

ASCENT VRX PRO

Quick Start Guide

V1.4



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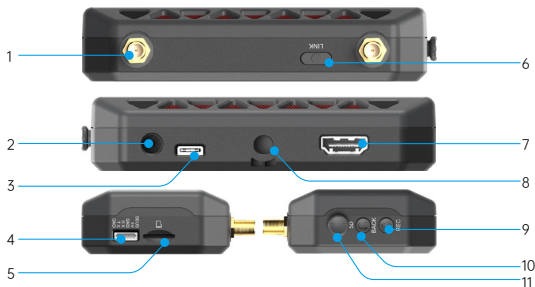
Product Usage Precautions

To deliver an optimal user experience and guarantee stable, safe operation of the device, we recommend that you thoroughly read the following provisions prior to initial use:

1. Prior to operating this product, ensure you fully understand and abide by local laws and regulations. Users who utilize modified, cracked firmware versions, or operate amateur frequency bands without official authorization may face penalties for violating applicable local legal provisions.
2. This product demands professional operational proficiency. Operators must possess fundamental handling capabilities and safety awareness, and conduct all operations in strict compliance with relevant safety regulations.
3. When standby mode is activated and the aircraft remains disarmed, the transmit power of both the VTX and VRX shall be capped at 110 mW.
4. The VRX supports a maximum of 3 channels, with configurable bandwidth options of 5 MHz, 10 MHz or 20 MHz for each individual channel.
5. To maintain consistent and reliable device performance, users are advised to upgrade both the VTX and VRX to the latest official firmware upon first deployment.

Product Overview

The Walksnail Ascent VRX Pro is a high-definition digital video receiver launched under the CADDXFPV brand. Equipped with dual circularly polarized antennas, it delivers a maximum transmission range of 8km, supports 1080P/120fps high-definition decoding, and achieves end-to-end latency as low as 35ms. It is compatible with all display devices featuring HDMI IN ports, and works with mainstream flight control systems including Betaflight and INAV. Built-in Micro SD card recording functionality enables deployment across FPV drones, fixed-wing aircraft, RC cars and other remote-controlled platforms.



1. Antenna base	5. SD card slot	9. Record button
2. Power supply ^[1]	6. Link button	10. Back button ^[2]
3. USB-C Interface	7. HDMI out	11. 5D button
4. Passthrough Interface	8. 1/4 thread mouth	

^[1] DC 5.5*2.1mm, Input Voltage range 7.4–25.2V.

Connection



Operating Channel



Link button

Short press to enter binding mode; press and hold for 8 seconds to enter firmware upgrade mode.



5D button

Navigate menu selection frames via up/down/left/right directional inputs; short press the center key to confirm or cancel selections.



Back button

Short press to return to the previous menu or active mode; press and hold for 8 seconds to reset HDMI output to 720P 60fps.



Record button

Press to start or stop video recording

Packing

1.Ascent VRX Pro	x1
2.Red Bird Pro Antenna	x2
3.HDMI Cable	x1
4.1/2 DC Power Adapter Cable	x1
5.3M Double-Sided Tape	x1
6.Quick Reference Card	x1

Operation Tutorial

Follow the sequential steps below to ensure proper device functionality.

Step 1: Antenna Assembly

Install both antennas onto the VRX antenna bases and fully tighten connectors. Position antennas vertically and spaced apart to maximize signal reception efficiency.

Critical Warning: Never power on the unit without connected antennas; powering on without antennas will almost certainly cause permanent RF module damage.

Step 2: Power Connection (Sequential Procedure)

1.HDMI Cable Routing: Connect one end of the HDMI cable to the VRX HDMI OUT port, and the opposite end to the HDMI input of your display or FPV goggles.

2.(Optional) Insert a Micro SD card into the side card slot for on-board flight

footage recording.

3.Final step: Attach the power supply cable to the 5.5*2.1mm DC power port.

Step 3: VTX-VRX Binding (Mandatory for New Units)

1.All new equipment requires an initial binding procedure; paired devices will auto-reconnect on subsequent power cycles.

2.Complete antenna and HDMI wiring for the VRX, then power on both the VRX receiver and Ascent VTX transmitter.

