

RunCam 5: The Complete Guide

#camera #runcam #freestyle #review

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It's finally here! RunCam's latest GoPro competitor camera - the [RunCam 5](#). In the meantime, GoPro has discontinued the Session 5 - many FPV pilots' favorite camera, leaving people with the option to grab a refurbished one from eBay, buy used from elsewhere or move on to use a Hero 6 with a slightly different form factor. This is where RunCam's new offering comes in.

I'm very interested in the RunCam 5 camera. My excitement stems mainly from the fact that RunCam specializes in making FPV cameras and does that exceptionally well. Furthermore **I have been using RunCam's Split cameras for over a year now and I am very pleased with the fpv feed when flying, as well as the 1080p HD video recording.**

Is the [RunCam 5](#) a worthy competitor and costing only a \$100 (a fraction of the price of a GoPro camera) is it an option to consider switching to?

Let's find out!

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If you prefer watching, check out the full video review on my YouTube channel:

Unboxing

RunCam's products almost always offer a premium unboxing experience with almost Apple-like quality. This one comes in a solid hard cardboard box with a slide-on top.





Underneath the box, you can find a field to scratch off and expose a code for verifying your product.





Inside we find the camera sitting in the middle of a bed of sponge-like soft material, wrapped from all sides.





The lens has a protective plastic layer that needs to be peeled off before usage. We also notice a single button on top and an LED.





On the left-hand side, there is a micro USB port for charging or connecting to a computer for accessing the SD card contents without taking out the SD card.





On the right-hand side, there is a **sliding panel, that when slid open exposes the SD card slot where you can put your memory card**. Slide it shut and your SD card is decently protected from getting lost while you're flying. Above the SD card slot there is a reset button, should you ever need to use it.





And here's a shot from the back of the camera.





In addition, you get a manual and a small box with a few accessories.





Inside that box, we find a USB to micro USB cable for charging and video downloads and two high-quality rubberized velcro straps.





The straps are indeed of decent quality and the rubberized coating definitely helps a ton with gripping tightly around the camera.





Specifications

One of the most outstanding features of the [RunCam 5](#) is its weight! **It's by far one of the (if not THE) lightest cameras in its class!** It comes in at just **56 grams**. That's very, very light. In comparison, the Hero 5 Session weighs 74 grams. Here are the rest of the technical specifications:

USB Power Input	DC 5-15V
Battery Capacity	950mAh
Power Consumption	Max 620mA @5V
Dimension	38*38*36mm
Net Weight	56g (with battery)

In terms of **dimensions**, they are quite similar to the GoPro Hero Session 5 and  means that the RunCam 5 would fit in all existing TPU mounts. I use [this mount](#) and had no issues, the fit is nice and snug and you can also use one of the provided rubberized

velcro straps to hold the camera in place extra tight.

As far as battery capacity goes, **RunCam claims the built-in 960 mAh battery should get you more than 90 minutes of 1080p 60fps recording time, or about 60 minutes of 4k 30fps recording time**. And yes, the battery is irreplaceable, built-in battery. Which might be one of the necessary shortcuts RunCam had to take in order to drive the price of the camera that low. I personally don't mind at all that the battery is built-in.

To charge, use the micro USB port and DC current in the range of 5V - 15V.

Onto the video specs:

Image Sensor	SONY IMX 377 (12MP)
Video Resolution	4K@30fps / 2.7k@50fps / 1080P@120fps / 1080P@60fps / 1440P@60fps
Field of View (FOV)	145°
Video File Format	MP4
TV-OUT	Support
Communication Interface	Micro USB
microSD Card supported	Up to 128G. U3 recommended (2.7K50/1080P120 requires U3 or above; other solutions require U1 or above) Please make sure that the file format of the SD card is FAT32, otherwise, it will easily cause errors.
WiFi	Nonsupport

The RunCam 5 has a 12MP Sony sensor with a field of view of 145 degrees. The video output is in MP4 format, it supports resolutions from 1080p to 4K which we will dive in deeper in a minute.

Depending on what resolution and framerate video you shoot you will need a U1 or U3 SD card. The supported capacity is up to 128 GB.

