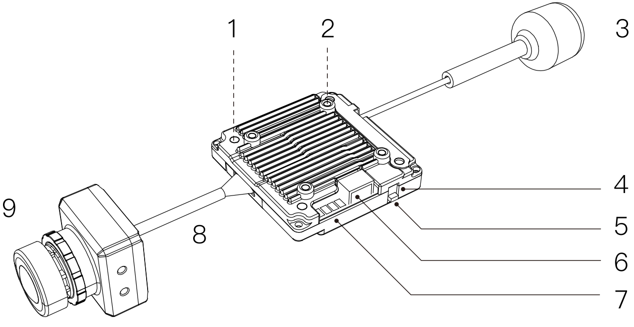
AVATAR V2 KIT

QUICKSTART GUIDE

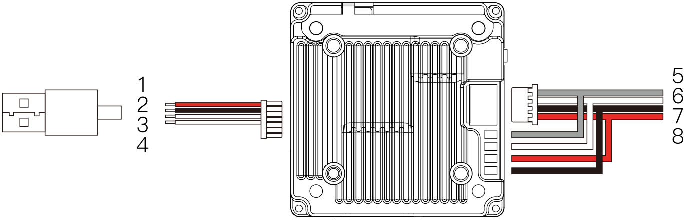
V1.0

Introduction



1、25×25mm Holes
2、20×20mm Holes
3、Antenna
4、LED Indicator
5、Link Button
6、Power Port
7、Power Pad
8、Coaxial Cable
9、Camera

Connection

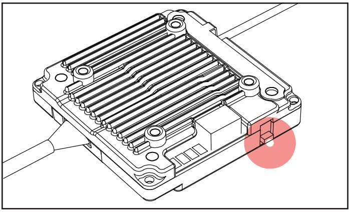


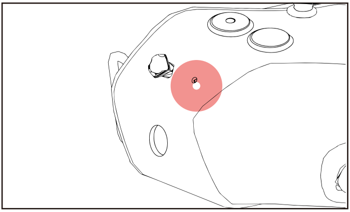
🟥 1、USB–5V
⬛ 2、USB–GND
⬜ 3、USB–DM
⬜ 4、USB–DP

▨ 5、Uart TX (Connects to Flight Controller RX)
⬜ 6、Uart RX (Connects to Flight Controller TX)
⬛ 7、GND
🟥 8、Power Input 6V~25.2V*

* When use 6s batteries,
it is recommended to solder capacitors at the power input.

Linking





1. Connect the VTX and the power of the goggles.
2. Short press the VTX and goggles linking buttons respectively (as shown in the picture), when the VTX enters the pairing state The indicator light turns red, and the goggles end is a DI... DI... DI...
3. After the link is successful, the indicator light on the VTX turns solid green, the beeping sound on the goggles stops and the screen is displayed.

Upgrade

Please go to the official website to download the upgrade firmware, Avatar_Sky_X.X.X.img is the VTX file, Copy to VTX U disk (VTX needs power supply), be careful not to change the file name.

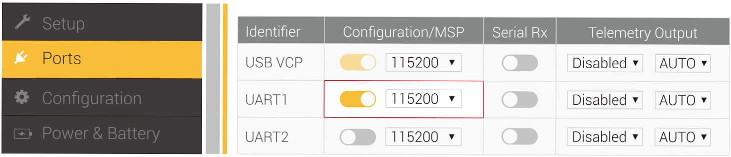
1. Copy the upgrade file to the root directory of the VTX U disk, connect the power supply and wait for the device to start up (if there are old firmware files, please delete them).

2. Press and hold the VTX linking button for 8 seconds, and release the button after the indicator light goes out. At this time, the VTX will automatically restart and enter the upgrade state, and the indicator light will change from blinking red to solid red and then turn off. The upgrade time is about 20 seconds, please do not power off during the upgrade process! (If the VTX continues to light up red, it means that the firmware cannot be detected or the firmware is wrong, please check the firmware file)
3. After the upgrade is successful, the VTX indicator turns green and blinks.

