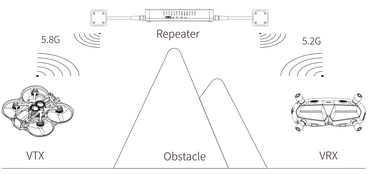
AVATAR REPEATER

Quick Start Guide

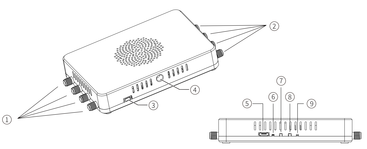
V1.1

Introduction

This product is suitable for Walksnail Avatar HD system and needs to be used with Avatar series VRX and VTX products. It can realize the relay function of VRX and VTX wireless signals and is suitable for scenes with severe obstruction. Because VRX devices and repeaters use 5.2GHz communication frequency, VRX needs to replace 5.15GHz-5.30GHz LHCP antenna. The term "VTX" described in the document refers to Avatar V2, Avatar GT, Avatar 1S and other series of image transmission camera products, and the term "VRX" described in the document refers to Avatar Goggles X, Avatar VRX and other display products.



Diagram



1、VRX communication antenna port (5.2GHz)

2、VTX communication antenna port (5.8GHz)

3、Power input 9V~26V

4、1/4 thread

5、USB (Upgrade port)

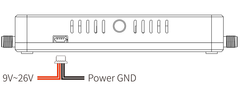
6、VTX LED

7、VTX Binding Key (Press and hold for 8 seconds to upgrade)

8、VRX Binding Key

9、VRX LED

Connection



⚠
- Power consumption: 12V@1.2A
- Do not use 2S batteries.

How to enable relay mode in VRX

Please update Avatar VRX and Avatar VTX devices to V38.43.9 or above before use. Because VRX devices and repeaters use 5.15GHz-5.30GHz communication frequency, the original antenna cannot be used. VRX devices need to replace third-party 5.15GHz-5.30GHz LHCP antennas.

1. Create a .txt file named "Avatar_std" in the root directory of the VRX TF card, and fill in "relay=on" in the file content;

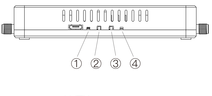
2. Insert the TF into the VRX device and power it on, and it will automatically switch to Relay mode after powering on.

Set the Avatar_std.txt file content to on or off:
"relay=on" means: turn on the Relay mode and add the Relay option.
"relay=off" means: turn off the Relay mode and cancel the Relay option.

Note: If VRX performs Reset all, you need to re-enable Relay mode.

How to Bind

This section describes how to pair a repeater with Avatar VRX and Avatar VTX. The prerequisite is to make sure that all devices have the same version and the VRX has enabled Relay mode.



1.Power on VRX, repeater, and VTX.

2.Press the VRX binding button, the buzzer emits a beep...beep...beep... prompt tone, the repeater presses the BIND VRX button (as shown in Figure ③), and the BIND VRX LED turns red (as shown in Figure ④).

3.After the binding is successful, the VRX buzzer stops, and the repeater BIND VRX LED turns green.

4.Press the VTX binding button, the indicator light turns red, the repeater presses the BIND VTX button (as shown in Figure ①), and the BIND VTX LED turns red (as shown in Figure ②).

5.After the binding is successful, the VTX indicator light turns green, and the repeater BIND VTX LED turns green.

6.Binding is completed, and the VRX displays the image.

How to Upgrade

1. Please go to www.caddxfpv.com to download the latest firmware upgrade. The repeater firmware name is "Avatar_Relay_X.X.X.img" and the file suffix is ".img".

2. Power on the repeater. Please make sure that the power is suffcient. Do not disconnect the power during the upgrade process. Connect the USB port (Diagram ⑤) to the PC.

3. Press and hold the BIND VTX frequency binding key (Diagram ⑦) for 8 seconds. Light off. The PC recognizes the repeater USB flash drive. (The upgrade process needs to be completed within two minutes. After the timeout, the indicator light will turn red and flash quickly. At this time, you need to restart the repeater and operate again)

4. Copy the "Avatar_Relay_X.X.X.img" upgrade firmware to the repeater USB flash drive (some PC software recognizes it as a compressed package and does not need to be decompressed)

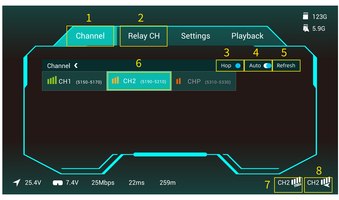
5. After the copy is completed, unplug the USB cable directly (do not disconnect the power). At this time, the upgrade will automatically start. The indicator light will turn red and flash. After the automatic restart, the indicator light will turn green and the upgrade is complete.

