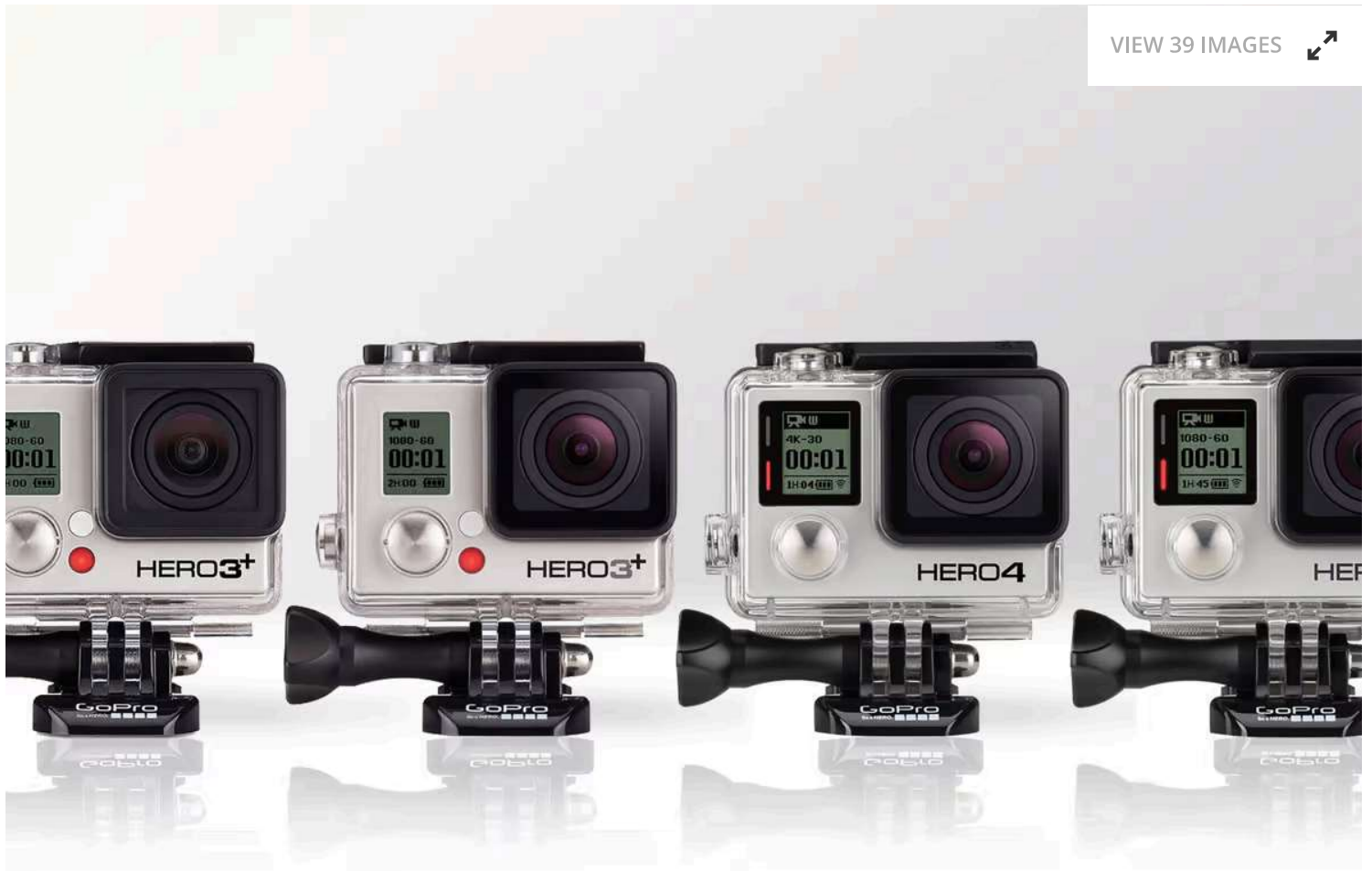


PHOTOGRAPHY

GoPro Hero4 vs. GoPro Hero3+

By Simon Crisp
October 05, 2014



Gizmag compares the specifications and features of the GoPro Hero3+ and Hero4 actioncams

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GoPro has recently [updated its lineup of actioncams](#) with new models that include improved 4K video recording or a built-in touchscreen. But which one is right for you to capture your extreme exploits (or perhaps those of [your dog](#))? Gizmag compares the specs and features of the Black and Silver [GoPro Hero3+](#) and Hero4 cameras.

