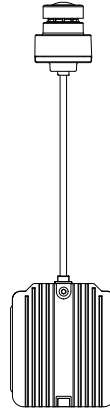
FPV AIR UNIT

Quick Start Guide
快速入门指南



v1.0

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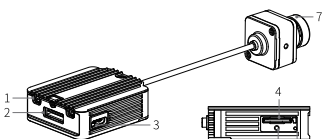
Introduction

The CADDXFPV Air Unit is an advanced video transmission module that supports a 5.8 GHz digital video signal and 720p 120fps image transmission, with a transmission range of up to 4 km and a minimum end-to-end latency within 28 ms*. The air unit can be mounted on a racing drone and used with DJI FPV Goggles or a remote controller to transmit video, control signals,and flight controller information wirelessly.

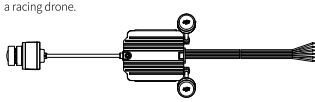


1. MMCX Antenna Ports
2. 3-in-1 Port
3. USB-C Port
4. microSD Card Slot
5. Link Button
6. Linking Status Indicator
7. Camera

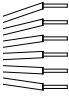
* The end-to-end latency is the total time from camera input to screen display. The device is able to reach its minimum latency and maximum transmission distance (FCC) in a wide open area with no electromagnetic interference.

Connection

Refer to the illustration below to mount and connect the air unit to a racing drone.



3-in-1 Cable (Power, DJI HDL, UART)



RED: Power (7.4-17.6 V)
BLACK: Power GND
WHITE: UART RX (Connects to Flight Controller OSD TX, 0-3.3 V)
GRAY: UART TX (Connects to Flight Controller OSD RX, 0-3.3 V)
BROWN: Signal GND
YELLOW: DJI HDL (Connects to Flight Controller S.Bus, 0-3.3 V)

- An electric soldering iron and soldering tin are required for connection. Make sure that there are no short circuits or open circuits when soldering the cables.
- There are up to eight channels for the air unit depending on the region (FCC: eight, CE/SRRC: four, MIC: three). Each channel has a bandwidth of 20 MHz. The public channel is 8, which is the default channel when the equipment is powered on. The channel can be changed manually to avoid interference from other devices.

- The air unit may become hot during or after operation. DO NOT touch the air unit before it cools down.
- DO NOT use the air unit for an extended period when the temperature is high or there is poor ventilation. Otherwise, the air unit may overheat and enter low-power mode which will affect its performance. If the air unit enters low-power mode, restart it or wait for it to cool down and it will automatically return to normal.
- Keep the antennas of the air unit at least 40 mm apart. Keep the air unit away from metal objects or carbon fiber frames.Make sure to choose a position where the transmission will not be blocked during flight.

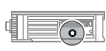
Activation

When powered on, connected the air unit to your computer and run DJI ASSISTANT™ 2 for activation.
Download DJI Assistant 2 at https://www.dji.com/fpv/downloads

Linking

The air unit support three linking methods: A, B, and A+B (Must link A before B).

A.



1. Power on the air unit and the DJI FPV Goggles.
2. Press the link button on the air unit and the goggles.*
3. The linking status indicator of the air unit turns solid green. The goggles stop beeping when successfully linked and the video display is normal.

B.

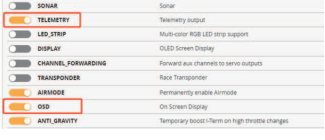
1. Power on the air unit and the DJI FPV Remote Controller.
2. Press the link button on the air unit, and then press the record button, C button, and right dial on the remote controller simultaneously.*
3. Both the linking status indicators turn solid green when successfully linked.

* When ready to link, the devices will give the following indication:
Air unit: the linking status indicator turns solid red.
Goggles: the goggles beep continually.
Remote controller: the remote controller beeps continually and the status indicator blinks blue.

