



Best FPV Goggles Comparison Guide | Fatshark, Orqa, Skyzone Review

Your **FPV Goggles** are what **lets you actually become your drone**. They allow you to jump inside and **see things from a pilots perspective** and are what makes drone flying so magical and addictive. With so many options out there choosing drone goggles suited exactly for your needs can be difficult. We've written **indepth guide to help you get on top of things** and send you in the right direction!

Getting the right goggles for you will make a huge difference between your first flight being an unbelievable experience or just plain frustrating! Once we put on our fpv goggles **we rely on them entirely to see where our drone is** and control it accordingly, for this reason, it is important to have goggles that really **pull you in and allow you to take in everything you need to see**.

If your goggles are not up to the job **it could cause you to crash** either into objects we can't see such as branches or we could simply lose our position in the sky and get lost! Anyway if that happens, and you need to start a new build - check our indepth guide on [how to build fpv drone](#).

Quick Navigation

[Orqa FPV.One](#)

[Choose The FPV Goggles by Your Preferences](#)

[Top FPV Goggles Options](#)

[Box Goggles](#)

[Budget Box Goggles Option](#)

[Aspect Ratio](#)

[FOV - Field of View](#)

[Inter-Pupillary Distance \(IPD\)](#)

[Focal Length and Diopters](#)

[Video Receiver vs External Modules](#)

[Video Channel Frequencies](#)

[High End Box Goggles](#)[Modular Goggles](#)[Compact Goggles](#)[Budget Compact Goggles Option](#)[Mid Range Compact FPV Goggles](#)[High End FPV Goggles](#)

Budget

What to Look for when Selecting Goggles FOR FLYING FPV

[Form Factor](#)[Compact 'FatShark' Style Goggles](#)['Box' Style Goggles](#)[Resolution](#)[Video Receiver Diversity](#)[Built in DVR](#)[HDMI Input](#)[Head Tracking](#)[Audio](#)[Fan](#)[Battery](#)

FPV Goggle Comparison Charts

Now lets move on to the goggles receivers:

Using FPV Monitor

Final Thoughts

For some people flying with goggles at first can be a strange and disorientating experience as you may feel so immersed that **your brain can't quite co-ordinate what's going on right away!**

This is completely normal and the more you do it the quicker you will adjust your instincts and **it will become second nature.**

I would suggest sitting down for your first few flights and having a friend around you so you feel safe and are unlikely to be surprised by anyone. When I started it felt difficult to focus on my goggles screens however this quickly started to feel more natural for me.

CHOOSE THE FPV GOGGLES BY YOUR PREFERENCES

Quick Comparison Table of recommended FPV Goggles

	Orqa FPV.One	Skyzone Sky030	Fatshark HDO 2
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	Orqa FPV.One	Skyzone Sky030	Fatshark HDO 2
Display Technology	OLED	OLED	OLED
Display Resolution	1280x960	1024x768	1280x960
Aspect Ratio	16:9/4:3	4:3	16:9/4:3
FOV	30/44°	35°	46°
Receiver	Modular RX (receiver to be bought separately)	Built-in 5.8Ghz 48 channel diversity RX	Modular RX (receiver to be bought separately)
IPD Adjustment (mm)	56-74	57.5-69.5	54-74
Weight (g)	232	261	207
Battery supplied	Yes	No	No
Rating	★★★★★	★★★★☆	★★★★☆

Goggles are a very personal thing, your face, eyes and preferences are **unique to you**, with that in mind I'll try to cover everything you should look to consider when buying your first pair of goggles **helping you to get it right the first time!**

However...

For the best experience I strongly recommend you find a way to try as many goggles as you can either through a store, a friend or local club and find what works for you!

Nothing can beat your opinion and preferences to help you decide what to spend your hard earned money on. Many of the points I'm

about to cover can be subjective but **should give you a great starting point!**

So let's get into it:

TOP FPV GOGGLES OPTIONS

In this section, we are going to take a look at five sets of goggles across the full budget range and see how these all compare. For each set of goggles, we'll be giving them a mini review alongside some comparison tables. Detailed features you should be aware of when deciding on goggles are listed below this section.

