ASCENT GOGGLES

Quick Start Guide

V1.0

Introduction

This product is a wireless image transmission head-mounted display device, compatible with Ascent HD System series air unit products, and can achieve long-distance, low-latency, high-definition wireless image transmission. In the document, the terms VTX, Air unit, etc. refer to Ascent image transmission camera products. In the document, the terms VRX, Goggles, etc. refer to Ascent image transmission display products.

Linking

1. Connect the VTX and the power of the Goggles.
2. Wait for about 10 seconds, the VTX and Goggles respectively (as shown in the picture), where the VTX enters the pairing state The indicator light turns red, and the Goggles red a 3s ... DL ... DL
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, Ascent_L_Goggle_V1.X.img in the Goggles file, copy it to the SD card, be careful not to change the file name.

1. Copy the upgrade file to the root directory of the SD card, connect to the power supply and wait for the device to initialize and recognize the upgrade firmware file first if there is one.
2. Press and hold the link button on the Goggles for 8 seconds, and the Goggles will enter the upgrade mode, the screen will not display anything. Do not power off during the upgrade process, the upgrade time on the goggle is about 1 minutes!
3. After the upgrade is successful,and the beeping sound stops after the Goggles beeps for 5 seconds.

Status indication

Goggles Buzzer Status

Link state	DL ... DL ... DL ...
Upgrade firmware	DL ... DL ... DL ... DL------
Upgrade failed (No SD card or firmware detected)	DL DL DL DL
Boot failure (Reboot or re-upgrade)	DL ... DL ... DL ...

Precautions

1. This is a standard product. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or other property. It must be operated with caution and common sense and requires some basic mechanical knowledge.
2. The frame rate of VTX and Goggles is only 10mW when the standby mode is on.
3. There are up to three channels for the goggles depending on the region. Bandwidth of 10MHz and 20MHz.
4. It is recommended to upgrade VTX and Goggles to the latest firmware before first use.

Operating channel

Central frequency (MHz)	Channel	Channel	Channel
FCC	5740	5770	5805
CE/SRRC	5740	5770	5805

Make sure you fully understand and abide by local laws and regulations before using this product. Users who use the amateur frequency bands with modified or crossed versions without a license may be prohibited for breaking local laws or regulations.

FCC Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Specific Absorption Rate (SAR) Information:
This Ascent Goggles complies with government requirements for exposure to radio waves. The guidelines are based on standards that were independent scientific organizations through regular and thorough evaluation of scientific studies. These standards include a substantial safety margin designed to ensure the safety of all individuals, regardless of age and health.

FCC RF Exposure Information and Statement:
The SAR limit set by the FCC is 1.6 W/kg averaged over one gram of body tissue, and 4.0 W/kg averaged over 10 grams for extremities. Ascent Goggles SAR tests (RSS-102) 0.1w also been tested for compliance with these SAR limits. During product certification, the highest reported SAR value was 0.612 W/kg for the body, and 0.139W/kg for extremities. This device has been tested for typical body operations with the back side of the unit kept 0.5 cm from the transmitter. From the body, To maintain compliance with FCC RF exposure requirements, accessories that maintain a 0 mm separation distance between the user's body and the back side of the product must be used. Belt clips, holsters, and similar accessories used with this device should not contain metallic components. Accessories not meeting these requirements may not comply with FCC RF exposure requirements and should be avoided.

Body-Worn Operation:
This device has been tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 10 mm must be maintained between the user's body and the Goggles (including antenna) for all nearby parts of the device. Accessories purchased from third parties with this device must not contain any metallic components. Accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or approved antenna.

Software interface

Main interface-1

1-VTX input voltage:
Detect VTX voltage, intelligently identify the voltage of 2, 3, 4, 6 string LiPo batteries, alarm when it is low (low battery is lower than 3.5V, and alarm in red font when the voltage is low low.

2-Goggles input voltage:
Detect Goggles low battery alarm, intelligently identify the voltage of 2, 3, 4, 6 string LiPo batteries, alarm when it is low (low battery is lower than 3.5V, red font and buzzer alarm when the voltage is low low.

3-Real-time SNR:
Display real-time transmission bitrate in Mbps, with 10.0M and 20.0M bandwidth modes.

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 Goggles 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-Goggles SD card status:
Display the status and remaining capacity of the Goggles SD card. When recording, the red circle flashes to prompt, the status of the SD card not inserted or abnormal, as well as the status of the memory is full is displayed.

9-Remote Controller Signal 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.

Menu Channel-2

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-4

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-Refresh set:
Refresh settings can be adjusted as VTX REC resolution, REC device, take off REC, REC delay time, REC card, Remote VTX, Built-in LED, REC Time, REC Format, Color, Saturation, Sharpness.

4-Device:
Adjustable settings include Buzzer Volume, Ranging Mode, Signal Loss Alert, Passive Factory Settings, Reset VTX Defaults, Device Information, User Guide, Mode Switching, SR Goggles(L), and Anti-Flicker.

5-Transmission Power:
Default selection transmission power: 25 mW, 100 mW.

