

## Features

Equipment with DJI O4 air unit and external FOV Extender
ND Filters ready
2S battery support Powerful and Smooth freestyle flying
UART ExpressLRS receiver support stable control link
Recommend use 2S 550Mah battery

## Specifications

Brand Name: HappyModel
Item Name: Mobula8 O4 2S 85mm Digital HD Micro FPV whoop
Wheelbase: 85mm
Size: 120mm*120mm*53mm
Weight: 50g

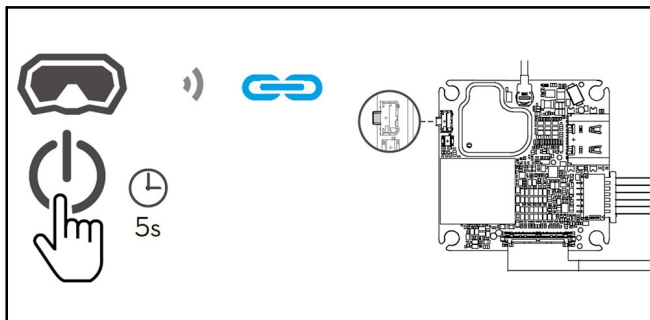
## Package Includes

Item Name	Qty
HappyModel Mobula8 Frame	1
CrazyF405HD ELRS flight controller firmware target: BETAFLIGHTF4	1
EX1103 KV11000 brushless motor	4
Gemfan Hurricane 2023 tri-blade propellers(4cw+4ccw)	1
DJI O4 Air unit	1
FOV Extender for O4 camera	1
Angle-adjustable Canopy	1
Screw driver	1

## LINKING GOGGLES AND O4 AIR UNIT

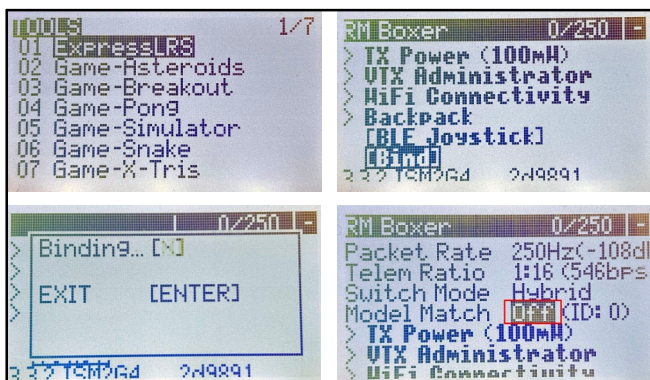
Make sure that all devices have been updated to the latest firmware versions before linking.

1. Power on the Mobula8 O4 by battery, then power on the goggles. Enter the goggles menu, select status, and click the upper right corner to select the product.
2. Make sure the linking status indicator of the air unit is red. Press the link button once, the linking status indicator blinks red. Press the link button on the goggles. The goggles will start to beep continually.
3. Once linking is successful, the linking status indicator of the air unit turns solid green. The goggles stop beeping and the live view will be displayed.



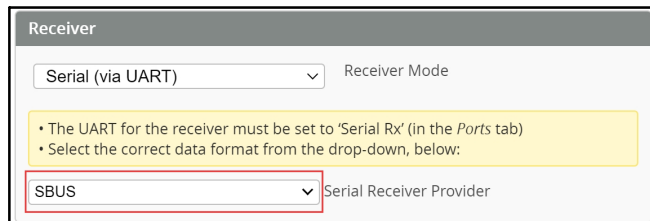
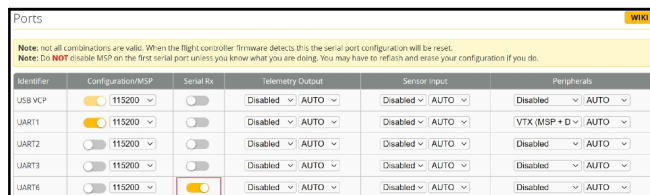
## BINDING PROCEDURE WITH EXPRESSLRS RADIO CONTROLLER:

- 1) Supply power to the flight controller by plug USB, wait until the Red LED on the Flight controller is off, immediately turn off the power, and then repeat again the above steps. When the Flight controller is powered on for the third time, the Red LED light will start to double-flash, which means that the RX enters the binding mode
- 2) Please make sure your ExpressLRS tx module firmware is v3.x.x. And go to ExpressLRS.lua from "TOOLS" menu of your radio transmitter. Then hit [Bind] to binding with the onboard ExpressLRS receiver. The Red LED should blinking slowly first then turn to solid, that means binding was successfully. If the red LED got triple blinking and no RX input from receiver tab, please change Model Match tab value from "off" to "on" or from "on" to "off", then change back to "off", that would working normal.