The goggles we are going to look at are:

Compact Goggles

Our Pick

Top of the Line

Orqa FPV One

Superbly engineered optics with 1280x960 OLED screen for incredible clarity. The high-quality optics provide a clear and sharp picture from edge to edge. Minimalistic and simple. Packed with features like support for 16:9 and 4:3 display output, HD DVR and more.

[Check Current Price](#)

Orqa's first goggles released to the market is the FPV One, designed to be the best. The Orqa reportedly comes with specs better than the HDO 2's. It uses a 0.5" OLED panel that has a resolution of 1280x960 with a massive 44° FOV. It comes with a native 4:3 resolution that can be switched to 16:9. The goggle has an interpupillary distance of 56-74mm to adjust to everyone's specific eyes. The company also claims an HD DVR that can record at 1080p resolution. The FPV one, similar to the Fatsharks, has a modular receiver bay. It has a power-saving feature where a light sensor automatically switches off the displays when not in use. The goggles take in a mini HDMI, a move that indicates that digital FPV is coming. [Orqa FPV One Goggles Review.](#)

ORQA FPV.ONE

Superbly engineered optics set a new benchmark for immersive FPV experience. Orqa finished a **kickstarter campaing**; and the intial goal is exceeded by **800% in just 2 days!**

The FPV.one goggles feature a large **1280x960 OLED screen** for incredible clarity, picture and color.

It has a a **wide IPD range** (56-74 mm) to ensure a good fit for all faces, and a large **FOV of 44 degrees** giving you an immersive FPV experience

The high-quality optics provide a **clear and sharp picture from edge to edge**; no edge blur. High quality 0.5" Sony micro OLED displays in 2x4-piece all-glass optical engines.

They seem impressive; **minimalistic and simple**: this thing looks like a part of stealth fighter equipment.

The ORQ FPV.One goggles are **packed with features** like support for 16:9 and 4:3 display output, HD DVR, power button, built in de-fogging fan and more.

Orqa started as a brand that was meant to **dethrone Fatshark** and dare I say have they designed goggles that does just that. Fatshark had a monopoly in the goggle industry in the premium segment with Orqa in the scene Fatshark was forced to **innovate** and even reduce the price of their flagship goggles.

ORQA FPV

High End FPV Goggles

Top of the Line



Top of the Line

Fatshark HDO 2

Fatshark has been in the goggle industry for a long time. The HDO 2 was released in response to the Orqa announcing their goggles and Skyzones releasing their OLEDs. The HDO 2s finally pack a power button. They have an improved optics, adjustable focus wherein they eliminate the need for diopter lenses between -6 to +2.

[Check Current Price](#)

Fatshark has delivered; the HDO 2 has refined the design of the goggle and addresses all the shortcomings from the previous designs. The displays have a high-resolution 1280x960; one of the highest in the industry and the only other goggle that comes close is the Orqa's FPV One with similar resolution.

Fatshark also managed to increase the goggle's IPD to 54-74mm with a switchable aspect ratio between 4:3 and 16:9. One of the biggest upgrades to take note from the HDO is the FOV, 46° up from the 37°. Fatshark also made sure that the fan gets power internally from the barrel connector rather than the balance plug connection required previously. Earlier goggles required people who wore glasses to include diopter lenses to have a crisp image, now Fatshark has a focus adjuster that eliminates the need for diopters anymore, at least between the range -6 to +2.

Top Display Screens



Mid-Budget Runner Up

Skyzone 030

Skyzone has had a lot of success lately with them releasing a lot of innovative products. One of these products is the Skyzone 030 (zero three O). With every other brand releasing goggles with OLEDs,

Skyzone answered with their version of the goggles with the 03O, an upgraded version of the 03S but with OLED panels. I think the Skyzones also has one of the nicest looking goggles with over 8 colors to choose from.

[Check Current Price](#)

In terms of hardware, the 03O's pack a lot under the hood with specs matching that of the Fatsharks and or at least coming close to it. The goggle sports a 1024x768 OLED panel with a 35° FOV, a higher resolution than the \$500 Fatshark HDO, while still only costing half the HDO. It has a built-in 48 channel true diversity receiver spread over 6 bands. It has an IPD adjustment of 57.5 to 69.5mm and supports head tracking. It also has a fan that can help on sunny days and help with fogging. The 03O accepts voltages from 2-6S and the inputs include HDMI in and AV in.

