

# Eyecam Extreme Manual (Stand-Alone System)



## Component list

- 1 Color Micro Video Camera with Transmitter
- 1 Receiver
- 1 Flat Patch Antenna
- 1 A/V RCA Cable
- 1 RX Power Cable (for powering camera from an RC receiver)
- 1 AA Battery Holder (for powering camera on its own)
- 1 Articulating Camera Mount with O-ring
- 1 12V AC Wall Adapter (for receiver)
- 1 Instruction Manual

## Optional Components

- 3 Cell Lithium Battery (portable power for receiver)
- 3 Cell Lithium Battery Charger
- Lithium Battery Charger Wall Adapter
- Video Receiver Lithium Battery Power Cable (for connecting lithium battery to receiver)
- Eyecam Base Station Case
- Eyecam Diversity Receiver
- Eyecam Eyeware Video Glasses

## Introduction

Congratulations on your purchase of the Draganfly Eyecam Extreme. Our CCD Video Camera is coupled with a high-power transmitter to minimize video static and break-up while maximizing range and image detail up to 2500Ft. This video system is perfect for delivering high quality video from any platform with even a modest payload capacity. It is also lightweight: Including the articulating arm mount and power cable, the Eyecam Extreme will add only 1 ounce!

### Things you should know about the Eyecam Extreme

- EYECAM TRANSMITTER SENDS VIDEO ONLY – IT HAS NO AUDIO TRANSMISSION CAPABILITY
- Best results are achieved where there is a clear “line of sight” between the Eyecam Extreme transmitter and receiver
- Try to avoid obstacles such as trees, walls, cars, trucks, and buildings
- Transmitting over water and in the rain will reduce performance
- Interference from certain electronic equipment or a moving body can also inhibit the range
- For best reception, position the antennas of the transmitter and receiver 1.5 to 2m above the ground
- Please test all devices before final installation because transmission quality can often be improved by moving the components slightly
- Turn off the transmitter and receiver if the system is not in use
- Do not touch the antennas when the system is switched on
- Do not place the receiver behind a monitor or TV

### Important

- To avoid the risk of damage to Eyecam Extreme, use only the supplied power connectors.
- Don't place above or near a heat source which may cause the equipment to overheat.
- Avoid “Oily” locations.
- Microwave ovens can cause interference and diminish the quality of the signal if the Eyecam Extreme or Receiver is located close by.
- Beware of humid locations. Water droplets or spray may damage the unit. If condensation does occur, do not use until the equipment has dried out.
- Do not use in temperatures exceeding 55°C.
- Never paint or attach metallic labels or stickers of any kind.
- Do not cut the DC power cable of the Receiver to fit with another power source. This may result in damage to the Eyecam and will void warranty.

## Tips for Shooting Eyecam Extreme Video

When you shoot video remember the range of the video camera transmitter is limited to about 1000-2500 feet, but you should not be that far apart because the signal strength decreases with distance. Metal objects and other transmitters or noisy electrical circuits and motors may also interfere with the signal. The receiver works best if it is above the ground as much as possible and in direct line of sight with the transmitter.

When we shot our videos we had a pilot /driver and a director/helper aiming the receiver and coaching the pilot about which shots looked the best. The lens on the video camera has a fixed focal length, which means if you want a close up of an object you have to move in close to it or move back for a wide shot. The director/helper can be most useful by telling the pilot/driver if the target is in the shot and what to do to make the shot better. After awhile the pilot can get a feel for positioning themself for a shot but it takes practice. The camcorder we used had an LCD screen so we were able to do the establishing shots of the Draganflyer V Ti from the pilot's point of view and then connect the video receiver from the onboard camera to the camcorder without using a separate monitor. This arrangement is convenient and mobile.

Don't try to get all your shots on one flight. Better to get one good shot per flight than lots of 'less than perfect' ones. Radical moves look good from the observer's perspective but from the onboard camera they mostly make the audience disoriented.

## Mounting The Eyecam Extreme

The Eyecam Extreme can be used in many applications. We have supplied you with an articulating camera mount that we have found useful in many different applications. The mount is easily attached by 2 Allen head bolts as seen below.



The camera is then fastened to the mount by the use of a rubber O-ring as shown below.



## Setting up Eyecam Extreme

Activating the Eyecam Extreme is as simple as providing it with DC power. The harness to power the camera is pre-wired to fit the Draganflyer V Ti and Ti Pro models. We have supplied you with two additional ways of powering your camera. The first is the AA battery box, which has an On/Off switch. The second is a modified servo lead which can be plugged directly into your RC receiver. It will power the Eyecam whenever the RC receiver is powered.

The transmitter for the camera has 4 selectable channels which allows you to use more than one camera at a time. The channels are determined by moving the dip-switches located on the transmitter. The configurations are listed below. The transmitter has a small antenna attached to it. For best results the antenna should always be in a vertical position.

Channel	SW1	SW2
1	ON	ON
2	ON	OFF
3	OFF	ON
4	OFF	OFF

Once you have established a power supply for the camera and determined what channel you want to operate on, you are ready to hook up the receiver. The receiver is powered by a 12V AC wall adapter or by an optional 3 cell lithium battery. **First** you need to **connect the antenna** to the receiver. It easily screws on to the top of the receiver. Hand tight is more than adequate for this connection. Ensure the antenna is hooked up before powering up the receiver - failure to do so can result in **damage** to the receiver. Now hook up your power supply to the receiver. Next we need to hook up the RCA cable. Hook the yellow RCA end into the yellow terminal of the receiver and hook the other end into your video capture device. The other RCA jack (white) is for audio, so it is not used with the Eyecam Extreme. Power on your receiver and match the receiving channel to the transmitting channel of the camera. With your video capture device turned on and your camera powered on you should be able to view video from your Eyecam Extreme. Adjust your antenna for best reception.