Update: *We now have a newer version of this comparison, [breaking down the Hero4 Black, Silver, Session, and Hero+LCD](#)*

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While the large "Hero3+" or "Hero4" on the front of each camera make it quite clear which generation it is from, the distinction between Black and Silver variants is somewhat more subtle. So to make it easier to distinguish in our graphics, we've put the Black cameras on the left, and the Silver on the right.

Dimensions



↑
→
→

41mm
59mm
21/30mm

41mm
59mm
21/30mm

The size and shape of GoPro cameras haven't changed much in recent years and the Hero3+ and Hero4 models have the same measurements



↑
→
→

41mm
59mm
21/30mm

41mm
59mm
21/30mm

The GoPro Hero3+ and Hero4 cameras all come with the full standard housing (pictured) which is waterproof to 40 m (131 ft)

The size and shape of GoPro cameras haven't changed much in recent years. All of these actioncams have the same nude dimensions (that's when not in a protective housing) of 41 x 59 x 21/30 mm. The two depth measurements vary depending on whether the protruding lens is taken into account.

The cameras are all compatible with the same cases, and each comes with the full standard housing (pictured) which is waterproof to 40 m (131 ft), along with a Skeleton Backdoor with open sides to access the camera ports and for better audio recording. The GoPro Hero4 Silver also ships with the touchscreen-friendly Touch Backdoor.

Weight



88g
camera only
152g
with housing



83g
camera only
147g
with housing

The new GoPro Hero4 cameras are slightly heavier than their predecessors



74g
camera only
136g
with housing



74g
camera only
136g
with housing

There's not much difference in weight between the GoPro Hero3+ and Hero4 cameras

There's not much difference in weight between these cameras, and you're not going to notice the extra couple of grams on the end of your surfboard. However, if you already have one of the lighter models and use it with a drone, you might need to consider whether the excess weight is going to make a difference to you before upgrading.

Field of view (FOV)



ultra wide
medium
narrow



ultra wide
medium
narrow

All of the GoPro Hero3+ or Hero4 cameras can shoot in wide, medium or narrow modes



ultra wide
medium
narrow



ultra wide
medium
narrow

In 35-mm-format terms, Ultra Wide comes in at approximately 15-mm equivalent, while medium is around 22-mm equivalent, and narrow equates to about 30-mm equivalent

While GoPro cameras are normally known for their wide see-everything field of view, they each feature the option of shooting in medium and narrow angles too, depending on video resolution.

In 35-mm-format terms, the Ultra Wide option comes in at approximately 15-mm equivalent, while medium is around 22-mm equivalent, and narrow equates to about 30-mm equivalent.

Lens aperture



F2.8



F2.8

The GoPro Hero4 Black and Silver use a fixed F2.8 aperture ultra-wide angle lens



F2.8



F2.8

The GoPro Hero3+ cameras use F2.8 6 element aspherical glass lenses

All of these GoPros use reasonably fast fixed F2.8 aperture ultra-wide angle lenses.

Sensor size



1/2.3"



1/2.3"

The GoPro Hero4 Black and Silver have 1/2.3-inch type 4:3 sensors with 4000 x 3000 pixels



1/2.3"



?

GoPro has not revealed what size sensor is used in the Hero 3+ Silver

The new Hero4 cameras, and the Hero 3+ Black, feature 1/2.3-inch type 4:3 sensors with 4,000 x 3,000 pixels. This is physically smaller than what you'll see on many other digital cameras, but it's very much the standard for actioncams (where you don't want the much bigger lenses that bigger sensors require).