3.After full device boot-up, short press the bind button on both VRX and VTX to activate pairing mode: the VTX indicator light will turn solid red, and the VRX will emit a repeating "beep... beep... beep..." alert tone.

4.Confirm successful pairing: The VTX indicator will switch to steady green, the VRX buzzer will stop sounding, and live video feed will display on your connected monitor.

Troubleshooting Tip for Failed Binding: Cut power to both devices, wait 10s, then repeat the full binding workflow. Maintain a distance of under 1 meter between VRX and VTX during pairing.

Firmware Upgrade

Method 1: Offline SD Card Upgrade

1.Download the corresponding firmware package from the official website (<https://www.caddxfpv.com/pages/download-center>). Copy the unmodified firmware file to the root directory of your Micro SD card, and delete any outdated firmware files stored on the card.

2.Power off the VRX completely, insert the prepared SD card, then reapply power to the unit to initiate the boot sequence.

3.Press and hold the VRX bind button for 8 seconds; the device will automatically reboot into upgrade mode and emit a continuous alert tone.

4.Critical Warning: Do not disconnect power during the full upgrade process (approximately 1 minute). Power loss mid-upgrade will corrupt firmware permanently.

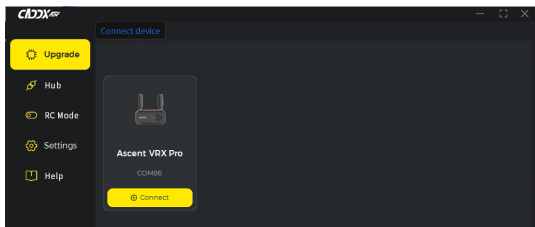
5.Upgrade completion confirmation: The VRX buzzer will cease sounding, and status indicators will return to steady illumination.

Method 2: USB Upgrade

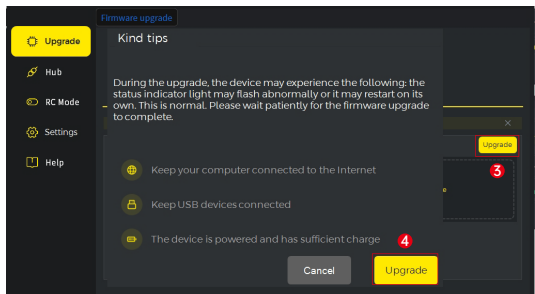
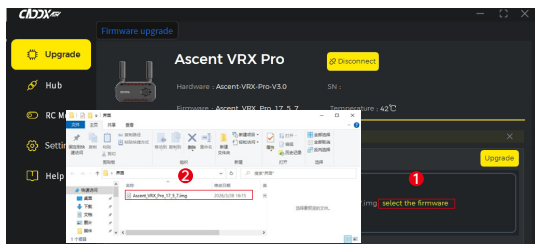
1.Download the latest matching firmware version from the official website (<https://www.caddxfpv.com/pages/download-center>).

2.Connect the VRX to a computer via USB-C cable, and maintain power supply to the receiver.

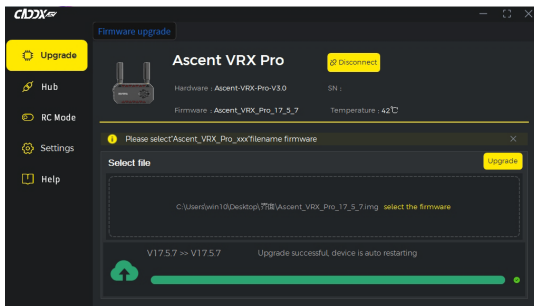
3.Launch the Caddx_PC_Tool upgrade software; the program will automatically detect the connected Ascent VRX Pro hardware.



4. Select the downloaded firmware file within the software interface, then click the "page" button to initiate flashing.



5.Wait for the progress bar to complete fully; disconnect the USB and power supply only after the software displays an upgrade success notification.



Universal Critical Reminder for Both Upgrade Methods: Interrupting the power supply during any firmware update will corrupt device firmware and render the unit inoperable.

