Go Pro Hero 4 Quick Guide
Global Emergent Media Lab

INDEX

CAMERA INFORMATION

4k Video (24 to 30 fps)
2.7k Video (24 to 60 fps)
1440p Video (24 to 80 fps)
1080p Video (24 to 120 fps)
(Also 960p/720p/WVGA some with 240 fps)

12 megapixel Photo (7MP and 5MP options as well)
(Continuous, Burst, Timelapse options as well.)

Up to 1 hour of 1080p video recording/per battery.
Up to 35 minutes of 4k video recording/per battery
Up to 2 hours of 12MP photo timelapse (@ 5 sec. interval)/per battery

CAMERA BASICS

Controls:
1. Camera Status Lights (Red when recording)
2. Record Button (+Select in menus)
3. Wireless Status Light (Blue)
4. Camera Status Screen
5. Power Button (+Mode Button)

6. Micro HDMI Port (cable not included)
7. Micro SD Card Slot
8. Mini USB Port
9. Audio Alert Speaker

10. Microphone
11. Hero Port (for not included accessories)
12. Settings Button (+Tag Button)
13. Battery Door
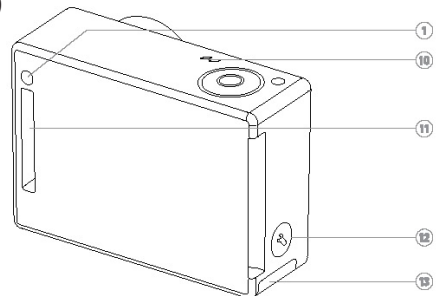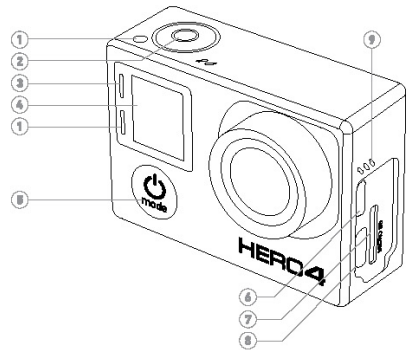
Basic set-up of the camera is quite simple, on the battery door there is a button, push this in and drag the door outward to open. Insert the battery. Carefully remove the side cover and insert the SD Card, replace the cover.
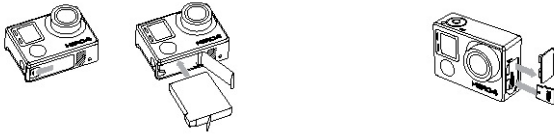
Hold down the mode button and the camera will power on. (This is also how to power it down.) Once turned on, the mode button (5) will change between the recording modes Video, Photo, Multi Shot and Settings.

Each mode's specific settings can be accessed by pressing the settings button (12), while the camera is in the respective mode. When in a settings menu, the record button (2) will change settings, the mode button (5) will move down the settings list. Select "exit" to leave the menu.

Each mode's settings relate to the given form of recording, with the exception of the Setting Mode. The setting mode allows your to activate the wifi to connect with the included Removu Wireless Screen and Remote, change the intensity of the LEDs, change the volume of the camera's beeps, etc.

CONNECTING THE REMOVU WIRELESS SCREEN + REMOTE

Click the mode button until the Settings mode is selected and then hit the setting button. The first menu item is "Wireless", select this item. This will bring you to a list including OFF, GoPro App, REM CTRL and BACK.

Select GoPro App and then "Existing". The top LED next to the screen will flicker blue periodically indicating the Wireless transmission is activated.

Take the REMOVU Remote, which is already paired to the Go Pro in the kit. Hold down the "M" power button. The Removu will power up and display a graphic to say that it is pairing to the Go Pro, it will then show the live image from the Go Pro. The remote is now also capable of triggering the camera to record. (This requires you to hold down the record button on the remote, for both starting and stopping a recording.)

The range on the Removu is fairly good even in dense building areas. (For example, it is possible to walk from a go pro stationed in the lab nearly all the way to the District 3 door before you would risk a signal drop.)

If the signal drops, turn off the Removu (Remote only) return to a closer distance to the camera and turn the remote back on.

The wireless remote can also change the mode of the camera, using the M button as well as turn the camera on and off (as long as the camera has wireless engaged, blue flashing LED.)

Each Go Pro kit includes it's standard waterproof housing, this is how you will mount the camera to any number of accessories. Either by inserting the quick release plate into a quick release accessory or by unscrewing the case from the quick release and screwing it into the accessory in question.

Be sure to keep parts you are not using in an organised safe place in order not to lose them (i.e. keeping them in the cases they came from.)

