



Fly Cam One

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It had to happen some day. And finally it has. For as long as there have been RC model aircraft, their pilots have always wondered what it would be like to sit in the cockpit; to see what their airplanes are seeing. Various attempts have been made using bulky, and heavy, video cameras that used tapes. Heck, the earliest attempts used 8mm film cameras.

Some of these attempts actually worked. But the cameras were expensive. Especially costly was developing the 8mm film. The heavy cameras with their mechanical tape or film drives could easily suffer damage, or be totally destroyed, in the event of an unplanned airplane-ground interface. (Regular Sport Aviator readers know we do not use four letter words like "cr@sh" here. It's the thought that makes "four letter words" not the number of letters.)

Even if all went well, the cameras were heavy and usually substantially reduced the airplane's performance. If the airplane did not have a clear windscreen, the camera had to be mounted out on a wing. Ever try trimming and flying an airplane with two pounds of camera hanging way out there? Don't, it is not recommended.



Photo 1

[Video 1](#)

[Dialup](#) | [Broadband](#)

That has all changed now that Hobby Lobby is distributing Acme's FlyCamOne Version 2 (FCO2) in this country. FlyCamOne has been available in Europe for a little while now, but not here. It has been user tested in Germany and everything learned during the testing has been incorporated into the new FlyCamOne Version 2 model that Hobby Lobby is now offering.

The FlyCamOne Version 2 is light, and stores as much video or as many still photos as its SD Memory card can hold. Hobby Lobby sells a 2 GB SD card that will store about 30 minutes of video. The camera also takes still photos (more on that later) with a 1.3 MB resolution. At that resolution, the 2 GB SD card might hold a lifetime of still pictures.

Photo 1 shows everything that is packed into this versatile camera package. The camera itself is only 3 in. long, 1.5 in. wide and 0.5 in. deep. It weighs just 1 ounce, including the enclosed rechargeable Lithium battery. The SD card weighs an additional 0.5 ounce making the total airborne weight 1.5 ounces.

The separate mount has two purposes. If you want to adjust the camera lens angle from flat to 90 degrees while in flight, use the mount to create a space large enough for the rotating lenses' throw arm to clear the surface. If you plan to use the camera indoors, the mount makes a convenient stand.

The cushioned hook/loop mount helps to protect the camera from vibration while providing a firm, removable mounting surface. Just remember that the cushioned part mounts to the camera. That way, regular non-cushioned hook/loop tape can be used on a variety of airplanes or cars while still protecting the camera.



Photo 2

The thin cord passes through a plastic loop in the camera's corner and works as a safety line should the camera separate from the hook/loop mount and try to fall off the airplane. I used thin wire instead (photo 2) as it can be easily wrapped around a couple of servo mounting screws and is probably a little stronger than the provided thin cord.

The small "control horn" mounts (using the pictured small screw) into the rotating lens bottom. This allows the use of a separate servo to rotate the lens during flight.

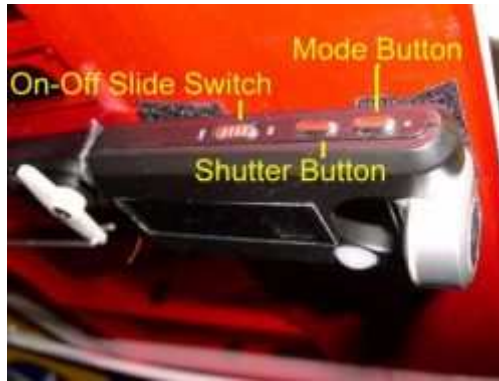


Photo 2A

Before flying, it might be a good idea to take a tour of the camera and see just how versatile it can be. There are three control buttons, all located on the same side. One is a simple on/off slide switch. The push button switch closest to the slide switch is the “shutter” button. After the unit is turned on, push this button to activate the small digital window just under the lens. The second push button scrolls through the available operating modes.



[Figure 1](#) (PDF)

Click on the above figure 1 for a PDF file of the entire instruction sheet. This camera can do a lot and it is all there. But it is all there in five languages and very small print. So here is a brief summary.

When **RY** appears, the camera is ready to be set to one of the wide variety of tasks this versatile camera can accomplish:

Video Tasks

VR-(looks like UR) is the main video setting. Pushing the shutter button when the camera is set to “VR” starts the video going. The video resolution is 640 x 480 pixels. That is not bad for a small camera. The camera uses a “wide angle” style lens and automatically adjusts for focus and light

conditions. The video runs continuously until the entire memory is filled. Video operation then stops. The frame rate is 25 fps and each minute of video requires about 50MB of memory.