The RunCam 5 does not support WiFi connections, so let's look into what does that mean for setting the camera up.

⚙️ Setup

For the complete setup instructions, you can always refer to the [RunCam 5 user manual](#). Here's a quick breakdown of the camera button's functions:

- **Long press** - will turn the camera on (if off) and will turn it off (if on). This is indicated



by a green LED or lack thereof.

- **Short press** - when the camera is on will start recording (indicated by blinking green LED). A subsequent short press will stop recording, making the LED solid green.
- **Double press** - when the camera is on will change it to setting mode, ready for reading a QR code (the LED will indicate that by changing to blue).

There are a few things to do to get up and running:  **Charge the camera up**,  **Insert a formatted SD card**,  **Choose your video settings** and  **Mount it on a drone**.

Charge it up

You can charge the RunCam 5 via its micro USB port. Plug it into a computer or something and let it be until the LED goes off. That indicates that the battery is full.

Insert an SD card

Insert a high-quality, formatted SD card with decent capacity. We will be writing a lot of data and you need a fast card to do so. Don't underestimate the formatting step, as it can save you from headaches and lost footage issues. If you are unable to format your SD card via a computer, you can do that through the RunCam itself. Get a decent capacity card, I recommend at least 32 GB, but you know yourself better, take what makes sense. **Just note that 4-5 battery packs yield about 6-7 GB of footage easily.**

Configure the settings

I mentioned the camera does not have WiFi connection capability and it does not have Bluetooth either. So how do we change the settings on it? You see, the RunCam 5's config lives in a file on the SD card, called `CameraConfig.ini`. There are at least two ways to change the configuration. **By changing the values in a config file or by using a QR code to apply the new config.**

- **by updating the config file**

I don't recommend this approach, although there's certainly nothing wrong with it, it's just that I found using the app easier. Either way, I'll guide you through this way of changing the settings as well.

First, **connect the camera to a computer via micro USB**. The LED will go red to



indicate the camera is charging. Press and hold the button for a couple of settings. This will power on the camera and will mount its SD card into your filesystem so you can access it. The LED will go green to indicate the camera is on (your LED might look even a bit orange if it is still charging).

Access the `CameraConfig.ini` file on the mounted SD card. Ideally, use an editor like [Notepad++](#) or [VS Code](#) to edit the file to avoid issues.

Here's a short example of how a part of my camera config file looks like:

```
10 ; Camera mode settings
11 ; When the camera is turned on, the green LED lights up and the camera is in green mode. Double-click the shutter button to
12 [CameraMode]
13 ; Green mode video resolution.
14 ; Available values: [4k@30fps(XV) | 4k@30fps | 2.7k@50fps | 1440p@60fps | 1080p@120fps | 1080p@60fps(XV) | 1080p@60fps]
15 ; Default value: 2.7k@50fps
16 GreenMode=1440p@60fps
17 ...
18
19
20 ; Video settings
21 [Video]
22 ; Video quality. [1]:High; [2]:Medium; [3]:Low.
23 ; Available values: [1,2,3]
24 ; Default value: [1]
25 VideoQuality=1
26
27 ; Loop recording interval. [0]:OFF; [1]:1 minute; [3]:3 minutes; [5]:5 minutes.
28 ; Available values: [0,1,3,5]
29 ; Default value: [0]
30 LoopRecordingInterval=0
31
```

And here is the [complete configuration I'm currently using](#) when shooting with the RunCam 5.

It might look like a lot at first but in reality, it's quite simple. The lines that start with `;` are comment lines - they are helpful messages for you to understand the functionality and have no programmatic meaning. RunCam has listed nicely in those comments all the possible options for a particular setting, as well as its default value.

For example if I wanted to change my `VideoQuality` setting to Low (why would I though), I would just change its value from 1 to 3. That's all there is to it.

As I mentioned I don't use this approach to change the settings, but one nice thing about this is that it allows you to easily create "profiles" by creating separate complete configuration files and keeping them somewhere in your computer. Then swap them in as necessary.



