GET STARTED WITH GOPRO PHOTOGRAPHY & VIDEO

GoPro For Beginners

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GoPro
For Beginners

GoPro For Beginners is the first and only choice if you want to take action photography to new heights with the GoPro range of action cameras. Our guidebook shows you how to hit the ground running and get your camera set up and shooting amazing stills and videos. There are plenty of hints and tips on improving your skills and getting the most out these amazing devices.

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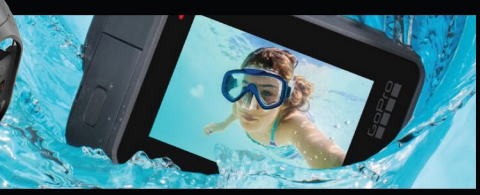

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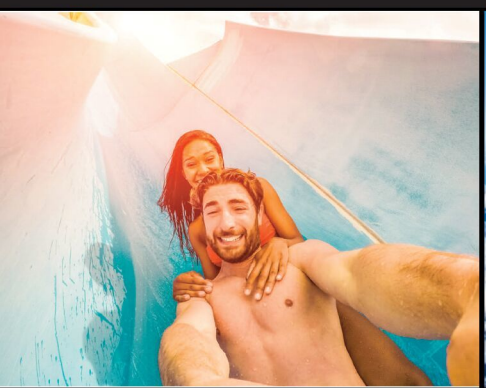
'...you will discover over the following pages that it has amazing creative potential not just for active sports people but photographers and videographers as well..."



THE GoPro IS BORN

The GoPro story begins here

All the major manufactures produce action cameras of one sort or another. Canon has the PowerShot D30, Nikon the Coolpix W100 and Olympus the Tough. They can all take stills that range from around 8MP up to 16MP and can shoot HD and Ultra HD video. Even SatNav company TomTom have an action camera called the Bandit capable of 4K video and 16MP stills. There is however, one brand that has become synonymous with recording outdoor action and sports. GoPro, with its action camera range. It would seem that it has become the daddy of them all, beloved by anyone who likes to climb on a bike, scale a mountain and hit the powder on a snowboard. It was the brainchild of Nick Woodman, who on a surfing trip to Australia in 2002, was frustrated that he couldn't get quality up-close photos of the surfing action. He couldn't afford the prices of professional photographic equipment that would allow him to do so either. His desire to have more professional equipment and get those top-level pro shots is what inspired him to create the name 'GoPro'. ■

"It was the brainchild of Nick Woodman, who on a surfing trip to Australia in 2002, was frustrated that he couldn't get quality up-close photos of the surfing action."

The vision

At first, Nick Woodman developed a wrist strap that was capable of securing an existing camera to the wrist of a surfer. This concept was tested with a number of 35mm film cameras on trips to Australia and Indonesia. It was apparent that the strap, camera and a waterproof housing should be sold as complete unit. Late in 2002 Nick Woodman created Woodman Labs which is the parent company to GoPro. After a period of development, the GoPro HERO was born. It was a 35mm reusable film camera with a fixed lens, and although it was developed for the surfing community, it soon branched out into other areas such as snowboarding and other popular action sports.

Going digital

In 2006 the GoPro HERO went digital. It had a camera capable of 640x480 pixel stills and a ten second burst of 320x240 pixel video. Since then the range has developed and become an extremely popular action camera. The HERO2 was released in 2011. It had an 11MP sensor and could shoot 1080p video at 30 frames per second. 2012 saw the launch of the HERO3 which came in three different specifications called the Black, Silver and White. The White had a 5MP sensor, the Silver the same 11MP sensor as the HERO2 and the Black used a 12MP sensor that captured 4K video at 15FPS and 2.7K video at 30FPS. The HERO generation was updated in 2013 with the HERO3+ range with improved image quality and better low light performance. Then, in 2014 the HERO4 range was launched. The bar was raised even higher with this iteration of the product line, with the HERO4 Black being able to record 4K video at a much more usable 30FPS. It still shot stills at a 12MP resolution of 4000x3000 pixels, and captured a burst of images at 30FPS. The latest versions in the range are the HERO5 and the new HERO6 Black and the smaller, more compact cousin, the HERO5 Session. The HERO5 and HERO6 Black now boast waterproofing without the need for a housing and has an LCD touchscreen mounted on the back so you can now view and review shots and video without either linking it to your phone, or having to download it to your computer. It also has GPS location capture and voice activated controls. Stills capture remains 12MP and 4K video at 30FPS for the HERO5 and 60FPS for the HERO6, but 1080p video can be captured at a frame rate of up to 240FPS, which is great for slow motion action sequences.

The big question

If you have already invested in a digital camera and you have a smartphone capable of taking some good quality photos, the question is do you need an action cam? Well, we will explore some of the attributes that have made the GoPro range so popular. There are going to be pros and cons but we'll see if we can arrive at a balanced conclusion. First things first though, let's introduce you to the GoPro range.

The GoPro in action

The possibilities are endless


NZONE


GoPro

"The GoPro range has come quite a way since those first prototypes back in 2002 and the first commercial model in 2004."

OUR PICK OF THE GoPro RANGE

Take a selective look at the lineup

The GoPro range has come quite a way since those first prototypes back in 2002 and the first commercial model in 2004. The range really hit its stride with the release of the HERO3 and HERO3+. Full HD video and 12MP stills were now possible in a package that measured only 41 x 59 x 30mm. The release of the HERO4 and the HERO5, HERO6, HERO7, HERO8 and HERO 9 has given us some great advances in image quality and features. But which model is the correct one for the beginner, which balances price, functionality and value? Over the next few pages, we'll take a look across our picks from the range. Although many models are not to be found on the GoPro website any more, older models can still be purchased through other vendors. See which one is best for you. ■

Meet the Greatest HERO

A quick introduction to our pick of the best value GoPro available

GoPro HERO8 Black

The best ever (so far) addition to the HERO family; the GoPro HERO8 Black is the most advanced GoPro on offer. You have new design features such as an updated streamlined form factor and folding fingers giving you a built in mounting system. It also boasts features like HyperSmooth 2.0 video stabilisation that delivers footage so smooth you would think it was shot on a multi-axis gimbal rig. Add TimeWarp 2.0 and improved HDR features and you go way beyond next level.

Capture huge detail with the 4K video mode at 60 frames per second or capture 8MP and 12MP stills with the SuperPhoto option controlled by a digital lens touch zoom feature. Benefit from automatic optimisation of your photos by intelligently applying HDR and local tone mapping for the perfect shot every time. You can even shoot stills and video in portrait orientation. The HERO8 Black is as rugged and waterproof, without the need for a housing, to a depth of 10m. With Mods Compatibility, Wi-Fi, Bluetooth and GPS, you can get out and be a hero.

Key features at a glance

- 12MP Photos
- 4K60 Video in Wide FOV
- Folding Fingers
- Media Mod Functionality
- HyperSmooth 2.0 Stabilisation
- TimeWarp 2.0 Video
- LiveBurst Mode
- SuperPhoto + Improved HDR
- Digital Lenses
- Raw in all Photo Modes
- Presets + On-Screen Shortcuts
- Touch Zoom
- Portrait Orientation shooting
- Waterproof to 10m
- 8x Slo-Mo
- 100Mbps Bit Rate
- Protune
- Exposure Control
- Face, Smile, Blink and Scene Detection
- Powered by the GP1 Chip

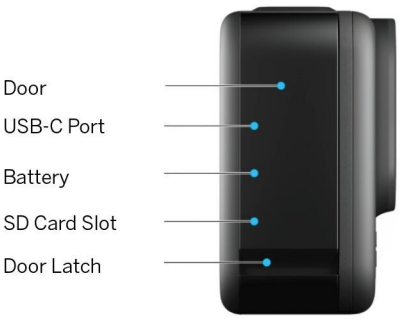
Shown below is the HERO8 Black Media Mod. This adds a built-in directional mic and cold-shoe mounts for lights, mics or LCD screens.

Front

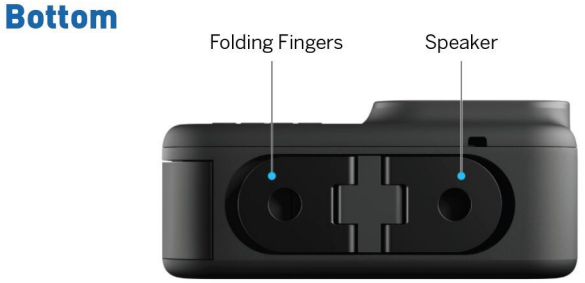
Right Side

Back

Left Side



Bottom



The rest of the GoPro range

GoPro HERO11 Black Creator Ed

Perfect for the amateur film, Youtuber, Vlogger and live streamer, The HERO11 Black Creator Edition is a great content capturing powerhouse that's perfect for the all-in-one user. Featuring pro-quality 5.3K video, HyperSmooth 5.0 video stabilization, LED lighting and 4 hours of 4K recording per charge.

- Volta Hand Grip
- Light Mod
- Media Mod
- Enduro Battery
- 27.13MP + SuperPhoto with HDR
- 360 Capture
- HyperSmooth 5.0
- Horizon Leveling
- PowerPano
- Hyper View Digital Lenses
- Waterproof to 10m
- Advanced Wind-Noise Reduction
- HERO Video: 5.3K60
- TimeWarp Video 3.0

GoPro HERO11 Black

Featuring a larger image sensor that captures more of the scene with higher image quality, letting you instantly share your content to social media. With HyperSmooth 5.0 with AutoBoost and Horizon Lock built-in, so you get smooth shots with ease. All the HERO11 Black comes highly recommended to advanced users.

- 27.13MP + SuperPhoto with HDR
- 360 Capture
- HyperSmooth 5.0
- Horizon Leveling
- PowerPano
- Hyper View Digital Lenses
- Waterproof to 10m
- Advanced Wind-Noise Reduction
- HERO Video: 5.3K60
- Live Streaming: 1080p

GoPro HERO10 Black

The GoPro HERO10 Black is one of the most versatile models around, mixing speed and ease of use. Powered by the r GP2 processor, featuring 5.3K video, 23MP photos, great low-light performance and HyperSmooth 4.0 video. HERO10 is a great addition to the range and highly recommended by all of our team for those buyers not on a budget.

- GP2 processor
- 5.3K60 + 4K120 video resolution
- 23MP Photos
- Waterproof 33FT (10M)
- HyperSmooth 4.0
- TimeWarp Video 3.0
- 5GHz Wi-Fi + Bluetooth
- 8 Times Slow-Motion
- Cloud Connected
- Duration Capture
- 1080P Webcam Mode
- Touch Display
- GPS location Capture
- Raw + HDR Photo Capture

GoPro HERO9 Black

The GoPro HERO9 Black brings stunning 5K video and 20MP photos, HyperSmooth 3.0 stabilization, a great range of features wrapped up in a durable, waterproof design, and you get a very good GoPro.

- 20MP / 30 FPS Burst
- 5K 60FPS Video
- Waterproof 33FT (10M)
- Simple One Button Control
- Wi-Fi + Bluetooth
- Advanced Wind Noise Reduction
- Voice Control
- Video Stabilisation
- Touch Display
- Auto-Upload to Cloud
- GPS location Capture
- Raw + WDR Photos

The rest of the GoPro range

GoPro Max

Take it to the max with a new rugged and waterproof camera that allows you to shoot single-lens HERO-style video with incredible stabilisation or capture immersive 360 footage in 6K. This amazing piece of kit offers Max HyperSmooth, Max TimeWarp, Max SuperView, as wells as a single-lens HERO and dual-lens 360 camera.

- Traditional GoPro HERO Capture
- 360 Capture
- Max HyperSmooth Video
- Horizon Leveling
- PowerPano
- Digital Lenses
- Waterproof to 5m
- Advanced Wind-Noise Reduction
- HERO Video: 1440p, 1080p
- 360 Video: 6K Source
- 5.6K Stitched
- Spherical Photos: 18MP Source
- HERO Photo: 5.5MP
- PowerPano: 6.2MP 270°

GoPro HERO7 Black

Powered by the GP1 chip, you have next level features like HyperSmooth stabilisation that delivers footage so smooth you would think it was shot on a multi-axis gimbal rig. Capture huge detail with the 4K video mode at 60 frames per second or capture 12MP stills with the SuperPhoto option.

- 12MP / 30 FPS Burst
- 5.2K max resolution at 30FPS
- 4K 60FPS / 2.7K 120FPS / 1080P 240FPS
- 8x Slo-Mo mode
- Waterproof 33FT (10M)
- 5GHz Wi-Fi + Bluetooth
- GP1 processor
- Raw Photo Capture
- HyperSmooth Video Stabilisation
- SuperPhoto Optimisation

GoPro HERO6 Black

The HERO6 Black is one of the most powerful GoPros in the range with twice the performance. It shoots 4K video at 60FPS, 12MP photos, voice control and Raw format, producing quality stills and amazing video. It also has GoPro's most advanced image stabilisation to date. It can deliver smooth video without the need for a 3-axis gimbal.

- 12MP / 30 FPS Burst
- 4K 60FPS / 2.7K 120FPS / 1080P 240FPS
- Waterproof 33FT (10M)
- Simple One Button Control
- Touch Zoom
- 5GHz Wi-Fi + Bluetooth
- New GP1 processor
- Improved dynamic range
- Improved Voice Control
- Advanced Video Stabilisation
- Touch Display
- GPS location Capture
- Raw + HDR Photo Capture

GoPro HERO5 Black

This is a fairly recent and powerful action camera in the GoPro lineup. It boasts 4K video, 12MP photos, voice control and is finally able to shoot in Raw format, producing quality stills and amazing video.

- 12MP / 30 FPS Burst
- 4K 30FPS / 1440P 80FPS / 1080P 120FPS
- Waterproof 33FT (10M)
- Simple One Button Control
- Wi-Fi + Bluetooth
- Advanced Wind Noise Reduction
- Voice Control
- Video Stabilisation
- Touch Display
- Auto-Upload to Cloud
- GPS location Capture
- Raw + WDR Photos

GoPro HERO4 Black

An Emmy Award-Winning GoPro with a powerful processor that is able to shoot super slow motion at up to 240FPS. Although superseded by the HERO5 and the new HERO6 Black it is still a great option for pro quality photos and video.