Solution to the indicator light not entering the upgrade state:
If the indicator light turns yellow and flashes quickly after unplugging the USB cable, please power on again to upgrade, check whether the firmware version is correct, and try to copy the firmware again.

The upgrade completion indicator turns off:
After the upgrade is complete, if the indicator light is still off after waiting for 5 minutes, you can restart manually.

VRX Menu

Channel Settings-1



1– VRX and repeater channel selection.

2– VTX and repeater channel selection.

3– Automatic frequency hopping switch, automatically selects the channel with less interference when turned on.

4– The “Auto” switch automatically refreshes the signal interference status of all channels.

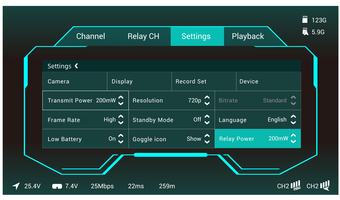
5– “Refresh” is to refresh the channel interference situation manually.

6– The white box is the current selection. Press the confirm button to highlight it. The highlighted box is the current channel.

7– VRX and repeater signal strength, signal strength is divided into 4 grids, 3 grids, 2 grids, 1 grid, and space. If the signal shows a space, it is not connected.

8– VTX and repeater signal strength, signal strength is divided into 4 grids, 3 grids, 2 grids, 1 grid, and space. If the signal shows a space, it is not connected.

Parameter settings-2



1–Camera：
The adjustable contents of the camera are scene preset, EV value, saturation, sharpness, white balance, rotate, ratio, 3D DNR, Shutter, and Max ISOsettings.

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

3–Record set：
The recording can be adjusted as VTX REC resolution, REC device, takeoff REC, REC loop, format SD card, format VTX, Built-in EIS, REC Time, REC Format, Color, Saturation, Sharpness.

4–Device:
The adjustable contents of the device are buzzer volume, Weak signal, Reset all, Device information, Instruction, and Switch mode.

5–Transmit Power:
Repeater and VRX communication power selection.

6–Resolution:
The resolution can choose 720P and 1080P.

7–Bitrate:
Repeater mode does not support bit rate settings.

8–Frame Rate:
Standard frame rate and high frame rate can be selected to obtain different time-lapse experiences.

9–Standby Mode:
When in standby mode, the transmission power of VTX terminal and VRX terminal is 10dbm, and the current set transmission power will be output only after exiting standby mode or turning off the standby mode switch. Turning on the standby mode requires the air unit serial port to be correctly connected to the flight controller. When the VRX receive the drone's unlock signal, it will automatically exit the standby mode. It is recommended to turn off this function when using a repeater.

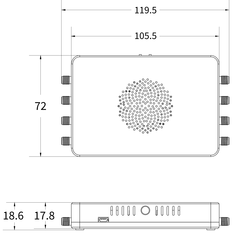
10–Language:
Language switching English/中文.

11–Low Battery:
Detect Goggles 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.

12–Goggle Icon:
You can choose to display or hide the icons on the main menu interface.

13–Relay Power:
Repeater and VTX communication power selection.

Dimensions



Unit: mm

Specifications

Communication Frequency	5.150GHz~5.250GHz; 5.725GHz~5.850GHz;
Transmitter Power (EIRP)	5.2 GHz: <23 dBm (FCC/SRRC); CE: <20dBm; 5.8 GHz: <30 dBm (FCC/SRRC); CE: <14dBm
5.2G Antenna	Frequency range: 5.15GHz~5.30GHz Gain: 7dBi (AVG) Polarization: LHCP
5.8G Antenna	Frequency range: 5.50GHz~6.00GHz Gain: 7dBi (AVG) Polarization: LHCP
System	Avatar HD system
Power Input	9V~26V
Dimensions	119.5*72*18.6mm
Weight	145g (Antenna not included)
I/O Interface	Micro USB; 4Pin 1.0mm Port,
Transmission Resolution	1080p/100fps, 1080p/60fps, 720p/100fps, 720p/60fps,

Precautions

- Since the antenna coverage is directional, please point the repeater 5.2G antenna toward the VRX device and the 5.8G antenna toward the VTX device.
- This product is relatively complex to use. Users need to have basic knowledge of wireless image transmission and safety common sense, and need to use it with caution.
- Please install all antennas before powering on to avoid damage to transmitting components.
- Repeater mode does not support Race mode, Ranging mode, High Bitrate mode, Share mode, and head tracking functions.