GoPro has not revealed what size sensor is used in the Hero 3+ Silver, but we do know that the original Hero3 Silver used a considerably smaller 1/2.7-inch type sensor.

4K recording



4K
30/25/24 fps
2.7K
50/48/30/25/24 fps



4K
15/12.5 fps
2.7K
30/25/24 fps

The GoPro Hero4 Black can shoot 4K video at double the frame rate of its other 4K-capable siblings



4K
15/12.5 fps
2.7K
30/25/24 fps



X

The GoPro Hero3+ is unable to shoot either 4K or 2.7K video at any frame-rate

4K video recording is the big selling point of the Hero4 Black, so it's no surprise that it stands out by being able to shoot 4K video at double the frame rate of its other 4K-capable siblings, 30/25/24 fps to their 15/12.5 fps. Thanks to a new twice-as-powerful image processor, it also beats them when it comes to shooting 2.7K footage.

The GoPro Hero3+ is unable to shoot either 4K or 2.7K video at any frame-rate.

HD recording



1080p
120/90/60/50/48 fps
720p
120/60/50 fps



1080p
60/50/48 fps
720p
120/60/50 fps

The GoPro Hero4 Black can shoot Full HD 1080p video at frame-rates up to 120 fps



1080p
60/50/48 fps
720p
120/100/60/50 fps



1080p
60/50 fps
720p
120/100/60/50 fps

All of the GoPro Hero3+ or Hero4 Black and Silver camera can shoot Full HD 1080p video at 60 fps

The Hero4 Black is again, unsurprisingly, top-dog for high definition video recording. In 1080p it can shoot at frame-rates up to 120 fps. That said, all of the other cameras can still shoot Full HD 1080p footage at a more than respectable 60/50 fps.

Slow-motion recording

The GoPro Hero4 Black can record 120 fps footage at 1080p

The GoPro Hero3+ cameras can shoot 120 fps footage at 720p

If you want to produce smooth slow-motion footage, you need high frame-rate video recording. While these GoPros are each capable of 120 fps recording it's not at the same resolution, only the Hero4 Black can do it in 1080p, the others are limited to 720p.

This means that if you are shooting a 1080p video and want to include some extreme slow-motion, you'll need to drop the resolution for that section of footage on all but the Hero4 Black.

High video bitrate

A higher bitrate is more important to professionals who need the best possible video quality, which again shows that this is who the Hero4 Black is targeted at.

The various GoPro cameras offer differing high bitrate video recording (H.264), from 25 Mb/s to 60 Mb/s

The various GoPro cameras offer differing high bitrate video recording (H.264), from 25 Mb/s to 60 Mb/s. A higher bitrate is more important to professionals who need the best possible video quality, again showing that this is who the Hero4 Black is targeted at.

Audio

The mics in the Hero4 cameras are capable of delivering nearly double the dynamic range of their predecessors

GoPro Hero3+ or Hero4 users can attach external stereo microphones via an optional 3.5 mm input

All four GoPro cameras here feature built-in mono microphones. That said, the mics in the Hero4 cameras are capable of delivering nearly double the dynamic range of their predecessors. To make the most of this, though, you'll want to take your GoPro out of the standard housing or at least use the Skeleton Backdoor.

Users can also attach external stereo microphones via an optional 3.5 mm input, but the Hero4 Black is the only one of the bunch to feature an integrated ADC (analog-to-digital converter) making it compatible with wider a variety of professional low-sensitivity external mics.

Still photo resolutions

The GoPro Hero4 Black and Silver can shoot 12-megapixel stills

The 10-megapixel resolution of the Hero3+ Silver lags slightly behind the other cameras

Because of their small sensor size, GoPro cameras are never going to make the best stills cameras. However, as the saying goes, the best camera is the one you've got with you... or in this case is quite possibly strapped to your head or following you around attached to a drone.

The Hero3+ Silver's 10-megapixel resolution lags slightly behind the other cameras, which can all shoot 12 MP stills. But, realistically, this isn't going to make much difference.

