

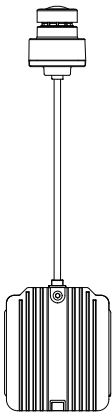
# FPV AIR UNIT

Quick Start Guide

快速入门指南

Caddx air unit

Polar air unit kit



## Contents

EN	Quick Start Guide	2
	Camera parameters	5
CHS	快速入门指南	7
	相机参数	10

## Disclaimer

Congratulations on purchasing your new CADDXFPV product. The information in this document affects your safety and your legal rights and responsibilities. Read this entire document carefully to ensure proper configuration before use. Failure to read and follow instructions and warnings in this document may result in serious injury to yourself or others, damage to your CADDXFPV product, or damage to other objects in the vicinity. This document and all other collateral documents are subject to change at the sole discretion of CADDXFPV. Visit [www.caddxfpv.com](http://www.caddxfpv.com) for the latest information for this product.

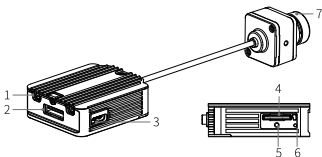
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Notwithstanding the above, your statutory rights under applicable national legislation are not affected by this disclaimer.

## 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.



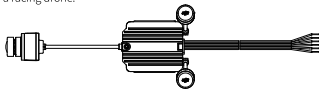
- 1. MMCX Antenna Ports
- 2. 3-in-1 Port
- 3. USB-C Port
- 4. microSD Card Slot

- 5. Link Button
- 6. Linking Status Indicator
- 7. Camera

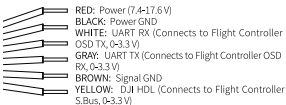
\* The end-to-end latency is the total time from camera input to screen display. The device is able to reach its minimum latency and maximum transmission distance (FCC) in a wide open area with no electromagnetic interference.

## 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)



- 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	<input checked="" type="checkbox"/> 115200 ▾	<input type="checkbox"/>	Disabled ▾ AUTO ▾
UART1	<input type="checkbox"/> 115200 ▾	<input checked="" type="checkbox"/>	Disabled ▾ AUTO ▾
UART2	<input checked="" type="checkbox"/> 115200 ▾	<input type="checkbox"/>	Disabled ▾ AUTO ▾
UART3	<input type="checkbox"/> 115200 ▾	<input type="checkbox"/>	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.

<input checked="" type="checkbox"/> <b>TELEMETRY</b>	Telemetry output
<input type="checkbox"/> <b>LED_STRIP</b>	Multi-color RGB LED strip support
<input type="checkbox"/> <b>DISPLAY</b>	OLED Screen Display
<input type="checkbox"/> <b>CHANNEL_FORWARDING</b>	Forward aux channels to servo outputs
<input type="checkbox"/> <b>TRANSPONDER</b>	Race Transponder
<input checked="" type="checkbox"/> <b>AIRMODE</b>	Permanently enable Airmode
<input checked="" type="checkbox"/> <b>OSD</b>	On Screen Display

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)

Player	Camera >	Display
Audience	Display >	Framing Lines
Playback	Low Battery Warning Off	Custom OSD On
Settings	Transmission >	
	Recording Settings >	
	Remote Controller >	
	PID Tuning >	
	AV-IN >	
	Format SD Card >	

4. Select Settings-Display-Custom OSD ON in DJI FPV Goggle

## 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(Cam not included): 31 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 Coaxial Cable: 110 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 parameters

Model	Caddx cam
Weight	8g
Dimensions	20.7×19×19mm
Image ratio	16 : 9/4 : 3
Min.Latency	720p 120fps < 28ms 720p 60fps < 32ms
Sensor	1/3.2" CMOS Shutter: Rolling shutter Iso: 100-25600
FOV	150° (D);122° (H);93° (V)

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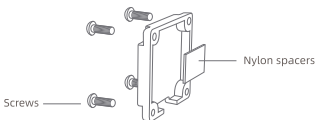
Model	Polar cam
Weight	9 g
Dimensions	24×19×19 mm
Image ratio	16 : 9
Min.Latency	720p 60fps < 32ms

Sensor	1/1.8" CMOS Aperture: F/1.6 Shutter: Rolling shutter Iso: 100-25600 Min. Illumination: 0.00003Lux
FOV	162°(D);138°(H);75°(V)

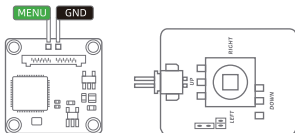
## Menu board

Polar camera supports menu board adjustment, this function needs self-soldering, please be CAREFUL not to damage the camera structure during welding.

- 1: Remove the screws of the back cover.  
Remove the nylon spacers.



- 2: Solder the menu wire and the gnd wire.  
Install the back cover. Connect the OSD menu board.