Status indication

VRX Buzzer Status	
Link state	DI.... DI.... DI.... DI....
Upgrade firmware	DI..... DI..... DI..... DI—
Upgrade failed (No SD card or firmware detected)	DI.. DI.. DI.. DI..
Boot failure (Reboot or re-upgrade)	DI.. DI..... DI.. DI.....

Operating channel

Central frequency(MHz)	Channel1	Channel2	Channel3
FCC	5740	5770	5805
CE/SRRC	5740	5770	5805

Software interface

Main interface



1-VTX input voltage:

Detect VTX voltage, intelligently identify the voltage of 2, 3, 4, 6 string LiPo batteries, alarm when a single battery is lower than 3.5V, and alarm in red font when the voltage is too low.

2-VRX input voltage:

Detect VRX low battery alarm, intelligently identify the voltage of 2, 3, 4, 6 string LiPo batteries, alarm when a single battery is lower than 3.5V, red font and buzzer alarm when the voltage is too low.

3-Real-time Transmission Bitrate:

Display real-time transmission bitrate in Mbps.

4-Time delay:

Displays the total delay from the transmission of images captured by the VTX camera to the ground end.

5-Ranging mode:

The function of calculating the transmission distance from VRX to VTX according to the wireless transmission delay, the signal is interfered will lead to error amplification.

6-Status prompt:

The text prompts information that needs attention in the current state.

7-Current channel:

Display the current setting channel; the signal grid has 5 states: 4 grids, 3 grids, 2 grids, 1 grid, and blank.

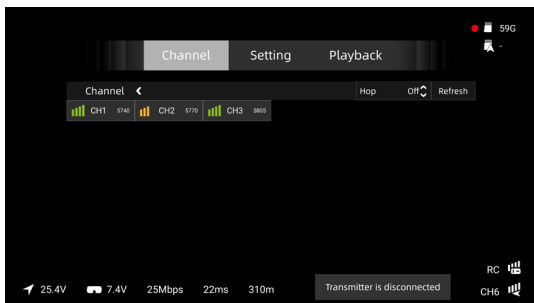
8-VRX SD card status:

There are five signal bar states: 4 bars, 3 bars, 2 bars, 1 bar, and no bar. When no remote controller signal is detected by the image transmission module, this icon will be hidden.

9-Remote Controller Signal Status:

Display the status and remaining capacity of the VRX SD card. When recording, the red circle flashes to prompt, the status of the SD card not detected is displayed as NO SD, and the status of the memory is full is displayed as -.

Menu—Channel



1-Channel:

Displays the interference status of each channel. Signal strength is shown as 4 bars, 3 bars, 2 bars, 1 bar, or empty. An empty signal bar indicates the channel is occupied and cannot be selected. A white outline represents the selection box. Press the confirm button to highlight a channel, and the highlighted one is the current channel.

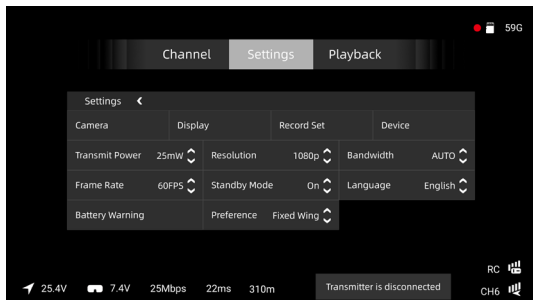
2-Frequency Hopping:

When frequency hopping is enabled, the goggles will automatically select the channel with the least interference. Manual channel switching is not available in this mode.

3-Refresh:

Click Refresh to re-scan all channels and update their interference status.

Menu—Settings

**1-Camera:**

The camera allows adjustment of the following settings: scene presets, exposure, saturation, sharpness, contrast, white balance, image rotation aspect ratio, and 3D noise reduction.

2-Display:

Display adjustable content is Debug, brightness, focalization mode, custom OSD, OSD position, font upgrade, custom font, viewfinder, viewfinder edit settings.

3-Refresh set:

The recording can be adjusted as VTX REC resolution, REC device, take off REC, REC loop, format SD card, format VTX, Built-in EIS, REC Time, REC, Format, Color, Saturation, Sharpness.

