

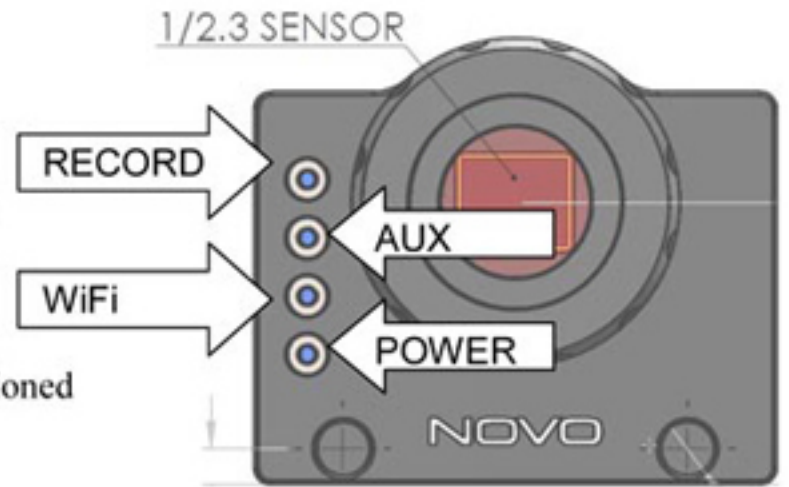
# Operation Notes for the Novo camera



## Overview

The Radiant Images / View Factor Novo camera is built from a GoPro HERO 3 Black Edition. The Novo provides additional features such as an adjustable back focus C-mount lens and enhanced power and mounting capabilities.

The three buttons normally found on the HERO 3 are now positioned on the front of the Novo along with a new auxiliary control.



- **POWER** – This is the power/mode button normally found on the front of a HERO 3. To turn the camera on, press and hold this button for approximately four seconds. This is slightly longer than a stock GoPro and may have to be done twice after a battery change. Once on, this button can be used to change modes and access setup options. Pressing and holding this for several seconds, then releasing will shut the camera off.
- **RECORD** – This is the button normally found on the top of the HERO 3. Pressing it initiates recording. Pressing it again stops recording.
- **WiFi** – This is the button normally found on the right side of the HERO 3. Pressing it turns the camera's built-in WiFi feature on or off. Turning it on allows the camera to be controlled from the GoPro application on an iPhone or iPad. This feature consumes additional power and should be left off when not required.
- **Auxiliary** – This is reserved for future use. Pressing it has no effect.

The power and record buttons can be used in conjunction with the HDMI output to access camera settings including resolution, framerate and color settings. This functions as documented in the GoPro HERO 3 user manual.

## Power

The Novo can be operated off an attached battery backpack. 40 minutes should be considered the maximum operation time and this assumes that WiFi is OFF. The camera can also be powered via the built-in USB port using the provided high-current USB power cables. Do not use ordinary cell phone chargers or USB battery packs as they will not supply sufficient current.

The camera will operate with both the USB power connected and a battery backpack attached.

- There is a known issue when powering from both USB and the battery backpack. You may briefly see a screen indicating "USB CONNECTED – CAMERA FILES ACCESSIBLE" when the USB port is first connected. This should disappear quickly. If it persists, remove the battery backpack since the camera is not operable in this condition.
- There is a known issue with the battery gauge seen on the viewfinder output. The indications of charge state are not meaningful and will change periodically. Using the LCD gauge on the battery backpack is recommended and changing to a freshly charged battery frequently is advisable.

## Viewfinder output

The camera outputs live video via the Micro-HDMI port both prior to and during recording.

- There is a known issue which occasionally causes the HDMI output to appear like it has lost horizontal sync. It's most likely to occur when recording starts. Unplugging and replugging resets this condition. The recorded clips are not impacted by this output bug.
- To reduce power consumption, the quality of the HDMI signal is reduced when the camera is not recording. It's recommended that focus adjustments be made while recording.

## Mode setting

The camera has a color mode called "Protune" which uses a more neutral color profile which is intended to provide better results in color grading. While shooting, however, the viewfinder output is noticeably softer and washed out. As a result, you may want to switch out of Protune when focusing and it's recommended when adjusting backfocus.

## Wireless

The WiFi mode can be turned on using the button on the front panel. The LED on the top of the camera will flash blue when initially turned on. When accessing the camera via WiFi, the name of the camera will appear as "NOVO\_xxxx" where xxxx is the serial number. The password is exactly the same as its name with all capital letters and underscore included.

**Note: leaving WiFi on will substantially increase power use.**

## Backfocus adjustments

The Novo is equipped with an adjustable C-mount that can accommodate the variability of flange focal lengths that are typical of small C-mount lenses. To adjust backfocus, shut Protune off and have media ready in the camera so that you put the camera in record mode while perfecting the backfocus. There are three set screws which hold the lens mount in place. Loosen these slightly using a 0.050" (1.27mm) hex wrench. Rotate the lens mount to set backfocus and gently tighten the set screws to lock the mount in place. The distance between the back of the lens mount and the camera body is typically 1/16".

- Hint: You may be able to use the added adjustability of the lens mount to reduce the minimum focus distance of a lens to allow extremely close macro shots!