- **by using the RunCam app**

The other way to change the settings is by using the **RunCam App** which you can get on the [Google Play store](#) or [iOS App Store](#).

On the first screen select your product (RunCam 5) and tap the **QR Code Configuration** button.



15:59



96%



RunCam 5 ▼



QR Code Configuration

QR Code Configuration



16:00

96%

< Video Settings

Apply

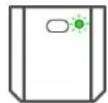
•••

**Video quality**

High

**Loop Recording**

Off

**Auto-record****Resolution**

1440p@60fps

**Distortion correction****Volume**

Low





the **Power supply frequency** from 50Hz to 60Hz if you live in the USA.

For now, I have left everything to their default values for the sake of testing the camera with it's out of the box settings. I will make sure to come back and add an update to this article if I find particular settings that improve the image quality by a lot (subscribe to the blog using the form at the end to keep up with updates).



16:00



96%

< General Settings

Apply

...



Date stamp

Off



RunCam logo



Flip Screen



Saturation

2



Exposure compensation

0



Contrast

2



Sharpness

2



Metering mode

Average mete.. ▾



White balance

Auto



Low Light Image Enhancement



◀ ▶ 

 Metering mode

Average mete.. 

 White balance

Auto 

 Low Light Image Enhancement 

 Auto shutdown

3 minutes 

 Power supply frequency

50Hz 



Video



General



Clicking the three dots at the top right brings up a menu that allows you to restore the default settings or to format the SD card.



16:00



96%

< General Settings

Apply**...**

Date Stamp

On

RunCam logo



Flip Screen



Saturation

2



Exposure compensation

0



Contrast

2



Sharpness

2



Metering mode

Average mete.. ▼

White balance

Auto



Low Light Image Enhancement

[Reset to default parameter](#)



Metering mode

Average mete.. ▼



White balance

Auto ▼



Low Light Image Enhancement



[Reset to default parameter](#)

[Format MicroSD card](#)

[Cancel](#)



[<> QR Code](#)

•••

Scan the following QR code in RunCam5's Setting mode to apply the configuration

Mobile phone screen reflection may affect the recognition rate of QR code



Configuration Details



Configuration Details

Video quality

High

Loop Recording

Off

Auto-record

Off



Finally, let's mount the camera onto a quad. There are probably many ways to do so, plenty of projects on <https://thingiverse.com> that you could print, or just [purchase a mount like this one](#) from an online store.





This mount worked pretty well. Attached it with a couple of thicker zip ties and in addition, ran around the rubberized velcro strap too.





Let's go fly! Here's some example flight footage with the default settings, except for being recorded in 1440p 60fps and stretched from its 4:3 ratio to a 16:9.

Onto more video samples for science!



Video samples

The RunCam 5 offers you the following 7 resolution and framerate variants:



16:01

96%

< Video Settings

Apply

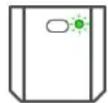
•••

**Video quality**

High

**Loop Recording**

Off

**Auto-record****Resolution**

4k@30fps(XV)

**Distortion correction**

4k@30fps

**Volume**

2.7k@50fps

1440p@60fps

1080p@120fps

1080p@60fps(XV)

1080p@60fps

1440p@60fps

1080p@120fps

1080p@60fps(XV)

1080p@60fps



Video



General



Check out all the different samples. To show the playlist click the playlist button at the top right of the video player.



Here's the thing about FPV videos. You are the judge of what you prefer watching and how you would like to express yourself in the videos you make. For instance, to me, it's more important to have the video with buttery smooth 60fps than to have a 4k resolution. In fact, I don't think there even is a need for 4k. 2.7k at 60fps would be awesome, but alas, the RunCam 5 records 2.7k at up to 50fps. It's not the end of the world, but it sure is not 60fps.

Since I got the RunCam 5 I've recorded a bunch of videos, and I have come up to use mostly the largest possible 60 fps option - 1440p. And I didn't very much like the linear stretch of the XV resolution options. What that does is basically stretch the entire image.

And this brings us naturally to the video post-processing part.

Post-processing video files

Video processing is not among my strongest knowledge points, I definitely have a lot more to learn and that's the reason why I really enjoy the dynamic stretch solution I'm about to show you.