Other photo-centric features worth noting are a Time Lapse mode which allows all of these cameras to shoot photos automatically at set time intervals from 0.5 to 60 seconds. New Night Photo and Night Lapse modes also allow the Hero4 models more flexible low-light shooting options.

Burst rate stills

Capable of shooting stills at 30 fps, the GoPro Hero4 Black and Silver should be quick enough to capture the action

The GoPro Hero3+ Black shoots stills at 30 fps, but the Silver is limited to 10 fps

If you want to take a photograph of someone pulling off an amazing trick, you need to be able to shoot a burst of stills quickly. It's either that or keep asking them to repeat it for you to get just the right frame.

Being able to fire off 30 frames in a second, the GoPro Hero3+ Black and the Hero4 Black and Silver are going to give you a better chance of capturing that moment first-time than the 10 fps of the Hero3+ Silver.

Superview

Only the GoPro Hero4 Black is able to shoot 4K or 2.7K Superview footage

The GoPro Hero3+ Silver cannot shoot Superview footage

Superview is a clever GoPro video mode which is designed to capture a more immersive wide angle perspective. It does this by shooting at a 4:3 aspect ratio, using the full height of the camera's sensor, and then dynamically stretching the sides to produce a widescreen 16:9 aspect ratio.

Only the Hero4 Black is able to shoot Superview footage at 4K (24 fps) or 2.7K (30/25 fps). While the Hero4 Silver, and the Hero3+ Black (which the feature was first deployed on) can use it to shoot 1080p and 720p footage.

Protune

With the GoPro Hero4 cameras Protune can be used when shooting stills or video

The GoPro Hero3+ can only use Protune when shooting video

Protune allows GoPro users to shoot in a higher quality and with less compression. It also gives more control, with the ability to adjust settings including color, ISO limit, white balance, sharpness and exposure. For example, a flat, neutral color profile can be selected which makes it easier to incorporate footage into a professional workflow, and exposure value compensation can be adjusted to control brightness.

ISO selection also gives users more control over the balance between brightness and image noise, with settings ranging from ISO 400 to 6,400 for video, and 100 to 800 for stills. When Protune debuted with the GoPro Hero3+ Black last year, it could only be used for video, but on the GoPro4 cameras, it can now be used whether shooting video or stills.

Built-in LCD touchscreen

The GoPro Hero4 Silver is the first and only GoPro actioncam to boast a built-in touchscreen viewfinder

The optional LCD Touch BacPac is available for the other GoPro Hero3+ or Hero4 models without a LCD viewfinder

The GoPro Hero4 Silver is the first and only GoPro actioncam to boast a built-in touchscreen viewfinder. Like the optional LCD Touch BacPac, which is available for the other models, this screen can be used to help frame shots or replay videos ... but without adding additional bulk.

While its size is limited by the physical size of the camera, the 1.75-inch QVGA touchscreen can easily be used to navigate camera menus and adjust settings thanks to a user interface which responds to taps and swipes.

Wireless connectivity

The new Hero4 cameras benefit from Bluetooth connectivity in addition to the built-in Wi-Fi of the Hero3+ shooters

The new Hero3+ cameras lack the Bluetooth connectivity of the Hero4 shooters

The new Hero4 cameras benefit from Bluetooth connectivity in addition to the built-in Wi-Fi of the Hero3+ shooters. All of the cameras are compatible with both the GoPro App and Smart Remote.

The GoPro App allows you to control your camera remotely using your phone or tablet, complete with live video. The optional Smart Remote (an update to the Wi-Fi Remote which was bundled with the GoPro Hero3+ Black) features an increased battery capacity and allows you to control multiple GoPro cameras from distances of up to 180 m (600 ft).

Storage media

All of these GoPro actioncams use microSD memory cards

These GoPros require memory cards with a Class 10 or UHS-1 rating

All of these GoPro actioncams use microSD memory cards and require one with a Class 10 or UHS-1 rating. They support up to a 64 GB capacity.

