WATERPROOFING AND AQUATIC ADVENTURES:



The GoPro 2014 series all include waterproof cases that protect the unit down to 40 meters (131 feet). This is pretty much the max for what a standard openwater PADI/NAUI certified diver would go to (by a little bit). And of course fine for snorkeling and other random pool activities.

In the slim chance you're diving deeper than that, you can get a more hardened case that goes 60m (197 feet).

In my case, I didn't have any dives on my radar for this time period, so it was just limited to snorkeling and pool time. In both cases, I had no problems. Since the change a few years ago to the flat glass on the dive housing you'll no longer have any issues with focus problems out of the box. Here's some non-edited images from the unit (Hero4 Black):







And here's a similar fish photo from the Hero4 Silver:



Now what is notable is that there's no water protection issues using the touch screen capable case underwater at least at snorkeling/pool depths. However, you won't want to try and use the touch screen underwater as the pressure will make it impossible to use. Instead, just use the regular buttons on the side/front/top to change any settings or take any photos.



Note that while I didn't use any of the corrective color filters, you can get such filters, especially if doing diving with the GoPro, which will help correct the colors a bit. For snorkeling and pool shots, you can easily adjust them in the GoPro Studio as well, though I find that leaving a bit of the blueish tint at shallow depths tends to make the images pop a bit more. It's when deeper that you lose the colors that you want to use the filters.

Finally, in the event you're doing a lot of water sports, you may want to look at picking up the floating door accessory. That will keep the GoPro afloat in the event it departs from your grasp. If you're just doing snorkeling or in a pool it's a bit unnecessary, but if you're constantly out on openwater it's probably worth it.

BATTERY LIFE:



When it comes to battery life, the Hero4 series took a bit of a dive at the top end unit. In previous generations you'd get about 1hr 30 minutes of run-time at the highest recording settings. Now however, the Black unit gets only about 65 minutes at the highest settings.

Which isn't to say that battery life went down across the board. No, if you go to more minimal settings – such as 2.7K 30FPS on the Silver, it's clocking in around 1hr and 50 minutes. Yet, on the Black it still only gets 1hr 10mins at that setting, despite sharing the same battery. The majority of settings for the Black put it in the 1hr 5min to 1hr 10min range, with only 720p 120FPS extending it up to 1hr 50min. All of these though assume WiFi is off. Both the Hero4 Black and Silver share the same 1106mAH battery.

Meanwhile, continuing the trend of apparently cheaper units getting better battery – the 2014 Hero base units can hit 2hr and 45 minutes at 1080p 30FPS, more the twice that of the Hero4 black at 1/4th the cost. Go figure.

Now, about the only complaint I have about said Hero base unit is that because of the non-detachable case design I've found it's easier for the unit to get turned on during travel in a bag than the Black/Silver out of their cases. And unlike the Black/Silver, it doesn't have the option to automatically turn off after a period of inactivity. Thus, I've had more situations where the Hero base is out of juice when I go to use it.

In my testing with the battery life on the Hero4 Black, I found it got just a few minutes below the specifications. Though, I also found that even while in standby you're unlikely to get too much more battery if left on (but not recording), which is a bit different than other action cameras on the market that do a much better job in standby.

Now one accessory I have found handy though is the dual battery charger. It connects via standard mini-USB cable and then will charge your GoPro batteries. Note that it works best with a 2AMP USB port, such as those found with an iPad or other tablet. So if you use just a regular amperage USB port you're likely to get slow charge times.

When you insert the battery in, it'll show orange for charging, and green for completed. Note though that it can be easy the first time to not push the battery in all the way and think it's doing something. The simple rule is if there's no light, it's not doing jack.



And of course, it probably goes without saying that if you have the Hero4 Black, you're going to want at a minimum one spare battery.

ACCESSORIES:



When it comes to accessories, there's no greater selection than that with the GoPro lineup. Heck, even other action cams now include GoPro adapter mounts, simply to be able to tap into the massive range of accessories and mounts found within the GoPro lineup. The majority of mounts that most folks will use will likely be 1st party mounts made by GoPro, but there's still a huge array of 3rd party mounts by other companies that are oftentimes far more interesting.

