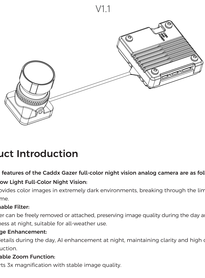
Caddx Gazer

Quick Start Guide

V1.1



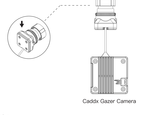
Product Introduction

The main features of the Caddx Gazer full-color night vision analog camera are as follows:

- **Ultra-Low Light Full-Color Night Vision**:
  Still provides color images in extremely dark environments, breaking through the limitations of nighttime.
- **Detachable Filter**:
  The filter can be freely removed or attached, preserving image quality during the day and enhancing brightness at night, suitable for all-weather use.
- **AI Image Enhancement**:
  Clear details during the day, AI enhancement at night, maintaining clarity and high color reproduction.
- **Adjustable Zoom Function**:
  Supports 3x magnification with stable image quality.

Installation Direction

*Please install with this side facing down to avoid the image being upside down.



Caddx Gazer Camera

Control Mode

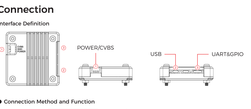
Zoom Function:
Set one FC solder pad to output a PWM signal for control (use a knob switch for control). The FC outputs a PWM signal to perform zoom operations.
For example, when the PWM signal duty cycle is 100%, the image effect is 1x zoom; when the PWM signal duty cycle is 200%, the image effect is 2x zoom.

Reset Function:
Set one FC solder pad with a TX defined IO to trigger the switch. This allows direct switching from high-magnification to 1x, and restores the zoom focus when turned off.

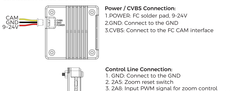
Reset Function (Day/Night Mode Switch):
Set one FC solder pad with a TX-defined IO to trigger the day/night mode switch each time.
(Day mode requires the use of a filter, while night mode does not require a filter.)

Connection

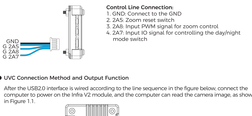
Interface Definition



- **Connection Method and Function**



Power / CVBS Connection:
1. POWER: FC solder pad, 9-24V
2.GND: Connect to the GND
3.CVBS: Connect to the FC CAM interface



Control Line Connection:
1. GND: Connect to the GND
2. 2A5: Zoom reset switch
3. 2A3: Input PWM signal for zoom control
4. 2A7: Input IO signal for controlling the day/night mode switch

- **UVC Connection Method and Output Function**

After the USB2.0 interface is wired according to the line sequence in the figure below, connect the computer to power on the Infra V2 module, and the computer can read the camera image, as shown in Figure 1.1.

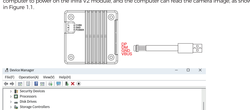
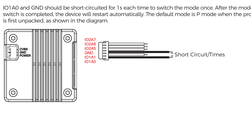


Figure 1.1

- **NTSC/PAL Switch Connection Method**

IO1A0 and GND should be short-circuited for 1s each time to switch the mode once. After the mode switch is completed, the device will restart automatically. The default mode is P mode when the product is first unpacked, as shown in the diagram.

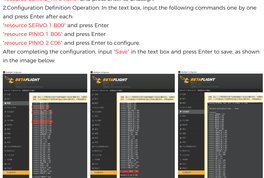


Debugging Procedure

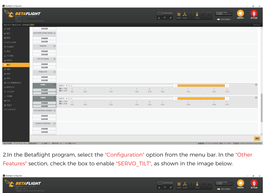
*The following is an example, other solder pad definitions can be configured as needed.