6-Resolution:
Selectable resolutions: 720P and 1080P.

7-Bandwidth:
Selectable 10.0M and 20.0M options for different image quality bitrate is only supported when FCC mode is enabled.

8-Frame Rate:
The standard frame rate is equal to 60fps.

9-Standby Mode:
In standby mode, both the air unit and goggles transmit at 10 dBm. Transmission power will only return to the configured value after setting 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 goggles detect an arming signal from the aircraft, standby mode exits automatically. If no flight controller is supported, this function can be disabled.

10-Language:
Language switching English/中文.

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

12-Preferences:
Preset transmission modes: Smooth, High Quality, Long Range.

Menu Playback-5

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 playback interface is in the OSD mode, the OSD can be adjusted and displayed. Key to open the switch-selection function, and the menu bar 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 Goggles
Communication Frequency	5.738-5.850GHz
Transmitter Power(EIRP)	FCC=25dBm, CE=14dBm, SRRC=20dBm
I/O Interface	DC5.5*2.1mm, Micro SD Card Slot
Transmission Resolution	1080p60fps, 720p60fps
Code Rate	Max 25 Mbps
Min. Latency	Average 32ms
Average Gain	4.9dBi
Polarization	LHCP
Transmission Distance	>4km
Channel	3
Screen Resolution	1920*1080,60Hz
Screen Size	LCD
Screen Size	4.5 Inch
Power Input	6V-25.2V(2S-6S)
SD card	Support 256G
System	Ascent HD system

CADDXFPV SUPPORT

email: support@caddxfpv.com

ASCENT GOGGLES

快速入门指南

V1.0

简介

该产品为无线图像传输头戴显示设备，兼容 Ascent HD System 系列天空端产品。可实现这款高性能对高清无线图像传输，文传中继、VTX、发射器、天空端等现代无线图传系统的图像头戴产品。文传中继式、VTX、接收端、眼镜端等词汇代指 Ascent 图传系统三种产品。

对频

1. 连接眼镜和 VTX 天空端电源。
2. 等待设备启机后，分别按下眼镜和 VTX 天空端对频按钮，当进入配对状态时，VTX 指示灯变为红色，眼镜端显示一条红色线，表示正在对频。
3. 对频成功后，VTX 上的指示灯变为绿色常亮，眼镜端画面会开显示图传画面。

升级

请到官网下载最新升级固件，Ascent_L_Grd_X_X_X.img 对应眼镜端升级固件，拷贝到眼镜端 SD 卡中，注意请勿修改文件名。

1. 将升级文件复制到眼镜端SD卡的根目录下，连接电源并等待设备启机（如果有，请先断开图传文件）。
2. 长按眼镜端开关键直至设备启机第一秒启机时，开始松开按键，此时设备会进入升级模式，屏幕显示：进……进……进……并每秒闪烁大约为1分钟，中途请勿断电。
3. 升级成功后，眼镜端将自动关机约秒后停止并自动重启。

状态指示

眼镜端指示灯	
对频状态	淡……淡……淡……
升级固件	淡……淡……淡……——
升级失败（未检测到SD卡）	淡……淡……淡……
启机失败（重启或重刷固件）	淡……淡……淡……

注意事项

1. 该产品使用电力驱动，使用者需具备基本的动手能力以及安全意识，并且需要小心使用。
2. 待机模式开启后飞行器长期将 VTX 和眼镜发射功率保持于10mW。
3. 眼镜发射功率为宽频为10MHz 和 20MHz 两种模式。
4. 在功率提高状态下 VTX 和眼镜并非自动最新固件。

工作频道

Country(Frequency(MHz)	Channel1	Channel2	Channel3
FCC	5740	5770	5805
CE/SRRC	5740	5770	5805

使用本产品前，请确保您知晓了解并遵守当地法律法规，使用频率区域解版本或未经许可使用全频段的用户可能会因违反当地法律法规而受到处罚。

FCC 警告

本设备符合 FCC 规则第 15 部分的规定。操作须遵守以下两个条件：(1) 本设备不得造成有害干扰，(2) 本设备必须接受任何收到的干扰，包括可能导致非预期的干扰。任何未经合规负责方明确批准的更改或修改都可能导致用户操作本设备的权限失效。

注意：本设备已进行测试，符合 FCC 规则第 15 部分对 B 类数字设备的限制。这些限制旨在为住宅安装提供合理的保护，防止有害干扰。本设备产生、使用和可能辐射射频能量，如果未按照说明安装和使用，可能会对无线电通信造成有害干扰。但是，不能保证在特定安装中不会发生干扰。如果本设备确实对无线电或电视接收造成有害干扰（可通过关闭和打开设备来确定），则请尝试用一项或通过以下一种或多种措施来纠正干扰：

- 重新调整或重新定位接收天线。
- 增加设备与接收器之间的距离。
- 将设备连接到与接收器所连接电路不同的电路插座。
- 咨询经销商或经验丰富的无线电/电视技术人员寻求帮助。