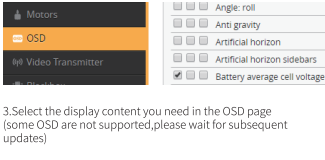
OSD display settings

Identifier	Configuration/MSP	Serial Rx	Telemetry Output
USB VCP	115200		Disabled AUTO
UART1	115200		Disabled AUTO
UART2	115200		Disabled AUTO
UART3	115200		SmartPort AUTO

1.After connecting the UART cable to the flight controller.
take the Betaflight flight controller software setting as an example.
Open the corresponding UART port and click save.



2.Select telemetered and OSD.click save.



3.Select the display content you need in the OSD page
(some OSD are not supported,please wait for subsequent updates)

Operating channel

Central frequency(MHz)	Channel1	Channel2	Channel3	Channel4	Channel5	Channel6	Channel7	Channel8
FCC	5660	5695	5735	5770	5805	5878	5914	5839
CE/SRRC	5735	5770	5805	-	-	-	-	5839
MIC	5660	5700	-	-	-	-	-	5745

Make sure you fully understand and abide by local laws and regulations before using this product.An amateur radio license may be needed in FCC regions when using channels 1,2,6,or 7, as they are amateur frequency bands.Users who use the amateur frequency bands with a modified or cracked version or without a license may be punished for breaking local laws or regulations.

Specifications

Weight	Air Unit (camera included): 41.6 g Antenna: 3.74 g (MMCX straight); 3.9 g (MMCX elbow); 6 g (reverse polarity female SMA)
Dimensions	Air Unit: 44×37.8×14.4 mm Camera: 20.7×19×19 mm Coaxial Cable: 100 mm
Operating Frequency	5.725-5.850 GHz
Transmitter Power (EIRP)	FCC/SRRC: <30 dBm; CE: <14 dBm
Min. Latency (end-to-end)	Low Latency Mode (720p 120fps): <28 ms; High Quality Mode (720p 60fps): <40 ms
Max. Transmission Distance	FCC/SRRC: 4 km; CE: 0.7 km;
Video Format	MP4 (Video format: H.264; Audio format: AAC-LC)
I/O Interface	USB-C, MMCX, 3-in-1 port, microSD card slot
Supported Flight Control System	BetaFlight
Operating Temperature Range	0° to 40° C (32° to 104° F)
Input Power	7.4-17.6 V
Camera	Sensor: 1/3.2" CMOS; Effective Pixels: 4 M Lens: 2.1 mm, f/2.1 Shutter: Rolling shutter ISO: 100-25600 FOV: 150° (D); 122° (H); 93° (V)

CHS

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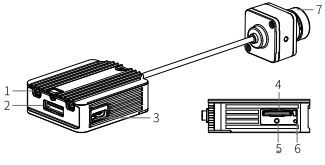
简介

AIR UNIT 天空端是一款一体化高清图传设备，支持 5.8 GHz 数字信号以及 720p 120fps 图传画面，端到端延时低至 28 ms 以内，传输距离可达 4 km*。可安装于穿越机或其他设备上与 DJI FPV 飞行眼镜或遥控器配合使用，通过无线通信传输视频图像、飞控系统信息以及地面端控制信号。

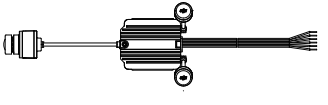


1. MMCX 天线接口
2. 三合一接口
3. USB-C 接口
4. microSD 卡槽。
5. 对频按键
6. 对频状态指示灯
7. 相机

* 端到端延时为从相机采集到屏幕显示的总延时。在开阔无遮挡、无电磁干扰的环境使用，设备可以达到最低延时和最大传输距离（FCC 标准）。

安装连线

参照下图连线并将各模块固定于飞行器或其他设备上。



三合一连接线（电源，DJI HDL，UART）

红：电源（7.4-17.6 V ）
黑：电源 GND
白：UART_RX（ 接飞控 OSD TX ， 0-3.3 V ）
灰：UART_TX（ 接飞控 OSD RX ， 0-3.3 V ）
棕：信号 GND
黄：DJI HDL（ 接飞控 S.Bus ，0-3.3 V ）

