

CREATIVE CONTENT

SPECIAL GOPRO EDITION

Jan 2024

Before You Buy Your GoPro What a GoPro Is – And Isn't... The GoPro Environment



Answers to Common Questions

Shooting Tips and Ideas

All About The Accessories

SD Cards – What You Need to Know



- Hints And Tricks
- Avoiding Overheating
- Zoom? What Zoom?
- Playback and Codecs Issues
- Using Microphones
- Shooting 360 ° With MAX
- Using Presets
- Stabilisation
- Battery Issues
- GoPro Versus DJI Action
- Removing Sticky Mounts
- And much, much more ...

TABLE OF CONTENTS



6

HISTORY OF THE GOPRO



7

GOPRO DESIGN



8

GOPRO DESCRIPTION



10

GOPRO MENU SYSTEM



12

BRIEF DESCRIPTION OF CODECS



14

LOW LIGHT, OVERHEATING, SETTINGS



16

ALL ABOUT SD CARDS



18

BUYING A GOPRO



20

GOPRO 'HIDDEN' SECRETS



24

DON'T RISK CHEAP SD CARDS



25

RULE OF THIRDS



28

BASIC VIDEO EDITING



34

ACCESSORIES



38

REVIEW: VOLTA



41

GOPROS AND GIMBALS



43

REVIEW: GOPRO REMOTE



44

REVIEW: GOPRO MEDIA MOD



46

FILTERS EXPLAINED



48

GOPRO LENS MOD



50

PRESETS EXPLAINED



52

OVERHEATING ISSUES



53

QUICK TIPS



57

GOPRO HERO MAX



59

HERO 12 V DJI ACTION 4

EW-DP
Production sound, simplified.

[Learn More](#)

SENNHEISER

Blackmagicdesign

DaVinci Resolve for iPad
Get Hollywood quality color correction, editing, AI based tools and more!
Free Download

Verbatim
Technology you can trust

PRO+ microSD
90MB/s READ | 80MB/s WRITE
4K VIDEO CAPTURE

BUY NOW

CONTACT DETAILS

WEB: WWW.CRE-8.COM.AU

EMAIL: DAVID@CREATIVECONTENT.AU

PHONE: 0456 95 2227

TWITTER / X :@AUSCAMONLINE

INSTAGRAM: CREATIVECONTENTAU

FACEBOOK: CREATIVE CONTENT

ADDRESS: 21 LILLY COURT
AUSTRALIND
WESTERN AUSTRALIA
6233



DAVID HAGUE - PUBLISHER

“A lot of people prefer a written copy they can quickly and easily refer to”.

TABLE OF CONTENTS

PART 1

- GoPro History
- The Design Considerations
- GoPro Physical Description
- The Menu System
- Codec Information
- MicroSD Cards
- Light Considerations
- Overheating

PART 2

- Starting Out
- Editing
- Accessories
- The Menu System
- Hints and Tips
- Shooting 360°
- GoPro v DJI
- GoPro or DJI Osmo Action?

FROM THE EDITOR

This special edition of the Creative Content magazine has been brought about due to special request from many GoPro users, many of them receiving their GoPro for a Christmas present and never having used one before.

Whilst there are many YouTube tutorials and the like available covering GoPro features and techniques, it seems there is little general-purpose information easily accessible and covering the basic issues that newcomers to the GoPro environment seem to face.

And a lot of people, like me, prefer a written version they can easily refer to.

The first part of this edition covers the history of the GoPro and has a generalised cover of the camera, its design and features, as well as touching on some specific areas that are common problems like overheating and waterproofing.

The latter part covers topics specifically in separate articles under headings Starting Out, Editing, Accessories, Hints and Tips and a small 360° section for GoPro Max users.

I also have an article in there covering the differences between the GoPro camera and the DJI OSMO Action 4 for those who are still undecided as to which model to buy.

I have not gone into specific menu item by menu item tutorials at this stage. If the demand is this, I'll certainly entertain that option down the track.

Initially I encourage you to have a play with each option and see what it does, and how you can use it in your day-to-day photography or videoing with your GoPro.

If you do have any specific questions, feel free to contact me however and I'll do my best to answer.



THE HISTORY OF THE GOPRO HERO CAMERA

It may surprise many to know that the cameras we know today as the GoPro, actually has its roots in Australia! GoPro founder Nick Woodman was on a surfing trip down under with some mates and wanted to be able to take close-up, high-quality action shots of the sport.

Current photographic equipment was too expensive and so the GoPro and 'Hero' name and concept were born, coming from the term "Go Professional and be a Hero" as a surfing aspiration.

The first used 35mm film as its media, but later models of course were digital and included video capability. The 170° wide angle lens arrived in 2014 on the Hero 3 and by 2018, over 30 million GoPros had been sold.

Other products in the GoPro range include the GoPro Karma drone, now discontinued, the 360° GoPro Max, a large contingent of accessories and mounts and GoPro software. For drone flyers, there is also a cut down GoPro 10

called the Bones, designed to be mounted on a drone, but having limited capability as against the full-on Hero model and the GoPro Mini.

There is also GoPro software, notably the Quik app, designed to take advantage of the GoPro's cloud-based storage and editing features.

The current model is the Hero 12 Black and this retails for around the AUD\$649 mark, but it is still possible to buy earlier versions such as the 11 or 10. In certain cases these might be a better fit, as although newer models have technical improvements, in the 12 for example, the inbuilt GPS system was removed supposedly to lessen the overheating issues inherent in earlier models.



THE DESIGN OF THE GOPRO HERO CAMERA

In describing the range of GoPros and especially the current model, the Hero 12 Black, it is important to understand that as well as knowing what the GoPro is, also appreciate what it is not.

Many people think the GoPro is a sort of "universal" camera that is suitable for all types of photographic and video tasks. This however is not the case in the real world.

While it is true you could use a GoPro in any circumstance where a photo or



video could be shot, due to its design a GoPro is not necessarily the best tool for the purpose.

As mentioned earlier, the roots of the GoPro are in the surfing world, and it is these sorts of activities where the GoPro excels – that of 1st person point of view (POV) action – hence the term "action camera" (not to be confused with the GoPro competitor, the DJI OSMO Action Camera).

As a consequence, activities such as surfing, biking, kayaking, rock climbing, hiking, snorkelling, SCUBA and even motor sports as a vehicle mounted or helmet mounted camera are the GoPro's bread and butter.

The GoPro can be used for general photography / videography at a pinch, just be aware you will possibly not get the results you may hope for.

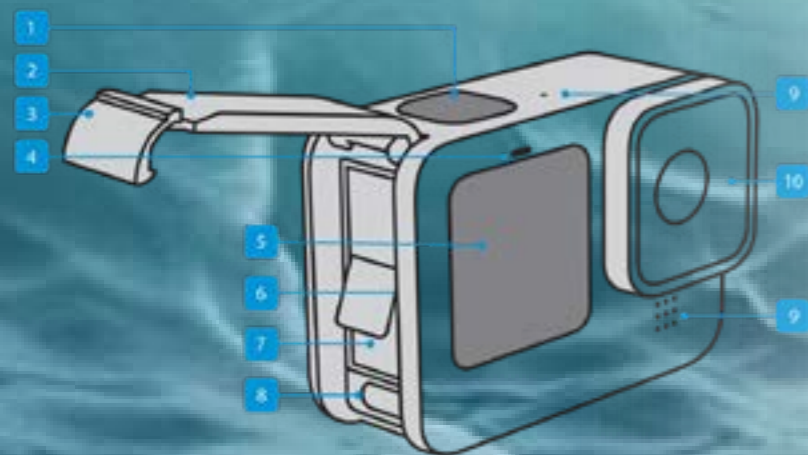
A DESCRIPTION OF THE GOPRO HERO CAMERA

The actual physical attributes of a GoPro are pretty simple, and even spartan some would say, in comparison to other camera types. Some things have changed model to model, but for the sake of this article, I am sticking with the latest model, currently the Hero 12 Black.

The GoPro case is a rubberised material over a chassis,

and on the exterior of the roughly 7cm x 5cm x 2cm body are a top mounted shutter release, left side mounted on / off button, right side hatch under which lies the battery compartment, USB-C port and slot for the microSD card, and a front and rear LCD screen.

The lens, which is fixed, is covered by a protector



1. Shutter Release
2. Battery / USB / SD Card Cover
3. Cover Lock
4. Status LED
5. Front Screen
6. MicroSD Card Slot
7. Battery
8. USB-C Port
9. Microphone
10. Lens

that can be removed and replaced with what is called the Lens Mod (which is described and reviewed later).

The battery/USB-C/SD card hatch is removable and a special "pass through" version is available allowing you to use an external power source to the USB-C slot.

Note that using the pass-through cover removes any waterproofing but will allow the GoPro to maintain minor splashing protection such as light rain.

On the underside of the body are the mounting points commonly called the fingers, and when not in use, these lay flat, out of the way along the body. Here there is also a standard tripod mount.

Finally, it is worth making special mention of the microphone.

This is built into the GoPro, although you can also get an adaptor that uses the USB-C port to add an external microphone. Alternatively, the GoPro MediaMod also adds an external mic and has the option of also connecting an external mic.

The Hero 12 further gives you the option of adding a 3rd party Bluetooth connected mic.

But a common trap is for users unfamiliar with the GoPro to think that the small hatchway on the left-hand side and under the on/off switch is removable and covering something.

This is actually part of the internal mic rophone system and IS NOT DESIGNED TO BE REMOVED.

There are many, many posts in Facebook GoPro forums telling of people forcing this off, and as a consequence losing any warranty and potentially, any waterproofing protection.

Speaking of waterproofing, as the specifications clearly state, the GoPro Hero 12 (and other models down to the 5) is waterproof to a depth of 10 metres or 33 feet.

The GoPro Max is waterproof to 5 metres or 16 feet.

However, it is strongly suggested that due to the design of the GoPro's battery



hatch cover, that a waterproof housing be used at any time the camera is in the water, depth regardless.

This is as it is quite easy for a grain of sand or a stray hair to get caught in the hatch cover allowing water to penetrate, and once this happens, the camera is rendered useless.

Many folks say they have never had a problem, but for mine, it is inexpensive insurance.

And yes, it did happen to me (with a Sony RX0 Mk II worth a grand!)



There are many internal functions and settings on the GoPro Hero 12, and these are all accessed via a menu system from the touch LCD screen.

To navigate between menus, a “swipe” method is used, similar to that on smartphones.

For example, after turning the GoPro on, swiping your finger from the top of the screen to the bottom brings up the main system menu, where you can do such things as turn on or off voice control or system sounds, lock the camera orientation, or set options for the front and rear screens.

From this menu, swiping right brings up further options such as Preferences, to pair the camera with Bluetooth to another device such as a remote control, microphone or smartphone, or change the menu controls to a more advanced version with more options.

To change a preference, for example the video shooting resolution, tap the Preferences option on the screen followed by tapping the Video option and

then tapping the option to change. I won’t be going through each of these options in detail in this edition, but if there is interest for that I’ll look into for a later version of this magazine.