4-Device:

Adjustable settings include buzzer volume, ranging mode, signal loss alert, factory reset, resetting transmitter default values, device information, operating instructions, VRX recording bitrate, anti-flashing feature, VRX UART, antenna, and UVC.

5-Transmission Power:

Switching VTX and VRX Transmit Power.

6-Resolution:

Selectable resolutions: 720P and 1080P.

7-Bandwidth:

Supports selectable 5MHz, 10MHz, 20MHz, and Auto bandwidth modes. In theory,

the smaller the bandwidth, the better the interference resistance but the lower the data rate; the larger the bandwidth, the weaker the interference resistance but the higher the data rate.

8-Frame Rate:

Adjust the HDMI Output Frame Rate. If the display does not support a high frame rate, press and hold the Back button for 8s, and the HDMI output will be switched to 720P60.

9-Standby Mode:

In standby mode, both the air unit and VRX transmit at 10dBm. Transmission power will only return to the configured value after exiting standby mode or turning it off. This function requires the air unit to be properly connected to the flight controller via serial port—when the VRX detects an arming signal from the drone, standby mode exits automatically. If no flight controller is supported, this function can be disabled.

10-Language:

Language switching English/Chinese.

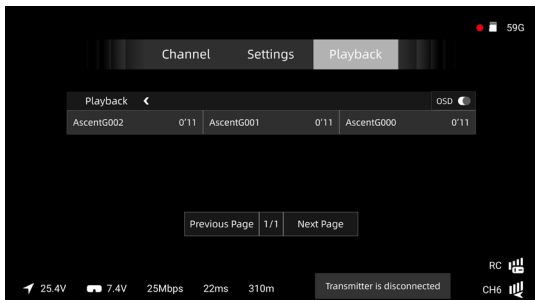
11-Battery Alarm:

Monitors the low battery status of the VRX. When voltage is too low, a red text warning and buzzer alert will be triggered. This feature can be enabled or disabled.

12-Preferences:

The image transmission system provides preset working modes. You can Choose Low Latency Mode or Fixed-Wing Mode according to your preference.

Menu Playback



1. The OSD switch can be turned on or off. When it is turned on, the flight control OSD information (if any) and the flight information of the main interface will be superimposed on the playing video interface. When the selection box stays in the video list, press and hold the VRX confirmation key to open the multi-selection function, and the menu box will display function settings (delete, select all, cancel), press the return key again to exit the multi-selection mode.

2. On the playback interface, click the middle button to pause/play, and the left and right arrow keys to adjust rewind/fast forward.

Specifications

Name	Ascent VRX Pro
Model	WN02-FP028
Communication Frequency	5.725-5.829 GHz
Transmitter Power(EIRP)	FCC/SRRC:<30dBm, CE:<14dBm
I/O Interface	HDMI, Micro SD Card, DC5.5*2.1mm SH1.0*6PIN, Type-C
HDMI Out	1080p50fps, 1080p60fps, 1080p100fps, 1080p120fps, 720p50fps, 720p60fps, 720p100fps, 720p120fps
Power Input	7.4~25.2V
SD Card	Support Micro SD 256G
System	Ascent HD system
Bandwidth	5MHz/10MHz/20MHz/Auto
Menu OSD recording	Support
Recording File System	exFAT
Recording Format	MP4 (H.264)
Weight	140g
Dimension	114.5*64*24mm (Without Antenna)

Antenna Name	Red Bird Pro
Antenna Polarization	LHCP
Antenna Bandwidth	5.725-5.829 GHz
Antenna Average Gain	2.8dBi
Connector	RP - SMAx2
Dimension	56.3mm*D16.5mm
Weight	7g

For latest firmware downloads, tutorial videos, troubleshooting guides, or customer service inquiries, utilize the official support channels listed below.