The camera itself outside the standard case is not waterproof.

MODE SETTINGS
VIDEO MODE SETTINGS

ALTERNATE VIDEO MODES:
There are three video "modes". Video, Video+Photo and Loop.

Video is the standard and most high quality video mode. Video + Photo makes the Go Pro take photos at a set interval while recording video. This restricts you to 1440p and below and restricts you to 24 or 30 fps. Loop makes it so that the camera will record constantly but only save a portion of the recorded video. In the settings for this mode you will find an interval setting with options such as 5 minutes, 20 minutes or 60 minutes. The first time you hit record in this mode the camera will start recording continuously, when you hit the record button again, the camera will only save the last 5, 20 or 60 minutes depending on your interval. *Note: 60 minutes is fairly pointless as the camera battery usually lasts only about 60 minutes depending on settings.

RESOLUTIONS:

4K + 4K S	4K Standard and 4K Video Resolution Superview. Recommended for Stationary Shots.
2.7K + 2.7k S	2.7K Video Resolution Standard and 2.7k Video Resolution Superview. Recommended for Body Mounted Shots.
2.7K 4:3	2.7k Video Resolution Non-Widescreen, records in 4:3 ratio. Recommended for Body mounted shots
1440	1440p Video Resolution, 4:3 ratio recording. Go Pro Recommends for Body Mounted Shots.
1080 + 1080 S	1080p Full HD Standard and 1080p Superview, good for any type of shot, extends battery life, enables true slow motion (120fps)
960p	Sub Full HD, 4:3 aspect ratio, same framerate options as 1080p.
720p	720p Resolution, if set to "Narrow" FOV it enables 240fps extreme slow motion.
WVGA	Sub 720p, 240fps extreme slow motion at wide FOV only.

*Superview: this mode actually records in a 4:3 version of the resolution you are selecting, in order to get more vertical information, and then stretches the image in camera to improve the overall field of view.

*FOV: Refers to field of view, see below.

*Effects on Battery Life: the higher the frame rate and resolution the bigger the drain on the cameras battery, as such if you want to record for long periods of time it is suggested you do so in 1080p at a standard frame rate (see bellow.)

*Overheating Issues: At 4k + 2.7k resolutions and at very high framerates (120fps + 240fps) the Go Pro will heat up. If you record continuously with these settings over a battery change without allowing the camera to cool, it is possible that the camera will exhibit artefacting in the image and will eventually shut down due to heat in order to preserve itself.

FPS:
This refers to "Frames per second" or in other words, Framerate.

24fps + 30fps = Standard Framerates for standard speed playback.
48fps + 60fps = Rarely used for standard speed playback, can seem smoother if used for standard speed playback in high speed situations. Results in 2x slow motion if converted to 24 or 30fps respectively.
80 fps = Slightly more than 2x slow motion, not used as a standard framerate.
120 fps = 4x to 5x slow motion, (for 30fps and 24 fps respectively.)
240 fps = 10x slow motion for 24fps, very extreme slow motion. (Restricted to Sub HD)
* Note: you will want to check the Auto low light setting when setting your FPS, see below.

FOV:
This refers to "Field of View" or in other words the size of your frame. The options available vary depending on the resolution selected.

W = Ultra Wide (Wider than a standard "wide" lens in cinema.)
M = Medium (Between a wide and a "standard" lens in cinema.)
N = Narrow (Close to a "standard" lens in cinema.)

❄ AUTO LOW LIGHT:
This option is only available when an FPS between 48fps and 120fps is selected.

This allows you to shoot in varying low-light conditions by allowing the camera to change its framerate in order to increase it's ability to take in light.

Essentially, when at a higher frame rate, each frame the camera records gets less individual light. This results in a darker image in the same lighting conditions than a lower frame rate. By allowing the camera to automatically shift to a lower frame rate when in dark conditions the camera can increase the brightness of the image recorded.

This is most useful if your lighting is variable but low in intensity, it won't neccessarily be effective at brightening an overal image.

Note: if you have a specific frame rate in mind and sufficient light it is suggested you turn this off in order to preserve the correct frame rate and image quality you wanted.

⬤ SPOT METER:
This option is ideal for when you are recording in backlit environments or through a window to the outside.
When this mode is selected it will expose for the center of the image, if that is darker than the exterior it will properly expose for the darker area, if it is brighter than the rest of the image it will adjust to properly expose for the lighter area.

PT PROTUNE:
This enables more sophisticated manual camera control. It is not suggested unless you have a very specific use in mind and a good working knowledge of camera technology.