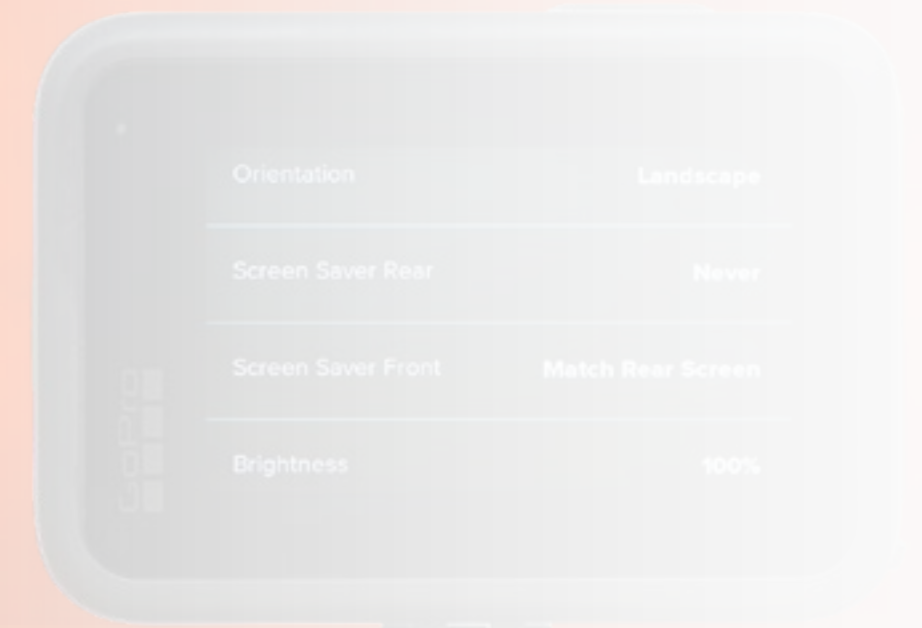
Certain parameters can also be changed directly on the screen without having to navigate through the menu system. For example, to switch from Photo mode to Video mode, swiping left brings up a mini menu of options – Photo, Video or Timelapse.

Once you have selected one of these, on-screen options can then be selected by tapping them.

An example is in Video mode, at the bottom centre of the screen shows the “Quality” mode currently in place and tapping that allows you to change between Basic, Standard and Highest.

Other options you can change in Video mode include frame rate (to invoke Slo-Mo), Horizon Levelling and Frame Size.

I strongly urge you to become familiar with all these settings as it allows you to change the modes of the



GoPro according to the current environment, in order to get the very best images or video.

I find it helps if while experimenting and “playing” with a notebook what each does, then I have a better memory of each command for later recall.

Other options on screen let you know what battery life is left, how much space is on your SD card and there are other indicators depending upon which mode you are in.

THE GOPRO HERO CAMERA MENU SYSTEM

A BRIEF DESCRIPTION OF CODECS

A major level of confusion is caused by what is known as “codecs”.

In simple terms, think of a codec a bit like an old videotape type – say VHS and Beta.

They are different ways of storing the images and video on the camera’s micro-SD cards, and different codecs are used for different purposes.

In photo form, a file type called JPG is used, and for most users this is perfectly good for the purpose. There is also a RAW format available in advanced mode, and this is used by experienced photographers

who wish to later edit their images in detail (JPG pictures can of course also be edited using software such as Adobe Photoshop and many other applications like this, including GoPro’s Own Quik app, but not to the same level as RAW images can be).

With video, it gets a little more complicated. Across the board, generally a format called MP4 is used to store the video, but inside

this file type, a codec is used dependent on the resolution in which the video is shot.

Normal HD resolution uses a codec called H.264, as does the higher 4K format as used by many TV sets today.

But if you shoot in the higher 5.3K, while this is still stored in MP4 files, a codec called H.265 is used.

Where it becomes an issue is when playing back or editing

these files on your computer or smartphone.

By default, most, if not all computer systems will be able to play and edit files stored with the H.264 codec.

However, if you have recorded in H.265 as you used the 5.3K resolution, you may need to get that codec installed.

I have included a separate article specifically covering this issue.

LOW LIGHT ISSUES

The most critical thing for any sort of imaging whether it be photography or videography is light. Without it there is no image, and too much of it and your photo or video is washed out. And despite what you might see in American cop shows, when some boffin or another says, "send it to tech for enhancing" you cannot put in what is not there in the first place. So you need to learn about the camera settings that affect light, namely aperture, shutter speed and ISO.

However.

Another factor is the sensor size. Smaller sensors as used in the GoPro cannot gather as much light as larger sensors in mirrorless or dSLR type cameras so are NOT good in low light – without some artificial help.

Bear that in mind.

OVERHEATING

I go into this subject in greater depth in the specific article in this edition but be aware there is an overheating issue with GoPro cameras and you are certainly not alone.

Inside that tiny case is packed a LOT of sophisticated electronics, and as anyone knows, when there are electronics involved, heating is a problem.

Now I know that people ask why the GoPro has an issue but its main competitor, the DJI Action camera does not, and I do not know the answer to this. The best way to minimise the overheating issue is to turn off in the Preferences any feature you are not using such as Bluetooth, Wi-fi, Voice Control, the front screen and so on.



SETTINGS

One of the most common questions in the Facebook forums is "What settings should I use for such and such a scenario"?

Let's look at this briefly in context; I go into it more deeply in the specialised articles.

If you are familiar with photography, you'll know that the most important aspect is light. So, for any known scenario, the settings for your GoPro depend on the available light, and as ANY scenario can have differences in the amount of available, light, there can be no specific single settings that will work under all circumstances.

So what it comes down to, experimentation, practice and experience to know what the settings should be for any specific situation.

ALL ABOUT MICRO SD CARDS

I have an in-depth article covering this later in this edition, but as a quick guide, seeing the question is asked so often, here is a quick overview of the SD cards to be used in GoPro cameras.

Firstly stick to a brand name. The SD card is your **ONLY** link to the precious imagery you shot; it is the **ONLY** copy until you take them off the SD card and onto something more permanent. Cheap SD cards are just not worth the risk.

I have used and recommended [Verbatim SD cards and SSD drives](#) for years and never had a problem, but other reputable brands include SanDisk, Lexar, Samsung and Kingston.

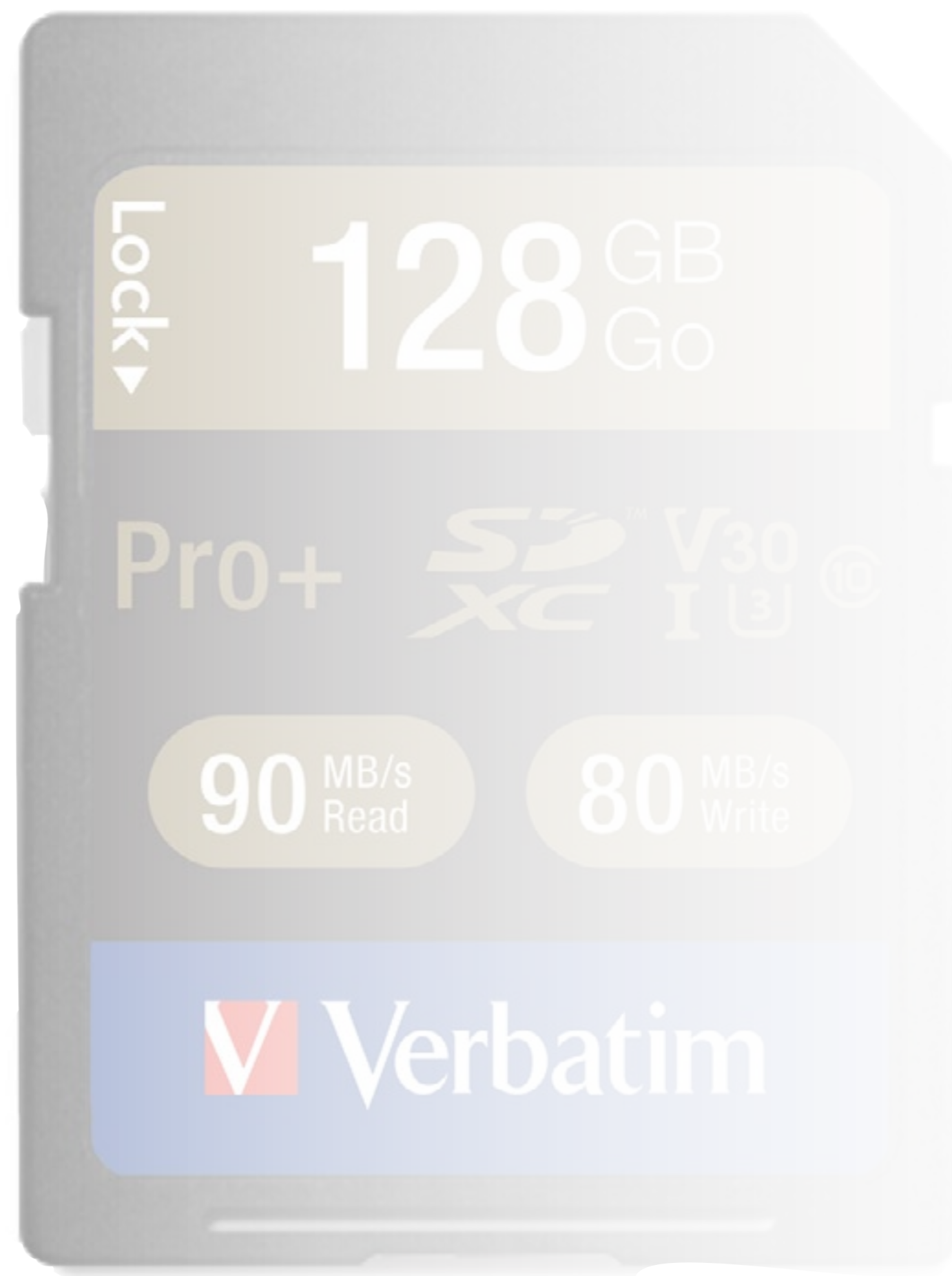
SD cards – correctly they are microSD cards – have ratings that

shows how fast they can read and write information, and it is critical you use cards that have sufficient speed to write the data you are recording. It may not be obvious to you, but the higher the resolution you record, the faster card you need.

As an example, as hi-def (1920 x 1080 resolution) is smaller than 4K, it doesn't need as fast a card.

Similarly, if you are shooting in 5.3K, you need the fastest card you can get.

Its best to play it safe and always get the fastest you can get, and as a minimum, this would have a rating of V30 or UHS-3 stamped on the card.



SO YOU ARE THINKING OF BUYING A GOPRO. HERE'S WHAT YOU NEED TO KNOW...



The GoPro Hero Black is a versatile little camera and often a person's first 'real camera' after only ever using a smartphone. This causes some issues for many if the various GoPro forums are anything to go by.

So, here is a little primer for you if you are thinking of buying a GoPro in the near future.