- 12MP / 30 FPS Burst
- 4K 30FPS / 2.7K 60FPS / 1080P 120FPS
- Waterproof Housing 131FT (40M)
- Superview
- Auto Low Light
- Wi-Fi + Bluetooth
- Protune Photo and Video

GoPro HERO4 Silver

The HERO4 Silver was the first GoPro to ever feature a built-in LCD touch display. This makes it a versatile and pro level capture device with the convenience of a touch display.

- 12MP / 30 FPS Burst
- 2.7K 30FPS / 1080P 60FPS / 720P 120FPS
- Waterproof Housing 131FT (40M)
- Superview
- Auto Low Light
- Wi-Fi + Bluetooth
- Built-in Touch Display
- Protune Photo and Video

GoPro HERO9 Black

The HERO9 Black is marks a progression in hardware but the leap is not as great as its predecessors. A fantastic second or upgraded purchase for the more experienced owner only.

- 20MP / 10 FPS Burst
- 5K 30FPS / 4K 60FPS
- 1080P Live Streaming
- Waterproof 33FT (10M)
- Hypersmooth 3.0
- Voice Control
- Wi-Fi + Bluetooth / GPS
- HDR + RAW photos

GoPro OMNI

When it comes to capturing and creating immersive content and virtual reality environments, OMNI has all you need. This spherical rig holds six HERO4 black cameras and with the aid of the supplied stitching software can output 8K resolution 360° spherical video content.

- Omni Rig
- Hi-Hat Tripod
- Bubble Level
- Super Clamp
- Monopod
- Mini Tripod
- Short Extension
- Power Adapter for Omni
- Compact Form Factor
- Pixel-Level Camera Syncing

"We're going to take you through the design of the HERO models and tell you a little about the menu layouts as these are probably the things that change the most from version to version."

GET TO KNOW YOUR GoPro

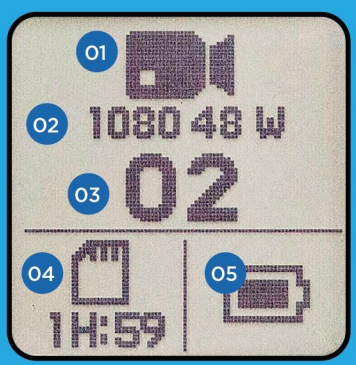
A guide to all the main aspects of your camera

You've unboxed your new GoPro camera, set it all up and you're ready to get started. Before you dive in, it's a good idea to make sure you are familiar with all the main parts of your camera. The main form factor of the camera has not really changed over the years. The lens is placed in the top right corner of the front of the camera body and the status screen sits on the left. With each new version of the camera, the placement of things such as the battery compartment has altered and with the advent of the latest generation of HERO cameras, the back panel now sports a built-in LCD touchscreen. We're going to take you through the design of the HERO models and tell you a little about the menu layouts as these are probably the things that change the most from version to version. You might wonder why we've included the HERO4 Black and the HERO3 Black as they are two older models. Well, the way we see it, these action cameras represent the best of what action cameras are all about. You might be tempted to just go for the latest model but the truth is that you could get any one of them and start capturing awesome video and stills straight away. ■

HERO5 and HERO6 Black

HERO5 and HERO6 Black main layout

01 Shutter Button
02 Status Lights
03 Camera Status Screen
04 Microphones
05 Touch Display
06 Mode Button
07 MicroSD Card Slot
08 Battery
09 Battery Door
10 Latch Release Button
11 Speaker
12 Micro HDMI Port
13 USB-C Port
14 Side Door



HERO5 and HERO6 Black status screen

In normal operation, you will access the modes and settings for the camera via the touch screen on the back of the camera. If the camera is underwater or in its dive housing, you can navigate the modes and settings via the buttons. Press and hold the Mode button and then press the Shutter button. You can then press the Mode button to cycle through the settings and press the Shutter button to alter the currently highlighted setting.

01 Camera Mode
02 Settings
03 Files Captured
04 Remaining Storage
05 Battery Status

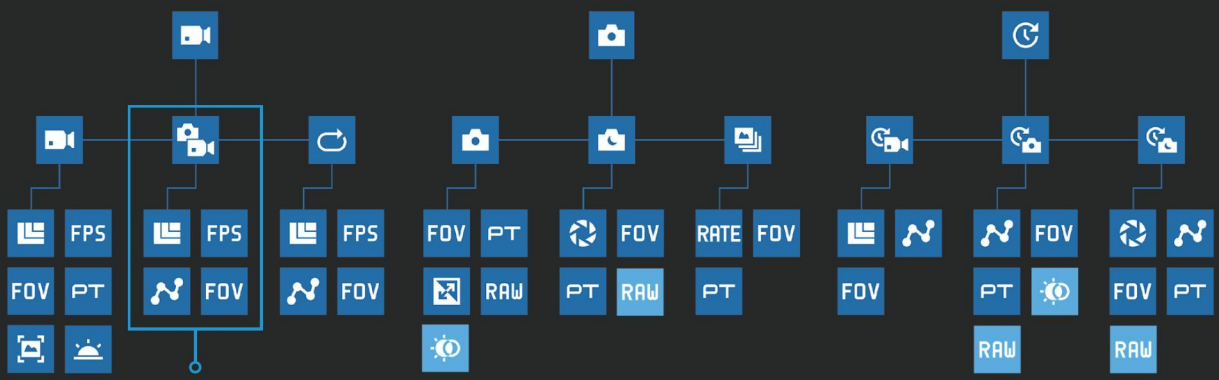
HERO5 and HERO6 Black touch display

01 Wireless Status
02 GPS Status
03 Time Remaining/Photos
04 Battery Status
05 Camera Mode
06 Settings
07 Advanced Settings
08 Main touch display

Touch display gestures

Tap	Tap to select something or turn settings on and off
Press and Hold	Access Exposure Control Settings
Swipe Left	To access available advanced controls for the current mode
Swipe Right	View the photos and videos stored on your GoPro
Swipe Down	Open preferences on main screen or return to main screen

Menu map



Video and Photo
HERO5 Black only

Note: features specific to the HERO6 Black are shown as pale blue icons:

Guide to symbols

- Auto Low Light
- Burst
- Field Of View
- Frames Per Second
- High Dynamic range
- Interval
- Looping
- Manual Audio Control
- Night Photo
- Night Lapse Photo
- Photo Mode/Photo
- Protune
- Rate
- Raw
- Resolution
- Shutter
- Time Lapse Mode
- Time Lapse Photo
- Time Lapse Video
- Video Mode/Video
- Video + Photo
- Video Stabilisation
- Wide Dynamic Range

HERO4 Black

HERO4 Black main layout

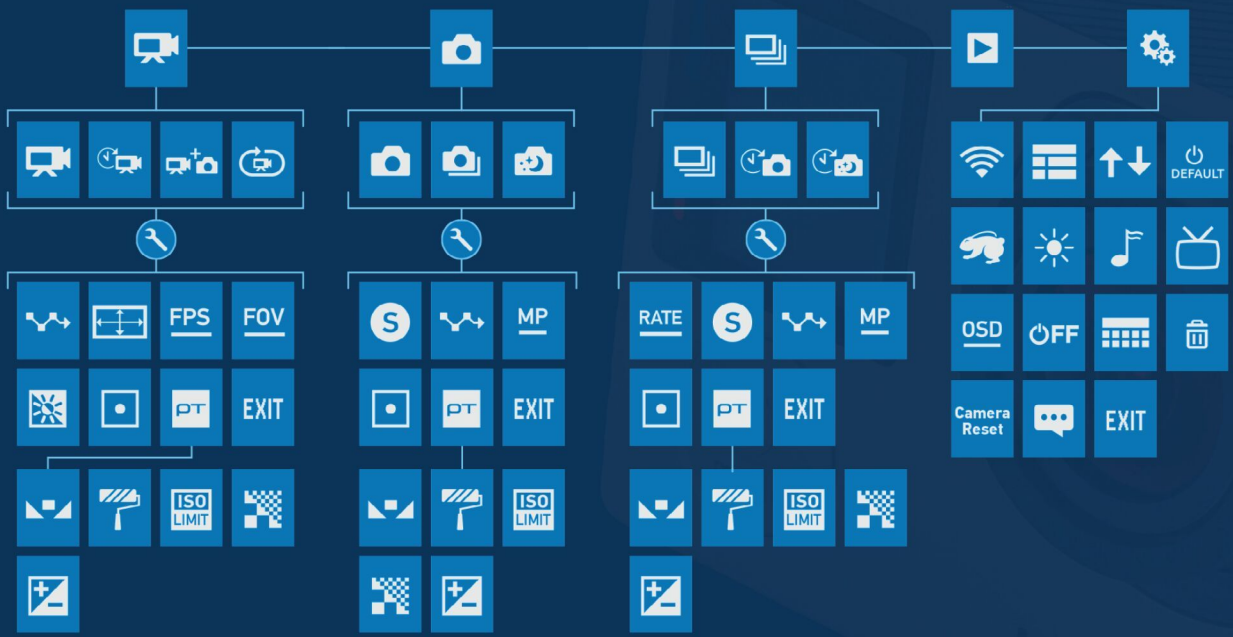
01 Camera Status Lights
02 Shutter/Select Button
03 Wireless Status
04 Camera Status Screen
05 Power/Mode Button
06 Micro HDMI Port
07 MicroSD Card Slot
08 Mini-USB Port
09 Audio Alert
10 Microphone
11 HERO Port
12 Settings/Tag Button
13 Battery Door
14 Battery

HERO4 Black status screen

To access the various modes available to the HERO4, press the Mode button to cycle through each mode. Once in the required capture mode, you can press the Settings button to open the settings for that particular mode. Press the Mode button to cycle through the settings and then press the Shutter button to alter the values for the currently highlighted settings. To exit hold the Shutter button for two seconds or cycle through to the Exit option and press the Shutter button.

01 Camera Modes/FOV
02 Camera Settings
03 Resolution/FPS
04 Protune
05 Files Captured
06 Time/Storage/Files
07 Battery Life
08 Wireless

Menu map



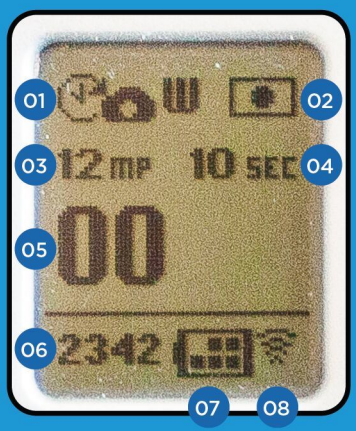
Guide to symbols

- Auto Low light
- Auto Off
- Beeps
- Burst Photos
- Colour
- Continuous Photos
- Date/Time
- Default Mode
- Delete
- Exposure Compensation
- Field Of View
- Frames Per Second
- Interval
- ISO Limit
- Language
- LEDs
- Looping
- Megapixels
- Multi-Shot Mode
- Night Lapse
- Night Photo
- On-Screen Display
- Orientation
- Photo Mode
- Playback Mode
- Protune
- QuikCapture
- Rate
- Setup Mode
- Sharpness
- Shutter
- Single Photo
- Spot Meter
- Time Lapse
- Touch Display
- Video
- Video + Photo
- Video Format
- Video Mode
- Video Resolution
- White Balance
- Wireless

HERO3 and 3+ Black

HERO3 Black main layout

01 Status Light (Red)
02 Shutter/Select Button
03 LCD Status Screen
04 Wi-Fi Status (Blue)
05 Power/Mode Button
06 Micro HDMI Port
07 Mini-USB Port
08 MicroSD Card Slot
09 HERO Port
10 Battery Door
11 Microphone
12 Audio Alert
13 Wi-Fi On/Off Button

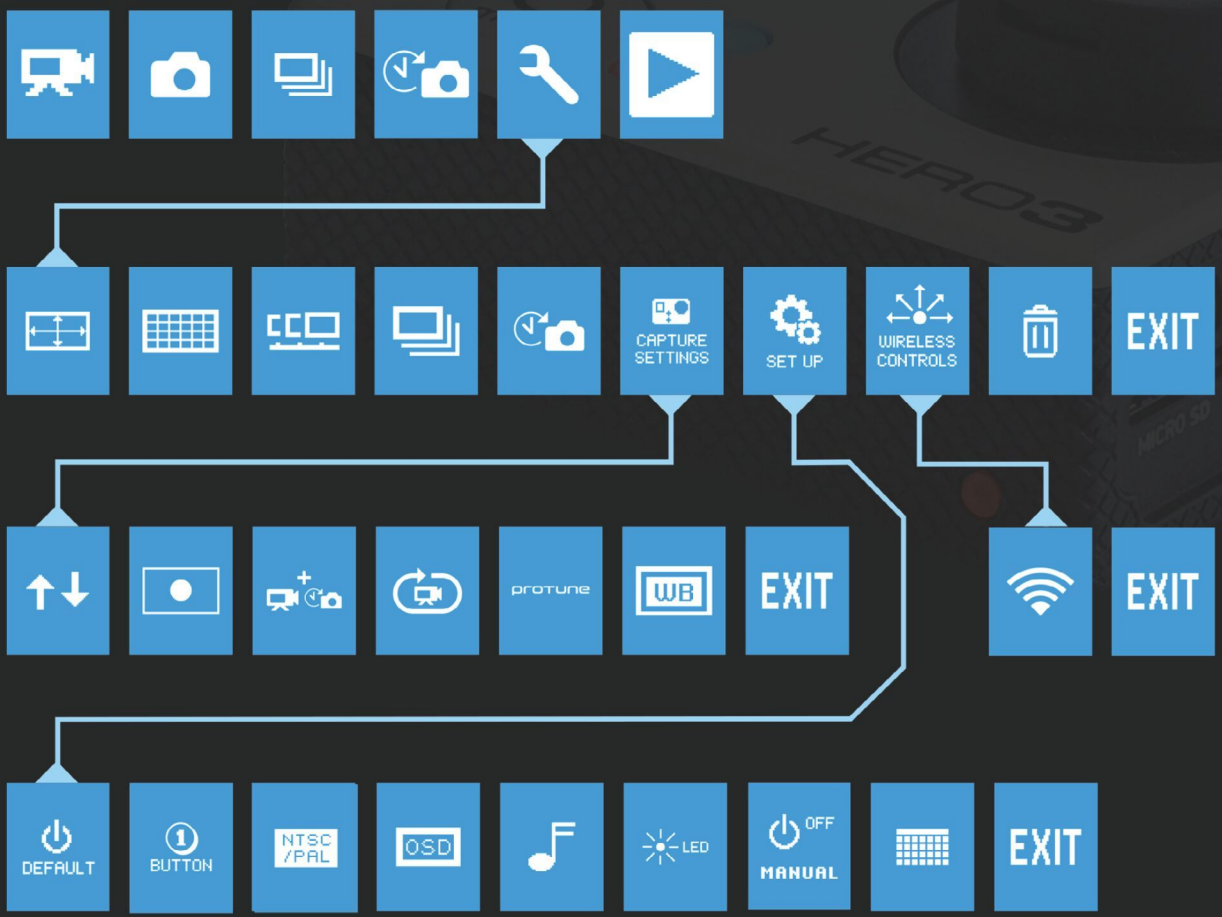


HERO3 Black status screen

To access the modes available to the HERO3, press the Mode button until it displays the Setting icon (Spanner). Then press the Shutter button to enter the Settings menu. You can then use the Mode button to cycle through all the various Settings options available. Press the Shutter button when you reach the setting you want to change. Use the Mode button to scroll through the settings options in that menu and the Shutter button to alter/select a new value. To exit hold the Shutter button for two seconds or cycle through to the Exit option and press the Shutter button.