UART

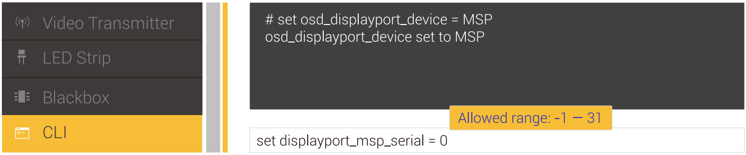
The UART function enables the VTX communicate with the flight controller, allowing the VTX obtain the flight controller information. Take Betaflight Configurator as an example to introduce the UART setting method.

1. Solder the white and gray wires of the 4 pin cable to the flight controller (refer to the Connection page).



Identifier	Configuration/MSP	Serial Rx	Telemetry Output
USB VCP	● 115200 ▾	○	Disabled ▾ AUTO ▾
UART1	● 115200 ▾	○	Disabled ▾ AUTO ▾
UART2	○ 115200 ▾	○	Disabled ▾ AUTO ▾

2. Connect the flight controller to the Betaflight Configurator, and open the corresponding UART port (Take UART1 as an example in the figure) Check the MSP switch and click Save.

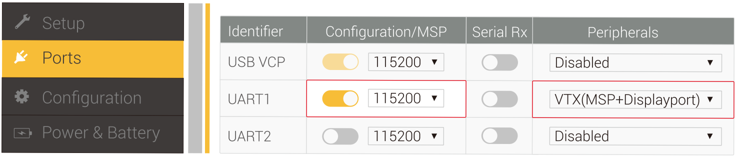


```
# set osd_displayport_device = MSP
osd_displayport_device set to MSP
```

```
set displayport_msp_serial = 0
```

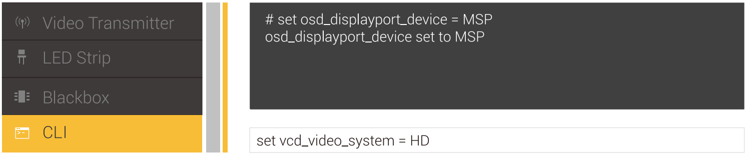
3. Open the CLI command line and enter the content in red font
“set osd_displayport_device = MSP”
“set displayport_msp_serial = Y” (Where Y is one less than the number of the serial port. e.g. Y = 2 for serial 3)
“save”

Betaflight 4.4 version settings：



Identifier	Configuration/MSP		Serial Rx	Peripherals
USB VCP	●	115200 ▾	○	Disabled ▾
UART1	●	115200 ▾	○	VTX(MSP+Displayport) ▾
UART2	○	115200 ▾	○	Disabled ▾

1.Open the corresponding uart port (Take uart1 as an example in the figure) Check the MSP switch and click Save, Check the VTX (MSP+Displayport)。



```
# set osd_displayport_device = MSP
osd_displayport_device set to MSP
```

```
set vcd_video_system = HD
```

3. Open the CLI command line and enter the content in red font,
“set osd_displayport_device = MSP”
“set vcd_video_system = HD”
“save”

Status indication

Goggles Buzzer Status	
Link state	DI....DI....DI....
upgrade firmware	DI......DI......DI...... DI——
Upgrade failed	DI..DI..DI..
VTX Indicator Status	
Link state	Steady red light
upgrade firmware	Red light rapidly flashes
Wireless connection, image output is normal	Steady green light
Wireless not connected	green light rapidly flashes
Wireless connection is normal, but the image is abnormal	green light slowly flashes

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 1,2,6or 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.

Precautions

1. Before powering on, please install all antennas to avoid damage to components.
2. When the standby mode is turned on, the power is limited to 10mW. Before taking off, you need to unlock the flight control or turn off the standby mode.
3. If you use it with other 5.8GHz devices at the same time, please choose a different channel.
4. If you use the Gyroflow function of the camera, please provide shock absorption for the fixed deck of the camera to avoid the failure of the anti-shake.

