GB
- 1 x 90° USB Type-C



2/ Configuration and wiring diagram description



Flight control wiring diagram

PID and filter settings

Lighter battery 4S 450MAH / 4S 750MAH

	Proportional	Integral	D Max	Derivative	Feedforward
Basic/Acro			1	1 1	/
ROLL	99 \$	119 🌲	99 ‡	66 🜲	113 ‡
PITCH	109 💲	126 🌲	109 🌲	71 💲	120 ‡
YAW	108 💲	126 🌲	0 ‡	0 \$	113 ‡

Heavy battery 4S 900MAH or equipped with an action camera

	Proportional	Integral	D Max	Derivative	Feedforward
Basic/Acro		1 /	1	1	1
ROLL	85 🜲	102 💲	85 🤹	56 🤹	97 🌲
РІТСН	94 💲	108 💲	94 🜲	61 💲	103 韋
YAW	92 💲	108 🌲	0 💲	0 💲	97 🌲

Default serial port settings

Identifier	Configuration/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	115200 🗸		Disabled 🗸 AUTO 🗸	Disabled 🗸 🛛 AUTO 🖌	Disabled V AUTO V
UART1	115200 🗸		Disabled 🗸 AUTO 🗸	Disabled V AUTO V	Disabled V AUTO V
UART2	115200 ¥		Disabled V AUTO V	Disabled V AUTO V	Disabled V AUTO V
UART3	115200 🗸		Disabled V AUTO V	GPS V 115200 V	Disabled V AUTO V
UART4	115200 🗸		Disabled 🖌 AUTO 🗸	Disabled 🗸 🛛 AUTO 🖌	Disabled V AUTO V
UART5	115200 🗸		Disabled 🗸 AUTO 🗸	Disabled V AUTO V	Disabled V AUTO V
UART6	115200 🗸	0	Disabled 🗸 AUTO 🗸	Disabled V AUTO V	Disabled V AUTO V

UART1: ELRS/TBS/R9M/XM+/DSMX/SBUS receiver(Only open RX1)

UART2: NULL

UART3: GM10 NANO GPS (baud rate is 115200)

UART4: DJI O3 UNIT OSD

UART5: DJI O3 SBUS RX (Only use DJI remote control to turn on, and turn off RX1)

UART6: NULL

3/ Receiver binding

BNF DJI RX:

- 1/ Open the UART RX4 serial port
- 2/ Set SBUS receiver protocol
- 3/ The goggles set the SBUS standard protocol



https://www.youtube.com/watch?v=LkkEtJFXelw&t=88s&ab_channel=flywoofpv

TBS NANO 915:

When the USB is connected, the green light of the receiver flashes, and then bind according to the picture operation.



https://www.youtube.com/watch?v=-iNkVcOLITM&ab_channel=Danimal3D



ELRS 2.4G RX:

	Ports						-	
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Bind procedure:

- Supply power to the EL24E/EL24P rx, wait until the LED on the RX is off, immediately turn off the power, and then repeat again the above steps. When the RX is powered on for the third time, the LED light will start to double-flash, which means that the RX enters the binding mode

- Insert the 2.4G ELRS TX to Radio transmitter, and choose External RF mode to CRSF protocol, then you can find ELRS menu from the Radio systems(Need to copy the ELRS.LUA file to the SD-Card tools first), Enter into ELRS and press [Bind], the LED on the RX module will getting to be solid if bind successfully.

- Receiver LED status meanings:

EL24E/EL24P RX: LED solid means bind successful or Connection established; LED double-flash means in bind mode; LED flash slowly means no signal connection from the TX module; LED flash fast means in WIFI hotspot mode, you can connect the WIFI of the RX and upgrade firmware of the RX via visit 10.0.0.1 from the web browser(password: expresslrs)

Updating Firmware Tutorial via BETAFLIGHT

https://www.youtube.com/watch?v=yhPw_3ODHBw&t=5s&ab_channel=flywoofpv Notice

The ELRS version of the remote control and receiver must be consistent before they can be bound

1/ ELRS 2.X.X versions can be bound to each other

2/ ELRS 3.X.X versions must be consistent, for example, both must be version 3.0.0

XM+ receiver:

1/ Press the XM+ receiver button, USB power supply, the red and green lights are always on

2/ The remote control turns on the binding mode, the green light flashes to indicate successful binding, turn off and restart



Notice (Other open TX remotes)

Receiver 1.x firmware just select FrskyX D16 in the remote control Receiver 2.x firmware just select FrskyX2 D16 in the remote control

3-1/ Then set the corresponding serial port and receiver protocol to ensure the normal output of each channel of the receiver.