Mid Range Compact FPV Goggles

Classic



Best Value for Money

Fatshark HDO

The HDO was the flagship goggle by Fatshark in 2018. They were the first of its kind as they were the first to introduce OLED panels in a goggle, hence the name HDO (high definition OLED). The HDOs replaced the HD3 as the flagship goggle; the only noticeable improvement we got was the OLED panels with a

bump in resolution. Most of the design features like the shell, not to mention the fan and optics and the mediocre DVR were just copied from the HD3's.

[Check Current Price](#)

The first iteration HDO's were the first to introduce a display panel with a resolution as high as 960x720 with a FOV of 37°, down from the 42° found on the HD3's LCD panels. The upgraded OLED panels are supposedly are lighter, much brighter, efficient and have a much clearer picture, and the HDO's deliver in all these areas with the new OLED panels ticking all the boxes. The smaller FOV of 37° was a love-hate relationship; Fatshark got a mixed response for the goggles and all these issues were addressed in the HDO 2.

Budget Compact Goggles Option

Compact FPV Goggles



Great Starter Goggle

Aomway Commander V1S

One of the oldest goggles that still uses an LCD panel is the Aomway commander V1S. The V1S was the successor for the V1. The V1 was claimed by many as a cheaper alternative to the much expensive Fatshark HD3 goggles. The V1S takes everything from the V1 with the upgrades including a 64 channel receiver, irrelevant to most pilots.

[Check Current Price](#)

A couple of years ago, the V1 and the V1S were suggested by most as a budget alternative to the Fatsharks. The V1S still offers decent specs that are relevant even today. The goggle packs a respectable 854x480 resolution with a 32° FOV, the only downside to these goggles. It also takes voltages of 2-4s and comes with an IPD adjustment of 59-69mm. The goggle also has AV and HDMI inputs with an inbuilt DVR. It also comes with a fan to help in those sunny days. The Aomway Commanders were notorious for not fitting on everyone's face as the faceplate a lot was a lot wider than the face and as a result leaked light near the nose and the right and left edges which can be improved by using thicker foam.

Box Goggles

Budget Box Goggles Option

Cheapest FPV Goggles

Beginner Option**Eachine VR-007 Pro**

On upgraded model advancements are made on the sensitivity of built-in receiver. Now it's - 95dBm built-in model. The battery is also upgraded to 1600mAh (twice more larger) and there is OSD information provided about the current Vfreq & Vbat.

[Check Current Price](#)

[Check Current Price](#)

These represent the cheapest goggles I could find and were actually the goggles I started flying with. They are very simple and have a low resolution but can do the job if you are restricted cash wise. These goggles have a low price point and sadly a low-resolution screen. They do however come with a built-in receiver and everything you need to start flying! If you are really tight on cash and want to get in the air you can make with the lower resolution and perhaps look to upgrade in the future when you are more into the hobby. For beginners or ride alongs I would happily recommend this option

however would strongly suggest spending just that little but more on the Viper V2.

High End Box Goggles

Box FPV Goggles



High End Box Option

FXT Viper V2

The FXT Viper goggles were first introduced back in May 2018 and the Viper V2 was recently released to follow in the footsteps of its older sibling. The V2's have an 800x480 LCD panel, having a wide FOV of 45° that is plenty good for most beginners.

[Check Current Price](#)

The goggle comes with a 40 channel 5.8GHz diversity receiver ranging from frequency 5658-5917MHz. The upgrades from the first release include DVR recording times increased to 10 minutes up from the previous 3 minutes. The V2's come with a switchable video

output between 4:3 and 16:9, an improvement over the previous 16:9 fixed aspect ratio.