Here's a listing of all the mounts/accessories available for the Hero lineup (inclusive of Black/Silver only accessories such as remotes/batteries):

ACCESSORY	MANUFACTURER	STREET PRICE	AMAZON LINK	CLEVER TRAINING LINK (SAVE 10% WITH DCR10JKW)	MORE INFO
GOPRO COMBO CABLE (HERO3/3+ ONLY)					
DJI PHANTOM 2 (FOR GOPRO)	DJI	$699 (+ MOUNTS)	LINK	N/A	N/A
GOPOLE 26" TRANSPARENT EXTENSION POLE FOR GOPRO	GOPOLE	$40	LINK	LINK	N/A
GOPOLE COMPACT HAND GRIP FOR GOPRO	GOPOLE	$23	LINK	LINK	N/A
GOPOLE FLOATING HAND GRIP FOR GOPRO	GOPOLE	$30	LINK	LINK	N/A
GOPOLE TELESCOPING EXTENSION POLE FOR GOPRO (17"-40")	GOPOLE	$55	LINK	LINK	N/A
GOPOLE WEATHER RESISTANT SOFTCASE FOR GOPRO CAMERAS	GOPOLE	$27	LINK	LINK	N/A
GOPOLE HELMET EXTENSION	GOPOLE HELMET EXTENSION	$20	LINK	LINK	N/A
GOPRO 3-WAY GRIP/ARM/TRIPOD	GOPRO	$69	LINK	LINK	N/A
GOPRO BACPAC™ BACKDOOR KIT (FOR STANDARD HOUSING)	GOPRO	$10	LINK	LINK	N/A
GOPRO BLACKOUT HOUSING	GOPRO	$50	LINK	LINK	N/A
GOPRO CHEST MOUNT HARNESS	GOPRO	$24	LINK	LINK	N/A
GOPRO COMPOSITE CABLE (HERO3/3+ ONLY)	GOPRO	$11	LINK	LINK	N/A
GOPRO CURVED ADHESIVE MOUNTS	GOPRO	$20	LINK	LINK	N/A
GOPRO DIVE HOUSING (HERO3/3+ ONLY)	GOPRO	$50	LINK	LINK	N/A
GOPRO DUAL BATTERY CHARGER	GOPRO	$30	LINK	LINK	N/A
GOPRO FETCH (DOG HARNESS)	GOPRO	$59	LINK	LINK	N/A
GOPRO FLAT ADHESIVE MOUNTS	GOPRO	$11	LINK	LINK	N/A
GOPRO FRONT MOUNT	GOPRO	$8	LINK	LINK	N/A
GOPRO GRAB BAG OF MOUNTS	GOPRO	$11	LINK	LINK	N/A
GOPRO HDMI CABLE (HERO3/3+ ONLY)	GOPRO	$16	LINK	LINK	N/A
GOPRO HANDLEBAR/SEATPOST/POLE MOUNT	GOPRO	$8	LINK	LINK	N/A
GOPRO HEAD STRAP MOUNT + QUICKCLIP	GOPRO	$20	LINK	LINK	N/A
GOPRO JAWS FLEX CLAMP MOUNT	GOPRO	$36	LINK	LINK	N/A
GOPRO JAWS FLEX GOOSENECK ONLY	GOPRO	$20	LINK	LINK	N/A
GOPRO JUNIOR CHEST MOUNT HARNESS	GOPRO	$22	LINK	LINK	N/A
GOPRO LCD TOUCH BACPAC	GOPRO	$79	LINK	LINK	N/A
GOPRO RECHARGEABLE BATTERY (HERO3/3+ ONLY)	GOPRO	$30	LINK	LINK	N/A