VE – The same as above except the video process does not stop when the memory card is full. Instead it runs continuously, even to over-writing what has already been stored.

VL – This setting works like the VR except that the video resolution is set to only 320 x 240 pixels. Whenever possible, try to avoid this setting. While it doubles the memory storage, the quality is not enough for making good airborne videos.

SR – This is the spy cam setting. The camera must be standing up for best results. The FCO2 has a heat-activated motion detector (small white “button”) that begins the recording when a person comes within 15 ft. of the camera and is within range of the lens. As when using the VR setting, recording stops when the memory card is full.

SE – The same as SR above but with endless recording as in the VE setting.

SL – The same as the SR setting but with the lower, 320 x 240 pixels. This is a good setting for spying as more video can be shot using the same memory capacity setting. The close range of the video mitigates its reduced quality.

Photo Tasks

PR – Instead of videos, the camera takes a still photo on this setting every time the shutter button is pushed. The file size is about 100 KB per photo. The camera will not over-write existing photos or videos already in memory while on this setting. Photo size is 1280 x 1024 pixels.

PE – Still photos are taken every 4 seconds with a resolution of 1280 x 1024 pixels. It will stop taking the photos when the memory is full or the shutter button is pressed again. If you want higher quality airborne still photos of your flying site, this is the setting to use.

The Fly Cam One Version 2 has two other settings:

PC – This is the computer interface setting. Connecting the camera to your computer when it is turned off automatically activates this setting. Once connected, the computer charges the 200 mAh Lithium Ion (Li-Ion) battery. A full charge takes about 90 minutes.

The FCO2 also serves as an extra “hard” drive when on this setting. One of the better things about using this camera is that no software is required. Connect it to the computer using the supplied 3-ft. USB cable and the computer recognizes it as an SD card.

Just copy one or all of the files on the “drive” to your computer using the copy and paste functions. It is that easy. The video files are .avi files and can be edited using Window Movie Maker (included with XP or Vista) or another editing program such as Roxio Media Creator. .

It is also possible to use an SD card file reader but using the FCO2 as another drive is just too easy to worry about other file transfer methods. But I did try using the card reader on my HP 2610 printer and it worked fine.

I have been told that the FCO2 is compatible with Mac machines, but that has not been tested here yet. Reportedly, the Mac OS X operating system also recognizes the FCO2 as an external drive once the FCO2 is connected *and switched on*. Switching it on is not necessary for PC operation, only when using a Mac.

WC – Download some software from the FCO2 site, connect the FCO2 to your computer with the USB and you now have a webcam. WC use is the only time you will need to download software.

OPERATION

Spy Cam

We are going to leave the FCO2's purpose, and usefulness, as a spy camera up to your

imaginations. But the motion sensor does seem to work well and it does activate the camera. At least it does indoors. The FCO2 is not water proof or water resistant so outdoor use is not a good idea (nor is boat or seaplane use, darn!).

The motion sensor does not work well when airborne either. There are no sufficient heat sources up high to activate it. You might try flying over the pits at less than 15 ft high and see if that works. But your photos will either show people ducking and running from your airplane or reaching for heavy objects to pound you with once you have landed. You might get a few interesting photos but you will also get thrown out of your club and be violating the AMA Safety Code. Don't do this!

Keep the spy photos indoors. The rest we leave up to you.

Airborne Video Cam

Video 2

[Dialup](#) | [Broadband](#)

This is what 90% of the FCO2 cameras will be doing to earn their living. The ability to take 30 minutes of quality video, at a cost of only \$110 (\$80 camera and \$30 SD card) using a 1.5 oz. camera just 3 inches long and 1/2 inch high would have gotten you burned at the stake as a witch 20 years ago. RC pilots have wanted this for as long as I have been flying (since 1970 for the curious) and probably even before that.

So how good are the videos? Both videos shown so far have been slightly retouched. One or two clicks of "bright" have been added using Microsoft Movie Maker. The reason is that the camera's automatic lens "aperture" setting, (electronic) tends to darken too much whenever the camera is pointed within about 45 degrees of the sun, either side.

But, you be the judge. The first Landing video below, Video 3 Retouched Landing Video, has just one click of "bright" added. There were no other photo quality alterations or special effects. Video 4 Untouched Landing is just as the camera presented except, as are all Sport Aviator videos, the resolution has been reduced to 340 kps for efficient downloading (48 kps for dial up)

Video 3

[Dialup](#) | [Broadband](#)

Video 4

[Dialup](#) | [Broadband](#)

However, the reduced resolution may convey a false impression of the FCO2's real video quality just because it has been reduced. Therefore, Video 5 below is the same as Video 3 except at full resolution. Please excuse the excessive download time.