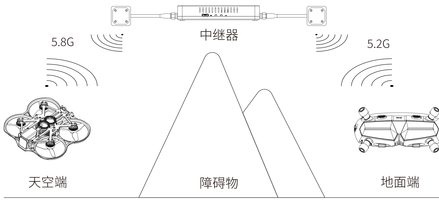
AVATAR REPEATER

快速入门指南

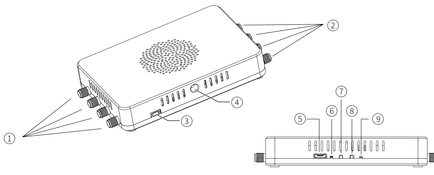
V1.1

简介

该产品适用 Walksnail Avatar HD 系统，需搭配 Avatar 系列地面端与天空端产品使用，可实现地面端与天空端无线信号的中继功能，适用环境有严重遮挡的场景。因地面端设备与中继器使用 5.2GHz 通信频率，地面端设备需更换 5.15GHz–5.30GHz LHCP 天线。文档中描述“天空端”词汇代指 Avatar V2、Avatar GT、Avatar 1S 等系列图传摄像头端产品，文档中描述“接收端”代指 Avatar Goggles X、Avatar VRX 等显示端产品。

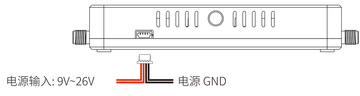


部件名称



1、地面端通讯天线口（5.2GHz ）
2、天空端通讯天线口（5.8GHz ）
3、电源输入 9V–26V
4、1/4 螺纹口
5、USB （升级口）
6、天空端 LED
7、天空端对频键（长按8秒升级）
8、地面端对频键
9、地面端 LED

接线



⚠
- 功耗: 12V@1.2A
- 请勿使用 2S 电池供电

地面端如何开启中继器模式

使用前请将 Avatar 地面端和 Avatar 天空端设备更新至 V38.43.9 以上版本，地面端设备安装 5.2GHz LHCP 天线。

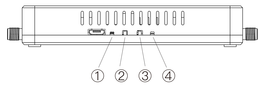
1.在地面端 TF 卡的根目录中新建文件名为“Avatar_std”的 .txt 文件，文件内容填写“relay=on”；
2.将 TF 插入地面端设备并通电，开机后自动切换为中继器模式。

Avatar_std.txt文件内容表示不同标准，分别如下：
“relay=on” 表示：开启中继器模式并增加 Relay 选项
“relay=off” 表示：关闭中继器模式并取消 Relay 选项

注意： 如果恢复出厂设置（Reset All）操作后，需要重新开启中继器模式。

如何对频

介绍中继器如何与 Avatar 地面端与 Avatar 天空端对频，前提需确定全部设备版本一致，并且地面端设备已开启中继器模式。



1.地面端、中继器、天空端通电
2.按下地面端对频按键，蜂鸣器发出滴...滴...滴...提示音，中继器按下地面端对频键（如图③），地面端 LED 变为红色（如图④）。
3.对频成功后，地面端蜂鸣器停止，中继器地面端指示灯变为绿色。
4.按下天空端对频按键，指示灯变为红色，中继器按下天空端对频键（如图①）天空端 LED 变为红色（如图②）。
5.对频成功后，天空端指示灯变为绿色，中继器天空端指示灯变为绿色。
6.对频完成，地面端显示图像。

如何升级

1. 请到 www.caddxfpv.com 官网下载 Avatar_X.X.X 最新固件包，中继器固件名为“Avatar_Relay_X.X.X”，文件后缀为 “.img” 。

2. 中继器通电，请确保电量充足，升级过程不可断电，USB口（部件名称⑤）连接电脑。

3. 长按 8 秒天空端对频键（部件名称⑦），指示灯熄灭，电脑识别中继器U盘。（升级过程需要在两分钟内完成，超时后指示灯变为红灯快闪，此时需要重启中继器并重新操作）

4. 将“Avatar_Relay_X.X.X.img”升级固件拷贝到中继器U盘（部分电脑软件识别为压缩包不需要解压）

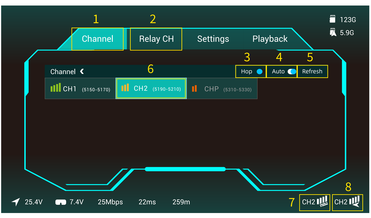
5. 拷贝完成之后直接拔掉 USB 线（不可断电），此时自动进入升级，指示灯变为红灯闪烁，自动重启后，两个指示灯变为绿灯升级完成。