The newer version also includes all the popular channels between bands A, B, E, F and R bands up from the previous 37 channels. It also accepts a wide range of input voltages from 3-6S, can be powered by our drone batteries eliminating the need for standalone batteries specific for the goggles. The goggles themselves are a bit on the heavier side at 590g excluding batteries and it is recommended to place the batteries behind the head to distribute the weight. Overall it is one a great option to start FPV. Check our [review of the Viper V2](#)

Modular Goggles

Modular Goggles



Modular FPV Goggles

Eachine EV800D

A good beginner goggles is judged based on 3 factors- LCD display, included receiver and feel and fit on your face. Eachine EV800D ticks all the 3 boxes. Eachine launched the EV800D after the more successful EV800. The EV800D feels comfortable on face for prolonged usage.

Check Current Price

Check Current Price

The EV800D is probably one of the most recommended goggles for beginners. The LCD display included is a, 800x480 crisp LCD display is bright, which is a treat to look at. This goggle detaches and doubles back as a ground station which can be mounted on a tripod. Though DVR is a feature exclusive only to high end goggles costing \$250+, Eachine decided to add DVR for a package that costs less than \$100.

The in-built battery lasts for an hour and fifteen minutes. The Fresnel lens placement is such that it does not cause any discomfort to the eye during long usages. This goggle can accommodate a person wearing glasses without any hassles. Even though there is a little bit of light leakage around the face, it is not a big issue.

If you are a noob trying to get into FPV and need a cost effective option by not breaking the bank, then EV800D must definitely be on the top your list.

Do check our [review of the EV800D here](#).

BUDGET

Goggles can be and probably should be the **most expensive part of your FPV set** up for one main reason. **You cannot crash your goggles!** (Well hopefully not!) The point is that you can build or buy a nice drone and then destroy it within minutes in a bad crash.

Goggles on the other hand, if well cared for, **can last for years.**

Now **if you are on a tight budget** but still want a decent performance **there are many options available** for you which I will cover shortly, however, if you are trying to decide which component to splash out on I would suggest these. If you later decide that you don't like the goggles or even the hobby a **decent pair of goggles will have a great resale value!** You may also wish to look at buying a second-hand pair from the start to save some more.

Typical price ranges could be anywhere from \$85-\$500 dollars for a good set, however, cheaper options are available for as low as \$40.

WHAT TO LOOK FOR WHEN SELECTING GOGGLES FOR FLYING FPV

Form Factor

The first big hurdle is deciding which form factor will work best for you which is something mainly tied in with your budget. The **high-end [FatShark](#)** style goggles I'll refer to as the compact type make up the more expensive side of things whereas box goggles offer the same experience for a lower price with the **compromise being the size and weight of the unit.** We'll take a look at each one in a little more detail below:

Compact 'FatShark' Style Goggles

This category refers to all goggles that look similar to oversized sunglasses. FatShark was the first company to bring these to the mainstream market however companies such as Skyzone and

Eachine are starting to catch on and are becoming serious competitors.



The main feature of these goggles is that it has **two individual screens**, one for each eye. By doing this they can use very small screens with cleverly designed optics that don't take up much space.

From my personal experience I find this style goggle **much more comfortable** to use and somehow easier to focus on as **they feel very connected to your eyes**. Due to the light size they are also very easy to let sit on your forehead when you aren't flying.

Advantages:



Lightweight and comfortable

- ⊕ Easy to focus on
- ⊕ Easy to pack
- ⊕ Look much better - If looks appearance matters to you!

Disadvantages:

- ⊖ Extremely high cost compared to box goggles
- ⊖ Will not work with glasses (prescription diopters are available and will be covered later)
- ⊖ Typically smaller field of view to box goggles

'Box' Style Goggles

Many call these goggles as they literally are **made up of a black box with a screen in one end that you strap to your head!** A Fresnel lens is placed in front of your eyes to make the bigger and easy to focus on. By **using just one readily available screen** box goggles are able to retain the same or even have higher resolutions than the compact

Advantages:

- ⊕ Relatively Cheap
- ⊕ Large screens with great resolution
- ⊕ Most have room for glasses

Disadvantages:

- ⊖ Heavy
- ⊖ Less practical (harder to pack, awkward on head)
- ⊖ Don't look as cool! (If that matters to you!)