Video 6 is the same as Video 4 but at also full resolution. (Dial up readers will just have to take our word for it that the FCO2 video quality is outstanding for its size, weight and cost.)

Video 5

[Broadband](#)

Video 6

[Broadband](#)

After having watched, and heard, the videos presented so far, you know that the FCO2 also includes a microphone. The microphone is built into the right side of the camera. It is *very* sensitive. In all the videos made so far, the microphone has been covered by several layers of masking tape. Plus, the camera was mounted on the right wing of the [Electric Telemaster](#), aimed

away from the propeller and motor, to help further reduce motor noise.

Still, the video is extremely loud. Fortunately any video editing program allows volume adjustment. On all videos, the volume was lowered to nearly the mute setting. Here is a very short clip, Video 7, with the sound at the original setting:

Video 7

[Dialup](#) | [Broadband](#)

While not yet tested, I would expect an engine sound to be as loud as the electric motor's. We always say how quiet electrics are to operate but that is not really true close up. Because of its narrow tip design, an electric propeller produces more noise than the equivalent glow propeller. But propeller noise dissipates more over distance than does engine noise. Once in the air, the electric is far quieter.

Since we can lower the volume using the editor, or the player's volume control for that matter, let's insert the FCO2 inside the cockpit. After all, it is the "cockpit view" putting us inside the airplane that was the first airborne video attraction.

Video 8

[Dialup](#) | [Broadband](#)

The FCO2 easily fit inside the Graupner Kadett's large cockpit even when vertically mounted. The camera's wide angle lens still provided an excellent field of view. While noise was not a problem, the camera's rather fast 25 fps (frames per second) filming rate did slow the propeller from a clear, see-through disc to one with blurred distortions. I wish there was a way to slow the camera's fps rate so the disc would appear clear. But there isn't. One other small problem is that the video lags behind the audio by about one second. But this is hardly noticeable during airborne flights.

Video 9

[Dialup](#) | [Broadband](#)

How about videos of other models' airborne flights? Video 9 shows the very first attempts at videoing other model airplanes in flight. Be very careful attempting this. These first attempts are crude and from a good distance. But as the Northeast's weather improves, and the winds die down (they were 20 gusting to 25 on this day), we will be adding improved air-to-air videos to this article.

I am sure it need not be said here, but it is going to be anyway. **STAY AWAY FROM FULL SIZE AIRCRAFT OF ANY TYPE. STAY FAR, FAR AWAY!** The authorities are putting people in jail, sometimes for years, for shining a laser pointer into the sky if there happens to be an airplane nearby. Imagine what will happen to you if you fly a model close enough to take an airborne video of a full-size aircraft! At best, your club will lose its field; you will be sued and most likely put in jail. At worst, well you know the worst.

Video 10

[Dialup](#) | [Broadband](#)

Of course, there is always sightseeing to be done. Although flying out of visual range is not possible, that doesn't mean we don't want to see what's over the next ridge. Video 10 is a short tour of the old Homestead. The big lake will be the testing pond, and home base, for the Great Planes PBY Catalina.

Notice the size of the flying field; Very small with tall trees on three sides. The Electric Telemaster, equipped with flaps and flaperons allows operation from such a small field *if* you are comfortable slipping landings and there is not much wind.



Photo 3



Photo 4

Ten videos are a good start. Now that the weather is clearing in the Northeast, some additional tests will be added to this on-going review. We'll be looking at varying the camera lens angle in flight and also taking the "PE" still photos from the air.

If you are going to start with the fixed lens angle used so far in this review, make sure it points downwards about 5 degrees on a flat bottom wing. Use a 10-degree downward lens angle if the camera airplane uses a symmetrical wing.

Summary

If these videos don't motivate you to get your own Fly Cam One Version 2, I am not sure what will. The \$80 price is amazing, but not as amazing as the camera's performance and versatility. It fits anywhere, even on a Park Flyer.

This camera is so versatile that there is even one more use for the FCO2 I haven't seen mentioned anywhere. Mount it on a model train flatcar in front of the engine and you will see yours, or your friend's, model train layout as if you were traveling through that world.

For more information or to order the Fly Cam One Version 2, go to: <http://www.hobby-lobby.com/video-camera.htm>

We'll be adding more photos and videos soon.