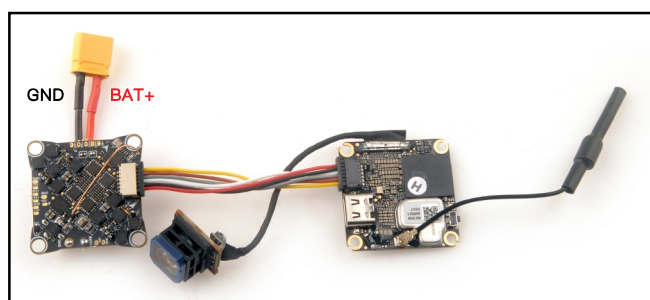
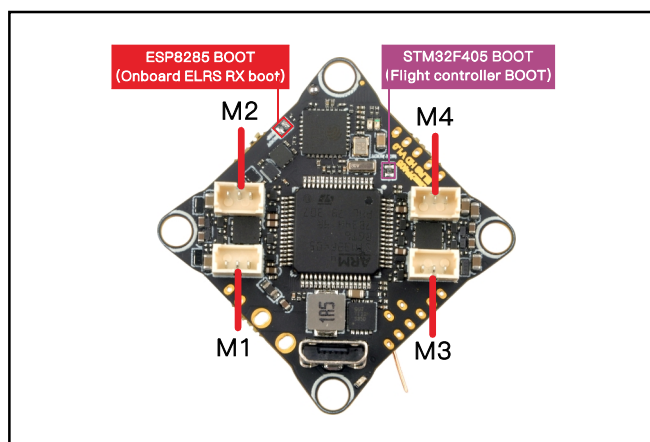
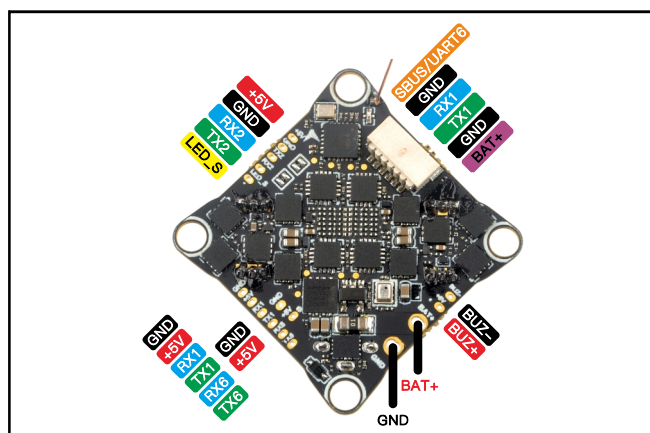
## BINDING PROCEDURE WITH DJI RADIO CONTROLLER:

1. Before binding with your DJI Radio controller, please first finish port tab and receiver tab settings like the following picture:

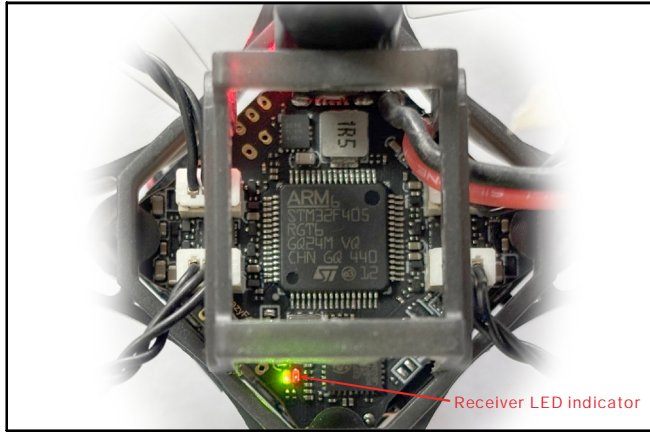


2. Activate the linking status on both the goggles and the remote controller. The goggles starts to beep continually. The remote controller starts to beep continually and the battery level LEDs blinks in sequence.
3. Once linking is successful, the goggles will stop beeping and display the live view, and the remote controller will stop beeping, and you can now check the receiver channel movement from receiver tab of Betaflight Configurator.

