Canon Powershot G7X & Sony RX100 MKII/III

By Jim Decker

The Canon G7X is Canon's first 1 inch sensor compact camera. However there's a lot more to it than just taking a G series Powershot camera and slapping in a larger sensor.

The large 1 inch sensor concept has proven to be a hit as we have seen with the Sony RX 100 series. The sensor is reported to be the same as Sony's sensor in the Sony RX 100 Mark II, and has a top ISO performance of 12,800.

A larger 1" sensor allows for better low light performance and image quality over smaller sensors, but is still small enough to make the camera fit in your pocket when out on the town. It also keeps the housing size small so you can get a fully outfitted camera system into a carry on backpack.

The G7X has a 24-100mm equivalent lens, compared to a 28-100 for the Sony RX 100 Mark II and a 24-70mm for the Sony RX100 MKIII. While this extended range topside may be good, it does create some issues underwater. On the wide side, the longer lens requires a shorter port to be used with accessory wide angle lenses. The camera also needs to be zoomed to about 28mm to work properly with most lenses to avoid vignetting at 24mm.

Also for the first time in a Powershot camera, manual exposure mode is available in movie mode. The bit rate is 35 mbps with 1080 60p recording in a H264 .mov file format. The bit rate is higher than you would get with an AVCHD format and also easier to edit than AVCHD as the .mov file can be edited directly in an editing program without the need to transcode or rewrap the files as you need to do with AVCHD.

The Canon G7X macro mode works pretty well by itself, but by adding on an accessory macro lens like the Nauticam CMC, the camera can easily get into the super macro range for extreme close up shots.

The Sony RX series does not have a macro mode, but the G7X does. This allows the lens to focus closer and get better macro performance. While the macro mode of the G7X will allow you to get pretty tight, it still falls short of the macro performance of smaller sensor compacts like the Canon S120. Strong accessory macro lenses like those you

An important factor when choosing a new camera is the availability of an underwater housing and with either of these cameras you will be spoilt for choice. There are housings for these two cameras from almost all of the housing manufacturers.

The image on the left is the G7X in macro mode, and the image on the right is in macro mode with the Nauticam Compact Macro Lens (CMC).

The G7X is the first Powershot camera to allow TTL strobe exposure in Manual exposure mode. Previously TTL was only available in Av, Tv, and P modes.

would use with a mirrorless or SLR camera are necessary to get pro level macro performance.

The biggest pet peeve of the Powershot G or S series line has been a lack of TTL strobe exposure in manual exposure mode. If you wanted to shoot TTL you had to do it in aperture priority mode. No more! We can rejoice that the camera gods at Canon have listened to our unrelenting prayers and have finally made it an option to do TTL or manual strobe exposure in manual exposure mode.

Canon has always had the best custom white balance results without the need for a filter underwater at depths much greater that other camera brands. With the G7X you get this excellent white balance, but you are also able to reassign the RING FUNC. button to be a true 1 touch white balance. Simply press the button, and it takes the white balance. With the exception of professional broadcast quality camcorders, we have not seen a true 1 touch white balance in either a photo or video camera with manual exposure controls for almost 10 years, and never with a camera that didn't

require a red filter to pull off good color.

The Canon G7X has dedicated dials for shutter speed, aperture, and exposure compensation. The RING FUNC. button can be reassigned to a number of functions, but our favorite is 1 touch white balance. With direct access controls to just about everything you need while shooting, you'll be able to quickly make changes when the action gets fast.

Canon G7 X vs. Sony RX 100 Mark II/III

Since both the Sony and Canon cameras share the same sensor one might ask why get one over the other. Taking features that are the same or similar in performance out of the discussion, below are the pros and cons on the differences between the 2 cameras.