The first thing you need to ask, and many people make a mistake by not doing this, is whether the GoPro is the right camera for the job? As I said, it is a versatile little beast,

but there are some things it is just NOT designed to do.

A lot of people who have bought a GoPro and later found it unsuitable did so because they simply didn't research enough. I saw a case just this morning where someone asked, "what is the best GoPro to get?" which is a very common question.

When asking what they intended to use it for, and made the point that if he intended to film anything at a distance this was not the way to go, it appeared the author of the question had no inkling the GoPro has no zoom function.

(But, you say, it has a digital zoom. To which I answer, digital zoom is not a "zoom" as such in that it is not optical. Instead the original image is blown up and then cropped around the part of the image you want enlarged. This is done digitally by making the pixels larger and therefore you lose resolution and by definition, then quality).

GoPros are also terrible in low light. You can get add-on LED lights from GoPro or other manufacturers such as Aputure, but the "throw" of these is quite small, and at the end of the day, a small sensor as employed in the GoPro is just not cut out for low light work.

Other situations I would countenance against using a GoPro for, unless you had absolutely no choice, are events like weddings or filming concerts.

All the promo stuff you see for the GoPro revolve around activities such as biking, fishing, surfing, kayaking and so on, and this is not an accident! These are the sorts of situations the GoPro is designed for.

If you want to shoot scenarios other than these, then a small mirrorless like the [Fujifilm X-S10](#) is a far better proposition giving you much more flexibility.

Audio is also a weak point if you want high-definition sound. The new Hero 12 has improved this with its ability to capture audio via Bluetooth, but really, for top quality sound you need a decent mic system, not just a pair of Bluetooth earbuds.

The best way is to get the MediaMod available for the later models and use a plug in radio mic system such as the [Hollyland Lark M1](#) at the lower end, [DJI Mic](#) in the middle right up to the [Sennheiser](#) units at the top end.

Another standard question that is brought up relates to the software people are using to create their finished videos. And almost always, users are enquiring after "free" software.

As the old saying goes, you pay for what you get. Thankfully, in the area of video editing there are a couple of options that are available for free.

The first is [DaVinci Resolve](#) and this works on Macs, Windows and even the LINUX operating system. Be prepared for a decent learning curve though as DaVinci Resolve is VERY

comprehensive.

The second which is Windows only, is [iMovie](#), and if you want to add a zillion special effects and other whizz-bangery, this is the one for you.

Whichever way you go, I urge you to spend the time going through and following along with ALL the tutorial modules to get the best out of the package.

Finally, and this is imperative, to get the best out of your GoPro you need to understand the basics of videography and photography.

The pros don't get their best pictures by pointing, shooting and hoping for the best, and nor should you expect that.

There are millions of tutorials online to help (I have some at <https://cre-8.com.au/getting-started/> to get you started). I suggest learning about shutter speed, aperture and ISO as starters.



GOPRO 'HIDDEN' SECRETS

I had a look at the manual for my [Blackmagic Pocket Cinema Camera 6K](#) this morning. And as you'd expect for such a complex piece of gear, it is a goodly size.

155 pages to exact

So how many pages do you think the "humble" little GoPro 10 camera has. I mean, it's only a so called "action cam" so doesn't need a lot, right?

Well it might surprise you that the little GoPro manual is itself 153 pages!

So what might you have been missing?

I know many people have GoPros of all model numbers

and variations, and without to much of an exaggeration, it is safe to say, that just as many users do with "standard" camcorders or cameras, and indeed smartphones, most put it in "A" for "Automatic" and leave it there. Which is a shame as they are then missing out on some gems of capability that would raise the level of their photography and videos and add capability found in more expensive and supposedly "sophisticated" camera and camcorders..

PRESETS

The first thing you might want to do is create some of your own presets. A preset lets you create a series of settings and



save them for use in particular situations. A simple example might be 'wide angle at 1080p resolution and 60 frames per second'. Once saved under a name, you can quickly recall it and save having to go through the manual setup, saving enormous amounts of time when you need that specific setting to get the perfect shot.

Once you understand more of video / photography and your GoPro, you can then also go into the ProTune mode and play around with advanced settings such as Colour Profile, White Balance, ISO, shutter speed and more.

Gosh, just like a REAL camera hey?

POWER TOOLS

The next thing to be aware of are the inbuilt Power Tools in the latest GoPros. These are a suite of smart capture settings such as Hindsight (which records up to 30 seconds of video before you press the shutter button. This means you'll have less chance of missing the perfect shot, especially useful in situations such as sporting events, or fireworks displays say.

You'll want to make sure you have all your capture settings in place though before

starting Hindsight, as you cannot change them once it is on. Also be aware that Hindsight will use up battery juice faster than normal use.

Another goodie is Liveburst which captures a burst of shots both 1.5 seconds before and after the shutter is pressed. Again great for sport and fireworks as examples.

If you know a particular event is going to happen but cannot be there, another PowerTool, Scheduled Capture, allows you to set the GoPro to automatically turn on and capture a shot any time up to 24 hours in advance. In conjunction with software like PhotoPills that will tell you the exact time of sunrise / sunset, moon rise / moon set, golden hour / blue hour etc according to your location by latitude and longitude, this mode is brilliant to get shots where you cannot be bothered getting up or can't be there for some other reason.

A variation on this is Duration where you tell the GoPro how long to record for before it stops. You can set increments from between 15 seconds to 3 hours (you might need an external battery for that). You can if you wish, set a 'No Limit' which will continuously record

until out of memory or battery, whichever comes first.

QUIKCAPTURE

In QuikCapture mode, simply pressing the shutter button will start the GoPro recording without the need to turn the camera on. QuikCapture is on by default by the way, but if you want to turn it off, you do it from the GoPro Dashboard (the Rabbit symbol).

HIGHLIGHT TAGS

If you want to mark a spot when recording to make it easy to navigate to that during playback, when recording press the Mode button. But a much sexier way is to take advantage of the GoPro's Voice Control system.

When you are recording and want to mark a HiLight, simply say 'GoPro, HiLight'!

Additionally if you edit with the GoPro Quik app, it uses HiLights to make sure it includes the highlights in the video.

ORIENTATION

Did you know the GoPro can record in Landscape and Portrait mode and once you are in a specific orientation you can lock it so it stays in that mode? Even upside down (useful when mounted on a car windscreen).

TIME LAPSE

As the name suggests, this lets you take a series of frames of video at set intervals. Additionally, you can "speed up" time with the TimeWarp mode. In Time Lapse mode, this uses the fantastic stabilisation ability of the GoPro in conjunction with Time Lapse to get super smooth video whilst on the go. This is how they get those shots of clouds moving quickly overhead for example.

LIVE STREAM

If you want to share your video in real time with others, your GoPro can act as a webcam. This requires a bit of setup and I'll go through this in another article, but if you are anxious to get started, go to www.gopro.com/live-stream-setup

EXPOSURE CONTROLS

In simple terms, exposure is how much light is being used in a photograph or video and is dependent on such things as shutter speed and aperture settings. Your GoPro can set these automatically based on the scene, but for creative purposes, you can override any of these settings – and more – to get

just the effect you want.

To do this, tap and hold on the view screen until a set of brackets appears. Once they do, drag them around the screen and the exposure will be set based on the area inside the brackets. If shooting on snow or over water, it is almost a given you will do this to make sure you do not overexpose an image.

VOICE CONTROL

As I mentioned earlier the GoPro has a fabulous built in voice control system letting you perform a whole bunch of actions just by telling it to. These include 'GoPro start recording' and then of course, 'GoPro stop recording'. But you can also change modes from video to photo to time lapse or any combination of these. There are more too, so have a look at your manual or on the web to get a complete list.

PROTUNE

If you really want to get into the engine compartment of your GoPro, check out the ProTune settings where you can get right into setting the very basics of your camera in terms of its image capture. I alluded earlier to these with shutter speed, aperture and

ISO, but you also have colour settings and bit rates, frames / second, exposure compensation, sharpness, audio settings, wind noise reduction and more you can play with.

THE MANUAL

The manual for your GoPro contains detailed information on everything I have touched on here, and if you don't have it yet, you can get one from the web. The one I have is for the GoPro 10 and is at https://gopro.com/content/dam/help/hero10-black/manuals/HERO10Black_UM_ENG_REVB.pdf as a PDF you can download.

CONCLUSION

So, the next time a photographer or videographer with a big flash camera or camcorder sneers at your "little" GoPro, rest assured that technically, most of what they can do, so can you. And it fits in your pocket.

Better yet, ask them if their super-doooper model45 whizzbang can go underwater?



DON'T RISK IT BY USING CHEAP SD CARDS

One of the most common questions I get asked is which size SD card to use in a drone / GoPro / camera / camcorder. And which card to use.

- Check your device's documentation to see what SD (or microSD) card rating is recommended. While the fastest read / write card may seem to be obvious, some devices simply cannot take advantage of these speeds and therefore you are wasting money paying for the ability.

Some may not work at all. If you are shooting 4K video (or higher), go as fast as you can to make sure there are no dropped frames.

- I talk from experience here, but I'd suggest ALWAYS purchase brand name SD cards. I use and recommend [Verbatim](#) as to date I have never had a failure with a [Verbatim](#) card. Conversely, cards I have purchased in an emergency that are either unbranded or a name I have never heard of (ie cheap) usually give read / write errors after the first or second re-format.
- Make sure you format the card according to its capacity eg FAT32, NTFS.
- Again, from personal experience, transfer the data from an SD card to a more permanent device as soon as you can. For

travelling, I use a [Verbatim VX500 SSD](#) that has 120GB of storage which is more than enough and can be bought for less than \$100.

- Rather than use a single humungous capacity SD card in your drone or camera, I prefer to use a number of smaller capacity cards. That way, if one does get lost or corrupted, at least not all the shots or video are gone.

Refer to my [Hervey Bay whale story](#) for an example where using multiple cards saved the day in a TV shoot.

- Before you go out on a shoot (of any sort), check the SD cards are working OK, and always carry at least one or two spares. There is nothing worse than starting the shoot and finding the card(s) are duds. (The same applies to batteries as it turns out).
- Store cards properly. I use a small case that has plastic inserts to hold both SD and microSD cards. You can get them from Officeworks for \$10 or so.

Remember, all those little electrons that make up your images no matter it be still photos or footage are on those cards. Once they are gone, they are to all intents and purposes, gone forever. So, treat them nicely!



Many, many years ago, in a video forum far, far away, I had a 'robust' discussion with a person I'll call 'Gary', because that was his name. Gary argued the 'Rule of 3rd' was a hard and fast rule that had to be followed to get the best images, no matter video or still.

My stance was that the Rule of 3rds is not a rule at all, but a guideline, citing one little know director called Stanley Kubrick who famously rarely, if ever used it, instead preferring the focal point of an image to be dead centre.

Be that as it may, the Rule of 3rds IS a useful guide to follow but going by a lot of the images and videos shown in

various GoPro, drone and other forums, is probably not as well-known and understood as it should possibly should be.