Protune enables several manual settings, allowing you to set the camera to a flat color profile to make files easier to color correct/grade in post-production. It also switches the camera to manual control of the White Balance, Color, ISO, Sharpness and Exposure Value Compensation.

There is a more detailed description available in the Go Pro official manual.

PHOTO MODE SETTINGS

ALTERNATE PHOTO MODES:
There are three photo modes. Single, Continuous and Night.

Single and Night both function to take a single photo when the record button is pressed. Night mode adds the capability of manually controlling the exposure time to take photos at night (up to 30 second exposure.) *Note: If using an extended exposure time the camera should be mounted in a stationary position.

Continuous takes a sequence of photos from when you press record to when you stop the recording. These can be taken at 3, 5 or 10 frames per second.

RESOLUTION:
All photo modes have 12, 7 or 5 Megapixel quality options. The resolution of the still image does not effect the availability of other settings (such as speed of photos taken in continuous mode.) It is suggested you stay with 12MP for maximum quality.

OTHER SETTINGS:
Photo modes have the Spot Meter and Protune options which you can see described in the video section. The Night Photo mode has it's own setting Shutter. And the Continuous setting has it's own setting Interval.

S SHUTTER:
This allows you to manually select the shutter speed in order to shoot at night or in low light conditions. "Auto" will allow the camera to select up to a 2 second long shutter, there are also 2, 5, 10, 20 and 30 seconds. 2, 5 or 10 are good for Dawn, Dusk or lights at night. 20 is good for the night sky, 30 is good for complete darkness conditions.

⋎⋎ INTERVAL:
Sets the amount of photos taken per second in continous mode.

ALTERNATE MULTI-SHOT MODES:
The available modes in multi-shot are Burst, Time Lapse and Night Lapse.

Burst can take up to 30 photos in 1 second. (This can be expanded to a 3 second burst)
Suggested for capturing pivotal moments in still photos.

Time Lapse is fairly self explanatory, it creates a timelapse at the interval between shots of
your choice. (0.5, 1, 2, 5, 10, 30 and 60 seconds)

Night Lapse is suggested for use with night time lapses, however it is actually just Time
Lapse mode with manual control over the exposure time. Shutter functions as described in
the photo settings. Interval has slightly different options to accomodate the shutter control.
(Continuous (length between photos is the set shutter lenght), 4, 5, 10, 15, 20, 30 seconds,
1 minute, 2 minutes, 5 minutes, 30 minutes and 60 minutes.)

OTHER SETTINGS:
The other settings are as described in the photo and video sections on previous pages.

HIGHEST QUALITY VIDEO RECORDING (Limited Recording Time)

Video Mode	4K or 4K S	24 or 30 FPS
W FOV	❋ Off	⦿ User Choice
PT: User Choice		

HIGH QUALITY VIDEO RECORDING (Medium Recording Time)

Video Mode	2.7K or 2.7K S	User Choice FPS
W FOV	❋ Off	⦿ User Choice
PT: User Choice		

FULL HD VIDEO RECORDING (Long Recording Time)

Video Mode	1080 or 1080 S	24 or 30 FPS
User Choice FOV	❋ Off	⦿ User Choice
PT: User Choice		

SLOW MOTION VIDEO (Full HD, 4x to 5x Slow Motion)

Video Mode	1080	120 FPS
User Choice FOV	❋ Off	⦿ User Choice
PT: User Choice		

LOW-LIGHT VIDEO RECORDING (Focus on Image Quality)

Video Mode	User Choice Resolution	24 FPS
User Choice	❋ Off	⦿ Off
PT: On Auto White Balance, Color: Go Pro, ISO: 1600.		
* There are limits to what light level you can record to with these settings.		

LOW-LIGHT VIDEO RECORDING (Focus on Image Brightness)

Video Mode	User Choice Resolution	24 FPS
User Choice	❋ Off	⦿ Off

PT: On   Auto White Balance, Color: Go Pro, ISO: 6400.
* These are desperation settings when you NEED a dark image to be recorded, the video noise at this ISO level is very high.

TIMELAPSE IN A BRIGHT SETTING

Multi Shot Mode	Time Lapse	⌵⤳ User Choice
12 MP	⦿ Off	PT: User Choice

*Lower interval is suggested for getting smoother motion with objects or people in a time lapse.

TIMELAPSE IN OTHER SETTINGS (Medium to Low-light)

Multi Shot Mode	Night Lapse	Ⓢ User Choice
⌵⤳ User Choice	12 MP	⦿ Off
PT: User Choice		

*Experiment with the shutter value till you get the brightness you want and then base your interval on how smooth a timelapse you want.