Related Posts

FPV VIDEO RECEIVERS

BEST FPV GOGGLES COMPARISON GUIDE | FATSHARK, ORQA, SKYZONE REVIEW

FPV ANTENNA FUNDAMENTALS

HOW TO CHOOSE VTX | FPV VIDEO TRANSMITTER

FPV CAMERA FOR DRONE | KEY FACTORS AND RECOMMENDATIONS

Resolution

Whichever style of goggles you choose the **resolution is going to play a huge part on how much detail you can see**. As with any other device with a screen the higher the pixel count, the more you will be able to make out and hopefully, the better you will fly.

You often hear FPV pilots complaining about **hitting 'ghost branches'** which are really branches that are just too small to be displayed on the goggles until they are so close a **crash is inevitable**. With this in mind, we really want to get as high as we can reasonably afford.

Remember that our [FPV cameras](#) **have a relatively low resolution** compared to what we are used to in HD TVs, monitors and screens. Think back to the analog pre HD days so we don't need too high here. I would suggest 640x480 pixels as a minimum whilst going over the FatShark HDs 800x600 resolution **being a little bit overkill**.

True HD systems such as the Connex ProSight HD are available however I would recommend waiting a few years until HD links are cheaper and more mainstream.

This image although not FPV related makes a great example of how a **lower resolution effects or perception**. In the first image we can barely tell if it's a man or woman, second we can't tell if they are happy or sad and finally, we see that they have a hand full of cash! Try and transfer that to obstacles you are flying towards at high speed to appreciate why a **high resolution is important for FPV**.

Aspect Ratio

Just like TVs, we can get goggles in either a **4:3 or a 16:9 widescreen format**. As with most things the best option is a subjective decision and best for you to decide. The one thing you should do is always **match your goggles with the correct camera aspect ratio** to avoid any cases of stretching, squashing or cropping the image. When making your decision take a look at what kind of parts are readily available and what current prices are like.

I personally prefer 4:3 as I do a lot of flips and dives and want to see as much as possible in the vertical directions. If you intend to use your goggles with a HDMI for watching films or playing games a 16:9 option might work better for you.

FOV - Field of View

Imagine watching the latest blockbuster film in an Imax theatre compared with on your phone... The **difference in immersion is huge** and is exactly the reason large FOV goggles such as the FatShark Dominator HD series are so popular.

FOV stands for field of view and is **often measured in degrees**. As an example degrees means that the picture should cover 30 degrees from the centre if your 180 degree field of view. Although

slightly subjective and not quite consistent between manufacturers my interpretation of common fields of view would be as follows:

25° - Looking at a standard size computer monitor a few feet away.

32° - Watching a 42" TV from a sofa

42° - Sitting in a cinema or watching

Although many pilots prefer a larger field of view you can go too big! A **massive display requires yours eyes to move around** to take in the entire display. This could cause you to lose focus when looking at something such an OSD, I would not recommend going higher than 50 degrees if you intend to race.

Here you can find [detailed field-of-view \(FOV\) comparisons](#).

Inter-Pupillary Distance (IPD)

IPD refers to the distance between the center of your eyes which will vary from person to person and is important to get right when using

compact goggles with a screen for each eye. Fortunately, most FPV goggles now feature some form of IPD sliders on the bottom that allow you to move the screens to suit your face perfectly.

FPV Video Receivers

We've just covered the display features of the goggles however the part we haven't considered is the receiver. These come in two flavours, built into the goggles or as an additional module which you will need in order to tap into your FPV feed.

Built-in receivers are normally pretty basic giving you basic functionality select a channel and view it. They normally offer reasonable performance and are a great option if you want to save some money and don't want to push the boundaries of RF performance and features. The only downside with a built-in receiver is that you won't be able to upgrade them in the future and you will need to shell out for a brand new pair of goggles should you ever want the extra features.

External modules (typically only available for FatShark goggles currently) will push into the module slot on your goggles and can be used to greatly improve their features.

Modules range from a basic single receiver to diversity setups with OLED displays and spectrum analyzers. These are great if you fly with larger groups and either want to watch them or find the clearest channel. The diversity setups also allow for the best possible video and range which will be discussed later in this article. Examples of top end modules include the Immersion RC, TBS, La Forge and Furious True-D.