GOPRO ROLL BAR MOUNT	GOPRO	$16	LINK	LINK	N/A
GOPRO SIDE MOUNT	GOPRO	$7	LINK	LINK	N/A
GOPRO SMART REMOTE	GOPRO	$79	LINK	LINK	N/A
GOPRO STANDARD HOUSING LENS REPLACEMENT KIT (HERO3/3+ ONLY)	GOPRO	$20	LINK	LINK	N/A
GOPRO SUCTION CUP MOUNT	GOPRO	$26	LINK	LINK	N/A
GOPRO SURF MOUNTS	GOPRO	$11	LINK	LINK	N/A
GOPRO TRIPOD MOUNT	GOPRO	$10	LINK	LINK	N/A
GOPRO VENTED HELMET STRAP MOUNT	GOPRO	$7	LINK	LINK	N/A
GOPRO WI-FI REMOTE MOUNTING KIT	GOPRO	$13	LINK	LINK	N/A
GOPRO WRIST HOUSING (HERO3/3+ ONLY)	GOPRO	$27	LINK	LINK	N/A

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When it comes to my favorite mounts that I use, here's my favorite two:

1) GoPro 3-way Pole: This came out last winter and instantly became my favorite accessory. As you can see from the below animated image I put together, you can twist/mix/fold/unpack/pack it up a crapton of ways. I can use it as a tripod, or as a selfie pole, or just to get a better angle and extend my reach.



For example, I use it all the time to get shots on a bike of bike components mid-ride, such as in this post about the automated shifting system, or this one about the radar system. It's simply incredibly versatile.

2) K-Edge bike mounts: If you're mounting to a bike or similar handlebar, I use these mounts constantly. The forged metal means it holds it tight with no play. While at first I would have thought they were overpriced, you come to realize that the single biggest factor in smooth video while riding is ensuring the mount doesn't flex or move.



I primarily use the out-front mounts, but also do play around with the rear facing under-seat mount. This mount allows me to get shots facing backwards – ideal for group rides.

Of course, I use all sorts of other random mounts from time to time, but the vast majority of my shooting comes from these two.

USE IN AERIAL IMAGING:



Like most photo-minded people, I'm always looking for ways to get unique shots. Over the last few years one of the most popular methods is via remote controlled quadrocopters, such as as the DJI Phantom series. These are more commonly known as drones. In my case, I bought the DJI Phantom 2 last winter and have been experimenting with it to get cool shots and videos.

From a setup perspective, I use the GoPro Hero4 with the DJI Phantom 2 in conjunction with the Zenmuse H3-3D gimbal. This gimbal is really the special sauce that allows silky smooth footage. Proof of that comes with the fact that the wind was never less than 10-15MPH during my flights in New Zealand.



There were two H3-3D gimbal versions out there – the first gimbals require a slight modification to not bump the side settings/WiFi button on the Hero4, whereas the second generation is molded just a hair bit differently and doesn't require any modification. Luckily I have the second version. Note that both the Hero4 Black/Silver work just fine in the mount, but the Hero base edition won't because it can't be removed from the case.

While I have a first person view transmitter for the system, I don't tend to use it too much, instead just flying within line of sight and by feel. I flew remote control and real planes when I was younger, so I have a bit of experience there in the aviation world.

Most of the imaging I do with the DJI Phantom is related to video, primarily because it's considered risky to try and use the WiFi enabled remote shutter with the unit inflight (it supposedly messes with the wireless communications). So while I could put it on time lapse mode and capture photos at random, I instead choose to capture videos. From those videos I can capture cool still photographs – like the below:







Of course, with a gimbal video is the name of the game. While down in New Zealand over the past few weeks I was able to get a number of shots put together. Here's one session I did just after sunrise on an isolated black sands beach with the Hero4 in 4K/24p mode:



The footage was then run through Adobe Premier where a handful of segments had the Warp Stabilizer run on it to clean up some minor wind gusts. In this case, ProTune was not enabled on the content. Overall I'm pretty happy with the results given how it was just about 15 minutes of flying before the rain started and forced a landing.

Note: This should go without saying, but if you use a quadrocopter to capture cool stuff, please don't be an idiot in doing so. Seriously. Use common sense, follow your local laws, and try and not ruin it for the rest of us. Nuff said!

COMPARISON CHARTS:

You can use the below comparison charts to see how each unit stacks up against each other. In the below chart I've just set it for the three GoPro units for 2014. However, you can easily dive into the comparison database to see how older GoPro units stack up, as well as some competitor units. You can mix and match and create your own charts there.