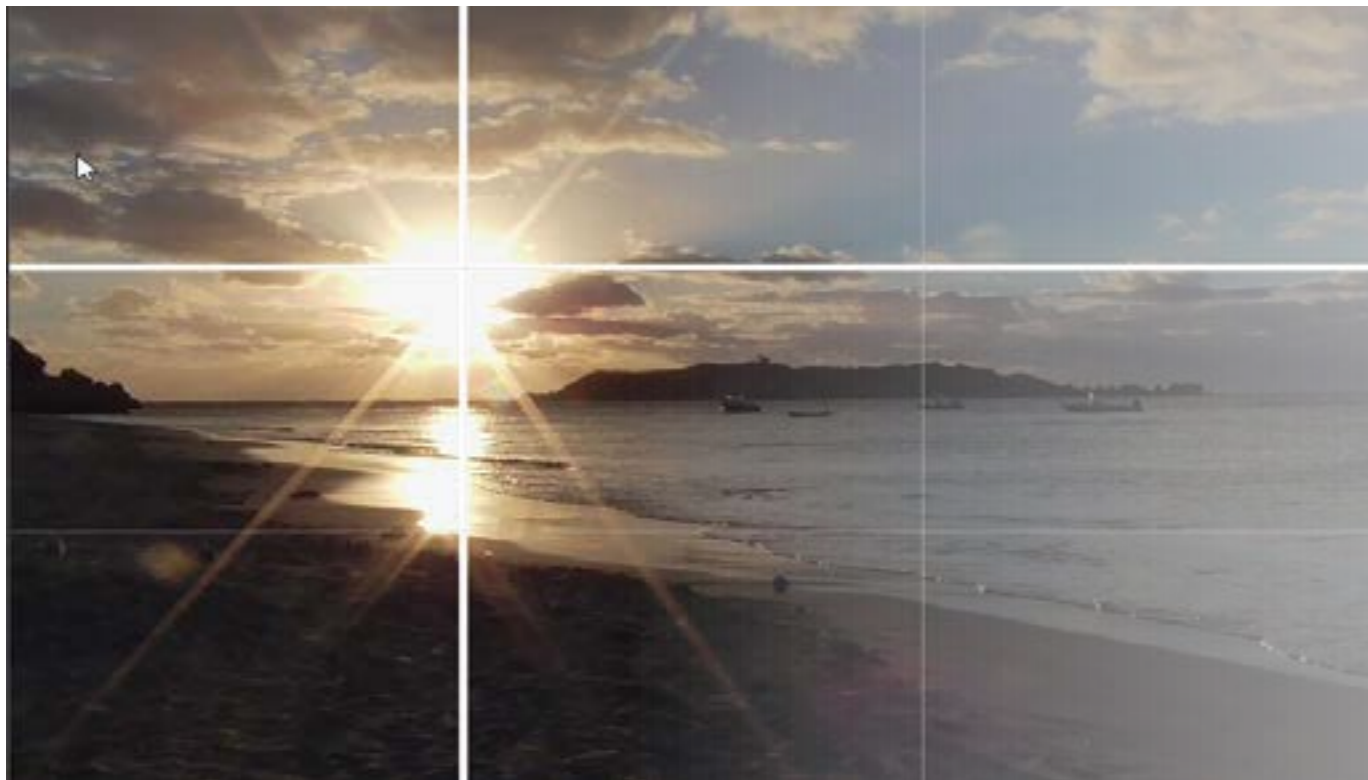
So, what exactly is the Rule of 3rds?

To quote the Digital Photography School who put it best, "the rule of thirds is a compositional guideline that breaks an image down into thirds (both horizontally and vertically) so you have nine pieces and four gridlines. According to the rule, by positioning key elements along the gridlines, you'll end up with better compositions".

To see it in action, place a 3 x 3 grid over your image

(many cameras and camcorders etc actually have this option built into the Display settings of the menu system. It is usually called a Grid Overlay. To create an overlay in Photoshop, choose Preferences > Guides, Grid & Slices. Set the "Gridline Every" to 100% and the "Subdivisions" to 3).

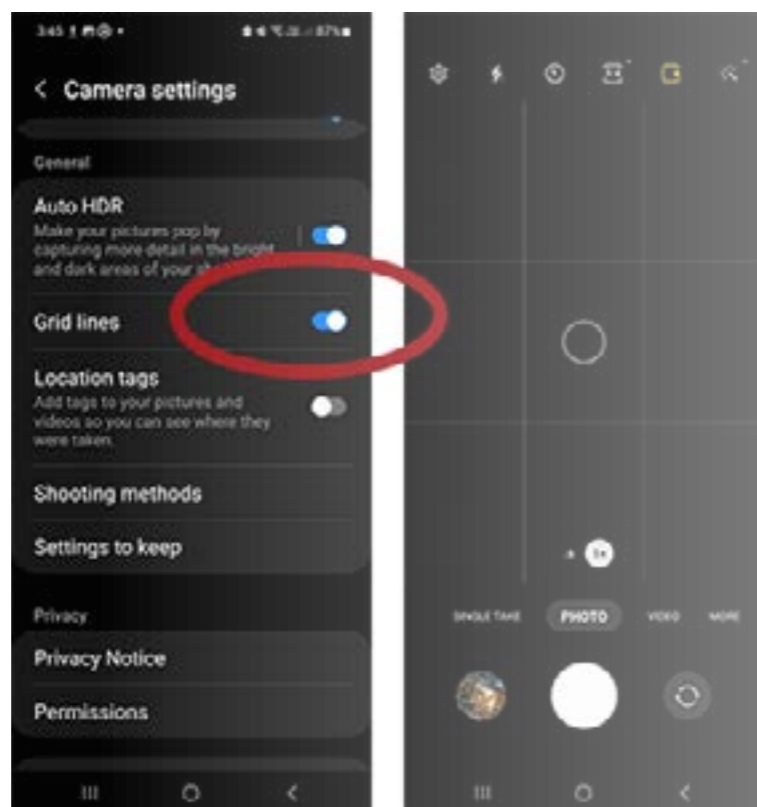
The idea is to create a pleasing balance to the image. For example, in the image above, putting the red tree to the left of the photo is far more interesting than if it were in the middle. Note I have emphasised the vertical line to show how it also runs through the approximate centre of the red tree.



The centre points of intersect of the vertical and horizontal lines are sometime called "power points" and are also useful to emphasise points of interest in an image, such as an animal's eyes.

In the second image, it shows a landscape with the focal point also being placed at an intersection of the horizontal and vertical grid-lines. Additionally, I could have shot this image with the horizon line along one of the horizontal lines to make an even better shot.

Now as mentioned, as important (and simple) as the Rule of 3rds it is, again I stress it is NOT a fixed rule, just another item in the toolbox of image creation.



MKH 416

Experience the Sennheiser Difference

In the studio, on the stage, or behind the camera — there's a reason professionals have turned to Sennheiser microphones and headphones for more than 75 years.

It's the established tradition of delivering audio excellence, combined with an enduring passion for quality design and rigorous manufacturing protocols.

That's the Sennheiser Difference.

Quality you can hear.
Heritage you can trust.
Reliability you can put to the test.
Innovation that's yours to unleash.



VIDEO EDITING: ITS NOT ROCKET SCIENCE AT ITS BASICS

I saw an interesting response to a post in a Facebook group today. A GoPro group to be exact.

The author had posted a video of a trip from a country town into his state's capital city, with the GoPro acting as a dashcam. In all, there was a smidgeon over 25 minutes of highway footage, with the author inviting people to have a look.

The first responder suggested it was a nice video, in a sarcastic sort of way, and then advised the author to

"learn how to edit". I assume he meant that 25 minutes of footage out of the front window of a car on a highway is not that exciting or interesting.

But it got me thinking. How many hours of footage are shot from phones, cameras, camcorders, GoPros and drones that COULD be interesting, if a little bit of editing was applied? How much footage is lying around languishing as someone doesn't know where to start?

For some, this could be a



very big step. It's all very well whacking 10 seconds or whatever on TikTok from your smartphone to explain why you use black lipstick, but what if you have a story to tell that may be 15, 30, 45 minutes or longer? Where DO you start? And with what tools?

I have been digitally editing

For this exercise I'll be using [DaVinci Resolve](#) as the video editor in the screen shots because a) it is free and b) it is available for Mac and PC (and LINUX if you are so inclined). There is also a version for the latest iPads too – but it must have the latest chips in it.

Let's assume you have 20

Non-linear editor. Just a fancy name for a computer-based video editing program. It's called non-linear as you don't need to assemble the video from start to finish. You can create the middle, the end and then the start, or in any other order you like, or even insert or delete sections later.

audio (from a music track or voice over), still images (eg photos) and graphics (titles or other things created in Adobe Photoshop, Corel Draw or any of a million other graphics applications). You can have many bins, for example, one for each type of asset, or one for locations or dates and times. How you store your assets and name your bins is up to you.

EDIT:

Simply the method of chopping up video clips (or audio clips) and reassembling selected bits in an order you want. You might also add a "music bed" or a "voice over" dialogue once all the editing is done.

IN POINT:

A location in a video clip to signify where the section you wish to extract will start. For example, if you have a clip that starts at 0:00 and ends at 20:00, you might set an in point at 1:23

OUT POINT:

A location in a video clip to signify where the section you wish to extract will end. In the same clip, you might set the out point at 2:13. These two together give you a clip of 0:50 to add to the timeline.

TIMELINE:

The area where extracted clips plus graphics such as titles, still images etc are assembled into their final order. The timeline is made up of a number of tracks.

TRACKS:

A timeline contains tracks. Some editors have a limited number and others – the good ones like Resolve – have unlimited tracks. There are two types of tracks usually, video and audio. Audio tracks can be linked to video tracks (that is, editing a video track will also edit its associated audio track) or unlinked. Unless you do some special processes once clips are on the timeline, called "compositing" the video on the top track will show in the playback window thus hiding all others that it covers.

SOURCE WINDOW:

This is a window in the editor that shows your footage ready for chopping up.

PREVIEW OR TIMELINE WINDOW:

This shows the completed video as it is being assembled. It is a representation of the timeline.

Editor's Note: (in [DaVinci](#)

[Resolve](#) depending on the mode you are in – Cut Page or Editing – the source window switches to being the timeline window as needed. For a beginner I recommend starting with the Cut Page method. There are also other screen areas such as the Inspector and Track Index but they are outside the scope of this primer

TRANSITION:

An effect as you move from one video clip or audio clip to the next when the video plays back. Common transitions are cut, fade, fade to black (or white) and cross dissolve. Be aware, fancy transitions are NOT to be encouraged as they detract from the story you are telling. For an example, watch any Star Wars movie and 95% of the transitions are straight cuts.

SFX:

Special effect. Like transitions, should be used sparingly. Nothing screams "amateur" as much as a gazillion special effects (or indeed transition types).

HOW TO EDIT

[DaVinci Resolve](#) Cut Page Window



footage since 1998 and via analogue before that back to the mid-90s, so figured I might be able to help here with a reasonably quick and easy to follow primer.

So here goes ...

minutes of drone or GoPro footage you want to turn into a shorter clip by selecting only all the best bits.