Testing Immersion RC Rapid Fire

Focal Length and Diopters

Many of us are not lucky enough to enjoy 20/20 vision and may need some help in the form of glasses or contact lenses to help us see clearly. This is a big factor that should be taken into account

when buying goggles! If you wear contacts you will absolutely fine with any option and not have to worry either way however if you wear glasses things are a little more complicated.

Most box style goggles are actually possible to use with glasses as most designs have space to fit them inside, shortsighted users may not even need them!

Compact style goggles on the other hand do not have the space fit anything between your eyes and the displays which is why many offer diopter inserts. These diopters can slide in front of the lenses on the goggles and can be purchased to match many common prescriptions.

If you need something a little more tailored to you custom prescription diopters are available from companies like RHO-Lens.

Newer goggles such as the Eachine VR100 have allow you to **focus the screens by sliding them forwards and backwards**. This works

really well for mild prescriptions however it will only extend to a certain range with diopters not available.

Video Channel Frequencies

You may have heard people referencing their video channel as something similar to E8 or R4. These are just different names for different frequencies in the 5.8GHz area. So E8 = 5866GHz and R4 = 5769GHz the bands and channel numbers simply give us an easier way to tune into specific frequencies rather than tuning into an exact number.

This image I found on DIYDrones forum sums it up perfectly and is much clearer than the regular frequency tables:

This diagram shows the bands as rows eg: FatShark, E, B, A and Raceband with the numbered sections showing the individual

channel you would tune in to per band in MHz.

That aside the most important thing to do is to make sure that the receiver in your goggles is able to tune into your drones video channel! As long as both are capable of the same bands you should be fine, if you intend to fly with more pilots you can use this diagram to select channels as far apart as possible to prevent against interference. Ideally, I would recommend keeping 100MHz between each channel however you can push it down to 50MHz with a clean set up.



Note: Not all video transmitters are created equally! Despite some being capable of running certain channels they can be broadcasting across a much higher range than a high-end part increasing the chance of interference between channels. This is why some races actually specify a specific well know transmitter that must be used by all pilots.

Please also be aware that some channels and powers may not be legal in some countries. You should look into this before purchasing your transmitter.

Video Receiver Diversity

Diversity is a feature that is actually made up of two receivers running separate antennas. When running the diversity clever software compares the two video signals and automatically switches to the strongest to always ensure the best performance. We will cover antennas in more depth in a sperate article however in diversity's case we can two completely different antennas and gain the benefits of both without drawback.

A good example would be running a circular polarized antenna which works well all around you with a patch antenna that gives fantastic range but only in one direction.

Diversity

Built in DVR

A DVR (Digital Video Recorder) is a circuit board inside your goggles that takes your analogue video input and writes it to a digital movie format that you can view on your computer and upload online. This is fantastic for anybody who doesn't have any kind of recording

camera on the drone itself either saving you money or giving the lightest of FPV drones the ability to record their flights.

Of course, the quality of the DVR will not be similar to a HD camera and it will be subject to any interference you would normally see through the goggles.

It can however be very useful in the event you crash your drone and cannot find it. Most goggles allow you to play the DVR back to try and work out exactly where you crashed. Even if you end up losing the drone, at least you will have some kind of footage of what happened.

[Micro FPV Drone Fun - Swansea University - DVR](#)

HDMI Input

Typically a HDMI is found on a TV and is not that useful for FPV flying itself. It is however useful if you like the idea of using your goggles to play games, watch films or better yet fly some of the FPV simulators more immersively.

Digital HD FPV will be coming in the future and getting goggles with a HDMI port is a great way to futureproof your investment. You can already connect it to Connex Prosight HDs and if you fly a DJI Phantom or Inspire you could also connect it up to your controller.

Head Tracking

This has always being a bit of an odd one to have included in FPV goggles however for some people its applications could be huge. The head tracker in your goggles uses an accelerometer and gyroscope to record where you are looking and send signals back to

your remote. Those signal can be used to control a gimbal system on the drone that moves the camera as you move your head in a similar way to VR goggles.