FUNCTION/FEATURE	GOPRO HERO4 BLACK	GOPRO HERO4 SILVER	GOPRO HERO (2014)
PRICE	$499	$399	$129
AVAILABILITY	GLOBAL	GLOBAL	GLOBAL
WIFI BUILTIN	YES	YES	NO
BLUETOOTH	YES	YES	NO
RECORDING LIGHT	YES	YES	YES
GPS BUILTIN	NO	NO	NO
ALTIMETER BUILTIN	NO	NO	NO
WATER RESISTANT	40M WITH INCLUDED CASE	40M WITH INCLUDED CASE	40M WITH INCLUDED CASE
ACCELLEROMETER	NO	NO	NO
VIDEO PREVIEW SCREEN	ACCESSORY	YES	NO
BATTERY	**GOPRO HERO4 BLACK**	**GOPRO HERO4 SILVER**	**GOPRO HERO (2014)**
RECHARGES VIA	MINI-USB	MINI-USB	MINI-USB
REMOVABLE BATTERY	YES / 1160 MAH	YES / 1160 MAH	1180 MAH (NON-REMOVABLE)
RECORDING TIME	UP TO 1HR 50MIN, 65MIN AT 4K	2 HOURS	UP TO 2.5 HOURS
SECONDARY ATTACHED BATTERY	ACCESSORY	ACCESSORY	ACCESSORY
STORAGE	**GOPRO HERO4 BLACK**	**GOPRO HERO4 SILVER**	**GOPRO HERO (2014)**
STORAGE CARD TYPE	MICROSD CARD	MICRO-SD	MICROSD CARD
MAXIMUM CARD SIZE	64GB	64GB	32GB
VIDEO	**GOPRO HERO4 BLACK**	**GOPRO HERO4 SILVER**	**GOPRO HERO (2014)**
RECORDS 360° VIDEO	NO	NO	NO
4K	24/25/30 FPS	12.5/15 FPS	NO
2.7K	24/25/30/48/50 FPS	24/25/30 FPS	NO
1440P	24/25/30/48/50/60/80 FPS	24/25/30/48 FPS	NO
1080P	24/25/30/48/50/60/80/90/120 FPS	24/25/30/48/50/60 FPS	30 FPS
960P	50/60/120 FPS	50/60/100 FPS	NO
720P	25/30/50/60/120 FPS	35/50/60/100/120 FPS	60 FPS
WVGA	240 FPS	240 FPS	NO
AUTOMATIC IMAGE ROTATION	NO	NO	NO
LOOPING RECORDINGS	YES	YES	
TIMELAPSE MODE (CONSTRUCTS TIMELAPSE VIDEO)	NO (REQUIRES DESKTOP SOFTWARE)	NO (REQUIRES DESKTOP SOFTWARE)	NO (REQUIRES DESKTOP SOFTWARE)
AUDIO	**GOPRO HERO4 BLACK**	**GOPRO HERO4 SILVER**	**GOPRO HERO (2014)**
INTERNAL MICROPHONE	YES	YES	YES
PHOTO	**GOPRO HERO4 BLACK**	**GOPRO HERO4 SILVER**	**GOPRO HERO (2014)**
MEGAPIXELS	12 MP	12 MP	5MP
TIMELAPSE MODE (PHOTOS ON INTERVAL)	0.5,1,2,5,10,30,60S	0.5,1,2,5,10,30,60S	0.5
BURST MODE	UP TO 30 PHOTOS/SECOND	UP TO 30 PHOTOS/SECOND	UP TO 5 PHOTOS/SECOND
CONTINUOUS SHOOTING MODE	YES	YES	NO
CONCURRENT W/VIDEO MODE	YES	YES	NO
RECORDS 360° PHOTO	NO	NO	NO
SPORTS	**GOPRO HERO4 BLACK**	**GOPRO HERO4 SILVER**	**GOPRO HERO (2014)**
SKIING MODE	NO	NO	NO
CONTROL FROM SPORT COMPUTER	NO	NO	NO
ANT+ CONNECTIVITY	NO	NO	NO
ANT+ PROFILE TYPES	NO	NO	NO