特定吸收率 (SAR) 信息：

这款 Ascent Goggles 符合政府关于无线电波暴露的要求。这款设备旨基于独立科学组织通过定期和全面进行包括科学研究制定的标准。这些标准包括相当大的安全裕度，旨在确保所有人的安全，无论年龄或健康状况如何。

FCC RF 暴露信息和声明：

美国 FCC 的 SAR 限值是 1.6 W/kg。每个人体组织平均 4.0W/kg，设备类型：WN22-FPL006 (FCC ID：)已经对其进 SAR 限值进行了测试。

SAR 测试时，根据此标准指导的最高 SAR 是1.6 W/kg。用于公共和职业 RF 暴露的 FCC 限制是每平方厘米 10 W/kg。此设备已针对典型的操作佩戴操作进行了测试。其中 Goggles 的最高功率设置保持 2mm 的距离，为了保持符合 FCC 射频暴露要求，请使用此用户身体和 Goggles 背面之间保持 2mm 距离的配件，使用的皮带夹，检查和定长配件的编号不应包含金属属件。使用不满足此要求的配件可能不符合 FCC 射频暴露要求，应避免使用。

软件界面

主界面-1

1-天空端输入电压

显示天空端供电电压，智能识别2、3、4、6节LiPo电芯电压，单片电芯低于3.5V红色字体报警提示 2mm 距离。

2-地面端输入电压

显示眼镜供电电压，智能识别2、3、4、6节LiPo电芯电压，单片电芯低于3.5V红色字体报警提示。

3-实时码率

显示实时传输码率单位Mbps，10.0MB20.0MB码率宽模式。

4-图传状态

显示当前无线传输状态并显示接收端发射端传输数据量，低号碰不到会导致深度静失。

5-频道信息

显示当前传输频段并显示接收端发射端传输频率，低号碰不到会导致深度静失。

6-信息提示

显示眼镜内存卡状态及剩余容量，录像时红圈闪烁表示，不在录制状态不显示红圈，眼镜端 SD卡状态显示为NO SD，不满足显示为--。

7-遥控器信号状态

显示信号共5种状态，4格、3格、2格、1格、空格，当图传未检测到遥控器信号时，此图标闪烁。

菜单频道-2

1-频道：

显示当前的干扰状况，信号强度分为4格、3格、2格、1格、空格，信号显示空格为已经占用不可选，白色频道为选择模式，按下确认键高亮显示，高亮显示为当前频道。

2-跳频：

开启跳频功能，眼镜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-4

1-电压：

相机可调整内容为选择预设，编号，预设电压，锁定，白平衡，画面旋转，画面比例，3D模式。

2-录像：

录像可调整内容为 Debug，录屏周期，录屏模式，录屏文件OSD，OSD位置，开启录像，自定义录像，取景框，取景框位置，眼镜图标。

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。

4-设备：

设备可调整内容为横纵屏显示，测距模式，低号否关键示，恢复出厂设置，重置发射端默认设置，设置发射端默认设置，格式化眼镜，重刷第三方固件。

5-发射功率：

发射功率默认可选择25mW、100mW以外。

6-分辨率：

分辨率可以选择720P和1080P。

7-带宽：

可选择自动、10M、20M带宽工作模式，理论上带宽越小抗干扰越好但码率较低，带宽越大抗干扰越差但码率较高。

8-帧率：

帧率默认等于60fps。

9-待机模式：

当开启待机模式时天空端和眼镜端发射功率为10dbm，进出待机模式或关闭待机模式开关不会导致图传中断，发射功率的模式和对应功能需要天空端产品支持，请参阅天空端硬件手册。开启待机模式时，天空端会自动进出待机模式，如无飞控发送开启选择天空端关闭功能。

10-语言/Language:

语言可切换English/中文。

11-电池检测：

根据眼镜供电电量警报，电压过低时会浮现和眼镜报警提示，可选择开启或关闭。

12-录制：

按住方框或按设定功能，根据您的偏好可以选择流畅，高画质，达距离模式。

菜单回放-5

1、选择模式后按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信息和图传上的飞控信息，当选择修改信息时界面会，长按眼镜端键盘1秒并选项，菜单显示选项分别为：Ascent Goggles（眼睛，全选，取消），再次按下后回键盘全关闭模式。

2、播放界面单击中键暂停/播放，左右方向键调整快进/快进

规格参数

名称	Ascent Goggles
通信频率	5.738-5.~5.806.5GHz
最大发射功率(PIP)	FCC:<20dBm，CE:<14dBm，SRRC:<20dBm
接口	DC5.5*2.1mm，Micro SD Card Slot
图传分辨率	1080p/60fps，720p/60fps
图传码率	最大 25 Mbps
最低延迟	甚至20ms
天线增益	4.9dBi
天线模式	右旋圆极化 LHCP
传输距离	>4km
频道	3
屏幕分辨率	1920*1080/60Hz
屏幕材质	LCD
屏幕尺寸	5.8英寸
重量(含配件)	6V-25V(2S-6S)
功率峰	未测试
系统	Ascent HD system

CADDXFPV 技术支持
email: support@caddxfpv.com