01 Camera Modes/FOV
02 Camera Settings
03 Resolution/FPS
04 Time Interval Settings
05 Counter
06 Time/Storage/Files
07 Battery Life
08 Wireless

Menu map



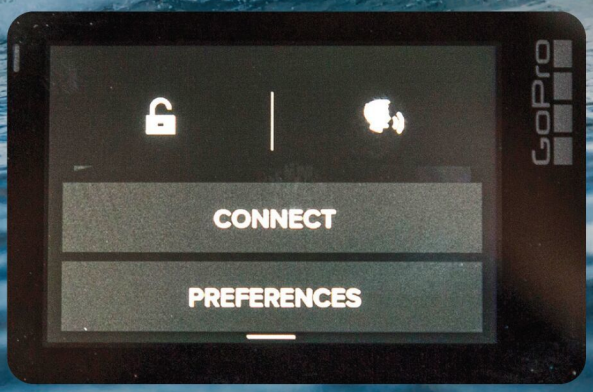
Guide to symbols

- Video Mode
- Photo Mode
- Photo Burst Mode
- Time Lapse Mode
- Playback
- Video Resolution
- Photo Resolution
- Continuous Photo
- Capture Settings
- Setup Mode
- Wireless Controls
- Delete/Format
- Exit
- Screen Orientation
- Spot Meter
- Video + Photo
- Looping
- Protune
- White Balance
- Wi-Fi
- Defaults
- One Button Operation
- Video Format
- On-Screen Display
- Beeps
- LED Brightness
- Power Off
- Date/Time

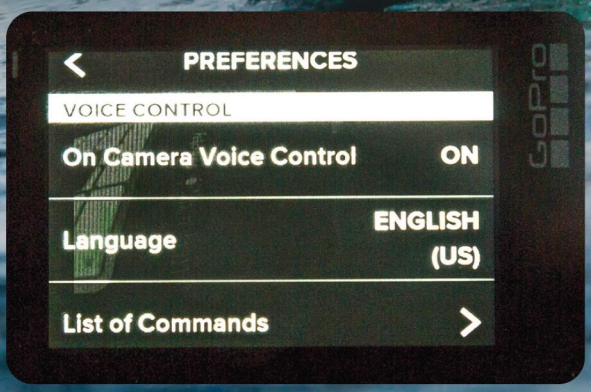
GoPro voice commands

Another method to control your camera

A new feature for the latest generations of HERO cameras is the addition of voice control. This is a newly implemented feature for the GoPro range and it is another method that allows you to control the camera without the need to actually touch any of its buttons or touchscreen. By default the Voice Control option is not enabled. To activate it, you'll need to swipe down from the top of the touchscreen to open the utility drawer, scroll down to the Voice Control section, and then tap on the On Camera Voice Control tab. Once the voice command option is active, you can speak a number of commands that are all prefaced by the word 'GoPro'. Even if the camera is in standby, it will still respond to your commands. This is a useful feature hampered only by noisy conditions such as wind that might smother your voice. If needs be, you can use the Remo, which is the GoPro Voice Activated Remote to activate the camera from a greater distance of up to 10m by speaking into the Remo itself. There are two main types of command. First is an action command that lets you start capturing video or photos straight away. If you want to select a different mode quickly, then using a Mode Command will switch modes leaving you free to manually take the shot or start capturing video by pressing the Shutter button when you choose. You can change your voice control language by tapping Preferences > Language in the Voice Control section. If you want to remind yourself of the available commands, you can tap Preferences > List of Commands in the Voice Control section. ■

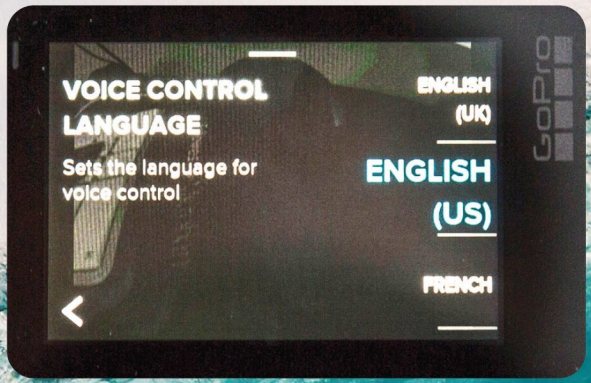


Swipe down from the top of the screen to open the utility drawer. You can tap the voice icon on the top right of the screen to activate it, or tap on the Preferences button to proceed.

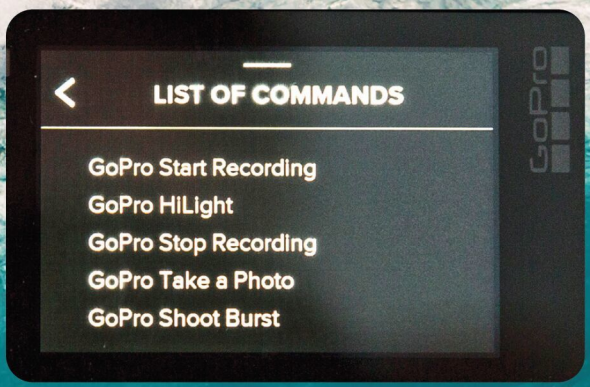


Scroll down the list of available preferences until you reach the Voice Control section. Tap on the On Camera Voice Control tab to turn voice control on. You can tap on Language to set your preferred language options.

> "Once the voice command option is active, you can speak a number of commands that are all prefaced by the word 'GoPro'."



In the Voice Control Language section, you can scroll through the list of supported languages for GoPro voice control. Tap the arrow in the lower left of the screen to return to the main menu.



Back in the main menu, if you want to view the list of available commands, tap on the List Of Commands tab to view them.

Action Command	Description
GoPro start recording	Starts capturing video
GoPro HiLight	Adds a HiLight Tag to video during recording
That was sick	Adds a HiLight Tag to video during recording
GoPro stop recording	Stops capturing video
GoPro take a photo	Captures a single photo
GoPro shoot burst	Captures a burst of photos
GoPro start time lapse	Starts capturing time lapse
GoPro stop time lapse	Stops capturing time lapse
GoPro turn off	Powers off the camera

Mode Command	Description
GoPro Video mode	Changes the camera mode to Video
GoPro Photo mode	Changes the camera mode to Photo mode
GoPro Burst mode	Changes the camera mode to Burst mode
GoPro Time Lapse mode	Changes the camera mode to Time Lapse

Note: Mode Commands only switch modes. No video or stills will be captured until you press the Shutter button.

"As an example, we have a new GoPro HERO5 Black which we'll use to walk you through the unboxing process."

UNBOX AND SET UP

This is how you get your GoPro up and running

If you've never used a GoPro before, the set up procedure is pretty straightforward. As an example, we have a new GoPro HERO5 Black which we'll use to walk you through the unboxing process. We'll show you what's in the box and how to get the camera set up and ready for the big switch on. Then we'll give you a quick overview of the main set up procedure, app installation on your mobile device and how to connect it to your camera. There's also a quick guide to making sure your firmware is up to date. Most recent versions of the GoPro range can all be updated wirelessly using the latest GoPro App from GoPro which makes the process that much easier. ■

Unboxing the GoPro

01 The box for the HERO5 Black can be opened at the bottom and the entire package with the camera on its mount can be slid out of the outer display box.

02 Inside the main compartment of the box you'll find the battery, USB-C cable and two adhesive mounts for the camera.

03 Set these to one side for the moment. You'll need the battery in a short while.

04 On the other side of the packaging is a smaller compartment that contains a quick start manual, safety instructions and some GoPro stickers.

05 Let's take a look at the camera itself. The camera can be removed from the display box mount by lifting the rubber stop.

06 You can then squeeze the two mounting clips together and then slide the GoPro off the mount.

07 There is a small plastic tab that keeps the camera from tipping whilst in the display box. This can be removed by unscrewing the thumbscrew.

08 You can then put the thumbscrew back in and tighten it up. The thumbscrew holds the GoPro frame to the mount.

09 To remove the camera from the frame, you need to release the securing clip on the top. This lets you swing the back of the frame down to remove the camera.

10 Now you can simply slide the camera out of its frame. There is a plastic screen cover on the LCD, you can peel this off.

11 Now you can have a look at the two camera compartments. The first, on the side by the lens, contains the HDMI and USB-C slots.

12 Underneath the camera is the battery compartment and the slot to house the Micro SD memory card.

13 The battery simply slides into the compartment. Make sure it is pushed down firmly into the slot.

14 Next, take your Micro SD card and slide it into the memory card slot. This can be a little bit fiddly.

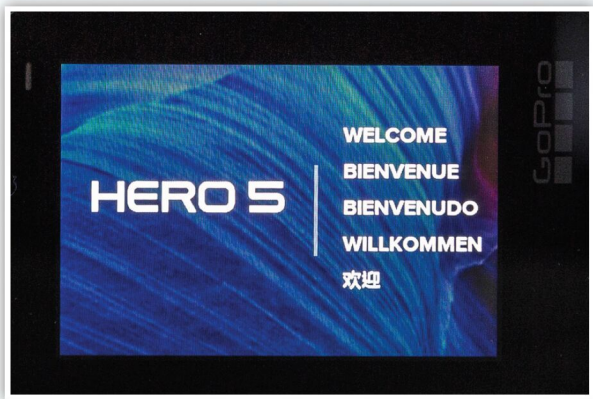
15 You can use your fingernail to make sure it is firmly seated by pressing it down into the slot until it locks into place.

16 Once battery and memory card are in place, you can close the compartment lid so it slides and locks into place. Your camera is ready to switch on.

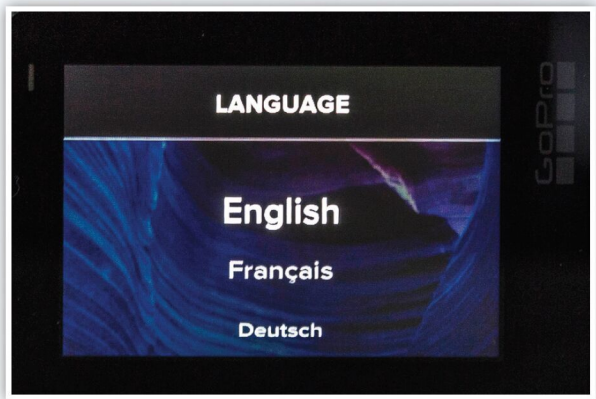
17 You can put the camera back in its protective frame and snap the securing clip shut.

18 Now, that is the camera unboxing. Next, it is time to switch it on and sort out settings.

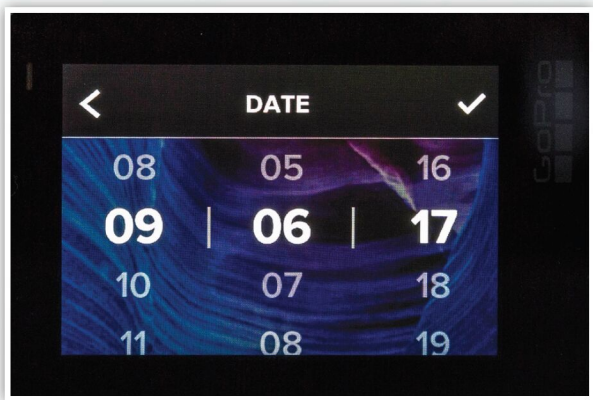
Setting it up



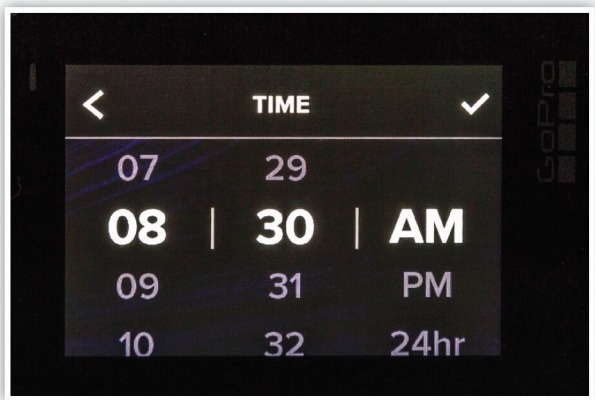
01 When you switch on your camera for the first time, you will be presented with the GoPro logo and then the welcome screen.



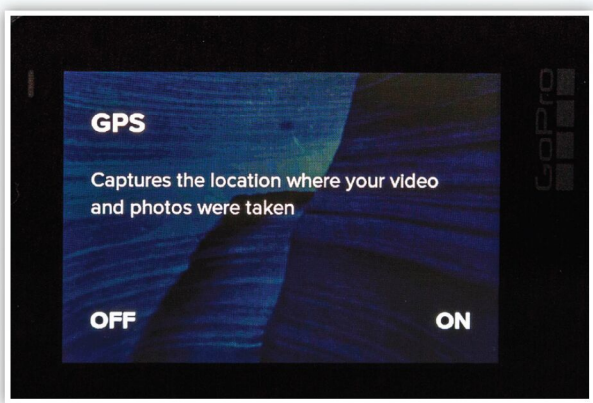
02 You will then be prompted to choose your language from the list of supported languages. Simply tap the correct one for you.