If you are online, clicking the above link will take you to footage shot by Rusty Sanoian from Backscatter. Video from the Canon G7X is top notch with 1080 60p and a relatively high bit rate of 35 mbps. Along with the macro mode of the camera, adding on an accessory macro lens allows flexible macro shots all the way down to super macro. Shot with a Nauticam G7X housing, Nauticam CMC compact macro lens, and Fisheye FIX NEO 2000 DX SWR Underwater Video lights.

The G7X has dedicated buttons and dials for all the essential buttons and controls to make quick changes when the action gets fast. Once set up, a single press of the ring function button will execute a custom white balance with great color, even at depths of 60 feet or more without a color filter.

Canon G7 X Pros

Longer lens and macro mode allows for better macro shots.
Unbeatable underwater custom white balance.
True 1 touch white balance.
Movie mode bit rate at 35 mbps is higher than Sony RX 100 Mark II at 28 mbps.

Canon G7 X Cons

Most wide angle accessory lenses, especially those with over 100 degrees of coverage require a shorter front port to produce acceptable corner sharpness.
Movie mode bit rate at 35 mbps is lower than Sony RX100 MKIII at 50 mbps.
Shooting speed on continuous shooting is slow at 1.2 FPS in RAW.
Not a big deal underwater when dealing with flash recycle, but might be an issue for fast shooting topside.

Sony RX 100 Mark II/III Pros

Can use wide angle or macro lenses without the need to use a shorter front port.
Super fast 10 FPS shooting in RAW.
Zebra striping for evaluating exposure
Pro level 50 mbps video codec on the Sony RX100 MKIII

Sony RX 100 Mark II/III Cons

No macro mode

G7X side by side with Sony RX 100 Mark III. The G7X is similar in size to the Sony RX 100 series and easily fits in a pocket for on the go shooting.

Custom white balance looks bad past 20 feet deep. Requires a red filter
Custom white balance difficult to execute, must go deep into the menu system and also cannot execute in movie mode, only photo mode
Sony RX 100 Mark II records in AVCHD format at 28 mbps

Conclusion

Either the Canon G7X or Sony RX 100 Mark II/III cameras will take great pictures and are at the very top of the compact camera category for performance and image quality.

If you have a serious interest in wide angle movies, the Canon G7X is hands down the best way to go with its accurate white balance without a filter and 1 touch capability. This is a huge advantage for switching between still shots with strobes, videos with video lights, or ambient light movies on the same dive.

The white balance performance of the Sony RX series is not up to par without a filter and requires a dedicated setup for a dive that can't be switched out underwater with either video lights or a filter, leaving less options for how to light subjects.

Although the Sony RX100 MKIII has the higher bit rate for video, 50 mbps of sub par ambient light color and limited flexibility on a dive make the G7X the better pick for video shooters.

The macro mode of the G7X gives it an advantage for macro shooting, but the Sony can perform reasonably well if very strong macro lenses are attached. If changing lenses underwater between wide angle and macro is important, the Sony wins in this area as the G7X in most cases needs a shorter port to do wide angle.

For still shooters not interested in movies the Sony RX series will be a better pick for wide angle without the need for a different port, and more compatible lenses to get ultra wide shots.

For macro shooters: While the Sony can do macro with really strong external macro lenses, the Canon G7X will outperform with its macro mode capability by allowing the lens to focus closer.

For shooters interested in photo and video, especially wide angle video: The G7X is hands down the better pick for this despite the shortcomings of having to use a shorter port for ultra wide angle lenses. The importance of the underwater white balance capabilities of the G7X cannot be understated, and trumps any advantage in lens flexibility or bit rate.

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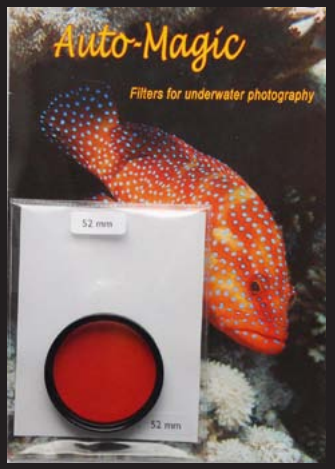

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