指示灯未进入升级状态解决办法：
如拔掉 USB 线指示灯变为黄灯快闪，请重新通电操作升级，检查固件版本是否正确，尝试重新拷贝固件。

升级完成指示灯熄灭：
升级完成后，如果等待 5 分钟后指示灯仍然熄灭状态，手动断电重启。

地面端菜单

主界面-1



1- 地面端与中继器频道选择。

2- 天空端与中继器频道选择。

3- 自动跳频开关，开启后自动选择干扰较小的频道。

4- Auto开关为自动刷新全频道信号干扰情况。

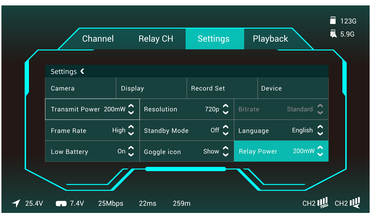
5- Refresh为手动刷新全频道信号干扰情况。

6- 白色描边为选择框，按下确认键高亮显示，高亮显示为当前频道。

7- 地面端与中继器信号强度，信号强度分为4格、3格、2格、1格、空格，信号显示空格则为未连接。

8- 天空端与中继器信号强度，信号强度分为4格、3格、2格、1格、空格，信号显示空格则为未连接。

主界面-2



1-Camera：
相机可调整内容分别为场景预设、曝光、饱和度、锐度、白平衡、画面旋转、画面比例、3D 降噪、快门、最大 ISO 等设置。

2-Display：
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。

3-Record Set：
录像可调整内容为天空端分辨率、录像设备、自动启停、循环录制、格式化 SD 卡、格式化发射端、内置 EIS 防抖、录像时间、录像格式、颜色、饱和度、锐度。

4-Device:
设备可调整内容为蜂鸣器音量、信号丢失提示、恢复出厂设置、设备信息、操作说明、切换模式。

5-Transmit Power:
中继器与地面端通信功率选择。

6-Resolution:
分辨率可以选择 720P 和 1080P。

7-Bitrate:
中继器模式不支持比特率设置

8-Frame Rate:
可选择标准帧率和高帧率获得不同的延时体验。

9-Standby Mode:
当处于待机模式时天空端和地面端发射功率为 10dbm，退出待机模式或关闭待机模式开关才会输出当前设置的发射功率，开启待机模式时此功能需要天空端串口正确连接飞控，当地面端收到飞行器解锁信号时自动退出待机模式，使用中继器建议关闭此功能。

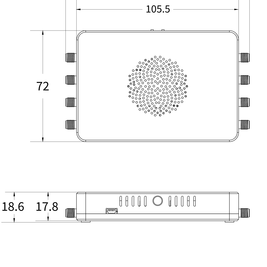
10-Language:
语言切换 English/中文。

11-Low Battery:
检测地面端低电量警报，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-Goggle icon:
可选择菜单主界面图标显示或隐藏。

13-Relay Power:
中继器与天空端通信功率选择。

外形尺寸



单位: mm

参数规格

通信频率	5.150GHz-5.250GHz; 5.725GHz-5.850GHz;
发射功率 (EIRP)	5.2 GHz: <23 dBm (FCC/SRRC); CE: <20dBm; 5.8 GHz: <30 dBm (FCC/SRRC); CE: <14dBm
5.2G 天线	Frequency range: 5.15GHz-5.30GHz Gain: 7dBi (AVG) Polarization: LHCP
5.8G 天线	Frequency range: 5.50GHz-6.00GHz Gain: 7dBi (AVG) Polarization: LHCP
系统	Avatar HD system
电源输入	9V-26V
尺寸	119.5*72*18.6mm
重量	145g (不含天线)
I/O 接口	Micro USB; 4Pin 1.0mm Port
传输分辨率	1080p/100fps, 1080p/60fps, 720p/100fps, 720p/60fps

注意事项

- 因天线覆盖范围具有指向性，请将中继器 5.2G 天线指向地面端设备，5.8G 天线指向天空端设备。
- 该产品使用较为复杂，使用者需具备无线图传基本操作知识以及安全常识，并且需要小心使用。
- 通电前请安装好所有天线，避免元器件损坏。
- 中继器模式不支持竞速模式、测距模式、高码率模式、分享模式、头部跟踪功能。

CADDXFPV 技术支持
email: support@caddxfpv.com