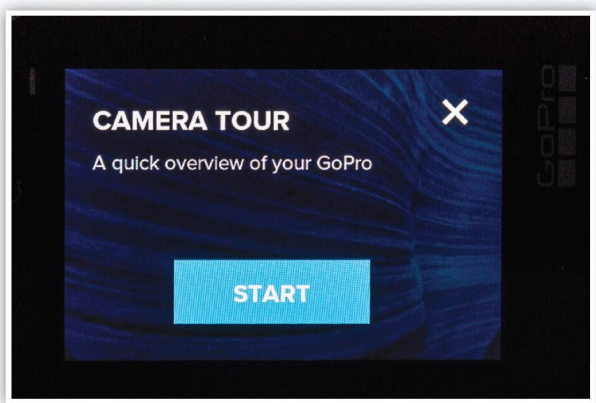
03 Next, you'll need to set the date. All you do is slide the numbers up or down until you have the date set in MM/DD/YY format. Press the tick in the top right.



04 You can then set the correct time by sliding the numbers up or down as you did with the date. You can also choose a 24hr format. Press the tick to proceed.

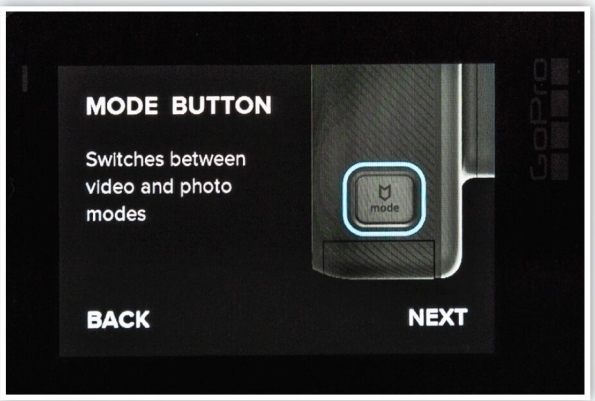


05 Your camera will ask you if you want to turn the GPS function on in order to capture location data where your photos and videos were taken.

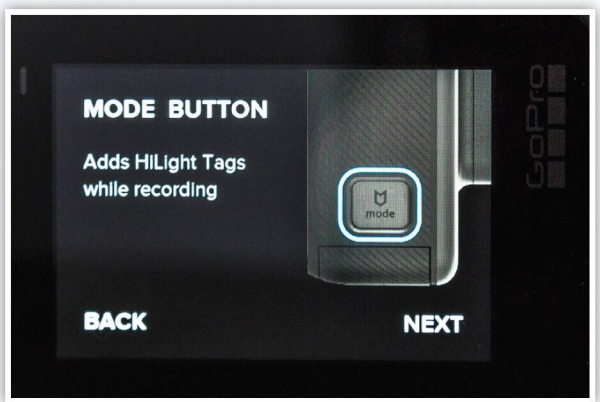


06 At this point the camera will ask if you want to take a quick tour of the main functions of your GoPro camera. Press START to begin.

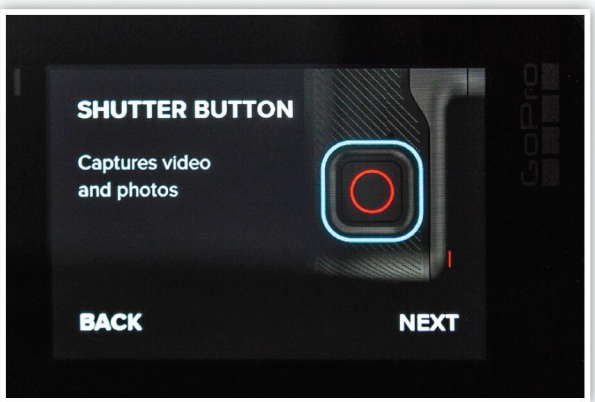
07 There will be an overview of the functions provided by the MODE button including how to power on and off. Press NEXT to proceed.



08 It will then show that the MODE button switches between photo and video modes. Press NEXT to proceed.

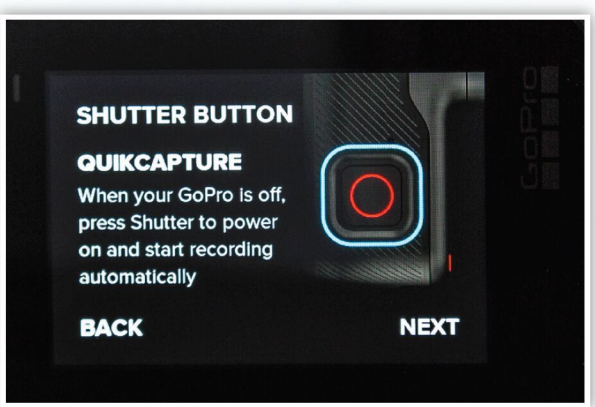


09 The last MODE function is your ability to add HiLight tags of favourite moments during recordings to make it easy to find later. Press NEXT to proceed.

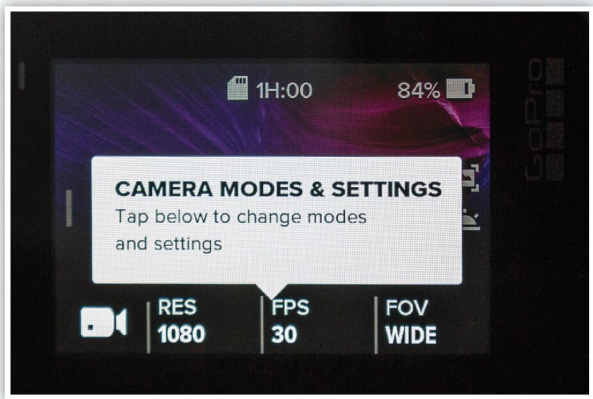


10 The SHUTTER button functions will be displayed next. The main usage will be to start or stop video capture and take photos.

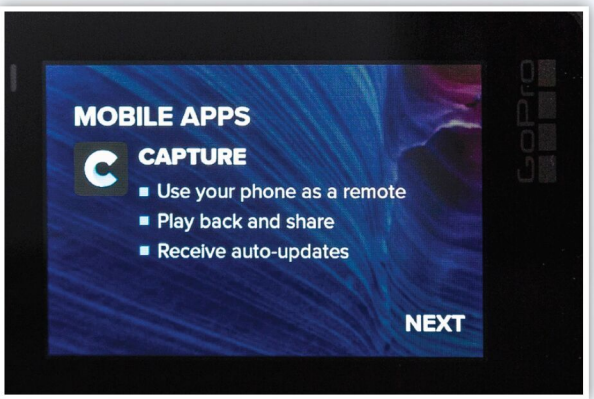
11 You also have the QUIKCAPTURE function which is a short press for video and a long press for time lapse photos.



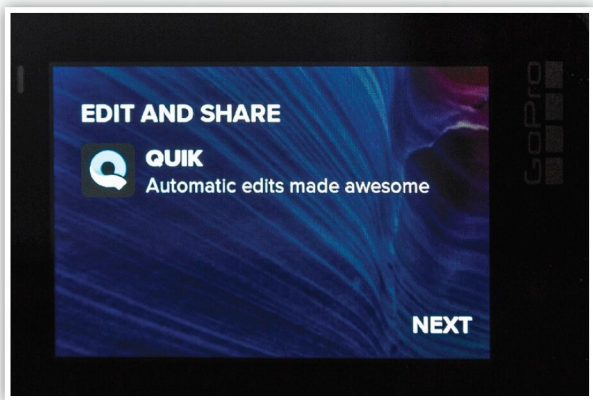
12 You can also turn the camera on using the SHUTTER button and instantly start shooting video.



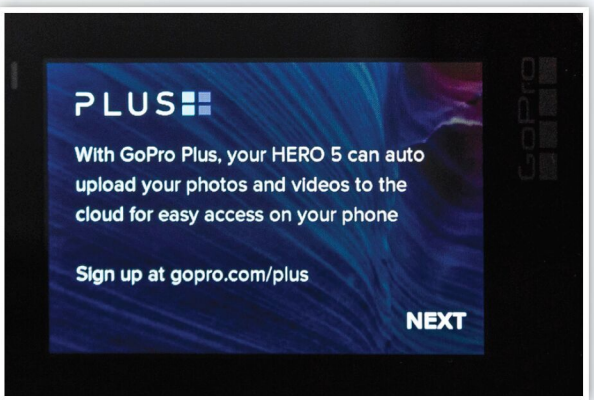
13 The tour will then walk you through the basic modes and settings by asking you to tap and swipe areas of the screen to access the various settings.



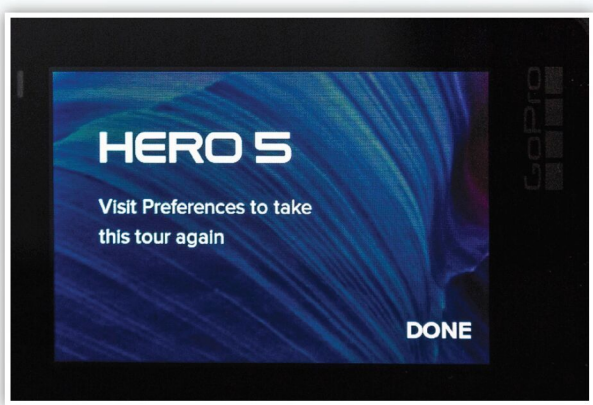
14 There will be a short introduction to the apps you can use with your camera, including the GoPro app (formerly called Capture) to use your phone to control the camera.



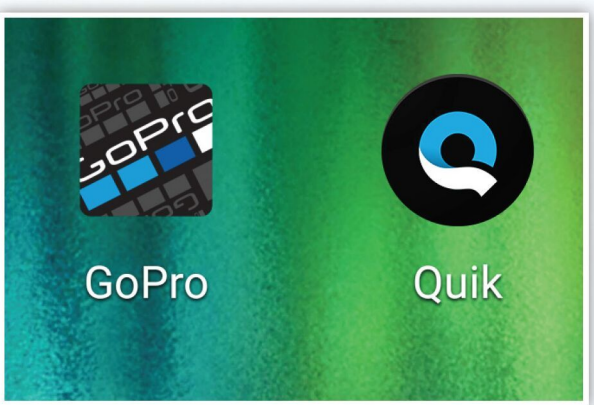
15 Quik is an editing app that lets you make fast, easy edits to your videos. It comes as a desktop version or a mobile device version.



16 PLUS is a paid for cloud storage service that you can access anywhere on your mobile device.

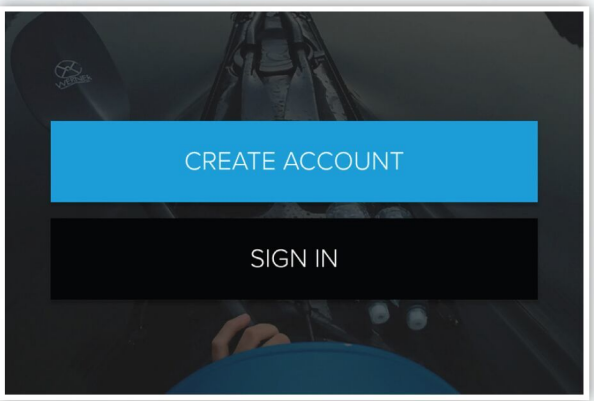


17 If you want to take the tour again, you can access it via the Preferences menu. Press DONE and your camera is fully active.

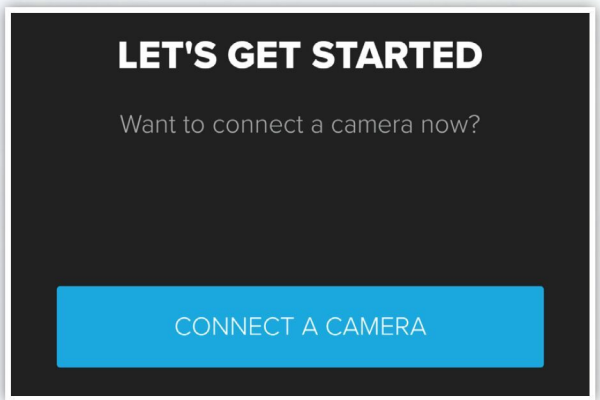


18 The next stage will be to download the GoPro and Quik apps onto your phone. There are versions for both iOS and Android.

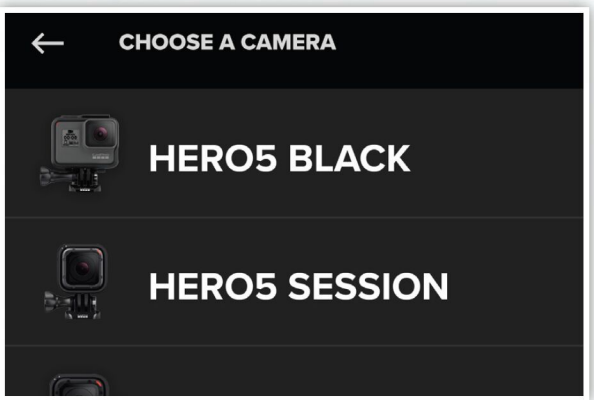
19 Once installed on your phone, you will need to run the GoPro app to pair it to your camera.



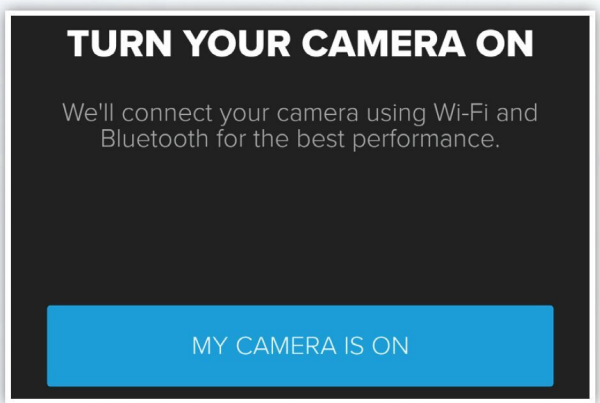
20 From the main screen you will be prompted to either create a new GoPro account, if you don't have one, or sign in to an existing one.