Official Website: <https://www.caddxfpv.com.cn/>
Official WeChat Official Account QR Code:



ASCENT VRX PRO

快速入门指南

V1.4



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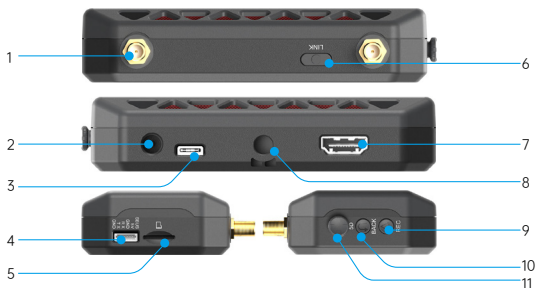
产品使用注意事项

为了让您获得最佳的使用体验，并确保设备安全运行，我们建议您在首次使用前仔细阅读以下事项。

1. 使用本产品前，请确保已充分了解并遵守当地法律法规。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。
2. 本产品操作使用专业性较强，使用者须具备基础操作能力与安全防护意识，严格依规安全使用。
3. 待机模式开启且飞行器未解锁时，VTX和VRX的发射功率将限制在110mW 以内。
4. VRX 最多支持3个频道，每个频道的带宽可设置为 5MHz、10MHz 或 20MHz。
5. 为确保设备性能稳定，建议用户在首次使用时将 VTX 与 VRX 升级至最新固件

简介

Walksnail Ascent VRX Pro 是 CADDXFPV 旗下推出的高清数字图传接收机。配备双圆极化天线，传输距离可达8km；支持 1080P/120fps 高清解码，端到端延时低至 35ms。兼容所有带 HDMI IN 显示设备，支持 Betaflight / INAV等主流飞控系统。内置 SD 卡录制，适用于 FPV 无人机、固定翼、RC 车模等多种场景。



1. 天线座	5. SD卡槽	9. 录制键
2. 电源输入 ^[1]	6. 对频键	10. 返回键
3. USB-C接口	7. HDMI输出	11. 五维按键
4. 透传接口	8. 1/4螺纹口	

^[1] DC 5.5*2.1mm，输入电压7.4~25.2V

接线



按键操作说明

对频按键

短按进入对频状态，长按8秒进入升级状态。

五维按键

通过上下左右方向键移动菜单选择框；短按中间按键，执行确认/取消操作。

返回键

短按可返回上一级菜单或当前模式，长按8秒恢复HDMI输出720P60。

录制键

短按可开始或暂停录像。

物品清单

1.Ascent VRX Pro 接收机 x1
2.红鸟天线 Pro x2
3.HDMI 线 x1
4.1/2 DC 电源转接线 x1
5.3M 双面胶 x1
6.操作指引卡 x1

操作指南

为确保设备正常使用，建议按以下步骤依次操作

组装天线

请将两根天线安装至VRX机身的天线接口处，并确保拧紧。请将两根天线保持竖直并分开摆放，以提升信号接收效果。

（*严禁在未连接天线的状态下通电，无天线开机极易导致射频模块损坏。）

连接电源（建议按以下步骤依次进行）

1.HDMI 线：将HDMI线的一端接入VRX的【HDMI OUT】接口，另一端连接至显示屏或眼镜的HDMI输入接口。

2.(可选)将Micro SD卡插入机身侧面的卡槽，用于录制飞行画面。

3.最后连接供电线，接入DC电源接口（规格为5.5*2.1 DC座）。

对频（VTX发射机—VRX接收机，新机必须操作）

新机首次使用需执行对频操作，对频成功后再次开机可自动连接。

1. 完成VRX天线、HDMI线路连接，分别接通VRX接收机与VTX发射端电源。
 2. 设备启动完成后，短按VRX、VTX发射端的对频按键，进入对频模式：VTX发射端指示灯变为红色，VRX持续发出“滴...滴...滴...”蜂鸣提示音。
 3. 等待对频建立：当 VTX 发射端指示灯转为绿色常亮，VRX 蜂鸣器停止鸣响，显示器正常输出图传画面，即代表配对完成。
- 补充提示：若对频失败，请断开两台设备电源，静置 10 秒后重复上述操作；对频时 VRX 与 VTX 建议间距 1 米以内。