VTX Specification

Model	Avatar V2 module
Communication Frequency	5.725-5.850 GHz
Transmitter Power (EIRP)	FCC: <30dBm; CE: <14dBm; SRRC: <20dBm; MIC: <25dBm
I/O Interface	JST1.0*4(power cable)JST0.8*6(USB)
Mounting Holes	25.5*25.5mm; 20*20mm
Dimensions	33*33*10.5mm
Storage	8G/32G
Recording	1080p/720p
Weight	17.6g
Operating Temperature	-20-40℃
Channels	8

Wide Power Input	6V–25.2V
Supported FC System	Betaflight; Inav; Fettec; Kiss; ArduPilot
OSD	Canvas mode
Latency	Average delay 22ms
Antenna	1(IPEX)

Camera parameters

Model	Avatar HD V2 camera
Image Sensor	1/3.2–Inch 4Mp 4:3 sensor
Resolution	1080P/60fps; 720P/100fps; 720P/60fps
Ratio	4/3 16/9
Lens	2.1mm
FOV	160°
Aperture	F2.0
Shutter	Rolling shutter
Weight	7.2g
Dimensions	19*19*22mm
Coaxial Cable	140mm

Model	Avatar HD pro camera
Image Sensor	1/1.8–Inch sony starvis2 sensor
Resolution	1080P/60fps; 720P/100fps; 720P/60fps
Ratio	4/3 16/9
Lens	8Mp
FOV	160°
Aperture	F1.6
Shutter	Rolling shutter
Weight	9.5g
Dimensions	19*19*24mm
Min.Illumination	0.0001Lux
Coaxial Cable	140mm

VTX Antenna

Model	Avatar V2 antenna
Polarization	LHCP
Frequency range	5600MHz–6000MHz
Average Gain	1.9dBi
VSWR	⩽1.5
Interface	IPEX–1
Dimension	R15 X 45mm (without cable)

Weight	2g

CADDXFPV Support
email: support@caddxfpv.com

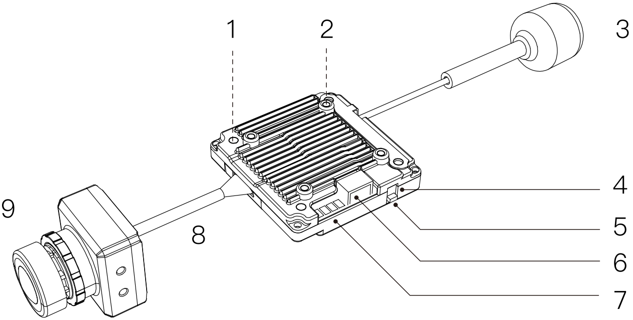
This content is subject to change.Download the latest version from https://www.caddxfpv.com

AVATAR V2 KIT

快速入门指南

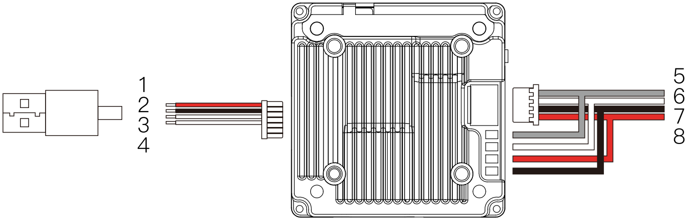
V1.0

简介



1、25×25mm安装孔	4、LED指示灯	7、电源焊盘
2、20×20mm安装孔	5、对频键	8、同轴线缆
3、天线	6、电源端口	9、相机

接线

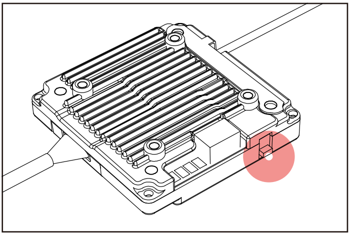


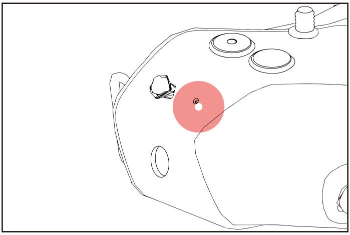
🟥 1、USB-5V
⬛ 2、USB-GND
⬜ 3、USB-DM
⬜ 4、USB-DP