First, here is some terminology:

NLE:

BIN:

A location in the NLE where you place all the assets to be used to make up the completed video. Assets can include video clips (eg from your GoPro or drone),

In very simple terms – and that is really all you need – a video clip is loaded into the source window from a bin, and in and out points set to isolate a section of that clip so that it can be added to the timeline. It's important to

out points can be fine-tuned even further), you can add transitions between the clips.

Be very aware of audio. Beginners in particular tend to think it is secondary to the vision, but nothing could be further from the

film of all time (and classified by many critics as the best film EVER made), 2001: A Space Odyssey, the director Stanley Kubrick makes very skilful use of absolute silence for long stretches.

So make sure your audio,

known as lower 3rds. Again, don't bombard the viewer with these as they are meant to add to the video, not overtake it!

RENDERING

Once you have ALL the as-

There are a number of render formats, and inside any particular format, a myriad of parameters you can set. The good editing packages have presets you can use to save you learning all this guff at this stage. Many even have

And that my friends are the very basics. I'll try and put together a complete walk-through video if there is demand for it. Let me know via the comments or email me at david@creativecontent.au.

At my website (

note that digital video editing like this is non-destructive. The original clip stays intact.

You continue to do this until you have selected all the sections of asset videos you want in the final video and have them in the order you want on the timeline. Once this part is done (and after adding to the timeline in and

truth. Hollywood spends a FORTUNE on getting the audio right for its movies. It's an interesting exercise to watch something like Saving Private Ryan, a Star Wars movie or similar big budget film with your eyes closed and you'll see just how complex the audio can get.

Conversely, in my favourite

whether it be complimentary as a music bed, or a voice over, or even the raw audio from the footage itself is a part of the overall experience, and above all, necessary.

Finally, you might want to add some titles to explain a location, or a person's name for example. These are

sets assembled on the timeline in the right order, the story being told flows nicely, audio and video are in balance and there are no glitches such as tiny gaps, video out of synch with a person talking and so on, it is time to "render". This turns all the stuff on the timeline into a proper video in a single clip.

specific presets for YouTube, Facebook, TikTok and so on. Just choose the one that suits where you will be posting that video for public viewing.

If you are still unsure, you cannot go far wrong by selecting MP4 and 1920 x 1080p as the settings (except if you want vertical video which is a whole different ball game I'll get to in a later tutorial).

tent.au) I have a bunch of tutorials covering all things video and audio, but there are a pile of drone and specific ones if you are interested, and I also do a free regular e-magazine and podcast.

You can get your free copy of DaVinci Resolve at Blackmagic Design's website by clicking here.



In the various GoPro forums I frequent, one of the most common questions I see is "what accessories should I get"?

“What accessories do I need?”

The answer of course depends very much on what you use the camera for; someone who does mountain biking has very different needs than someone who does snorkelling for example.

However, over the

many, many years at Australian Videocamera / Creative

Content we have been playing around with GoPros (and other action cams of course), we have found a cross section of goodies we reckon cover many needs.

And where something wasn't available, we instead found a model online and 3D printed it on our [Flashforge Adventurer 3D](#) printer.

So, here is our selection of mounts we regularly use for various purposes.

TRIPOD

The most used one without question is a simple mount that allows the camera to be attached to a standard tripod thread. Of course if you have a model pre the built in hinged



“fingers”, you'll also need the cage to mount the camera into. And for GoPro 12 users, that threaded hole is now built in (Hooray!)

Because we often use an external monitor and mic with our GoPros when using the Media Mod, we also use a triple bracket allowing all three to be mounted on to a tripod.

For taking shots of our hands operating equipment, I have the GoPro 9 mounted onto what was originally I understand a helmet mount. However, when using this in conjunction with a set of GoPro "Jaws", it reaches out far enough so that I can video, for example, what buttons to press on an Blackmagic Design ATEM Mini Pro to do different functions. It's also great for top-down product shots into a lightbox.

CAR MOUNT

For mounting to a car, when

there is no high speed involved and the way is going to be v-e-r-y smooth, a simple three footed suction unit is OK, but if I am doing

deadly serious motor sport stuff, then we move up to the Hague (no relation) Camera Grip unit which will take up to a dSLR camera without getting upset (these I believe are what Top Gear use on occasion).

For inside car shots a simpler single suction unit is fine, or



alternately, I have a sticky GoPro mount on the windscreen or rear window and use a standard GoPro slide mount into that.

If I want shots from my boat, whilst I do have a sticky mount on the outside of the windscreen, I also have another mounted on the front deck, and for inside the rear deck shots, a couple of rail mounts. For down in the cabin video, there is another sticky mount on the forward bulkhead pointing backwards.

ZHIYUN GIMBAL

I am not a great fan of having cameras mounted physically on me as the movement I find way too jerky to watch, and while the in-built stabilisation of the later GoPros especially is very, very good, you cannot go past a proper gimbal.



My unit of choice for this is the [Zhiyun Crane M2S](#).

IN THE WATER

Surfers and bikers of all persuasions I understand do like a chest mount or head mounted unit and there are any number of these either from GoPro themselves or via 3rd party vendors.

The same applies for surfboard and boogie board mounts that are very secure. But don't forget the waterproof housing if you are pre-waterproofed GoPros ...

For helmet mounts, there are a number of different models available to suit different types of helmet shapes and different curvatures.

But I am not averse to mounting a camera on Dougie the Doggie for entertainment value and GoPro make one just for this purpose.

They are a bit fiddly to fit, but for the occasional fun shots,



I can live with that.

THINGIVERSE

For snorkelling I discovered a neat mount at Thingiverse that I could print out on my [3D printer](#) as mentioned. It is very simple and slips over the scuba mask and is quite stable.

It takes about 2 hours to print – but if you do, make sure you use yellow or orange filament. I'll tell you why in a second.

Another 3D printed mount is a little different in that it allows you to run a GoPro down a "zip line", hanging underneath a two-wheel pulley system .

Fishing line makes the

perfect medium for the line, and you can get some really interesting shots.

There is always room for handheld

devices of course, and if you intend to use one when scuba diving or snorkelling, orange or yellow ones are best. Its even better if they are buoyant.

Why orange or yellow (as also in the scuba mask mount)?

Quite simple



really. If you happen to drop it, these colours are much easier to see underwater.

LIGHTING

An accessory I find indispensable, but is not a mount is the GoPro Zeus LED Mini light. There is a review of it here.

Effectively this is the light kit available for the Media Mod mounted on a GoPro Jaw mount and gives you three levels of illumination. The mount itself swivels and tilts and is magnetic. I carry one in a backpack with me at all times.

Having mentioned the Media Mod, if you have a later GoPro, the Lens Mod also has its uses. I have reviews of these later in this edition.

Apart from GoPro branded mounts, there are a large number of vendors on the internet that can supply a grab bag of different mounts and attachments etc for a very reasonable price. Much of the stuff you see on



the previous page came from one of these and cost about AUD\$30 +shipping.

TELSIN

For more specialist jobs, Telesin make some interesting products.

I am not sure where they are represented in Australia, but in the GoPro Owners Australia Facebook Group (<https://www.facebook.com/groups/GoProOwnersAustralia>) do a search for Richie Kirkbeck as he has access to product as an agent I understand.

I have no idea how many 3rd party vendors there are out there for GoPro (and by default, DJI Action camera) mounts, but any Google search will bring up literally hundreds of options.

POWER TO SPARE

There are gazillion GoPro accessories out there, but now having had a play with one, I reckon one of the most useful is the [Volta](#).

Never heard of it? Nor had I, except in passing, and it appears to be one of GoPro's best kept secrets.

So what is a [Volta](#)? As the name sort of suggests, it has a lot to do with power, with a couple of party tricks thrown in for good measure. Basically, the [Volta](#) is a battery grip that doubles as a tripod and remote control for GoPro Hero 9, 10, 11 and 12 models.

So, not only do you get a 4900mAh battery (compared to the standard 1050mAh or Enduro at 1720mAh) but also the ability to control the camera via Bluetooth, and give you a 360° mounting system.

If you are a sadist and like Quik (my opinion only I hasten to add), QuikCapture is supported by wired connection for all the models, but only via Bluetooth for models 10, 11 and 12. Additionally, if you wish to use the GoPro Mic Adaptor, this can be done using the supplied pass through door and then connecting the Volta's USB cable to the Pro Mic Adaptor to provide power to the camera.

It is also possible to charge other devices from the Volta's USB-C port.

PHYSICAL

The [Volta](#) is approx. 20cm in length with the familiar twin mounting "fingers" on the top. What I didn't initially notice is that there is a second set of fingers on the side of the [Volta](#) that flip out. How they were activated initially stumped me, until I discovered there is a push button above the

folded down fingers, that when pressed, makes them pop up.

These are useful for adding accessories

to add a supplied lanyard.

On the opposite side to the pop out fingers is a coiled USB cable used to power the mounted GoPro and beneath that in a covered slot is a general purpose USB-C port.

Finally, on the side of the [Volta](#) is a control panel with a

battery status button, shutter

button, or further mounts increasing the range of options for the camera itself. GoPro suggest they can be used to attach the [Volta](#) / GoPro to backpack straps.

The bottom half of the [Volta](#) has a pair of fold out legs turning the unit into a tripod, and you also get a standard screw thread in order to add the Volta itself to a tripod or other sort of mount. There is also provision

button, Bluetooth button and LED battery / camera indicators.

MOUNTING THE GOPRO

Adding the camera to the

fingers on the top will be a second nature thing to most GoPro users. Adding the pass-through door may not be though, as the original door must first be removed. This is a simple process of simply lifting it up high and it will pull away from the hinge.

While you can get replacement doors, I recommend you put the original away in a safe place so you can later put it back on again if needed. If you have a GoPro 9, 10 or 11, the obvious place is the GoPro case that came with the camera and accessories, but of course, the 12 in an attempt to save money, the planet, doesn't include this case anymore.

Once the pass-through door is installed, the USB plug on the coiled cable feeds into it creating a nice seal – that

whilst I'd suggest is water resistant to rain, snow and splashing etc, it is definitely NOT waterproof in any shape

or form.



As an aside, one of the most common GoPro questions on the various Facebook forums is “Is the GoPro waterproof”? Now, anyone who reads the specs before buying – and they all should to make sure the GoPro is the right camera for the tasks in mind ahead – will see that GoPro claim the base camera is good for around 10 metres (33 feet approx) for snorkelling, scuba etc.

Whilst I do not doubt this claim, having lost a Sony RX0 – a sort of souped-up GoPro – as a speck of sand got under the battery hatch, I would always recommend getting the extra waterproof housing. It’s worth the extra \$90 for peace of mind in my opinion.

Once you have the camera mounted and the USB cable in place, pressing the “+” button will start sending power from the Volta to the camera.

CONTROLLING THE GOPRO FROM THE VOLTA

You can control the GoPro via either wired control or Bluetooth. With the wired control, repeatedly pressing the Volta’s Mode and Power button when the camera is

running will cycle through the camera modes. To start capturing images or footage, press the Volta’s shutter button.