Dynamic Stretching of 1440p from 4:3 to 16:9 ration

I'm just sharing what I learned, but I really feel I need to give all the credit possible to [Joshua Bardwell](#) for sharing about the tool to stretch videos. The tool in question is



called `superview` and lives in [this open-source repository](#) on GitHub. Follow the requirements and installation instructions on that page. You want to do two things - download and add `FFmpeg` to your path (there's a link in the readme file in the repository) and grab a copy of the superview binary for your operating system from the [releases page](#).

Once you have those, the way to use the binary is as follow from a command line:

```
./superview.exe -i RC_0001_1234.MP4 -o RC_0001.MP4
```

What did we do here? First, we type in the filename of the executable we want to run - `superview` (in this case I'm using a Windows machine, hence the `.exe`). Next, we have to provide an input filename after the `-i` flag. This is our original 1440p 4:3 input file. The `-o` flag points to output, after which you need to provide a name for the output (different than the original and don't forget to add the `.MP4` file extension). This example assumes the superview executable and the file you are transforming are in the same directory, as well as you have FFmpeg in the path.

Let me know if something is not working for you or you have questions by using the **Ask a question** button below the article.

Why this dynamic stretching is better than linear stretching is because it tries to keep the center of the video as unstretched as possible, but stretching mostly the sides and then progressively reducing the amount of stretch towards the middle. I think it looks much better than just linear stretch.

VS RunCam 5 vs RunCam Split 2 comparison

Now, this part is a bit far fetched for a number of reasons and is not necessarily very scientific, but I found it interesting nevertheless and wanted to share the findings. We are going to compare the footage from the [RunCam 5](#) with footage from the [RunCam Split 2](#) (this link is for the slightly newer RunCam Split 2S version).

Why is this interesting? I've mentioned a number of times that I personally am a fan of split cameras. In fact, [my raw, unedited, single pack flight footage YouTube channel](#) is full of RunCam Split 2, RunCam Split Mini and Caddx Turtle V2 videos. There's a lot of convenience in this setup and it works nicely if you need decent, although not the best of the best footage quality.

Here are some things to keep in mind:



- I'm using the RunCam Split 2 (the original oldest version), since then a RunCam Split 2S has come out, and it seems like a RunCam Split 3 might be underway (I know nothing, just guessing).
- Both comparison videos are using stock camera settings.
- The RunCam 5 costs \$100, the Split 2S costs \$80. However, \$20-\$30 of those \$80 can be considered as the money you would anyway need to spend on an FPV camera for flying, so the actual money comparison is more like \$100 vs \$50.
- You will see the props and the stand-off or parts of the frame through the fpv camera, and you would not see those through the RunCam 5.

Conclusion

Ok, so who is this NOT for? If you really want, need and must have the best of the best footage quality AND have a lot of money, then the answer is probably still GoPro (although that gap is closing very fast and is starting to be less and less of a factor).

If you live in the States and can make use of BestBuy's return policy, then again GoPro is still the answer, as you can then easily turn in your broken GoPro and replace it for a fraction of its price.

But if you are anywhere else (like me), if you want very crisp HD footage for a fraction of the price of a GoPro, then the [RunCam 5](#) might be for you. If you don't fly a hell of concrete or asphalt, and mostly do grassy or dirt areas, chances are your crash might not be as devastating and the RunCam 5 might survive longer.



I personally am very happy with the quality of the footage that comes out of the RunCam 5, especially the 1440p stretched one, still at 60 fps. And for just \$100 the initial investment is really not that significant. **Basically, you get 90% of a GoPro for 33% of its price.** That's my personal opinion and I love what the RunCam 5 brings to the table! And most of all, at this price point I'm sure it's going to make taking high-quality HD footage accessible for many more people.

Happy flying!

If you are still with me, thanks for reading all of that. I tried to make it interesting and useful to you. If you are considering purchasing the RunCam 5, or anything else really, I'd like to remind you that if you use the links in this blog to Banggood, you would also support the blog and I would really appreciate that. Thanks!