The control lines are soldered as follows:
1.2A7: Connect to flight controller TX1
2.2A6: Connect to flight controller MT
3.2A5: Connect to flight controller TX6
4.GND: Connect to the GND

In the Betaflight program, select the 'CLI' option from the menu bar. In the text box, enter the command "resource" to load and view the pin definitions, as shown in the image below:

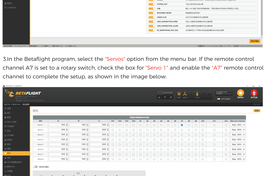


1.Release Occupation Operation: In the text box, input the following commands one by one and press Enter after each:
"resource MOTOR 7 none" and press Enter
"resource SERIAL_TX 1 none" and press Enter
"resource SERIAL_TX 6 none" and press Enter to unassign.
2.Configuration Definition Operation: In the text box, input the following commands one by one and press Enter after each:
"resource SERVO 1 800" and press Enter
"resource PINIO 1 800" and press Enter
"resource PINIO 2 C00" and press Enter to configure.
After completing the configuration, input "Save" in the text box and press Enter to save, as shown in the image below:

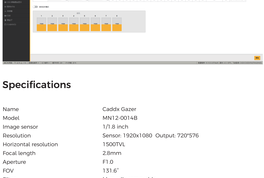


① Release Occupation Operation ② Configuration Definition Operation ③ Save

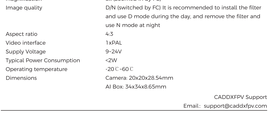
RC Channel Configuration:
In the Betaflight program, select the "Modes" option from the menu bar. Find "USER1" and click to start debugging. If Channel 4 is set to a 2-position switch, select the "AUX 4" channel. Then find "USER2" and click to start debugging. If Channel 5 is set to a 2-position switch, select the "AUX 5" channel, as shown in the image below:



2.In the Betaflight program, select the "Configuration" option from the menu bar. In the "Other Features" section, check the box to enable "SERVO_TILT", as shown in the image below:



3.In the Betaflight program, select the "Servos" option from the menu bar. If the remote control channel ATr is set to a rotary switch, check the box for "Servo 1" and enable the "AUT" remote control channel to complete the setup, as shown in the image below:



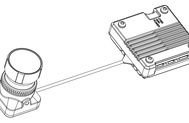
Specifications

Name	Caddx Gazer
Model	MN12-0014B
Image sensor	1/1.8 inch
Resolution	Sensor: 1920x1080 Output: 720*576
Horizontal resolution	1500TVL
Focal length	2.8mm
Aperture	F1.0
FOV	131.6°
Filter	Manually removable
Output format	PAL
Frame rate	50fps
Magnification	3x (zoomed in by FC)
Image quality	D/N (switched by FC) It is recommended to install the filter and use D mode during the day, and remove the filter and use N mode at night
Aspect ratio	4:3
Video interface	1xPAL
Supply Voltage	9-24V
Typical Power Consumption	<2W
Operating temperature	-20℃~60℃
Dimensions	Camera: 20x20x28.54mm AI Box: 34x34x8.65mm

Caddx Gazer

使用说明

V1.1



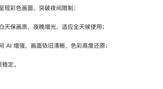
■ 产品简介

Caddx Gazer全彩夜视模拟相机主要特征如下:

- **超低照度夜视全彩:**
  在极暗环境下仍能呈现彩色画面，突破夜间限制;
- **切换防滤镜:**
  滤镜可自由装卸，白天保画质，夜晚增光，适应全天候使用;
- **AI 画质增强:**
  白天细节清晰，夜间 AI 增强，画面依旧清晰，色彩高度还原;
- **可调变焦功能:**
  支持3倍放大，画质稳定。

■ 安装朝向

*安装时请根据此画面朝向向下，以免图像画面颠倒



Caddx Gazer Camera

■ 产品功能

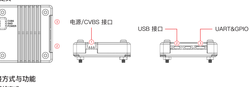
变焦功能: 设定1个飞控直输出PWM信号进行控制 (控制旋杆使用放钮开关) 飞控输出PWM信号实现变焦操作。
如: 当PWM信号占空比为100时，图像效果为1倍放大；当PWM信号占空比为200时，图像效果为2倍放大。