▨ 5、Uart TX (接飞控Uart RX)
⬜ 6、Uart RX (接飞控Uart TX)
⬛ 7、GND
🟥 8、电源输入6V~25.2V*

*使用6s电池建议在电源输入端焊接电容

对频





1. 连接天空端和眼镜端电源。
2. 等待设备启机后，分别短按天空端和眼镜端对频按钮，当进入配对状态时，天空端指示灯变为红色，眼镜端发出滴... 滴... 滴...蜂鸣器提示。
3. 对频成功后，天空端指示灯变为绿色常亮，眼镜端蜂鸣器停止并显示图传画面。

升级

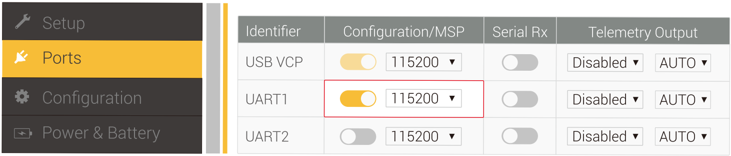
请到官网下载最新升级固件，Avatar_Sky_X.X.X.img 对应天空端升级固件，拷贝到天空端U盘中 (天空端需供电)，注意请勿修改文件名。

1. 将升级文件复制到天空端U盘的根目录下，连接电源等待设备开机（如果有旧固件文件请删除）。
2. 长按天空端对频按键 8 秒，等指示灯熄灭后松开按键，天空端自动重启进入升级状态，指示灯从红色闪烁变为红色常亮然后再熄灭。升级时间大约为20秒，升级过程中请勿断电！（如天空端持续常亮红灯，表示检测不到固件或固件错误，请检查固件文件）
3. 升级成功后，天空端指示灯变为绿色闪烁。

UART

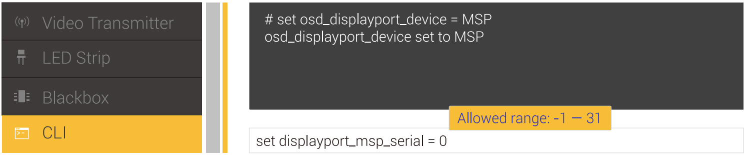
UART功能可以使图传与飞控进行通信，获取飞控OSD等信息。以Betaflight Configurator为例介绍UART设置方法。

1.将4Pin电源线白线和灰线焊接到飞控Uart串口（参考连接页面），这里以Uart 1串口为例。



Identifier	Configuration/MSP		Serial Rx	Telemetry Output	
USB VCP	●	115200 ▾	○	Disabled ▾	AUTO ▾
UART1	●	115200 ▾	○	Disabled ▾	AUTO ▾
UART2	○	115200 ▾	○	Disabled ▾	AUTO ▾

2. 将飞控连接到Betaflight Configurator，打开对应的UART接口，勾选MSP开关，点击保存。

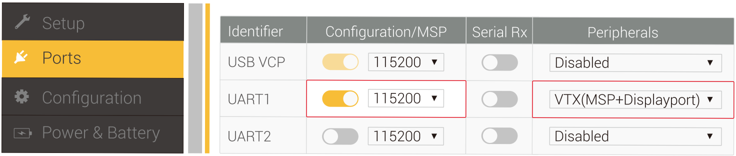


```
# set osd_displayport_device = MSP
osd_displayport_device set to MSP
```

```
set displayport_msp_serial = 0
```