Most racing drones however crash far too often to warrant an expensive and delicate gimbal system whereas most photography drones need gimbals that can stay perfectly still and hence wouldn't be controlled by a humans head. The only place I have seen these being used effectively is on a fixed wing plane used for long range, exploration flights where the pilot has time to take in their surroundings.

Perhaps in the future this feature will find more uses as people start flying the 360 VR cameras.

Audio

Some people (all be it very few) like to fly with audio. Although it might seem unpleasant to hear the constant noise of the [quad motors](#) at first it has it's benefits as you can sense how much power

you are using and identify any potential issues. Audio can connect you more with your drone and many goggles can offer it via a headphone jack on the side. Of course, you need to make sure your drone will need to be fitted with a microphone and have an audio capable video transmitter.

Fan

The small space between your eyes and goggles can get very foggy which can make the screens unclear and cause you to crash. This is even more likely to happen if you live in hot and humid conditions or just sweat a lot!

Luckily most goggles now come with fans that will clear the fog relatively quickly. If you are going for compact goggles I would highly recommend getting some with a fan.

Battery

Your goggles need powering by a separate battery (typically a 2s pack) however different goggles have different styles:

- **Built-in battery** - these are great because they are always with your goggles however are limited by pack size and cannot be quickly changed. The goggles lifespan will most likely be determined by the life of the battery. These can often be charged via a USB power bank if needed.
- **External Lipo Battery** - An external battery pack that is kept either on the goggle strap or in the pilots pocket. These work well but can be a hassle to plug in and charge. The smaller lipo packs do not last too long on many goggles.

- **18650 Batteries** - 18650 Lithium Ion batteries are commonly used in e-cigarettes and have great capacity to size ratios. They can be discharged lower than their lithium polymer counter parts and can be used in a case to make a great goggle battery. They will need charging via a dedicated 18650 charger.

1865 Case

FPV GOGGLE COMPARISON CHARTS

Cost and Features offered

With these goggles in mind, lets start by comparing the biggest factor... The Price.

One of the first things to consider is the budget and how much you are willing to splurge. Cost plays an important role, for there is a goggle for \$170 and there is a goggle for 5 times that. The more you spend, the more refined the design, build quality and better features you get. The cheapest option we are looking for today is the **FXT Viper V2** at \$170 going all the way to \$650 for the most expensive **Orqa FPV** one.

	Price Est.
Viper V2	<160\$

Attitude V5	>300\$
Sky030	<400\$
HDO2	>500\$
FPV.One	>600\$

The most basic Viper V2 gets all the features essential for good FPV such as diversity receivers, switchable aspect ratios, and a fairly decent resolution.

The mid tiered goggles, Attitude V5 and 030's get the advanced OLED panels, built-in video receivers while the most expensive option, HDO 2 and the FPV one get a high-resolution 720p OLED panel, IPD adjustment and more advanced features such as HDMI input support and Wi-Fi.

Wi-Fi may not be useful by much for now, but maybe technological advancements might make Wi-Fi a great asset. IPD is the distance between the pupils of the eye. Not all have the same face and being able to adjust the lenses in the goggle is a neat feature.

Display Technology

Displays determine the quality of the image is outputted. A higher-resolution display will yield a better viewing experience. Also here we have 2 display technologies being used, LCD and OLED. 20 years ago LCD was all the hype coming down from the bulky CRT TVs. OLEDs are the current hype. OLEDs have far superior image quality, mostly attributed to its ability to reproduce crisper, brighter and

accurate images. OLEDs also consume lesser power and produce more natural colors.

	Resolution
Viper V2	800x480
Attitude V5	640x400
Sky030	1024x768
HDO2	1280x960
FPV.One	1280x960
	FOV
Viper V2	45°
Attitude V5	30°
Sky030	35°
HDO2	46°
FPV.One	30/44°
	Aspect Ratio
Viper V2	16:9/4:3
Attitude V5	4:3
Sky030	4:3
HDO2	16:9/4:3
FPV.One	16:9/4:3

Our cheapest entry makes use of an 800x480 resolution display, which is fair considering its lower price point. The cheapest OLED goggle, the Fatshark Attitude V5 uses a mediocre 640x400 resolution, 30° display that is fine-tuned by Fatshark to produce crisp images.