21 Next you will see the camera connection screen. Click on the CONNECT A CAMERA button to start the connection process.

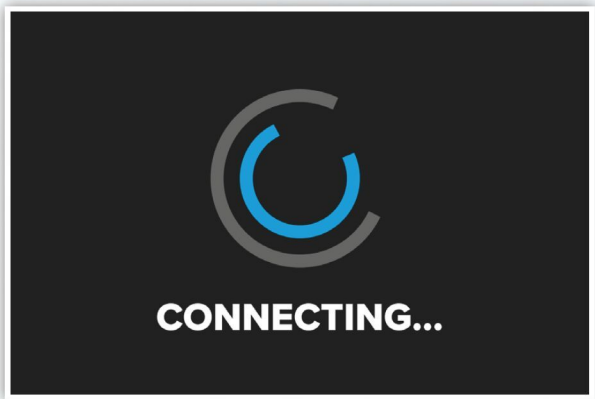


22 You will be presented with a list of cameras. Choose your camera from the list by tapping on its picture.

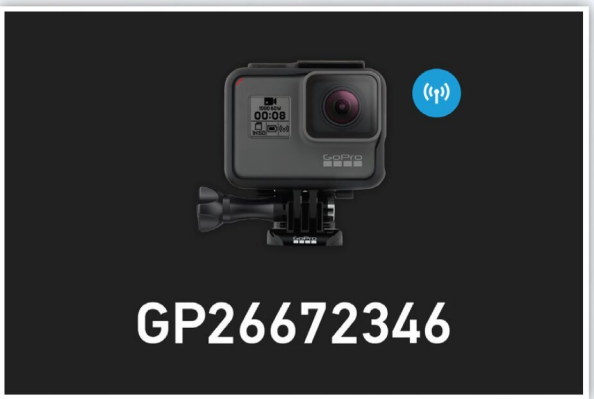


23 You will be asked to turn your camera on so you can connect to it using the app on your phone. If it is on already, tap the MY CAMERA IS ON button to proceed.

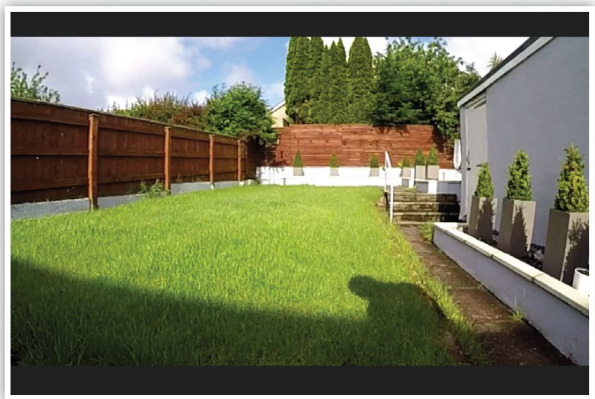
24 If Wi -Fi isn't activated on your camera, the app will show you how to turn it on with a short tutorial. Follow the steps to turn Wi-Fi on.



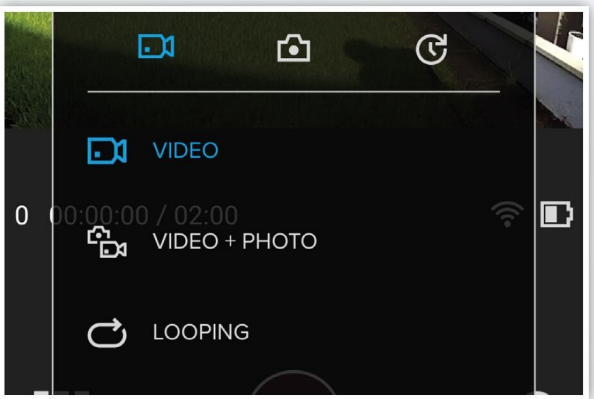
25 Once Wi-Fi is enabled, the phone and the camera will begin the connection process. It will display the camera ID on your phone.



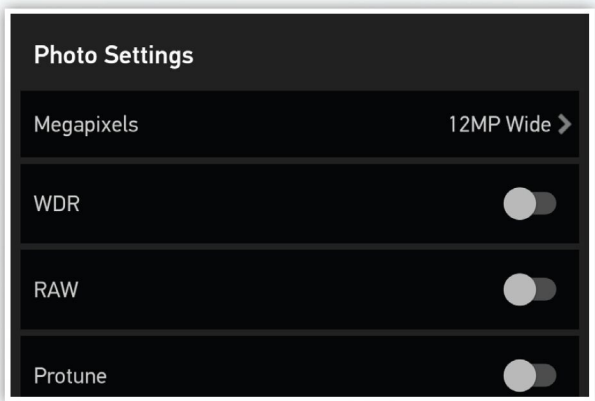
26 The small Wi-Fi icon in the top right next to the picture of your camera will turn blue to indicate they are connected. Tap the camera icon to proceed.



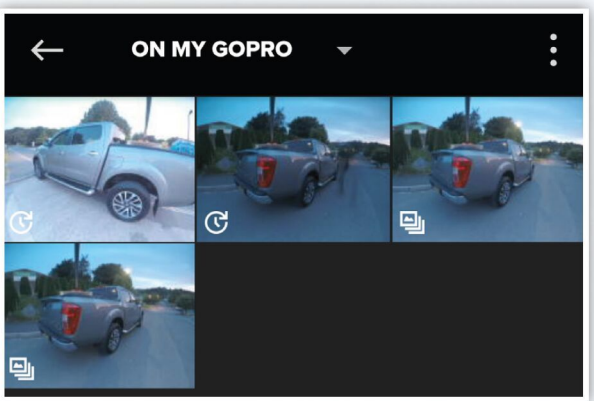
27 Your phone will display a real-time view of what the camera is seeing. Be aware that there may be a slight lag in the screen update of the view.



28 Tap the camera-shaped Mode button in the bottom right of the screen and you will be able to choose which video or photo mode you will be using.



29 Tap the settings icon, shaped like a spanner, and you can access all of the camera's settings and change values such as video resolution, field of view (FOV) settings and much more.



30 You will also be able to preview all the content currently stored on your camera as a series of thumbnails. You're now ready to shoot.

Firmware updates

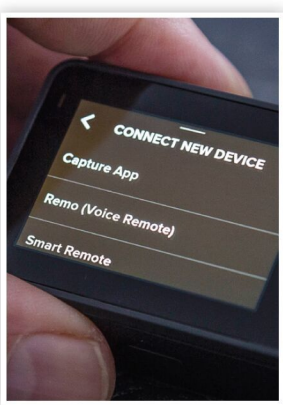
Make sure your GoPro is up to date

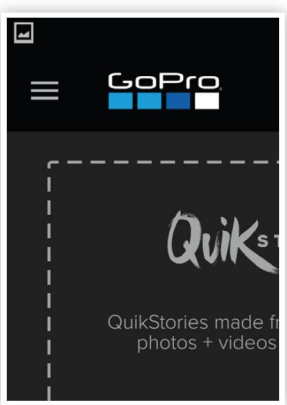
Many of the devices and technology we use today has the ability to be improved with firmware updates. Firmware updates are the in-built programs that run our devices such as phones cameras and tablets. Every so often, a manufacturer will make a number of improvements to the firmware for a particular device and make it available to the end user as an update. In some cases it can eradicate certain bugs or glitches but more often it can actually increase the speed of the device or make new features available. When your GoPro camera is set up and you have installed the GoPro and Quik apps on your phone, tablet or desktop, then you may receive notifications that there are camera updates available for your particular version.

The HERO6, HERO5, HERO4 and HERO3+ models can be updated wirelessly using the GoPro App to perform the procedure for you. It is a relatively simple task that just requires the GoPro app to be installed on a mobile device with available access to the Internet. You'll also need to make sure that you have a Micro SD card in your camera. ■

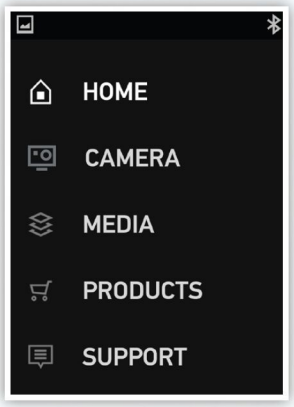
> "Every so often, a manufacturer will make a number of improvements to the firmware for a particular device and make it available to the end user as an update."

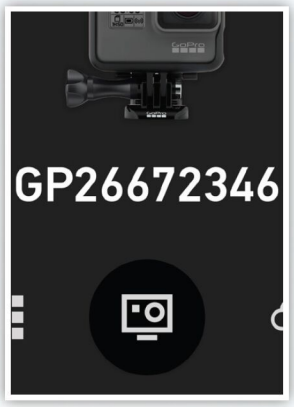
01 Make sure your mobile device has access to the Internet. Bear in mind that the firmware update package is around 25MB. Download times will vary based on your connection speed.



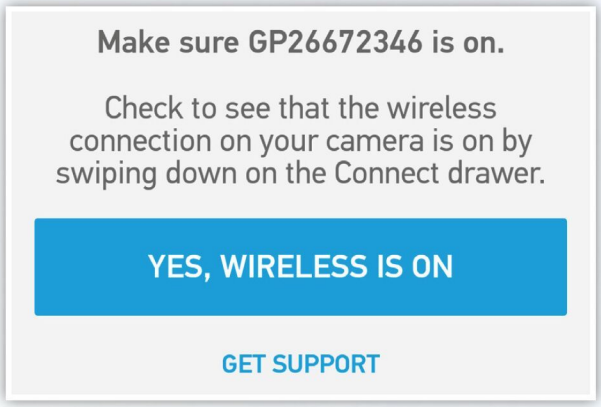


02 Make sure that your camera's Wi-Fi connection is turned on. Start up the GoPro App on your phone. Tap the three horizontal lines in the top left of the screen.

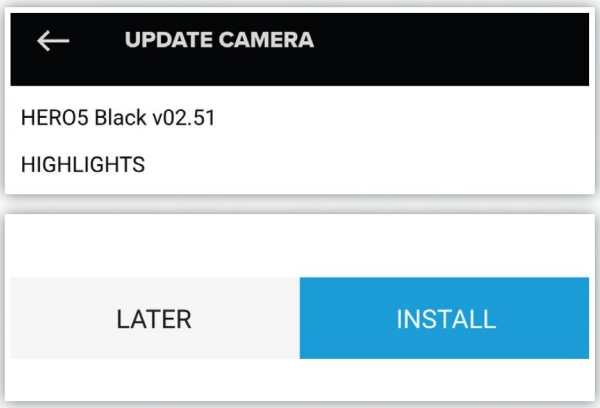




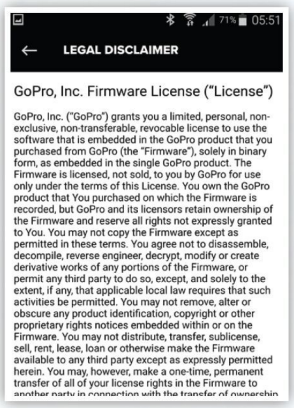
03 Choose the Camera option from the main screen menu by tapping on the camera icon. The camera screen will appear. You can tap the camera control button at the bottom of the screen or wait for the connection to establish.

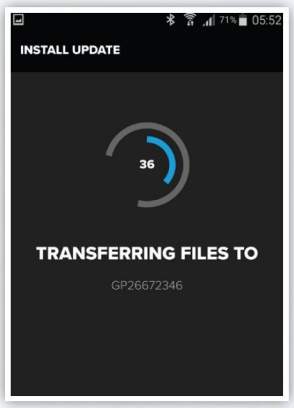


04 Your phone will connect to your camera. If your camera's Wi-Fi is not on, you will be asked to enable it. If a firmware update is available, you will be notified and prompted to update your camera.

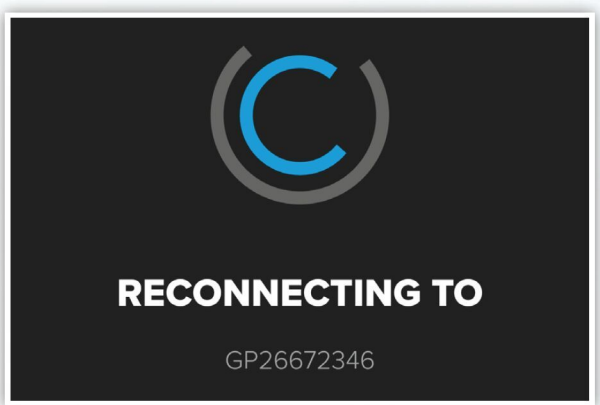


05 Any new features or improvements will be presented to you. You can choose Later if you want to abort the update or tap Update to continue.

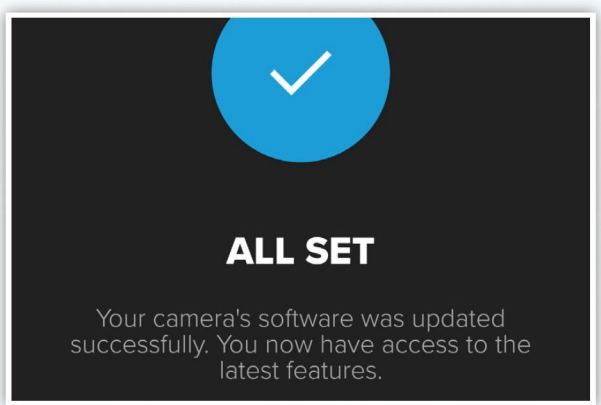




06 There will be a legal disclaimer where you will need to tap Accept and Continue. Then the app will download and transfer the update to the camera.

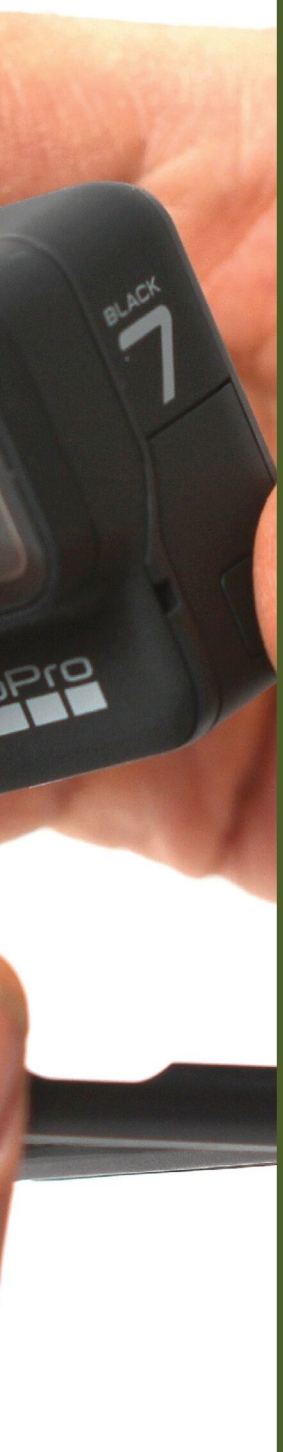


07 Your camera will power off and on a number of times during the update procedure. It may also disconnect and reconnect to the Wi-Fi.