## FLIGHT CONTROLLER CONNECTION DIAGRAM



### RECEIVER LED INDICATOR INSTRUCTIONS



- Red LED Slow blink 500ms on/off: Waiting for connection from transmitter
- Red LED double blink then pause: Binding mode enabled
- Red LED solid on: Connected to a transmitter, or bootloader mode enabled
- Red LED Triple blink then pause: Connected to transmitter but mismatched model-match configuration
- Red LED Fast blinking 25ms on/off: WiFi mode enabled

### BOARD AND SENSOR ALIGNMENT

Board and Sensor Alignment

0 Roll Degrees

0 Pitch Degr...

0 Yaw Degrees

First

GYRO/ACCEL

CW 0°

First GYRO

Default

MAG Alignment

### MOTORS AND ESC SETTINGS

Mixer

QUAD X

Motor direction is reversed

4 2

3 1

reversed

Prop out

Mount 2023 propeller on #1 and #4 motors,

Mount 2023R propeller on #2 and #3 motors

Reorder motors

Motor direction

ESC/Motor Features

DSHOT300

ESC/Motor protocol

MOTOR\_STOP

Don't spin the motors when armed

ESC\_SENSOR

Use KISS/BLHeli\_32 ESC telemetry over a separate wire

Bidirectional DShot (requires supported ESC firmware)

5.5

Motor Idle ( %, static)

### VOLTAGE AND CURRENTS METER SETTINGS

Voltage Meter

110

Scale

Battery

0.6 V

10

Divider Value

1

Multiplier Value

Amperage Meter

470

Scale [1/10th mV/A]

Battery

0.00 A

0

Offset [mA]

### DEFAULT PID AND FILTER SETTINGS

	Proportional	Integral	D Max	Derivative	Feedforward
Basic/Acro					
ROLL	87	179	62	62	180
PITCH	82	169	71	71	168
YAW	87	179	0	0	180

Mode: RPY

Low

Default

High

Damping: D Gains

1.4

Tracking: P & I Gains

1.3

Stick Response: FF Gains

1

Dynamic Damping: D Max

0

Drift - Wobble: I Gains

1.15

Pitch Damping: Pitch:Roll D

1

Pitch Tracking: Pitch:Roll P, I & FF

0.9

Master Multiplier:

1.5

Angle/Horizon

Strength

Transition

Angle

50

Horizon

75

75

Angle Limit

60

Miscellaneous Settings

2S

Cell Count - for auto Profile switching

20

Acro Trainer Angle Limit

Integrated Yaw

0

Absolute Control

### ESC SETTINGS

Silabs ESC Setup

ESC overview

Motors

Make interfaces

ESC# 1 - Name

Bluejay

Z-H-30 for Multicopter Motors

BLHeli\_5 Revision: 0.19

Startup Power

0.50

Motor Direction

Normal

Temperature Protection

140

Demag Compensation

Low

Low RPM Power Protect

On

Motor Timing

MediumHigh

PPM Min Throttle

2020

PPM Max Throttle

2020

PPM Center Throttle

2020

Startup Beep Volume

40

Beacon Volume

80

Beacon Delay

3 minutes

Brake On Stop

Off

Read Setup

Write Setup

Flash BLHeli

Flash Other

Port: COM 3

Baud: 115200

Disconnect

Multiple ESC / Master#1

1 2 3 4

Found Multiple ESC: ESC#1;ESC#2;ESC#3;ESC#4;

### FLIGHT CONTROLLER FIRMWARE UPDATE

- 1.Install latest STM32 Virtual COM Port Driver  
<http://www.st.com/web/en/catalog/tools/PF257938>
- 2.Install STM BOOTLOAD Driver (STM Device in DFU MODE)
- 3.Open Betaflight configurator and choose firmware target "BetaflightF4", then select the firmware version.
- 4.There are 2 ways to get in DFU Mode: 1). solder the boot pad and then plug USB to computer 2).loading betafliht firmware and hit "flash", then it will getting into DFU Mode automatically.
- 5.Open Zadig tools to replace the drivers from STM32 Bootloader to WINUSB Driver.
- 6.Reconnect the flight controller to the computer after replace driver done , and open Betaflight Configurator, loading firmware and flash.

Firmware and diff download