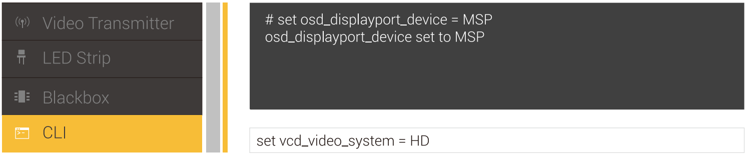
3. 打开CLI命令行，输入红色字体内容，
“set osd_displayport_device = MSP”
“set displayport_msp_serial = Y”(其中 Y 比使用串口数小一位，例如 Y = 0 对应Uart 1，Y = 2 对应Uart 3以此类推)
“save”

Betaflight 4.4 版本设置：



Identifier	Configuration/MSP	Serial Rx	Peripherals
USB VCP	● 115200 ▼	○	Disabled ▼
UART1	● 115200 ▼	○	VTX(MSP+Displayport) ▼
UART2	○ 115200 ▼	○	Disabled ▼

1.打开对应的UART接口，勾选MSP开关，勾选VTX (MSP+Displayport)。



```
# set osd_displayport_device = MSP
osd_displayport_device set to MSP
```

```
set vcd_video_system = HD
```

3. 打开CLI命令行，输入红色字体内容，
  “set osd_displayport_device = MSP”
  “set vcd_video_system = HD”
  “save”

状态指示

眼镜端蜂鸣器状态	
对频状态	滴....滴....滴....
升级固件	滴......滴......滴...... 滴——
升级失败	滴..滴..滴..
VTX 指示灯状态	
对频状态	红灯常亮
升级固件	红灯快速闪烁
无线连接，图像输出正常	绿灯常亮
无线未连接	绿灯快速闪烁
无线连接正常，但图像异常	绿灯慢闪

工作频道

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

使用本产品前，请确保您充分了解并遵守当地法律法规。 在 FCC 地区使用 1、2、6 或 7 频道时可能需要业余无线电许可证，因为它们是业余频段。 使用修改或破解版本或未经许可使用业余频段的用户可能会因违反当地法律或法规而受到处罚。

注意事项

1、通电前请安装好所有天线，避免元器件损坏。
2、待机模式开启时功率受限10mW，起飞前需解锁飞控或关闭待机模式。
3、如果您同时与其他5.8GHz设备一起使用，请选择不同频道。
4、如果您使用相机陀螺仪功能，请给相机固定平台做减震，避免防抖失效。

VTX 规格

型号	Avatar V2 module
通信频率	5.725–5.850 GHz
发射功率 (EIRP)	FCC: <30dBm; CE: <14dBm; SRRC: <20dBm; MIC: <25dBm
接口	JST1.0*4(电源线)JST0.8*6(USB)
安装孔距	25.5*25.5mm; 20*20mm
外形尺寸	33*33*10.5mm
内置存储	8G/32G
录制规格	1080p/720p
重量	17.6g
工作环境温度	–20–40℃
频点数量	8
宽电源输入	6V–25.2V
支持飞控系统	Betaflight; Inav; Fettec; Kiss; ArduPilot
OSD	Canvas mode
端到端延时	平均延时 22ms
天线	1(IPEX)

相机规格

型号	Avatar HD V2 camera
图像传感器	1/3.2-Inch 4Mp 4:3 sensor
分辨率	1080P/60fps; 720P/100fps; 720P/60fps
比例	4/3 16/9
镜头	2.1mm
FOV	160°
光圈	F2.0
快门	卷帘快门
重量	7.2g
外形尺寸	19*19*22mm
同轴线	140mm

型号	Avatar HD pro camera
图像传感器	1/1.8-Inch sony starvis2 sensor
分辨率	1080P/60fps; 720P/100fps; 720P/60fps
比例	4/3 16/9
镜头	8Mp
FOV	160°
光圈	F1.6
快门	卷帘快门
重量	9.5g
外形尺寸	19*19*24mm
最低照度	0.0001Lux
同轴线	140mm

VTX 天线

型号	Avatar V2 antenna
极化方向	LHCP
工作带宽	5600MHz-6000MHz
平均增益	1.9dBi
输入阻抗	50Ω
驻波比	＜1.5
接口	IPEX-1
外形尺寸	R15 X 45mm （不含线）
重量	2g

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