The Skyzone 030 costs half as much as the HDO 2 and the Orqa FPV one still includes all the features the higher end goggles have and with a display that is very close in resolution to the higher end models (1024x768 as opposed to 1280x960).

Justifying spending over \$600 for a goggle and \$150 for a receiver is hard when you can get all that in a \$400 package in the form of Skyzone branding.

FOV is another part of a Display that determines how much area can be seen at a time. Our FPV cameras have a typical FOV of over 140° and only part of that gets displayed. Looking at a larger area is a good thing and a bad thing alike, the more you see allowing for better maneuvering at the same time more for the eyes to focus on.

In the FPV community, a FOV of 32-38° is considered ideal. The Viper V2 has a 45° which is pretty good for a box type goggle, considering box type goggles have large FOVs. Moving up the price ladder, the FOV also increases. Fatshark Attitude V5 has a 30° FOV, the Skyzone 030 with a 35° FOV and the HDO 2 has a large 46° FOV. The Orqa has a variable FOV of 16:9 30° FOV and a 4:3 44° FOV.

The Aspect ratio doesn't matter anymore because most if not all displays can switch between 16:9 and 4:3 aspect ratios. Experienced pilots prefer 4:3 due to the vertical height it provides. It is also worth mentioning that 4:3 is generated by chopping off the sides of a 16:9 image.

Here is a tool to [compare FOVs of various Goggles](#)

Now lets move on to the goggles receivers:

The receiver plays the biggest role in the image quality and is one of the most important things to check for in a goggle. Goggles are long term investments and having a bad receiver for a long time is well SUCKS. If you decided to convince yourself to spend \$600 on an HDO 2 or \$650 for an Orqa, guess what! THEY DO NOT COME WITH A RECEIVER.

Those expensive goggles require another \$100-150, modular receivers such as the True-D or the Rapidfire module, to work. This

gives you the flexibility to choose what goes into your goggles. These modular receivers tend to be one of the best in the industry and work so well that they outperform every inbuilt receiver in every goggle available.

Branding

There are hundreds of smaller brands that manufacture goggles. Why do people buy an iPhone when they can get an Android phone for hundreds of \$\$\$ lesser? Fatshark brand is the iPhone of the goggle industry.

Fatshark commands a higher price than other manufacturers for the sole reason of their fantastic after-sales support. Fatshark has carved a name for itself in the industry by providing industry-leading after-sales support. Fatshark still provides replacement parts and service for goggles that were stopped manufacturing 5 years ago. Fatshark has service centers on 5 continents; good chances are they are in your city.

Skyzone has good after-sales support for their goggles. Orqa is a relative newcomer in the industry and we are yet to see what kind of support we would get in the long term. FXT is a Chinese brand and they do have quite good after-sales support, but nothing too extraordinary and did I mention that the shipping times to and from China take over a month.

USING FPV MONITOR

A **quick note on using screens!** Some of you may be considering using a screen to fly especially due to the ease that **you can switch between LOS (line of sight) and FPV (First Person View) flying.**

For anyone looking to fly a racing drone my advice would be that **unless you have any physical reasons or limitations** why you can't use goggles, you should always go ahead and make use of them. The reason for this is that a screen is not only smaller but is also **hard to see in bright sunlight** and even can move around in relation to your eyes.

They also **don't get your full attention allowing you to be distracted** by anything around you.



Goggles, on the other hand, will put a big clear image in front of your eyes at all times which is consistent and easy to focus on. I've have yet to find anybody whose flying hasn't drastically improved once they've made the switch to goggles.

FINAL THOUGHTS

Hopefully by now you are aware of all possible features goggles can offer and can start making decisions on best fpv goggles fitting your needs and budget. The goggles I have shown are just a small selection of what is currently available and you should be able to find a pair to meet your exact requirements.

As with everything, nothing can beat trying the goggles out in real life and is by far the best way to make your decision. Look for local flying groups or head to local stores if you have them just to get a glimpse through as many goggles as you can. Hopefully you will naturally find something that works perfect for you.

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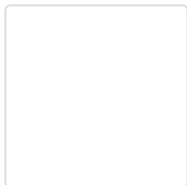
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