## Troubleshooting

**Poor picture:** Realign antennas; slightly adjust the position of the Eyecam transmitter or the receiver. Reduce or increase the distance between Eyecam and Receiver. Ensure antenna is pointed towards the transmitter.

**Line only – no picture:** Confirm there is no microwave oven or other 2.4GHz equipment (cordless phones) operating close by.

**Picture ghosting:** Check for interference caused by obstacles such as trees, buildings and shrubs etc. Try a different location for the Eyecam and receiver.

**No picture:** check the receiver to confirm it is turned ON and make sure the A/V connections are plugged in the proper way (i.e. yellow to yellow on both ends).

## Technical Specifications

### **Eyecam Extreme**

Frequency: 2.4GHz band  
 Power supply: DC +5v  
 Current con.: 160mAh (at DC 5v)  
 Operation: -5C to +45C  
 Pixels: 752 (H) x 582 (V) – 437.664 pixels

### **Eyecam Receiver**

Frequency: 2.4GHz band  
 Power Supply: DC +12v  
 Current con.: 350mAh (at DC 12v)

## Optional Equipment

### **Eyecam Lithium Polymer Battery w/Protection Circuit and Charger**

A Thunder Power Lithium-Polymer (Li-Po) battery can be used to make your receiver more mobile. They're lighter and more compact than NiCd or NiMH packs and safer to use than Li-Ion cells. This battery will power the receiver for around 3 to 4 hours. It also includes a voltage cut off so you never have to worry about over discharging the battery.

-1320 mAh, 3 cell (11.1V)

-Dimensions (wt): 34mm x 65mm x 20mm (100gm)

### **Eyecam Extreme Base Station**

The Eyecam Extreme RX Base Station Case is a purpose-built case. It comes ready to mount the Eyecam Extreme's receiver, optional receiver power battery, and a video storage device. We recommend a MiniDV-based recorder with LCD screen. It also has a pivoting hinge for mounting a patch antenna and holding it pointed in the direction you choose. Inner case dimensions, on the Eyecam Extreme RX Base Station Case, are 13.4" by 8.9" by 5.6"..

- Tough metal edges and corners
- Padded fold-down handle
- Strong metal latch
- Dual metal hinges

Specifications:

Internal Dimensions: 13.4 L x 8.9 W x 5.6 D in

Lid Depth: 2 in

External Dimensions: 13.5 L x 9.5 W x 7.5 D in

Weight (empty): 5.5 lbs

### **Eyecam Eyewear Video Glasses**

Draganfly Innovations introduces the Eyewear video system, an amazing accessory that can be used with the Eyecam or Eyecam Extreme. This revolutionary system enables the operator to control the model from the driver's seat.

The Eyewear video system is amazingly easy to connect thanks to its standard RCA input and automatic NTSC/PAL international signal recognition. For those of us who simply cannot bring along a person to act as a dedicated camera operator, the Centra's give us a way to accurately frame our shots while still acting as the pilot. The video display is located below the right eye instead of to the right side of the eye like other models. This makes it much more comfortable to transition from regular sight to the video display, reducing fatigue. This works under the same principal as bi-focal glasses. The polycarbonate lenses are distortion free for easy clear viewing of your aircraft. The glasses include built in diopter adjustment for critical focus of the video image, as well as an adjustable nosepiece to maximize comfort.

## Specifications

Display format - Monocular

Display type - AMLCD

Video Signal - NTSC-M / PAL format

Video display devices - AMLCD panel (76 800 pixels)

Resolution - QVGA 320x240

Color bit depth - 24-bit color

Aspect ratio - 4:3

Diagonal field of view - 16°

Vertical field of view - 9.60°

Horizontal field of view - 12.80°

Focus image location - 2m to infinity

Video refresh rate - 50 Hz (PAL) and 66 Hz (NTSC)

Contrast - 100:1

Interface connectors - 1 RCA (video composite input) + 2 audio RCA (stereo sound). Connector to link the eyeglass to connection box for power supply and video signal.

Video settings - brightness/contrast/saturation/hue

Optical settings - Focus adjustment +/- 0.75mm

Vertical adjustment - 4-position nose pad.

Horizontal adjustment - Orientation of optics between +1° to +23° with 5 preset positions.

Power supply - 4 AA Alkaline batteries (1.5V) or 4AA accumulators (1.2V)

Power consumption - 1.1 watt

Operating temperatures - 32° to 140° F (0° to 60° C)

Storage temperatures - -4° to 176° F (-20° to 80° C)

Display unit weight - 2.11 oz (60g) (without cable)

Control unit weight - 6.34 oz (180 g) (without cable and battery pack)

## Eyecam Diversity Receiver

A high speed microprocessor constantly evaluates the quality of the video signal produced by the two built in receivers, and switches to the best signal in less than 20 microseconds. Furthermore, special circuitry built into the unit insures that the switch occurs during the vertical blanking period of the video, which eliminates all signs of switching noise from the video. The result? A transition between receivers that is so seamless, you'll wonder if we're just making this whole diversity-thing up.

When properly implemented, our new diversity receiver can virtually eliminate video break-ups normally associated with polarization and multipath issues.

The diversity receiver ships with the following accessories:

- A/V Cable
- Two 8dBi circular polarized patch antennas
- 11.1V 3 cell Lithium Polymer Battery
- Power connector with low voltage cutoff for Li-Po battery
- Instructions

These and many more products can be viewed on our website [www.rctoys.com](http://www.rctoys.com)