复位功能: 设定1个飞控序列下定义0进行控制触发开关可以从高倍率直接跳转至1倍，关闭后还原变焦焦距。

模式功能: 设定1个飞控序列下定义0进行控制每次触发进行白天模式/夜视模式切换。
（白天模式需要配带滤镜黑夜照不配带滤镜）

■ 接口定义与连接方式

接口定义



连接方式与功能

- **插线方式**

- **UVC连接方式与输出功能**

USB2.0 接口按照下图线序接线后，连接电脑端Infra V2模块上电，电脑即可读取到摄像头画面，如图1.1所示。

图1.1

- **NTSC/PAL切换接线方式**

IO1A0 与 GND 每次短接1秒将会进行一次切换制式，制式切换完成后重启机器；首次开箱产品默认为P制，如示意图所示。

■ 调式步骤

*以下为示例，可自行配置其他推盘定义

控制线硬件上推盘为： 1.2A7：接入飞控TX1
2.2A8：接入飞控M7
3.2A5：接入飞控TX6
4.GND：接入负极线(GND)

在Betaflight程序中菜单栏选择 "CLI" 选项，在文本框输入命令 "resource" 加载查看引脚定义，如下图所示：

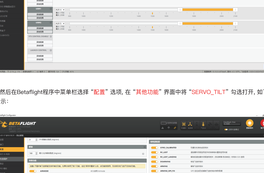
1.解除占用操作：文本框依次输入 "resource MOTOR 7 none"回车；"resource SERIAL_TX 1 none"回车；"resource SERIAL_TX 6 none" 回车进行解除；

2.配置定义操作：文本框依次输入 "resource RPVO 1 B06"回车；"resource PINO 1 B06"回车；"resource PINO 2 C06"回车进行配置，完成后在文本框输入"Save"回车即可保存，如下图所示：

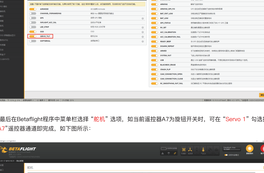
① 解除占用 ② 配置定义 ③ 保存

遥控器通道设置：

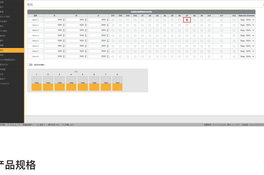
1.在Betaflight程序中菜单栏选择 "模式" 选项，找到 "JUSER1" 点击进行调试，当前通道4为二段拨杆时，则选择"AUX 4"通道，找到"USER2"点击进行调试，当前通道5为二段拨杆时，则选择"AUX 5"通道如下图片所示：



2.然后在Betaflight程序中菜单栏选择 "配置" 选项，在 "其他功能" 界面中将 "SERVO_TL1" 勾选打开，如下图所示：



3.最后在Betaflight程序中菜单栏选择 "舵机" 选项，如当前遥控器A7为拨动开关时，可在 "Servo 1" 勾选打开 "A7" 遥控器通道即完成，如下图所示：



■ 产品规格

名称	Caddx Gazer
型号	MN12-0014B
图像传感器	1/1.8 inch
分辨率	Sensor: 1920*1080 Output:720*576
水平分辨率	1500TVL
焦距	2.8mm
光圈	F1.0
FOV	131.6°
滤镜	手动可拆卸
输出格式	PAL
帧频	50fps
放大倍率	3倍 (通过飞控放大)
画质效果	D/N (通过飞控切换) 其中白天建议安装滤镜使用D模式，夜间建议拆卸滤镜使用N模式
画面比例	4:3
视频接口	1xPAL
供电范围	9-24V
功耗	<2W
工作温度	-20℃~60℃
尺寸	Camera: 20x20x28.54mm AI Box: 34x34x8.65mm

CADDXFPV Support
Email：support@caddxfpv.com