### 1. Left/Right button

Control the increase or decrease of saturation.

### 2. Up/Down button

Control the increase or decrease of brightness.

### 3. Middle button

Short press to save, long press for 3 seconds to restore factory settings.

\* Menu board needs to be purchased separately

## 免责声明

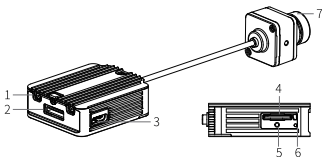
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## 简介

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。



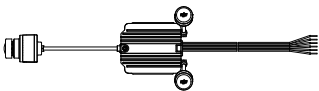
- |                |            |
|----------------|------------|
| 1. MMCX 天线接口   | 5. 对频按键    |
| 2. 三合一接口       | 6. 对频状态指示灯 |
| 3. USB-C 接口    | 7. 相机      |
| 4. microSD 卡槽。 |            |

\* 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）。

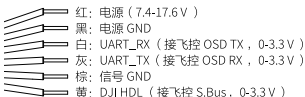


## 安装连线

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）



- ⚠ 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.



- 开启天空端及飞行眼镜。
- 分别按下天空端及飞行眼镜的对频按键。\*
- 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

接口	设置/MSP	串行数字接收机	遥测输出
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	已禁用 AUTO
UART1	<input type="checkbox"/> 115200	<input type="checkbox"/>	已禁用 AUTO
UART3	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	已禁用 AUTO
UART6	<input type="checkbox"/> 115200	<input type="checkbox"/>	已禁用 AUTO

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

<input checked="" type="checkbox"/> TELEMETRY	遥测输出
<input type="checkbox"/> LED_STRIP	彩色 RGB LED灯带
<input type="checkbox"/> DISPLAY	OLED 显示屏
<input type="checkbox"/> CHANNEL_FORWARDING	转发 Aux 通道信号到舵机输出
<input type="checkbox"/> TRANSPONDER	比赛应答器
<input type="checkbox"/> AIRMODE	永久启用 Airmode
<input checked="" type="checkbox"/> OSD	OSD

2、勾选遥测输出与OSD,点击保存

<input checked="" type="checkbox"/> 电机	<input checked="" type="checkbox"/> 电池平均单芯电压
<input checked="" type="checkbox"/> OSD 屏幕叠加显示	<input type="checkbox"/> 电池使用情况
<input type="checkbox"/> 图传(VTX)	<input type="checkbox"/> 电池已消耗毫安数
	<input type="checkbox"/> 电调温度

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)

选手	相机 >	屏幕
观众	显示 >	辅助线
回放	低电量警报 关	自定义OSD 开
设置	图传 >	
	录像设置 >	
	遥控器设置 >	
	PID调参 >	
	AV-IN >	
	格式化SD卡 >	

4、在DJI FPV Goggle中选择-设置-显示-自定义OSD 开启

## 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到处罚。

## 产品规格

重量	天空端(不含相机): 31g 天线: 3.74g (MMCX 直头); 3.9g (MMCX 弯头); 6g (SMA 反极性母头)
外形尺寸	天空端: 44 × 37.8 × 14.4 mm 同轴线: 110 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

## 相机参数

型号	Caddx cam
重量	8g
外形尺寸	20.7×19×19mm
图像比例	16 : 9/4 : 3
延迟	720p 120fps < 28ms 720p 60fps < 32ms
传感器	1/3.2" CMOS 快门: 卷帘快门 Iso: 100-25600
视场角	150° (D);122° (H);93° (V)

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型号	Polar cam
重量	9g
外形尺寸	24×19×19 mm
图像比例	16 : 9
延迟	720p 60fps < 32ms

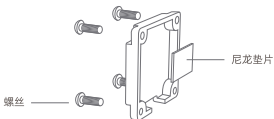
传感器	1/1.8" CMOS 光圈: F/1.6 快门: 卷帘快门 Iso: 100-25600 最低照度: 0.00003Lux
视场角	162°(D);138°(H);75°(V)

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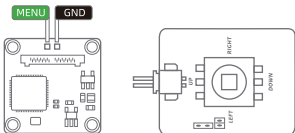
## 菜单板

polar相机支持菜单板调节，此功能需要自行焊接，焊接与拆解有风险，请知悉

1: 卸下后盖螺丝 - 取下尼龙垫片



2: 焊接menu与gnd线 - 安装后盖 - 连接OSD菜单板进行设置



1. 左/右 按键

控制饱和度的增加或减少。

2. 上/下 按键

控制亮度的增加或减少。

3. 中间 按键

短按可保存，长按3秒可恢复出厂设置。

\* 菜单板需要单独购买

CADDXFPV Support  
CADDXFPV 技术支持  
Email:Support@caddxfpv.com



Caddxfpv official website

This content is subject to change.

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