/ Setup	Receiver		
🕼 Ports			
Configuration	Please read receiver chapter	of the documentation. Configure serial port	(if required), receiver
D Power & Battery	when TX is off or out of rang	/range on TX so that all channels go from ~1 e. sad failsafe chapter of documentation and c	
🖗 Failsafe	Roll [A]	1500	
& PID Tuning	Pitch [E]	12:00	
12 - 1622	Yaw (R)	1500	
Receiver	Throttle [T]	885	15
Modes	AUX 1	1500	
	AUX 2	1350	(]
Adjustments	AUX 3	1500	
🖡 Servas	AUX 4	2000	
GP5	AUX 5	1500	- 1 L
e ora	AUX 6	#1E00	R
Motors	AUX 7	100	
OSD	AUX 8	1500	1
1.030	AUX 9	1E00	
Video Transmitter	AUX 10	E00	
LED Strip	AUX 11	00	
rep polip	AUX 12	1E00	
Tethered Logging			

4/ Goggle binding:

Use tweezers or a toothpick to press the O3 UNIT binding button, when the red light flashes, then press the goggles binding button to complete the binding. A video guide can be viewed



5/ Mode setting:

Set the ARM switch and flight mode switch, AUX* corresponds to the remote control switch, and the yellow area mark is turned on.



6/ Motor test:

Before installing the propeller, test the rotation direction of the motor, turn on the safety switch, and test the rotation of the motors one by one

× •									RESET	gyro ·
		1000							Refresh:	20 ma 9
Motor direction is reversed									Scale:	2000
5 6		-1008							×	0.24(-2.4)
		2008		-	-	-			¥.	0.241-1.22
T			-580	-00		30	100	136	7	-6.00(-2.61
		Voltage:	0.02 V	Amperage:	0.00 A	Amp. drawn:	0 mAh		RMS:	1.99
			2			Motors	5	7		
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er motors Motor direction										
otor Features		1000	1000	1000	1000					
T300 ESC/Motor protocol	Q.	Rt 0	R: 0	R: 0	R: 0					
MOTOR STOP Don't spin the motors when armed		£ 100,00%	E 100.00%	£ 100.0045	E 100.00%					
ESC_SENSOR Use KISS/BLHeI_32 ESC telemetry over a separate wire										
Bioirectional DSnot (requires supported ESC firmware)	Θ									
Motor poles (number of magnets on the motor bell)	0	1000	1000	1000	1000	1000	1000	1000	1000	Master
Moror (dla (W, static)	0				11.002.0	1000	1000000	1999	(17772)	
		Motor Test	Mode / Arm							
		Moving the								



7/ Install propeller

Install the propeller in the correct direction, otherwise you will not be able to fly and damage the device, and finally fix the propeller with M2*6 screws





- 8/ USB upgrade O3 UNIT and export DVR video (built-in 128G
- SD card)





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8/ Filter installation (optional purchase)



8/ Flight firmware upgrade and write default CLI

1/ Activate DFU mode

Target: FL/WCCF	ATTHENDTM325411		Mode Eirmware
2020-12-24 @ 21:59:32 Craft n. 2020-12-24 @ 21:59:32 Arminj 2020-12-24 @ 21:59:32 Arminj	g Disabled		
🎤 Setup	Setup		
	- Second		
Configuration	Calibrate Accelerometer	Place board or frame on leveled surface, proceed with calibration, ensure platform is not moving durin	g calibration period
	Calibrate Magnummeter	Move multirotor at least 360 degrees on all axis of rotation, you have 30 seconds to perform this task	
	Reset Settings	Restore settings to default	
	Backup Restore	Beckup your configuration in case of an accident, CLI settings are not included - use the command 'dif	f all' in CLI for this
📥 Receiver	Activate Boot Loader / DFU	Reboat into boot loader / DFU mode.	
🖀 Modes			(INPA)
11 Adjustments	Heading: 352 deg Pitch: 22.9 deg	Reset Z axis, offset: 0 deg	Info Arming Disable RX_
🖬 Servos	Roll: 100.7 deg		Rags:
A GP5			Battery voltage
			Capacity drawn:
🛔 Motors			Current draw: RSSI
📰 OSD			110,201
			GPS
			3D Fix:
			Sats:
			Latitude: Longitude:
📾 Tethered Logging			congrade:
Illi Blackbox			

2/ BF Configurator will display to enter DFU mode. If it does not enter DFU mode, it may be that the driver is not installed. The driver can be installed using IMPULSE RC software

C BETAFL	IGHT				光 ImpulseRC Driver Fixer	× v1
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Driver software:

https://impulserc.blob.core.windows.net/utilities/ImpulseRC_Driver_Fixer.exe

3/ Then load the local HEX firmware and wait for the flashing to complete. A green progress bar is displayed to indicate completion, and DFU will become a COM port

4/ Factory CLI settings https://flywoo.tawk.help/article/cinerace20-o3-cli-configuration