- 用户需自备电烙铁和焊锡进行连线。焊接时确保焊点牢固且不会出现短路或开路。
- 天空端最多支持 8 个带宽为 20 MHz 的频道（ 根据地区有所不同，FCC ： 8 个，CE/SRRC ： 4 个，MIC ： 3 个 ）。其中 8 号频道为公共频道，设备开启后会先进入该频道，用户可手动选择其他工作频道以避免设备间的干扰。

- 本产品发热较大，请勿在无外部散热的条件下直接触摸天空端。
- 请避免在环境温度较高且不通风的情况下长时间使用天空端，否则产品温度过高将进入低功耗模式，性能会受到影响。
- 安装天空端天线时注意两根天线尽量分离，二者端头圆柱体部分至少间隔 40mm，以达到最佳通信效果；同时尽量远离金属 / 碳纤维结构件，并确保飞行中天线不会被遮挡。

激活

天空端需在供电状态下连接至电脑并运行 DJI ASSISTANT ™ 2 调参软件进行激活。
（ 调参软件下载地址: https://www.dji.com/fpv/downloads）

对频

天空端支持 A、B 以及 A+B （ 先 A 后 B ）三种对频方式。

A.

1. 开启天空端及飞行眼镜。
2. 分别按下天空端及飞行眼镜的对频按键。*
3. 对频成功后，天空端对频状态指示灯绿灯常亮，飞行眼镜提示音停止并显示图传。

B.

1. 开启天空端及遥控器。
2. 先按下天空端的对频按键，再同时按下遥控器的录像按键、自定义按键 C 和右拨轮 。*
3. 对频成功后，天空端和遥控器的对频状态指示灯均绿灯常亮。

* 等待对频时：
天空端 —— 对频状态指示灯红灯常亮
飞行眼镜 —— 响起嘀 - 嘀 ··· 的提示音
遥控器 —— 响起嘀 - 嘀 ··· 的提示音，且状态指示灯蓝色闪烁

OSD显示设置

1、在连接好UART线到飞控后，以Betaflight调参软件设置为例，打开相对应的UART端口，点击保存

2、勾选遥测输出与OSD，点击保存

3、最后在OSD页面内勾选自己所需要的遥测信息（部分OSD不支持，请等待后续更新）

工作频段

中心频率(MHz)	频道1	频道2	频道3	频道4	频道5	频道6	频道7	频道8
FCC	5660	5695	5735	5770	5805	5878	5914	5839
CE/SRRC	5735	5770	5805	-	-	-	-	5839
MIC	5660	5700	-	-	-	-	-	5745

使用本产品时需要充分了解并尊重当地的法律法规，避免违规使用。在FCC地区，使用频道1/2/6/7（业余无线电频段）时，需要持有业余无线电执照才能操作，如果无执照使用业余无线电频段或者通过改装、破解等手段迫使设备工作在该频段可能会由于违规当地法规而遭受到处罚。

产品规格

重量	天空端（含相机）：41.6 g 天线：3.74 g （ MMCX 直头）； 3.9 g （ MMCX 弯头）； 6 g （ SMA 反极性母头）
外形尺寸	天空端：44 × 37.8 × 14.4 mm 相机：20.7 × 19 × 19mm 同轴线：100 mm
通信频率	5.725-5.850 GHz
发射功率（ EIRP ）	FCC/SRRC ： <30 dBm ； CE ： <14 dBm
端到端最低延时	低延迟模式 (720p 120fps) ： < 28ms 高画质模式 (720p 60fps) ： < 40ms
最大传输距离	FCC/SRRC ： 4 km；CE ： 0.7 km；
录像格式	MP4（ 视频格式：H.264 ， ； 音频格式：AAC-LC ）
接口	USB-C ， MMCX ， 三合一， microSD 卡槽
支持飞控系统	BetaFlight
工作环境温度	0℃至 40℃
输入电源	7.4-17.6 V
相机	影像传感器：1/3.2 英寸 CMOS ， 有效像素 400 万 镜头：2.1 mm ，光圈 f/2.1 快门：卷帘快门 ISO ：100-25600 FOV ：150° (D) ；122° (H) ；93° (V)

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