08 Once the update is complete and the connections are re-established, you'll then be notified that the current update was successful.

"A good action camera system is defined by how good its accessories are. In the case of the GoPro range, the possibilities afforded by its range of accessories and mounting options are endless."



MOUNT UP AND SHOOT

Some great mounting and accessories options

As the GoPro range of cameras became more popular and established themselves as the main device for action and sports capture, the market for different mounting options and accessories exploded. Apart from those manufactured and sold by GoPro themselves, there is also a huge third party market for accessories and mounts. You can get everything from a good old selfie stick, to a dog-mounted camera harness. A good action camera system is defined by how good its accessories are. In the case of the GoPro range, the possibilities afforded by its range of accessories and mounting options are endless.

Also, just like any DSLR, the GoPro can also make use of accessories, filters and additional lenses, to extend the range of its capabilities. From colour correction filters for shooting underwater and circular polarisers to reduce glare and reflections to dive housings that get you into the blue depths, there is a wide choice of options that can keep you shooting; plenty to get creative with. ■

Mount up and shoot

Pro Handlebar / Seatpost Mount

Compatibility: All Cameras

- Light and durable aluminium construction
- Lets you rotate your GoPro camera 360°
- Ultra compact footprint for mounting in tight spaces
- Secures to 22.2 to 35mm diameter tubes

Helmet Front and Side Mount

Compatibility: All Cameras

- Versatile front and side helmet-mounting solution
- Maximum adjustability for a variety of shots and capture angles
- Includes easier-to-use integrated mounting buckle

3-Way Extension Arm

Compatibility: All Cameras

- Use as a camera grip, extension arm or tripod
- Handle can be used as a camera grip
- Removable tripod stores inside the handle
- Waterproof construction

Wrist Housing

Compatibility: HERO4 Black, HERO4 Silver, HERO3+, HERO3

- Secures camera flat against your wrist
- Pivot camera upright to capture video and photos
- Fits over ski gloves and jackets
- Waterproof to 197' (60m)

Chest Harness

Compatibility: All Cameras

- Provides an ultra immersive perspective
- Perfect for skiing, cycling or paddle sports
- Fits a wide range of adult sizes

Suction Cup

Compatibility: All Cameras

- Attach to cars, boats, motorcycles and more
- Industrial-strength suction cup proven at speeds of 150+ mph
- Provides a broad range of motion and stability
- Quick release base for convenience

Dog Harness

Compatibility: All Cameras

- Two mounting locations (back and chest)
- Fully adjustable to fit most dogs
- Washable, water-friendly material
- Camera tether to further secure your GoPro

Tripod Mounts

Compatibility: All Cameras

- Mount your GoPro to any standard tripod
- Includes Tripod Mount plus a Quick Release
- Includes lightweight Mini Tripod

Floating Hand Grip

Compatibility: All Cameras

- Shooting in or around water and keeps your GoPro afloat
- Easy to aim and lets you capture different angles
- Perfect for all water sports such as surfing
- Waterproof to 33' (10m)

38" Extension Pole

Compatibility: All Cameras

- Integrated ball and socket design
- Twist lock action for quick and easy use
- Premium oversized grip
- Durable and waterproof

Gooseneck

Compatibility: All Cameras

- Attach to any quick release base mount
- Elevate the camera for a higher perspective
- Join multiple goosenecks together
- Wide range of adjustability

Head Strap and QuickClip

Compatibility: All Cameras

- Strap fully adjustable to fit all
- QuickClip allows low-profile mounting
- Allows a variety of head mount options
- QuickClip lets you mount to belts, caps and more

The Arm

Compatibility: All Cameras

- Low impact articulating arm
- Adjustable cushioned clamp
- Wide range of adjustability
- Light and slim design

Surfboard Mounts

Compatibility: All Cameras

- Great for surfboards and boat decks
- Designed for maximum holding strength
- Adhesive anchors and tethers supplied
- Includes centre fin socket mount

Mic Stand Mount

Compatibility: All Cameras

- Mount your GoPro to a mic stand
- Quick release base for easy mounting
- Compatible with standard mic stands
- Includes European adaptor

Flex Clamp Jaws

Compatibility: All Cameras

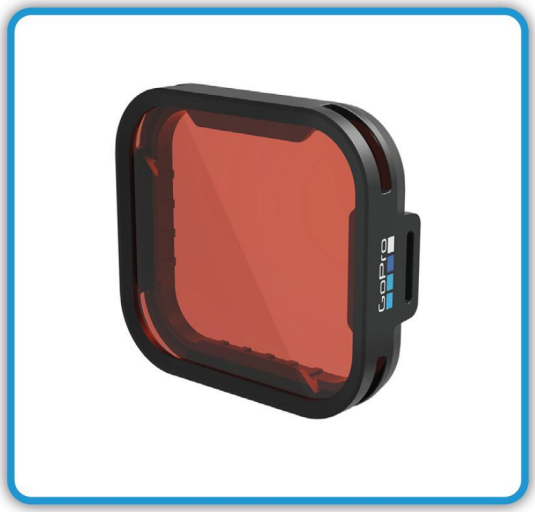
- Clamp your GoPro to objects from 0.6 to 5cm in size
- Easy to move to new mounting positions
- Quick release base
- Very secure mounting jaws

Lenses and accessories

Karma Grip

Compatibility: Versions for HERO5 + 6 Black, HERO4 (using optional harness)

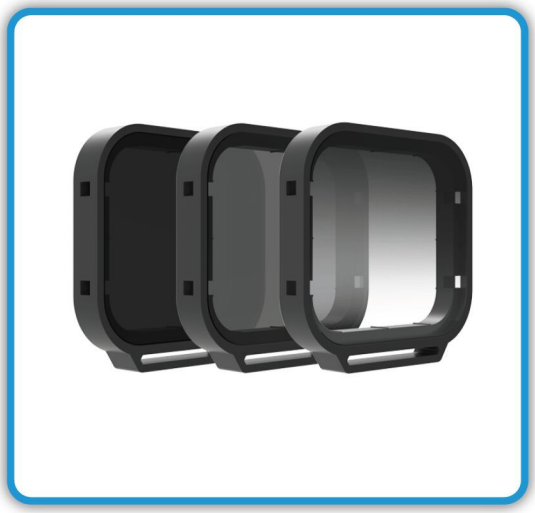
- Handheld or wearable stabiliser
- Use it to capture incredibly smooth video
- Battery life of 1 hour 45 minutes
- Comes with Grip handle, Stabiliser and mounting ring



Dive Filters

Compatibility: Versions for HERO5 + 6 Black, HERO4, HERO3+

- Provides colour correction in blue water
- Scratch-resistant, optical-grade glass
- Quick, tool-free installation
- Includes a tether and a microfibre bag
- For use with Dive Housings



Filters

Compatibility: Versions for HERO5 + 6 Black, HERO4, HERO3+

- ND8, ND16, ND32, ND8/PL, ND16/PL
- Only 4.7-6.7 grams for gimbal use
- HD glass ensures image clarity
- Secure slide-on design

Macro Lens

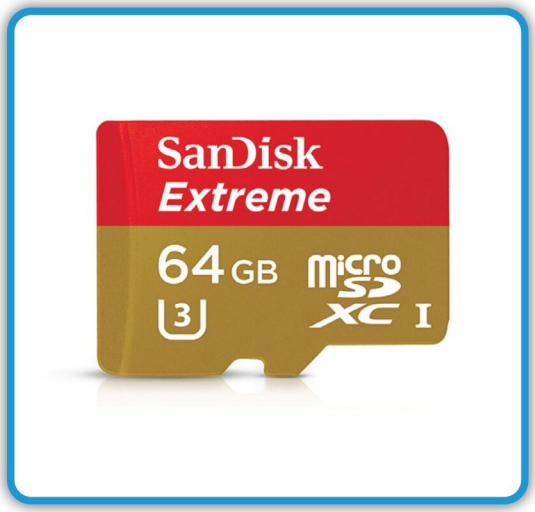
Compatibility: Versions for HERO5 + 6 Black, HERO4, HERO3+

- Glass lens for razor sharp close-ups
- Reduces camera's focal point
- Secure push-on design
- Lifetime warranty

Dive Housing

Compatibility: HERO4, HERO3+

- Waterproof to 196ft (60m)
- Two Waterproof Backdoors
- One Skeleton Backdoor for audio capture2
- Flat glass lens for maximum image sharpness



SD Cards

Compatibility: All Cameras

- UHS Speed Class 3 and Class 10 to record 4K video
- Transfer speeds up to 45MB/s
- Designed to withstand water, temperature, shock
- Lifetime limited warranty
- Verified compatible by GoPro

Mobile microSD Card Reader

Compatibility: micro SD Cards

- Fast and easy plug-and-play
- Access GoPro footage on your microSD
- Carabiner-style clip and weather resistant cover
- Compatible with all GoPro cameras

Rechargeable Battery

Compatibility: HERO5 + 6 Black

- A spare or replacement battery
- 1220mAh lithium-ion rechargeable battery

Smart Remote

Compatibility: All cameras
(older models have reduced function)

- Full control of all camera functions
- Works up to 180m away
- Rugged, wearable and waterproof to 33m
- LCD mirrors your camera status screen

3.5mm Mic Adaptor

Compatibility: HERO5 + 6 Black, Hero5 Session

- Connect pro level external mics
- Enables high quality audio recording
- Stereo analog to digital converter
- USB-C power and data extension

The Frame

Compatibility: HERO5 + 6 Black

- Small, light replacement frame
- Minimalist design for low-profile mounting
- Allows for low-speed audio capture
- Access to USB-C and HDMI ports

Voice Activated Remote

Compatibility: HERO5 + 6 Black, Hero5 Session

- 13 commands allows for voice control
- Clip to your clothes or strap to your wrist
- Works up to 10m range
- One-button shutter activation

Seeker Sportpack

Compatibility: All cameras and Karma Drone

- Lightweight and weather resistant
- Main compartment fits Karma Drone, mounts and accessories
- Soft-lined compartment stores five GoPro cameras
- Integrated chest mount

Power Pack

Compatibility: All cameras

- Portable pack charges GoPro up to four times
- 6000mAh capacity for endurance power
- Dual USB ports charges two devices
- 4 - 6 hour power pack recharge time

Floaty

Compatibility: The Frame for HERO5 + 6 Black or standard housings for HERO4, HERO3+

- High visibility flotation device
- Includes adhesive anchor and tether
- Great for surface water activities

Super Suit Dive Housing

Compatibility: HERO5 + 6 Black

- Flat glass delivers maximum image sharpness
- Waterproof down to 60m
- Protect against dirt and small rocks
- Perfect for deep water diving
- Includes waterproof Backdoors


BLACK
7


GoPro

"If you are going to be shooting in the great outdoors, are you better off leaving your bigger, traditional digital camera at home and just gear up with a GoPro?"

WHY USE A GoPro?

We look at the arguments for and against

If you are a beginner, enthusiast photographer or videographer, the question about whether you could possibly choose to go out and shoot with an action camera like a GoPro rather than a DSLR is not cut and dried. If you are going to be shooting in the great outdoors, are you better off leaving your bigger, traditional digital camera at home and just gear up with a GoPro? There is no denying that GoPros and their action camera siblings have a lot going for them. For one thing, they are small enough to fit in your pocket, for another they are certainly robust; and the latest versions of the GoPro, the HERO5 and HERO 6, are waterproof without the need for a protective case. They aren't that difficult to use and their image quality has improved dramatically over the past few years. If, on the other hand, you are a professional photographer and are shooting for a client who is going to demand the best you can deliver, the question whether you leave your DSLR at home has a more obvious answer: no. Let's quickly outline the aspects that a pro shooter would find difficult to live with. ■

GoPro vs DSLR - the cons

DSLRs will always have the advantage over the GoPro, with their wide choice of lenses offering vast creative control when it comes to composition. The size of the lenses also ensures maximum optical quality.

The cons

First and foremost is the quality of the image you are able to shoot. Compare a shot taken with a GoPro and a mid-level DSLR and there is not really any argument. The DSLR should win with its larger sensor and lenses. Action cameras are fixed lens devices with a very wide field of view. The GoPro does offer modes that give you a narrower field of view but this is done digitally, not optically. Essentially, the image is just cropped. The HERO3 and HERO4 cannot shoot in Raw format and you will lose additional quality when you try to process your images taken with these two models.

Video files

A lot of new DSLR cameras have been able to shoot HD video for some time now and their quality is nothing short of amazing; more and more DSLR models now offer 4K video capture along with their other usual photographic capabilities. In fact, certain TV shows will often shoot using DSLRs. Not so long ago, an entire episode of the American medical drama House was shot entirely with DSLRs. The very thing that gives a DSLR its edge in quality, its lenses, is also a huge draw for videographers. A few good lenses give you huge creative scope when it comes to shooting your next production. The GoPro, although capable of excellent 4K video, is still limited to its view of the world through that fixed focal length lens.

Battery life

Battery life is also a big issue. You are likely only to get 2-3 hours out of your action camera versus being able to shoot all day with a DSLR, particularly if it uses a battery

Often quoted as its Achilles heel is battery life. You can reasonably expect around 2 hours of shooting time from a standard GoPro battery. Third party batteries are available but they can be of poor quality.

The GoPro's origins can be traced back to surf culture and the founders desire to get close up action shots of the sport. Initially the action camera was regarded as a toy and not suited for quality images and video.

grip to double its battery holding capability. You do have the option to purchase more batteries of course and to be honest, we would recommend you do. Nothing is more frustrating than having to curtail your shooting activities because the battery has run flat in a short time. There is also the option to purchase a GoPro portable power pack which can recharge your cameras up to four times. As you might imagine, this is not necessarily a cheap option.

Lag time

If you're shooting video rather than taking stills at key moments, the issue of response time and shutter lag isn't so obvious. If you are using it more like a traditional point and shoot, then you may encounter the rather slow response you get when shooting. If you opt to use your smartphone to control it, then this sluggish feel can be exacerbated. The GoPro is also known to lock up from time to time and the usual fix has been to remove the battery to do a hard rest and start again; so far it's not looking good for the GoPro.

Manual Control

A DSLR is probably most well defined by its ability to let you take over control of all its functions and settings. Here you can decide exactly how you want to shoot in full manual mode and although you are able to alter basic settings, such as locking ISO sensitivity and shutter speeds, manually on the HERO6 Black, HERO5 Black and the HERO4 Black via a firmware update, you will be limited to choosing an inverse shutter speed that is at least equal to the frame rate you are shooting at or higher in multiples of that frame rate. Shooting at 30fps would mean using at least 1/30th shutter speed.

Perception

This is little more abstract to describe but essentially people might regard the GoPro range as mere toys to strap to your cycle helmet or surf board and snap some poor quality images. There is an old adage about not knocking what you haven't tried. GoPro obviously built their name around the surf community and although their video capabilities have been lauded, people may regard their ability as a photo capture device with less enthusiasm. Indeed, many would argue that if you have a mobile phone with a half decent camera built in, why would you need something like a GoPro action camera anyway? Next up are some arguments as to why you should consider having a GoPro. ■

GoPro vs DSLR - the pros

The pros

So your average pro shooter is not necessarily going to use a GoPro but the action camera does have its strengths. If you gear your shooting experiences to that, then you will be very happy with the results. However, as we mentioned earlier, the HERO3 and HERO4 models are not able to shoot in a Raw format; that has all changed now with the latest HERO5 Black. It is the first GoPro model to support a Raw format and it also features WDR, which is a Wide Dynamic Range feature; two functions that are a very welcome addition to its various features. Photos captured in GoPro Raw format will have a .GPR extension, which is based on the DNG format.

Manual Control

It is not the kind of full manual control that you would expect from a DSLR, which has counted against it when we listed the negative aspects of action camera versus DSLR, but the HERO5 Black does offer some control, as mentioned before. Any form of manual control is a welcome addition and it is something that GoPro fans have been calling out for now for some time. True, it is limited to locking out the ISO settings to your preferred value and dialling in your preferred shutter speeds from a limited menu of choice, but it's a start.

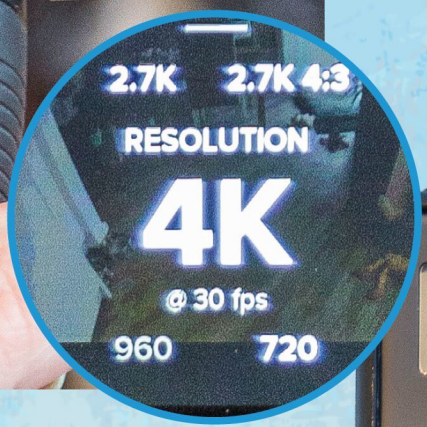
4K Video

The latest HERO5 Black can shoot impressive video up to 4K quality, up to 30FPS. Its video capabilities have always been a popular draw. Couple that to its tiny form factor and lightweight construction and chances are you've seen movies or TV shows and documentaries when GoPro footage has been used. In fact Peter Jackson used some GoPro footage in an action sequence from his second Hobbit movie where the characters are tumbling down a river in barrels. This go anywhere ability is crucial when you need to place a camera in the thick of the action without the bulk and weight of traditional movie cameras or DSLRs.

Field of view

GoPros have a very wide angle fixed lens with pronounced fisheye effect distortion. Now they would never be any good for a safari shoot where you would need an 800mm super telephoto lens, but they are excellent for very close up action whilst being able to capture of lot of the scene. Shooting in a confined space is no problem

The wide angle field of view that the GoPro is capable of means you can get a lot in your shot even when you have very close foreground subjects. Images of a person's point of view from a surfboard or mountain bike, makes the shot that much more immersive.



The GoPro has the ability to shoot high quality 4K video which is a resolution of 3840 pixels wide by 2160 pixels high. The HERO5 can shoot at 30fps and the new HERO6 can shoot at an incredible 60fps.

for a GoPro because of its very wide angle lens. Similarly, if you wanted to capture the grandeur of a landscape, the vaulted ceilings of a local church, or a shot of your friends piled in the back of someone's car, then the GoPro can handle it well. Most recently, the HERO5 has been given distortion correction that is built in to the camera and is a selectable option. Even older models such as the HERO4 Black can be given a firmware update that makes the distortion correction option available. Usable at lower resolutions, it can eliminate the barrel distortion that is the trademark of an ultra wide lens.

Image Quality

Image quality is not to DSLR standard but if you shoot in bright conditions, with lower ISO settings, the images you capture will be great; certainly good enough for us mere mortals who want a good record of the location we were at. They also have the enviable ability to shoot at a maximum of 30FPS (frames per second) making the sequential capture of a sporting or action-based event a piece of cake. You never have to miss the key shot when you shoot a burst of images at this very high frame rate. Even the best DSLR's can't manage that.

Small and mighty

Their small size is also one of their strengths. Small also equals light. They can go anywhere, even in your coat pocket; and because they are rugged, then can take some punishment. We actually had an older HERO slung underneath a drone (See above). It was filming at about 200ft altitude when one of the four props sheared off and it crashed heavily to the ground. The drone was a write-off but the GoPro survived, still shooting images as it hit the ground, and is still in service today.

Manual or auto?

We mentioned previously that GoPros are easy to use and even if you keep them on their default automatic settings they work well in most shooting conditions. The latest models boast much improved low light performance, so dusk and night time shots are quite possible too.

Mounts and accessories

If one aspect of the GoPro stands out above the others, it is its mounting options. Since the earliest days of Nick Woodman's prototypes, it became clear that a camera of this nature was only going to work if it could go anywhere and be attached to anyone or any thing. The variety of mounting options is vast, especially since the third party market exploded onto the scene as well. There is no place, thing or person that you cannot attach a GoPro to using one of the many accessories available. You can attach the GoPro to your surfboard, or you can mount it atop your dog using a canine camera harness. Let's face it, it is going to be more comfortable mounting a 150g GoPro to your climbing helmet, than a 1kg DSLR.

Summing up

To be honest, given its small size, the answer to our original question seems more thought out now. Should you shoot only with a GoPro versus a DSLR? Why not take both? Suddenly your shooting options become much more varied and exciting, and whilst you won't be outputting exhibition grade prints from your GoPro, it will have been able to go and shoot where DSLR's fear to tread. The two, working together will open up new avenues of creativity and possibility. ■

The choice of mounts for the entire range of GoPro products is huge and one of its greatest strengths. From a helmet mount or chest mount to selfie sticks, surfboard mounts and suction cups, the options go on and on.

"...footage was not as smooth as that available to the HERO4 Black and the HERO5 Black which can capture 4K at 30FPS, with the HERO6 Black able to shoot at 60FPS."

VIDEO AND PHOTO MODES

Here are the various capture modes available to you

The GoPro range has come a long way in its lifetime. This popular action camera is now in its 6th generation. The HERO6 Black, the HERO5 Black and it's compact sibling, the HERO5 Session still share a lot of DNA with their older counterparts; chief among which is the option for capturing video or stills, or indeed both at the same time. The HERO3 Black could shoot 4K ultra HD video but it could only manage 15 frames per second (FPS) which meant footage was not as smooth as that available to the HERO4 Black and the HERO5 Black which can capture 4K at 30FPS, with the HERO6 Black able to shoot at 60FPS. On the stills capture front, the HERO3, 4 could capture photos at a maximum resolution of 12MP depending on the field of view (FOV) you were using. The HERO5 Black and HERO6 Black can now shoot stills at 12MP at any FOV, and it can also shoot in Raw format in certain modes. Raw format is essentially a data readout, straight from the camera's sensor with no processing applied, giving maximum image quality when it comes to processing your shots in image editing software such as Lightroom or Photoshop. The HERO3 and 4 are only able to shoot in jpeg format but you can still use settings that will give you as much image data as possible, if you wish to process the images further once shot. With that in mind, let's delve a little more into the various modes available to you. ■

Video and photo resolution

A little cheat sheet to get you up to speed

2.7K 16:9 2704 x 2028

1440p 1920 x 1440

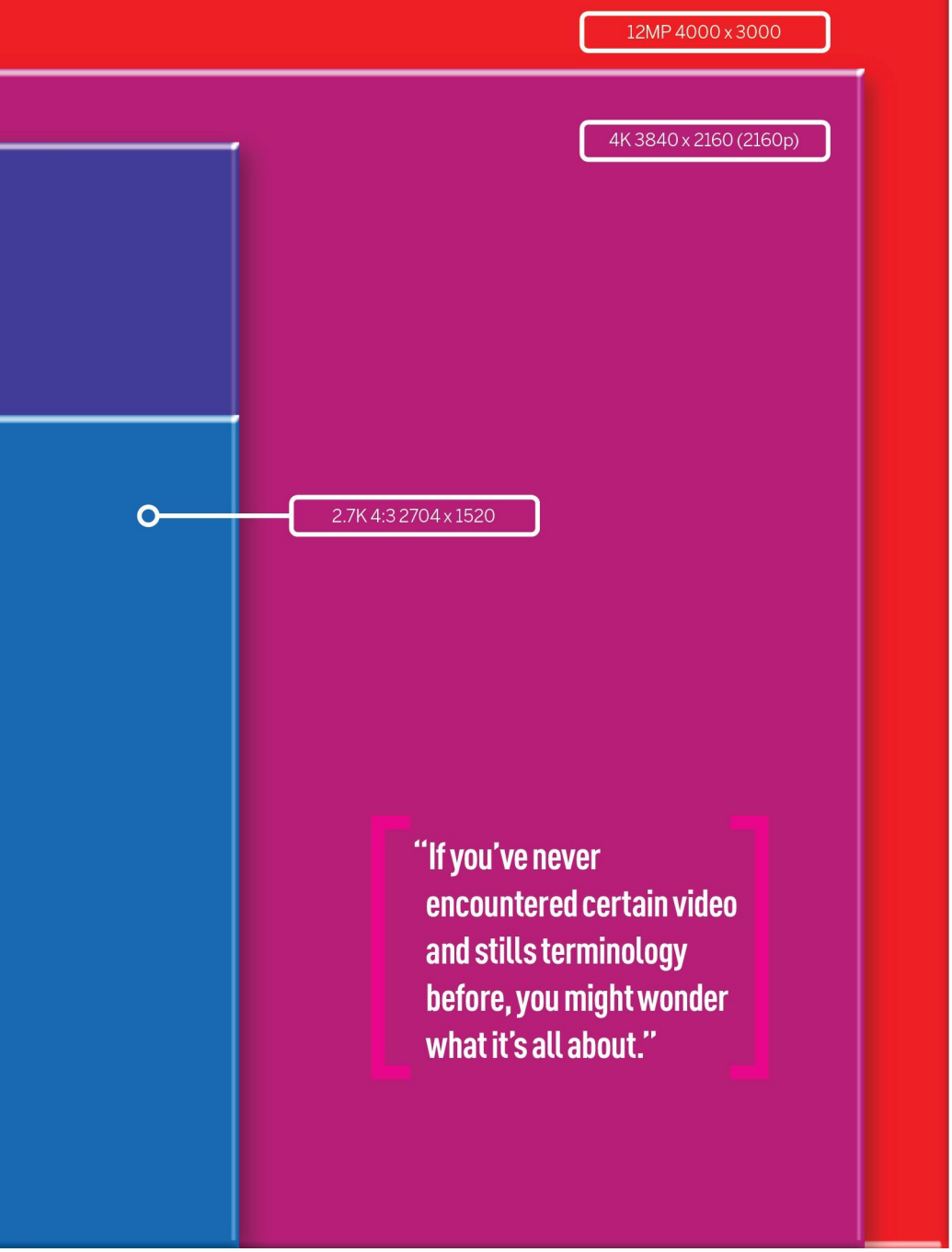
960p 1280 x 960

1080p 1920 x 1080

720p 1280 x 720

480p 848 x 480

When you start using your GoPro to shoot video or take stills, you will become aware that there are a lot of references to either 'megapixels' (MP) or things like '4K' or '720p'. These are various units of measurement that describe how large a frame of video or a photo is in lines of pixels. As an example, a frame of 720p video measures 1280 pixels wide by 720 lines deep. This equates to a total of 921,600 pixels or 0.9 megapixels. The latest GoPro HERO5 Black and HERO6 Black can shoot in a number of video resolutions as well as capturing 12MP still photos. If you've never encountered certain video and stills terminology before, you might wonder what it's all about. To help you sort out your megapixels from your 4Ks, we've put together a little reference cheat sheet to show you how the various resolutions available on the HERO5 black compare to each other. ■



"If you've never encountered certain video and stills terminology before, you might wonder what it's all about."

The p that you see in resolutions such as 1080p or 1440p stands for progressive scan. This means that if you are shooting a video in 1080p resolution for example, all of the 1080 lines of pixels are captured/displayed at the same time. This differs to 1080i where only the odd numbered lines are displayed first, then the even numbered lines; and they are interlaced very quickly to fool your eye into believing you're seeing an entire picture in one go.

You might also be aware that there are two broadcast video standards available to you. You have the choice of PAL or NTSC video. PAL is the main standard used where 25 frames are displayed each second. NTSC, used predominantly in the USA, displays 30 frames of video during each second.

In addition to all the resolutions and video standards on offer, you also have the choice to shoot in different aspect ratios. The aspect ratio is simply the proportional relationship between the width and the height of an image. Modern televisions display images in widescreen format 16:9 and you can capture video in the same aspect ratio and in various resolutions. You can also capture images and video in 4:3 format which is 33% taller than a 16:9 ratio. Video is often captured in this aspect ratio as it provides greater scope for cropping or applying image stabilisation during the editing process before being output to the more common 16:9 broadcast format. ■

Video resolution and settings

A rundown of video modes and settings

The GoPro's ability to shoot great quality video has always been one of its strengths and although 4K video capture was possible on the HERO3 Black, it was only at 15 frames per second (fps), which made for quite choppy video if there was anything moving quickly in the frame. The HERO4 Black was the first action camera from GoPro to give us the ability to shoot up to 4K resolution at a much more acceptable 30fps. The HERO5 Black continued the trend and now the HERO6 Black with its new GP1 image processing chip, allows the capture of 4K video at a frame rate of 60fps. All the cameras in the GoPro range allow you the choice of using multiple resolutions. We list some of the common uses for the various resolutions below. There is also a handy guide so you know what frame rate/shutter speeds are available when you opt to take the camera out of Auto and use Protune to take more control of your shutter speeds. ■

Resolution	Best Use
4K	High-resolution, low-light performance. 8MP stills from video.
2.7K 16:9	Video can be scaled down for cinema quality results.
2.7K 4:3	For body-mounted, ski-mounted or surfboard-mounted shots. Larger vertical viewing area.
1440p	4:3 captures larger vertical viewing area. High frame rate. Great for social media.
1080p	Popular and widely used. High resolution and high frame rates. Available in all FOVs.
960p	Good for slow motion. 4:3 ratio provides a large viewing area.
720p	Good for handheld shots. 240fps for super slow motion. Only in Narrow FOV.
480p	Standard definition for super slow motion and Wide FOV.

Frame rate	Shutter speed multiples available
24fps	Auto, 1/24th, 1/48th, 1/96th, 1/192th.
30fps	Auto, 1/30th, 1/60th, 1/120th, 1/240th.
48fps	Auto, 1/48th, 1/96th, 1/192th.
60fps	Auto, 1/60th, 1/120th, 1/240th, 1/480th.
80fps	Auto, 1/80th, 1/160th, 1/320th, 1/640th.
90fps	Auto, 1/90th, 1/180th, 1/360th, 1/720th.
100fps	Auto, 1/100th, 1/200th, 1/400th, 1/800th.
120fps	Auto, 1/120th, 1/240th, 1/480th, 1/960th.
240fps	Auto, 1/240th, 1/480th, 1/960th, 1/1920th.

Video

Each mode can be broken down into additional capture modes. Video is for conventional video capture. When you use it for the first time, the camera will use a default setting of 1080p resolution shooting at 60 frames per second with the Wide FOV set. Video Stabilisation and its Auto Low Light feature are turned on.

Video + Photo

This allows you to shoot video but also capture a set of stills whilst you are filming at an interval you can set. The default settings for Video and Photo are 1080p at 30 frames per second with a Wide FOV. The stills are captured at 12MP with a photo taken every 5 seconds.

Looping

Looping lets you continuously capture video but only save the footage that you want. Looping defaults are 1080p at 60 frames per second with a Wide FOV. The video will record in 5 minute intervals over each previous 5 minute capture and saves the last 5 minute segment when you press the shutter button to stop the current recording.

Auto Low Light

This feature allows you to shoot in low light conditions by automatically adjusting frame rates and shutter speeds for the best exposure.

Video Stabilisation

Video Stabilisation adjusts the footage being captured to account for motion present during the recording. The image is shifted to counter the motion of the camera to reduce camera shake in the captured footage. Extreme movement cannot be reduced effectively but smaller movements can be evened out by turning this feature on.

What is Protune?

Protune gives you more control over your video. It decreases the compression used on your video, giving you the chance to capture higher quality footage. You can also adjust white balance, ISO and Exposure Compensation. The images are also more neutral allowing you to capture more detail in the highlight and shadow areas of the scene. If you're keen to edit your stills and video, then turning Protune on is the way to go. If you are more interested in just shooting and sharing, then keep Protune turned off.

Manual Audio Control

The default setting for this is off and it can automatically switch between stereo audio capture and wind noise filtering to attain the best balance of sound. You can choose Stereo Only if you are not out on a windy day and the stereo audio is of a consistent nature. If you are out in windy conditions, you can select Wind Only to filter out as much wind noise as possible.

RAW Audio

A video only option, this allows you to create a separate audio file in WAV in addition to the default MP4 audio track on the video. You can choose from Low, Medium or High processing of the audio. Keep the value at Low if you are going to edit your audio track in post-production and need the highest quality.

> "The HERO4 Black was the first action camera from GoPro to give us the ability to shoot up to 4K resolution at a much more acceptable 30fps."

Take control of your video capture options by enabling Protune. This lets you get more hands on with the major settings such as Shutter Speed, ISO, Colour and White Balance.

Field of view (FOV) options

Control how much scene is visible to your camera

FOV refers to how much of the scene you are shooting can be seen by the camera via the lens. FOV is measured in degrees. The greater the angle in degrees, the wider the view and hence more of the scene is captured. You FOV options are based upon what resolution and frames per second video settings you are using. ■

SuperView

This offers the widest view possible. It shoots a 4:3 format wide shot and dynamically compresses it vertically to fit the standard widescreen format. You can be shooting in cramped conditions, but you'll still be able to see a lot of the scene. The downside is that you will see the fisheye distortion effect. SuperView is available in most resolutions and a range of frame rates depending on model.

Wide

Probably the most used FOV setting for a lot of people. It offers a large field of view and is great for capturing close up action whilst still having a lot of the scene on view. The fisheye effect is also quite apparent in Wide FOV, being the most pronounced at the edges of the frame. Wide is a popular choice, not least because it is available in all resolutions and most frame rates.

Medium

The Medium FOV setting is equivalent to zooming in slightly with a normal lens on a DSLR to fill the frame more with whatever is in the centre of the shot. In this case though, the zoom is done digitally as the camera's lens is fixed. Medium is available in 2.7K, 1080p and 720p in frame rates ranging from 120fps down to 24fps depending on resolution.

Linear

This option takes the Medium FOV and applies distortion reduction to remove the fisheye effect seen in the Wide FOV. This is very effective for aerial or high perspectives to cancel out the ballooning effect of the horizon or the strong uprights of buildings and other structures. Linear is available in 2.7K and 1080p at most frame rates.

Narrow

Is a more pronounced zoom effect than the Medium setting with less fisheye distortion. It is available at 1080p or lower resolutions with frame rates ranging from 120fps down to 25fps.

The GoPro Glossary

A list of some terms you may encounter

.GPR file
A raw file format based on the Adobe DNG format. HERO5 Black cameras can shoot stills in this format.

.LRV file
This stands for Low Resolution Video which is created for use in the GoPro app

1080p
Refers to 1920x1080 resolution used in "Full HD" images and footage.

16:9
An aspect ratio for widescreen format. Most GoPro video formats shoot in this aspect ratio.

2.7k
Refers to an ultra-high resolution video mode that is 2716x1440

4:3
A more square aspect ratio. GoPro stills and certain video modes shoot in this aspect ratio.

4k
Refers to the UHD resolution video mode that is 3840x2160.

720p
Refers to 1280x720 resolution. The base standard of High Definition by YouTube.

Anamorphic
When black bars are added to videos to help achieve a cinematic look.

Anti-Fog inserts
Small strips of material that absorb moisture to prevent condensation.

BacPac
An attachment that fits onto the back of a GoPro camera such as and LCD screen or battery.

Body Mount
GoPro mounts that attach to you directly, such as a helmet or chest mount

Burst Mode
A stills capture mode that allows for up to 30 shots to be taken in 1 second.

Codec
A computer program that can encode or decode a stream of digital data such as a video file.

Drone
The name given to unmanned aerial vehicles capable of lifting a GoPro aloft.

Export
An edited video sequence can be exported as a single file suitable for playback on computer or video based players.

Evaluative Metering
The entire frame of the image is analysed to calculate the best exposure.

File Chapter
The splitting of large video files.

Fish-eye
Seen in very wide-angle lenses. It is a spherical distortion often called barrel distortion.

FPS
Refers to how many frames are captured in one second in either video or stills mode.

FOV
Stands for Field Of View. FOV is a measure of how much of a scene is visible in a shot.

Floaty
A floatation device to keep your GoPro afloat if dropped in water.

Gimbal
An electronic device used on handheld equipment or UAV's to stabilise the camera's movement.

GoPro Studio
A video editing program for GoPro video footage.

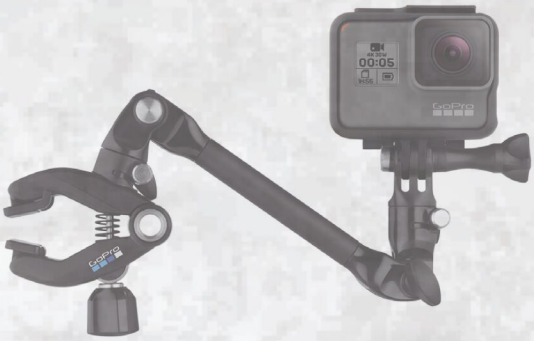
Housing
A waterproof acrylic shell used to protect the camera when diving.

HiLight Tag
This is where you mark a key moment in a video clip.

KAP
Refers to Kite Aerial Photography. Using kites to lift cameras aloft.

LCD BacPac
An LCD monitor screen that attaches to the back of a GoPro to preview shots and play back files.

Loop Mode
Automatically and continuously records for a set time, then records over it until you press the stop button.



MicroSD
A very small memory card form factor used by GoPro cameras.

MP
Stands for Megapixels. This is the standard measure for the size of a video or photo in pixels.

Protune
A method of optimising your footage and stills for further editing on a computer.

Quadcopter
A type of radio controlled helicopter with four rotors such as the DJI Phantom.

Quik
Lets you quickly import, edit and share your footage. There are desktop and mobile device versions.

Resolution
Resolution refers to how large an image or video is. Higher resolution means bigger files but increased detail is visible.

Spot Meter
Using a single point in the centre of the frame to measure exposure.

SuperView
Footage captured in 4:3 ratio is dynamically manipulated to fit the widescreen 16:9 format.

Skeleton
A camera housing that has open sides for access to USB and HDMI ports.

Timelapse
The capture of multiple images over a long period of time which when played back shows an accelerated passage of time.

Wasabi
A third party manufacturer of GoPro batteries.

GPS
Global Positioning System. The method used by many devices to receive data from satellites to triangulate their position on the globe to within a few metres.

NTSC
The North American television display frame rate. Selecting the correct frame rate can eliminate flicker when played back on a TV in this region.

PAL
The television display frame rate for most televisions outside of North America. Selecting the correct frame rate can eliminate flicker when played back on a TV in these regions.

Raw
When applied to either images or audio, Raw is a minimally processed file that maintains maximum quality.

NTSC
The North American television display frame rate. Selecting the correct frame rate can eliminate flicker when played back on a TV in this region.

EV Compensation
Adjusting this setting on your GoPro allows you to either underexpose or overexpose your stills and video to accommodate lighting conditions.

ISO
ISO determines how sensitive the camera is to light. Low ISO values are less sensitive and give better image quality. High ISO values make the camera more sensitive in low light conditions at the cost of increased image noise.

White Balance
This lets you adjust the colour balance of your stills and video. Measured in Kelvins, lower values are warmer in tone. Higher values are colder in tone.

WDR
Stands for Wide Dynamic Range. This setting is useful when trying to capture images with a wide range of bright and dark tones. It is a Photo Mode only option and cannot be used when Raw is turned on.

ACR
A shortened term for Adobe Camera Raw. ACR is a Raw processing application that comes as part of Photoshop. It can be used to process GoPro Raw files.

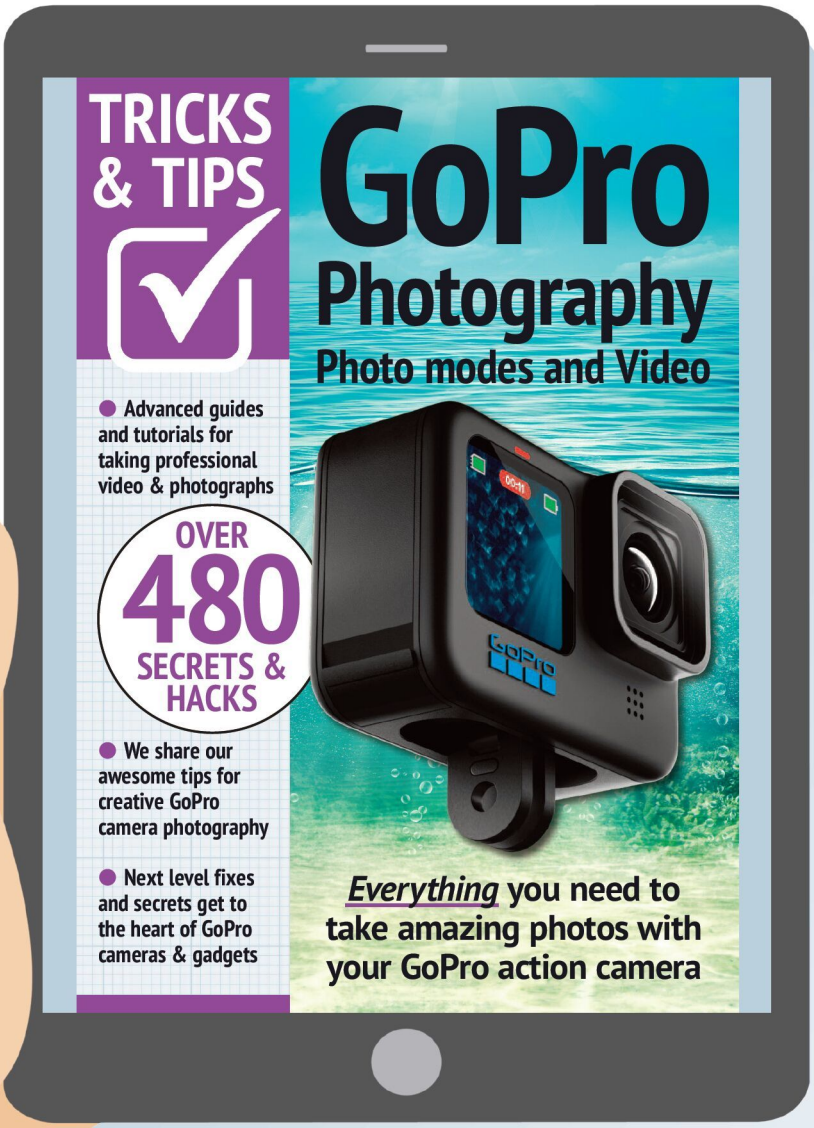
Karma
The name given to the unmanned aerial vehicle developed at GoPro. It is capable of lifting a GoPro HERO5 or 6 aloft for amazing aerial footage. There are cage adapters for the HERO4 Black too.

Dome Port
An acrylic dome with an aperture in its centre that can house a GoPro camera. It can be used to shoot underwater images and video as well as over and under split shots at the surface.

Super Suit
The name given to the underwater dive housing for the GoPro HERO5 and 6. It protects the cameras down to a depth of 60m (196ft).

Read More

Now you've got the basics down, you can improve and learn more essential skills in our next level guide...



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