Battery

If you're shooting 4K 30fps video on the Hero4 Black, you'll only get 1hr 5m of shooting before you need to change batteries

Taking a recording mode that all of the cameras are capable of (720p 120 fps with Wi-Fi off) the Hero4 Black should last for 1hr 50m, the Hero4 Silver 1hr 55m, the Hero3+ Black 1hr 55m and the Hero3+ Silver 2hr 20m

Battery life is one of the few aspects of the GoPro cameras that users tend to complain about, and the situation doesn't look like it is going to improve with the power-hungry Hero4 cameras. If you're shooting 4K 30fps video on the Hero4 Black, you'll only get 1 hr, 5 m of shooting before you need to change batteries. With Wi-Fi on and using the GoPro app, this time it's just 50 minutes.

Taking a recording mode that all of the cameras are capable of (720p 120 fps with Wi-Fi off) the Hero4 Black should last for 1 hr 50 m, the Hero4 Silver 1 hr 55 m, the Hero3+ Black 1 hr 55 m and the Hero3+ Silver 2 hr 20 m.

It's also worth noting the Hero4 cameras are not compatible with any older GoPro batteries you might have lying around, so you'll have to buy new spares. However, the new DSLR-like battery access does make it easier to change them when needed.

Price

The top-of-the-range GoPro Hero4 Black will set you back \$500

The GoPro Hero3+ cameras offer most of the features of the new model, for less money

As the features and specifications suggest, there's quite a range when it comes to the cost of the GoPro cameras. The new Hero4 models are also entering the market for US\$100 more than their predecessors did a year ago. It's also worth remembering that the Hero3+ Black comes with a Wi-Fi remote, while the optional Smart Remote will set you back an additional \$80.

Summing up

As with their predecessors, we have no doubt that the new GoPro cameras will prove to be a massive hit for the firm, despite increased competition from the likes of the [Contour Roam3](#), the [Panasonic HX-A500](#) and [Sony's Action Cam Mini HDR-AZ1VR](#). But which camera is right for you will depend on what you want to do with it, and how much you want to spend.

The Hero4 Black is clearly designed for professionals and, as such, offers the best video quality of any GoPro camera, along with features and modes which make it easier to incorporate into a professional workflow. Meanwhile, the Hero4 Silver could well be the best GoPro for the majority of users. If you don't need 4K 30p footage, or the pro-orientated features of the Black, you can save \$100 while also gaining an LCD touchscreen.

Other benefits of the new Hero4 cameras include a new user interface, the ability to mark key moments of a recording so you can locate them quicker later with a HiLight Tag button, and improved camera controls with a new dedicated button that allow you to quickly access and adjust camera settings.

However, the previous Hero3+ devices remain very capable actioncams. Until a week ago the Hero3+ Black, was the top of the GoPro range and, as such, still offers a solid package. The Hero3+ Silver again provides users the majority of features, with a more wallet-friendly price-tag. If you need and even more affordable GoPro and don't mind missing out on the higher-end features, the new basic [GoPro Hero](#) might also be worth a look.

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Simon Crisp

Simon is a journalist and photographer who has spent the last ten years working for national UK newspapers - but has never hacked a mobile phone - and specializes in writing about weird products and photography technology. When not writing for New Atlas, Simon is often found playing with LEGO and drinking far too much coffee.

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Josh Villbrandt NOVEMBER 24, 2014 09:21 PM

The battery capacity is actually larger on the HERO4 cameras because the voltage is higher (3.8V instead of 3.3V.) You should be comparing the batteries in Watt-hours instead of Amp-

hours.

HanaaZ DECEMBER 7, 2014 06:03 AM

There are bigger gaps between the H4 Silver and the H4 Black. For me, the Hero4 Silver is a much better camera overall and USD 100 cheaper...

Brooke Cances MARCH 18, 2015 05:18 PM

Since the battery life is not so good on the Hero 4s, could you plug into a battery source while filming to get more filming time? The Hero 4 silver has a LCD built in, how would you hook a battery source to that one if possible since the LCD screen is not removable to attach a battery pak?

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