To turn the GoPro off, simply press and hold the Mode and Power buttons.

Alternatively, you can use wireless control via Bluetooth, thus allowing the Volta to control the camera even when it is not physically mounted to the Volta.

First, you need to pair the camera and the Volta from the dashboard of the GoPro. To access this, on the rear screen swipe DOWN, and then swipe LEFT to access the Connections options. Tap the Volta menu entry.

Next, press and hold the Volta Bluetooth button for 4 seconds and the GoPro and Volta will pair automatically. Once done, if the cable is not connected, when both the GoPro and the Volta are turned on, they will connect automatically, and you can use the same button press combinations as per the wired connections to control the camera.

You can also use the Volta with a GoPro inside a Media

Mod by the way, adding even further flexibility to the system as you can use external mics and HDMI.

CONCLUSION

If the battery life of the standard or Enduro batteries is a source of frustration – assuming you are not snorkelling or swimming – then the Volta is a great solution. Additionally, if you remove the battery from the GoPro, overheating issues will be minimised, especially if you also turn off all the functions that are not used such as voice control, GPS (on model 9 through 11), the front screen and so on.

At around \$200, it makes it a slightly expensive battery, and if that was all it did, then I’d say it was possibly not worth it. But the extra features offered, if used, can certainly make it a justified expense, especially with the ability to be a remote controller for the GoPro.

You just need to add up your needs as to whether you want to shell out the extra money.

GOPRO AND GIMBAL? ABSOLUTELY!

Could a GoPro benefit from a gimbal?

Most would say, “why use a gimbal.. the latest GoPros have brilliant built in stabilisation”.

And my answer would be, “yes I agree, but a gimbal gives you access to shots you can’t otherwise get”.

Not to mention that ergonomically, the GoPro shape is awful to manipulate in difficult places and at awkward angles.

To test my theory, I added a GoPro Hero 10 Black to a Zhiyun Crane M2-S and did a quick trip out of the back door and into the garden. The gimbal and camera had previously been balanced (this is mandatory to make everything work properly and should be double checked prior to every shoot). Zhiyun state that the GoPro and this particular model of theirs are eminently suited (as are other cameras

such as the Fujifilm X-S10, models from Sony and Panasonic. See the complete list [here](#)). Most smartphones are too, and a special adaptor is included with the gimbal for this purpose.

The M2-S, similar to most gimbals, allows various modes of motion. For the GoPro test

I kept it at PF, or “Pan Follow” which basically means as you pan the gimbal left and right, the camera will smoothly follow.

Other modes include Lock (where all 3 axes are locked), FF (where all 3 axes are unlocked), POV (wherever you point the camera will follow) and Vertex (circular / rotate).

For freeform movement, the joystick on the gimbal also allows you to control the horizontal and vertical motions of the camera at will.

Used appropriately, all these give you a fluidity of motion and stability in ways that the inner workings of the GoPro just cannot match.

The extra party trick though is the ZYCa-





object, rotate the camera around the room, zoom, focus from one object to another and so on.

I have decided to setup one GoPro with a MediaMod on the Crane M2-S for my studio. If I then connect the MediaMod via HDMI to my Blackmagic Design ATEM Mini Pro, I can switch between cameras and screen shots at will and use the extra features of the gimbal for a multitude of ideas. But harking back to the Crane M2-S and the GoPro in other areas, the marriage of camera and gimbal opens up a whole new world of shooting subjects at work and play. And one extra benefit, especially with the Crane M2-S is the built in LED light.

GoPros are known for not being brilliant with low light, so the 1000 lumens LED certainly aids in that area. It also comes with a number of magnetic coloured gels allowing you to set the mood.

Additionally, a ¼ thread on the side of the M2-S allows you to add an external microphone or monitor and the USB-C port on the main shaft of the gimbal will also accept a lead from a Powerbank so you can keep shooting while charging.

At AUD\$379 or so, I think the Crane M2-S is a worthwhile accessory to add to the GoPro camera case (yes, its compact too). And if you have a selection of cameras, the fact it also works with other models and smartphones makes it versatile across the board.

mi app for smartphones which lets you control all these things remotely. Although you cannot do it with a GoPro (yet!), with an appropriate camera mounted you can also control recording on/off, zoom, aperture and focus. If you are a vlogger then this could be extremely important as by using the joystick control offered by the smartphone, you can make the camera swing from being a selfie shot to perhaps zoom in on an

gopro remote

Editor's Note: This article was written before the remote for the 10, 11 and 12 models was released, but the principles are still the same.

The test of a user interface is simple. Can it be worked out quickly and easily, and therefore have you up and running with a minimum of fuss if a user manual is not available.

In other words, you have to explore the device itself and work out how to use it, without any outside help.

This was the way I had to learn the GoPro Remote I have, designed specifically for the Hero 8 and 9 Black as well as the 360° GoPro MAX.

Able to control 5 separate cameras up to 60 metres away via Bluetooth Low Energy connectivity, the GoPro Remote is a simple 4 button device and thankfully, doesn't take a lot to master.

To start, simply make sure your GoPro camera has the latest firmware updates, and then swipe down and left to bring up the Connections menu. From here, choose Remote on the camera.

With the Remote, turn it by pressing the top mounted button and select the Pair option, and within a second or two, all being well, the Remote will pair with the camera and display its name on screen.

From here it's a simple set of combinations of the three buttons (2 on the side and one on the top) to navigate through the camera menu system and using the large front mounted circular button to select.

Not all controls are available mind you. GoPro says that the "most used" functions are catered for including powering on and off, changing modes and shutter control.

From our testing, most of things you might want to do on-the-fly were accessible.

All commands can be seen on the small monochrome LCD screen of the remote, even in bright sunlight, and there is the option of mounting the Remote to say, bike handlebars or your wrist with a strap (although ours did not come with one).

GoPro says the design of the Remote makes it suitable for use in water down to a depth of approximately 5 metres as well.

Charging the remote is via USB C.

The GoPro remote for Hero 8 and Hero 9 Black cameras and the GoPro Max retails for AUD\$129.95.



gopro mediamod

Not a day goes by without me being asked a single question. "Is the GoPro Media Mod worth buying?"

Not quite true, but from time to time the question has popped up. Well it did once anyway. A while back.

So I thought I'd answer it here.

So what is the GoPro Media Mod?

The Media Mod is a casing that the GoPro 8, 9 or 10, 11 or 12 fits into but leaving access to the front and rear screens. It works similarly to shell



cases that previous GoPro models used, with a snap down hinge to lock it into place. One major difference with the Media Mod though is that the battery / SD card cover needs to come off thus rendering any waterproofing inoperative.

The reason for this is that inside the Media Mod a USB-C connector marries in with the USB-C port on the GoPro camera.

AUDIO

Built into the Media Mod is an external polar pattern microphone covered in a foam windbreaker. In my testing

this works best when the subject is in front of the camera and close to the mic (as you'd be when Vlogging for instance). When recording from behind, or indeed at a distance, there seems to be some reverb inserted into the audio which is not ideal.

All is not lost though as there is also a 3.5mm socket letting you plug in an external mic, and with either a RØDE Videomic or Sennheiser MKE400 the sound was much, much better. There are not one but two cold shoes on which you can mount a mic or other device such as the GoPro Light Mod.

USB-C

Above the external mic port is a USB-C port. The most obvious choice for this is to charge the GoPro camera battery meaning you have no need to remove the camera from the casing, but it can also be used to transfer data from the SD card to a computer.

In my usage, I found the USB port also ideal for connecting an external powerbank to give longer shooting times, and depending on the power rating, have managed up to 6 hours + on a GoPro Hero 9 Black. You do need to go into the menu settings on the camera and tweak a few things though.

HDMI

This has been the most problematic part for me and gives a mixed bag of results depending on what I am doing. My primary function is to send data to an external monitor when shooting. A typical scenario is to have a number of GoPros connected to my Blackmagic Design ATEM Mini Pro with a single OSEE field monitor acting as a control monitor for all 4 cameras (with the Blackmagic Design ATEM Control Software) or a 7" OSEE monitor acting as an external monitor for a single GoPro.

The main problem is that once connected (after being suitably configured in

the GoPro menus to act as a clean feed), you lose the GoPro screens and have to do everything in menu changes / camera settings by a little bit of guesswork.

I also get a fair percentage of drop out where for some unbeknownst reason, the GoPro just stops sending the HDMI signal. The only almost common denominator I can find is that using cheap HDMI cables can be a culprit.

Of course your mileage may vary.

CONCLUSION

I use the Media Mod on two different cameras, a Hero 9 and a Hero 10 and they do what I want them to do. Well mostly with the caveat of the HDMI issue. But I cannot escape the sneaky feeling the concept has been a little thrown together technology wise and probably the next version will be a better proposition.

The GoPro Media Mod is USD\$79.95 for the GoPro Heros 9 - 12 and 10 and USD\$47.99 for the GoPro Hero 8.

filters explained

Over the last few months, I have seen a lot of posts in Facebook Groups asking about filters on cameras. Questions included when to use a red filter, what rating ND filters to use, what is a CPL and others.

So here is a breakdown of the basic types and when to use them (and when not for that matter).

But first, what is a filter and how are they used.

Generally, filters are screwed onto the lens at the front of the camera. If you look closely, most cameras have a thread in the lens of a specific value, and you get filters that match this thread size. Another type, such as



marketed by Cokin, have a filter holder that screws

into the lens and allows a number of filters to be added at once.

Others, like GoPros, need you to buy a special filter adaptor (usually containing a UV filter) and then other filters can be screwed into this.

COLOURED FILTERS

The easiest to explain is coloured filters such as red, blue or yellow. A red filter is used for underwater video and photography as they can increase visibility in hazy or cloudy water. In

landscape photography, red filters turn a sky almost black making clouds pop out.

A blue filter on the hand can INCREASE haze or fog adding to the mood of a shot. It will also lighten blues and darken yellows, oranges and reds given colour separation in scenes with a mix of colours.

A yellow filter is used to bring out clouds by darkening a blue sky.



EFFECTS FILTERS

Effects filters such as the star filters I mentioned earlier are purely to add a special effect to a shot and like special effects in video, should be used sparingly. As well as star filters, you can get ones that break up the image into triangles or pentagons (and more), ones that "fog" the edges of an image and much more. For inspiration, look at a [Hoya](#) or [Cokin](#) catalogue.

UV FILTER

Whilst a UV filter is useful in film photography (as against digital) as by stopping UV rays reaching the



film and causing discoloration, the primary use these days of a UV filter is as a lens protector, stopping dirt and grit and even fingerprints on to the valuable 'glass'.

POLARIZER LENS

If you are shooting anywhere near water or glass, a polarizer is extremely advantageous

as it will help remove any reflections, when for example, shooting through a window. In effect, they work exactly the same way as polarizer sunglasses.

Now you may see reference to linear and circular polarizers. It is best to go for circular ones, also called CPLs, as these have an extra quarter wave-plane element that helps convert the light back into a form that is suitable for modern autofocus and auto-exposure systems.

ND FILTER

These are the trickiest to explain in a few words, so much so I did an entire article on them a while back you can read here.

There are varying values of ND filter – 4, 8, 16, 32 and so on – and these allow you to

vary the exposure time by reducing the amount of light reaching the sensor. This is best explained by way of an example.

Say you have a waterfall you are shooting, and its bright sunlight. You might need to shoot at f22 and 1/60th of a second to get a still shot, that is not overexposed, but this will 'freeze' the water in the shot.

By adding an ND filter, you will reduce the light getting to the sensor and allow you to slow down the shutter speed to maybe 2 seconds (depending on the filter you use) or even more, and therefore get one of those blurry water shots.

A master exponent of this art in nature shots is [Jim Picot](#) with his drone images, and my great mate [Ross Gibb](#) with his nature footage.

It takes trial and error with a learning curve to master ND filters, but in the long run they are worth it.

CONCLUSION

This was a very quick primer on filters and I hope it helps. If you have any questions, feel free to contact me at [david@creativecontent.au](mailto: david@creativecontent.au).





gopro lens mod 1

Editor's Note: I haven't had the chance to review the new Lens Mod for the GoPro 12; this is the previous model reviewed here.

It's taken me a while to warm to the GoPro Lens Mod. You see I just wasn't sure if it were any use to me seeing the stuff I do and film.

Having a boat has changed all of that. As did a little lateral thinking.

Why so? Because the main selling points of the Lens Mod when attached to a Hero 9 Black or Hero 10 Black are stabilisation and field of view.

Yes, yes, I know these cameras already have lots of built in stabiles but adding the Lens Mod upgrades the camera with Max HyperSmooth plus it will let you shoot at 2.7K / 60 frames a second AND at an ultrawide 155° field of view.

Cop that every other GoPro!

Up until now when fishing from a boat, to get as much action as possible I have used a 360° camera, the GoPro Max, and have the 9 or 10 on standby for candid stuff.



With the Lens Mod, I get the best of both worlds.

And there is an added bonus in that the horizon lock facility is simply brilliant. As you'd imagine, a boat on the briny is not the most stable platform,

especially when cruising along or when stationary in any sort of swell, so having this facility makes the footage so much better without any roll and yaw to make the viewer a bit queasy.

It's also a boon for any more motor sport stuff I do in the future for the same reason.

It doesn't matter how much you twist and turn the camera. As yet I have not been able to

beat it.

Surfers and jet skiers will love it! Oh and with the Lens Mod, you still get 5 metre depth water proofing although as a SCUBA diver, I don't recommend underwater shooting with the Lens Mod as light refraction under water plays havoc.

Finally, you also get MAX Timewarp which is also super smooth.

Changing from the standard to the Lens Mod is simple; just twist and turn the original and it pops out. Reverse the process with the Lens Mod attached.

You will need to go into the camera's menu system to activate it though so don't forget that bit.

The Lens Mod costs A\$159.95 and IF you have a use for it, is worth coughing up the dollars for. If you cannot see a use, then my advice is not to bother.

Oh and if you have any other model GoPro with the removable lens (its not really the lens but you know what I mean), don't bother as it won't fit.

MKH 416

Experience the Sennheiser Difference

In the studio, on the stage, or behind the camera — there's a reason professionals have turned to Sennheiser microphones and headphones for more than 75 years.

It's the established tradition of delivering audio excellence, combined with an enduring passion for quality design and rigorous manufacturing protocols.

That's the Sennheiser Difference.

Quality you can hear.
Heritage you can trust.
Reliability you can put to the test.
Innovation that's yours to unleash.

PRESETS EXPLAINED

Lots of people ask members of Facebook forums and other places what the best settings for a certain scenario for a GoPro are. These might include screen resolution, bit rate, shooting style (eg wide or max video), zoom factor, ISO levels and so on.

This is one of the benefits of the GoPro camera as it means

you can optimise these settings – and more – in order to get the very best imagery no matter you are snorkelling, SCUBA diving, trail bike riding, fishing, hiking, bird watching or whatever.

But it's a pain in the proverbial to a) have to remember each of these individual settings and b) tedious to have to go into the

camera menus each time to adjust them accordingly.

So, it may not surprise you that once you have a bunch of parameters set up in a GoPro, these can be saved, and this is called a Preset.

There are presets already programmed into the GoPro from the factory to cater for a number of scenarios; My GoPro

9 Black came with Standard, Activity, Cinematic and Slo-Mo for example.

You access these by tapping the name of current preset that shows at the bottom centre of the screen.

When you do this and open the preset list, at the top right is an icon with two parallel lines and an up and down arrow. If you tap this it will change to a '+' sign allowing you to create a new preset.

Note 1: The "+" sign may also be at the bottom of the list of presets depending on you GoPro model.

Note 2: In order to allow adding new presets, the camera must be in the Highest Video Mode. To do this, swipe down from the main preview screen to open the dashboard, then swipe left, tap Video Mode, and set it to Highest Quality. Depending on your particular setup, you might need to turn

of Max Lens Mode.

You can now select all the options you want for the preset and when you have finished choosing, tapping the icon again allows you to name it and exit.

You can save as many presets as you like, and in the main menu system under General, you can even select the preset which is the default for the GoPro to load when it starts up.

TIMEWARP Time Lapse		
Resolution 4K	Lens Linear	Speed Auto
Zoom 1.0x		
PROTUNE		
EV Comp 0	White Balance Auto	ISO Min 100
ISO Max 400	Sharpness Low	Color GoPro
ON-SCREEN SHORTCUTS		
Lower Left Lens	Lower Right White Balance	Upper Left ISO Max

TIME LAPSE Time Lapse		
Lens Wide	Interval 0.5s	Format Photo
Output Standard	Zoom 1.0x	
PROTUNE		
EV Comp 0	White Balance Auto	ISO Min 100
ISO Max 400	Sharpness Low	Color GoPro
ON-SCREEN SHORTCUTS		
Lower Left Output	Lower Right White Balance	Upper Left ISO Max

NIGHT LAPSE Time Lapse		
Resolution 4K	Lens Linear	Interval Auto
Format Video	Shutter Auto	Zoom 1.0x
PROTUNE		
EV Comp 0	White Balance Auto	ISO Min 100
ISO Max 100	Sharpness Low	Color GoPro
ON-SCREEN SHORTCUTS		
Lower Left Shutter	Lower Right White Balance	Upper Left ISO Max

OUTDOOR Time Lapse		
Resolution 4K	Lens Linear	Interval 2s
Format Video	Zoom 1.0x	
PROTUNE		
EV Comp 0	White Balance Auto	ISO Min 100
ISO Max 100	Sharpness Low	Color GoPro
ON-SCREEN SHORTCUTS		
Lower Left Lens	Lower Right White Balance	Upper Left ISO Max

OVERHEATING ISSUES

This comes up more than any other topic in GoPro forums.

GoPro's overheat. OK. We know. And if yours is, it is not a fault with your particular camera, OK? It's a design issue I am sure GoPro are VERY aware of and have their best boffins trying to sort out. I mean, DJI have managed to somehow evade the issue with their OSMO Action cameras, so obviously it is possible.

But if you have an existing GoPro, I understand that is little comfort, with the camera shutting off at the most inopportune moments.

So why does it overheat?

In essence, you have a very clever little processors and a few ancillary ones on a teeny-weeny circuit board doing a shitload of work.

I would even suggest the first Moon landing comput-



ers were not doing as much computational theory as your little GoPro is.

And this causes heat. Lots of it.

Because this is all housed inside a body designed for

ruggedness and waterproofing, there is little room for margin for that heat to escape. So the camera overheats, and to protect itself it shuts down.

There are things you can do to minimise this happening, and even potentially, eliminate it all together.

It is quite simple really; if there are features and functions you are NOT using, turn them off.

Examples include Bluetooth, GPS (in all models except the 12 where GoPro has removed that function anyway to try and help with the heat issue), Voice Control, the front screen, Wi-fi and so on.

Make the camera operation as minimal as you can.

Get familiar with the dashboard menu in YOUR GoPro where all this happens. It will save you a lot of grief.

Quick Tips ...



Zooming

This 'myth' is asked in the GoPro forums so often it requires a separate story (although I have covered it in other stories about using GoPros).

The question asked is about GoPro cameras 'zooming' Simple answer. They don't.

The lens in a GoPro is of the fixed type, designed so that everything possible in the field of view stays in focus. When you invoke the so-called 'Zoom' on a GoPro, what it does is electronically blow up the picture size (and therefore the individual pixels) and then crop the image, again electronically, to give the ILLUSION of a zoom.

What it does in simple terms is distort the original image.

Very ugly, very ugly indeed.

So if you want to 'zoom' in on a subject, either move closer to it, or better, get a camera with an lens that has that function optically, NOT electronically.



Playback Problems

The most common post in any of the GoPro forums of late is "why can't I playback the video I have shot? The screen is just blank".

The most probable answer is that on the playback device you don't have the necessary codec installed.

So, what is a "codec"?

Codec is a combination of



"Code" and "Decode". When your video is being shot, to save space that would be quickly used up if all frames were stored at full size, a system is applied via software to "code" the footage to make it smaller without losing any resolution. When the video is played back on a device – computer, smartphone, TV etc – that software, the CODEC, is then used to "Decode" the file so it will play.

There are many ways to compress video (and still images for that matter). The most common in use today are H.264 and H.265. H.265 is also known as HEVC which stands for High Efficiency Video

High resolution formats such as those employed by GoPro, DJI drones and other cameras that can shoot 4K and higher video will most likely use HEVC.

If you don't have that codec installed, simply Google HEVC, or easier, if you are on a Windows based computer

Quick Tips ...

just go to the Microsoft Store and install it.



Screen Lock

The things you learn...

A thing about GoPros that has always annoyed me, is the way it is so easy to change modes or other settings by inadvertently touching the screen. So often you get home and find that that 12 minute you shot has turned into a single image for example, as you switched the camera to photo mode by mistake.

Lamenting this in a GoPro forum I often visit, I was informed there is an easy fix to this; GoPro's have a screen lock button in the Preferences section, a fact I had simply overlooked.

Downloading



Unless I am missing something obvious, there seems to be a major issue with GoPros across the board that people do not understand.

There are regular posts from folk saying that their GoPro has died, the screen no longer operates, they cannot transfer footage to their phone and so on.

To many, this answer to that will seem like I am telling them to suck eggs, but the question is so prevalent I am sure people do not understand a basic premise.

The footage you take including audio is stored on a removable SD card inside the



GoPro. Of this I am sure you are aware, yes? But you are NOT reliant ONLY on transferring data to your phone or to the cloud via your phone.

You can actually take the SD card out and place it in a card reader connected to a

USB port on your computer. This will then show up as an external drive and you can drag these files to your main storage drive and play them back or edit them from there.

In the image at right, the SD card shows as Drive H on my PC and DCIM folder contains the GoPro footage files.

In fact, I'd suggest that once you have done it this way, you'll find this will become your preferred way!

Card readers are made by any number of manufacturers such as Verbatim, and available for a few bucks from Officeworks, JB HiFi, Retravision and so on.

Tip: In Windows, if you drag

Quick Tips ...

the files across to your hard disk, it makes a copy of them. If you hold SHIFT and drag, it will MOVE them from the SD card to your hard disk.

Removing Sticky Mounts



As you probably know (assuming you are a regular to FV^VR reader / follower and Australian Videocamera before that) I have a penchant for in-car camcorders – GoPro, Thinkware, Sony, Nikon, Panasonic and others have all graced the windows of the Monaro at one time or another.

As a consequence, I have a number of sticky mounts firmly attached to the

windscreen (that's "windshield" for our US readers by the way).

Well, over the weekend, the unimaginable happened; a stone chip turned into a monster of concentric circles, and tomorrow the car goes into the Doctor of Windscreens for a new one as its centre is right in the middle of the driver's field of view which makes it illegal. After 14 years and nearly a quarter of a million kilometres zig-zagging Australia that is not bad. I've been through more clutches, gearboxes and brake discs.

But how to remove the mounts? I did try a knife inserted under the mount and with gradual pressure, levering the mount off, but the angle of the windscreen and location of the mounts made this incredibly awkward. Nor did I want to further crack the screen as I have a 30Km drive to get it fixed and its raining!



dental floss.jpg

So I did some research. And came across this, probably one of the best training videos I have ever seen. It is short, sweet and to the point.

And it works.

I Lost My Door

This is an easy one to answer, but it is still surprising how many times it is asked.

Simply contact GoPro as it is a spare part they can supply - and indeed, many people say GoPro sent them one free of charge!

If you want to add extra filming life, you can also get a "pass through" door that allows you to plug a USB cable in and connect that to a Powerbank.

GOPRO TO THE MAX. SHOOTING 360



Over the years, I have done a lot of work and written heaps about GoPro action cams, but not spoken much about the GoPro Max which I also have. For those unaware, the GoPro Max is a camera that shoots in 360 degrees by utilising twin lenses and then “stitching” the images together. Whilst the GoPro Max can be called an action camera similar to the GoPro Hero

12 or other siblings as it is a) rugged and b) also waterproof, if you are tempted to buy one instead of a regular GoPro, be aware that shooting in 360° requires a totally different mind sight and approach to your photography or video.

So here are some tips and ideas to get you started.

The first thing I’d suggest is pretty much forget about shooting handheld; as the camera is picking up a full 360° image, you want to keep it as steady as possible. Once you have the finished image where people can view it and are then able to “move around” in the 360° space you have shot by using a mouse or keyboard controls, there is nothing worse than having the camera jumping around.

Smooth is the keyword here, so get

yourself a decent tripod, or at worst, a solid selfie stick.

STITCH LINE

Next, be very aware of what is called the “stitch line”, This is the part of the image where the two separate images are joined together. Sometimes, mainly due to the subject matter, the stitch line can be seen and even one or two pixels out of alignment can be jarring.

It will take practice, but after a while you’ll look at a scene before shooting and instinctively know where the stitch line will be and set the camera up accordingly.

Because the camera shoots literally everything around it, of course you are going to end up in the shot! The way around this is to either set the self-timer in the camera (you can set it for either 3 seconds or 10 seconds) and then

get yourself out of the shot or buy the GoPro Remote control. I recommend the latter. Oh and of course you can also use voice control.

There is another potential major thing to be aware

of when shooting 360°. With a conventional or smartphone, anyone in the field of view will know (generally) they are having their photo taken or will be in a video. With a 360° camera however, everyone in the field of view within the full rotation of the camera will be in shot. This could cause issues, and someone may become a tad upset about this if they later found out they were shot without their knowledge or permission. Just be aware of it that’s all.

VIDEO

If you are planning on using a GoPro Max for shooting video, my tip is to shoot a single clip for no longer than 90 seconds. Editing 360° footage is a whole different ballgame to standard footage, so you only want to be playing with smaller clips – and you’ll need a computer with reasonable grunt to do it too!

You also have to approach the way you shoot video with a totally different eye. You can think of shooting video





with a GoPro Max as a multi-camera shoot in effect. If you think about it, you can edit one scene into your final clip that is a portion of the complete 360° image, and then move the point of view around to take a completely different portion of the same clip.

It does take a bit of getting used to having this sort of flexibility, but once you get your brain around it, it does open up whole new possibilities in your video shooting, letting you do things utterly impossible with a standard single camera shoot.

Of course, you'll also need decent editing software. Just about all the major packages allow editing in 360° these days, and some I have used even have the camera profile built in that the footage was shot on, letting you import the clips seamlessly.

Whilst I know Adobe Premiere allows 360° editing, I have never actually used it for that purpose, instead sticking with either DaVinci Resolve or Vegas Pro.

DISPLAYING

You'll also want a location to show off your finished images. I have been using [Momento360.com](https://momento360.com) for years now (and its free for up to 750MB of imagery and very affordable after that too) and easy to use.

There is even a WordPress plugin that lets you display your 360° imagery on your own website, assuming you use WordPress of course.

[On this web page](#) is an image I shot a few years back at Eco Beach near Broome in the northwest of Western Australia. The image is stored at momento360.com but placed in this web page

using the plugin This was taken on a GoPro Max by the way.

CONCLUSION

As I have said a number of times, shooting in 360° whether it be stills or video is a whole new approach.

But just like any other photography or videography, practice will make perfect, and it can be very satisfying as you can display the world you shoot in a whole new way, and indeed, even allow viewers to become totally immersed in what you have shot.

So take your time, read the manual for the camera and learn all its tricks, and experiment a LOT. Just make sure you have fun while doing so!

GOPRO HERO 12

VERSUS

DJI OSMO ACTION 4



The gloves are now well and truly off with the recent releases of the GoPro Hero 12 Black and the DJI Action 4. So similar are these so-called 'action' cameras that it is inevitable they will be compared.

They look the same and are aimed at the same market demographic. So how do they shape up against each other?

Here's a blow-by-blow comparison.

PRICE:

First and foremost, for many people, the price is a determining factor. Working on the base unit and not any of the "combos" or bundles, the DJI Action 4 starts at AUD\$629 and the GoPro Hero 12 Black is a further AUD\$20 at AUD\$649.

If you add any accessories, these prices can balloon out to AUD\$819 in both cases and there is a special DJI Action 4 Ultimate Pack that will set you back AUD\$899 which includes 3rd party accessories from PGYTECH, Samsung and SunnyLife.

WATERPROOFING

DJI says the Action 4 out of the box is good for 18 metres, way above the GoPro at just over 10 metres. For most users though, to be fair, 10 metres is more than enough as we are getting in

SCUBA territory here, not just snorkelling and swimming. If you need to go deeper with a GoPro, then of course there is a housing available giving waterproofing to a whopping 60 metres, and this will set you back a further AUD\$89. DJI has a similar housing by the way, also priced at AUD\$89.

I would venture to suggest that after reading copious posts on Facebook forums about GoPros dying an unnatural death in the water



when there is no extra housing, the purchase of one would be a wise investment.

My guess is that most of these failures are caused

by some grit or other foreign matter getting under the battery door

BATTERY LIFE

There are many variables here including the number of functions that are live on the camera (voice control, Bluetooth, Wi-fi etc) and the ambient temperature, so I'll only use the factory quoted numbers.

DJI say out of the box their batteries you'll get 160 minutes operating time. GoPro are a little more circumspect, quoting different times for different resolutions, but the maximum you'll get is 150 minutes shooting at 1080p. In the real world, this difference is neither here nor there.

RESOLUTION

Both the DJI Action 4 and GoPro Hero 12 Black will shoot 4K video even in slo-mo mode, but the GoPro takes this a step further with 5.3K also being available. A big advantage of the GoPro is the new addition of HDR (High Dynamic Range) giving more vivid imagery. The GoPro also offers higher frame rates under certain circumstances, and for still images, the GoPro blows the

Action 4 to the weeds with 27 megapixels versus 10. Unless in low light as mentioned below.

Both models support 10 bit colour and g a v e Log profiles if colour grading is your thing.

STABILISATION

GoPro used to have the edge here, but DJI has caught up in this area and it is hard to tell them apart. One area the GoPro is better is with the Horizon Lock although DJI has caught here too from the Action 3, with 360° "Horizon Steady" now standard.

LOW LIGHT AND VERTICAL SHOOTING

The Action 4 wins here simply as it has the bigger sensor. For many though, this could be offset by the better control over vertical shooting in the Hero 12 due to its sensors ratio of 8:7 letting you shoot vertical without turning the

camera sideways as you do with the Action 4. This does vertical shooting by way of a vertical mounting bracket. If



you don't use TikTok or shoot in the vertical format, then this is a moot point of course.

GPS

Now normally this would be a big tick for GoPro, but not any more as the company decided to remove the GPS chip from the Hero 12. Why GPS? Because with it there, you can display your speed, altitude and other data as overlays. DJI lets you do it with an optional GPS remote, but if you want that sort of functionality, at this stage anyway, on the GoPro it's a no-no.

OTHER

If you habitually use a Selfie Stick (shudder!) then you'll

know how annoying it is to get the see the stick in your footage. DJI has minimised this with "InvisiStick" using software to mask the stick out, and while not perfect, does the job most of the time.

Another area the GoPro wins though – sort of – is in audio, as you can pair Bluetooth mics with the Hero 12 and also monitor back if you have combo Bluetooth mic / earbuds such as the Sennheiser TW Momentums.

DJI does not have this, instead opting to support its own DJI Mic Wi-fi system, which just quietly, is bloody

good and equivalent in my opinion to those put out by RØDE and Hollyland, but maybe not quite as good as the Sennheiser systems - which of course cost a lot more.

The external design of both models is pretty much the

same with the major differences being that the DJI supports a full front touch screen (yay!) which the Hero 12 does not, and the "finger" mounting system is magnetically attached letting you remove it as needed. The drawback there is that if you forget to put the mount on, there is no way you can attached the Action 4 to anything whereas as the built in GoPro way means it is always there.

Livestreaming is supported by both (under the right conditions of course) and if



you are a pro and need to sync up multiple cameras, both cameras offer Timecode Synch and also both have the export to gyro based data if you need the best image stabilisation possible (Blackmagic Cinema Cameras do this too with DaVinci Resolve although I

have never tried it).

CONCLUSION

So, at the end of the day, it depends a lot on what you are shooting, where you are shooting and how you are shooting.

The GoPro has the better video and still resolution generally speaking, but suffers under low light conditions. When it comes to long term shooting, anecdotally (and it's a LOT of anecdotes), overheating still seems to be a GoPro issue that you never hear of in the DJI Action series.

I also prefer the DJI software interface; GoPro seems to keep mucking around with theirs and as just as soon as I have finally worked out the Hero 11, the 12 has some bits tacked on and seemingly changed the name of others.

But, as I have said many times, you can read all the reviews and comparisons you like, but at the end of the day there is nothing quite like going into a decent camera store (like a Camera House say), asking questions of those in the know, and having a bit of a play to see which 'feels' the best.