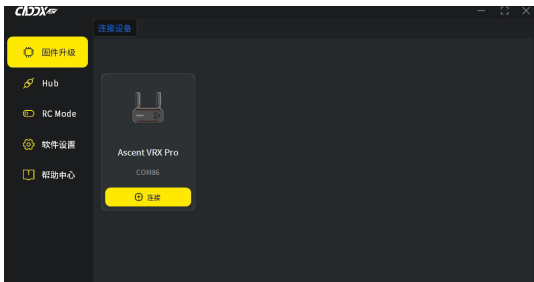
固件升级

方式一：SD卡离线升级

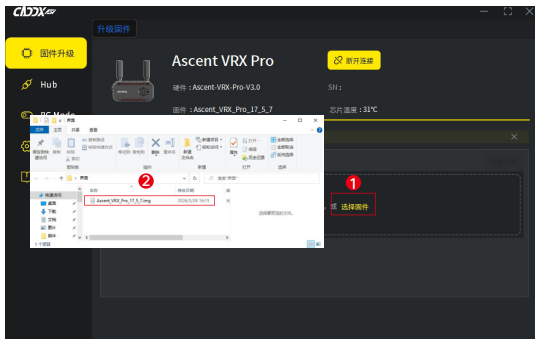
1. 前往官方渠道 (<https://www.caddxfpv.com/pages/download-center>) 下载对应型号的固件安装包，将固件文件复制到 Micro SD卡的根目录，不要修改文件名，同时删除存储卡内旧版固件文件。
2. VRX保持断电状态，插入SD卡，再接通设备电源等待开机初始化。
3. 长按VRX 机身对频按键 8秒，设备会自动重启并进入升级模式，同时发出持续蜂鸣提示音。
(*升级全过程严禁切断电源，整个升级过程约1分钟。)
4. VRX蜂鸣声停止、指示灯恢复常亮，即代表升级完成。

方式二：USB升级（电脑端操作）

1. 前往官方渠道 (<https://www.caddxfpv.com/pages/download-center>) 下载对应版本最新固件。
2. 使用 USB数据线将 VRX 接收机与电脑相连接，接通 VRX 供电。
3. 打开升级软件（Caddx_PC_Tool），软件会自动识别已连接的 VRX 设备。



4. 在软件界面选中已下载好的固件文件，点击升级按钮开始刷写程序。



5.等待进度条走完, 软件提示升级成功后, 再断开 USB 与电源。



重要提醒：两种升级方式都不能中途断电，否则会造成设备固件损坏。

工作状态指示

VRX 蜂鸣器状态	
对频状态	滴...滴...滴...滴...
升级固件	滴..... 滴..... 滴..... 滴——
升级失败（未检测到SD卡或固件）	滴.. 滴.. 滴.. 滴..
启机失败（重启或重刷固件）	滴.. 滴..... 滴.. 滴.....

工作频道

Central frequency(MHz)	Channel1	Channel2	Channel3
FCC	5740	5770	5805
CE/SRRC	5740	5770	5805

软件界面

主界面



1 - 发射端输入电压：

实时显示发射端供电电压,智能识别2、3、4、6串LiPo电芯电压,单片电芯低于3.5V红色字体报警提示。

2 - 接收端输入电压：

实时显示VRX供电电压,智能识别2、3、4、6串LiPo电芯电压,单片电芯低于3.5V,红色字体和蜂鸣器报警提示。

3 - 实时传输码率：

实时显示传输码率,单位Mbps。

4 - 图传延迟：

显示从发射端相机采集图像传输至接收端的总延时。

5 - 测距功能：

依据无线传输延时计算接收端至发射端传输距离功能,信号被干扰会导致误差大。

6 - 状态提示：

文字提示当前需注意的状态提示。

7 - 当前频道：

显示当前设置频道,信号格共5种状态,分别是4格/3格/2格/1格/空格。

8 - 遥控器信号状态：

信号格共5种状态,分别是4格/3格/2格/1格/空格。当图传未检测到遥控器信号时,此图标会隐藏。

9 - 接收端SD卡状态:

显示VRX内存卡状态及剩余容量。设备录像时红色圆圈闪烁提示，非录制状态不显示红色圆圈标识。未检测到SD卡状态显示为[NOSD]，内存卡已满显示为[-]。

菜单—频道



1 - 频道:

显示各频道的干扰情况，信号强度分为4格/3格/2格/1格/空格。信号显示空格代表已被占用不可选。白色描边为选择框，按下确认键选择相关项高亮显示，高亮显示为当前频道。

2 - 跳频:

开启跳频功能，VRX端将自动选择干扰较小的频道，此时不可手动切换频道。

3 - 刷新:

点击刷新可以重新搜索各个频道的干扰情况以及状态。

菜单—设置

**1 - 相机:**

相机可调整内容分别为场景预设、曝光、饱和度、锐度、对比度、白平衡、画面旋转、画面比例、3D降噪。

2 - 显示:

显示可调整内容为Debug、屏幕亮度、聚焦模式、自定义OSD、OSD位置、升级字体、自定义字体、取景框、取景框设置、眼睛图标。

3 - 录像:

录像可调整内容为VTX发射端分辨率、录像设备、自动启停、循环录制、格式化SD卡、格式化发射端、录像时间、自动录像停止功能。

4 - 设备:

设备可调整内容为蜂鸣器音量、测距模式、信号丢失提示、恢复出厂设置、重置发射端默认值、设备信息、操作说明、VRX端录像码率、抗频闪、VRXUart、天线、UVC。

5 - 发射功率:

可切换VTX与VRX的发射功率。

6 - 分辨率:

分辨率可以选择720P或1080P。

7 - 带宽:

可选择5MHz、10MHz、20MHz、Auto带宽工作模式。理论上带宽越小，抗干扰性能越强，码率更低；带宽越大，抗干扰性能越弱，码率更高。

8 - 帧率:

调整HDMI输出帧率。

*若显示屏幕不支持高帧率输出，长按返回键8秒，HDMI输出会调整为720P60。

9 - 待机模式:

处于待机模式时，发射端和VRX端发射功率为10dbm。退出待机模式或关闭待机模式开关，可输出当前设置的发射功率。开启待机模式时，该功能需要发射端串口正确连接飞控；当VRX收到飞行器解锁信号时，将自动退出待机模式。如无飞控支持，可选择关闭此功能。

10 - 语言/Language:

语言可切换English或中文。

11 - 电池报警:

检测VRX端低电量警报，电压过低红色字体和蜂鸣器报警提示，可选择开启或关闭。

12 - 偏好:

图传工作模式预设功能，可切换低延迟模式或固定翼模式。

菜单—回放



1.选择框移动到OSD选项可以选择打开或关闭，打开时在播放视频界面叠加飞控OSD信息（如有）和主界面飞行信息，当选择框停留在视频列表中，长按VRX端确认键打开多选功能，菜单框显示功能设置（删除、全选、取消），再次按下返回键退出多选模式。

2.播放界面单击中键暂停/播放，左右方向键调整快退/快进。

规格参数

名称	Ascent VRX Pro
型号	WN02-FP028
通信频率	5.725-5.829 GHz
发射功率 (EIRP)	FCC/SRRC:<30dBm, CE:<14dBm
接口	HDMI, Micro SD 卡槽, DC5.5*2.1mm SH1.0*6PIN, Type-C
HDMI输出	1080p50fps, 1080p60fps, 1080p100fps, 1080p120fps, 720p50fps, 720p60fps, 720p100fps, 720p120fps
宽电源输入	7.4~25.2V
SD卡槽	支持Micro SD 256G
系统	Ascent HD System
工作宽带	5MHz/10MHz/20MHz/Auto
菜单OSD录制	支持
录像文件系统	exFAT
录像格式	MP4 (H.264)
重量	140g
尺寸	114.5*64*24mm (不含天线)

天线名称	Red Bird Pro
天线极化方向	左旋圆极化 (LHCP)
天线工作宽带	5.725-5.829 GHz
天线平均增益	2.8dBi
连接器	RP - SMAx2
外形尺寸	56.3mm*D16.5mm
重量	7g

如您在使用过程中遇到任何问题，欢迎通过以下渠道获取最新固件、教学视频和常见问题解答，或联系我们的客服团队获取支持。

官方网站: <https://www.caddxfpv.com.cn/>

微信公众号:

