

Sony A1 & Nauticam NA-A1

by Phil Rudin

Sony has recently introduced its first true Flagship camera, the 50.1 megapixel Sony A1 full frame mirrorless camera. This is a completely new level of camera which has received the highest rating ever awarded by testing site DPReview an impressive 93%. Before I go further I would like to strongly suggest that anyone interested in the future of photography read at least the camera portion of this review. It describes where the camera industry will be going over the next five years.

In my 2017 review of the A7R III I said that Sony had made it quite clear that they intend to surpass Canon and Nikon in the Pro/Prosumer market by focusing heavily on full-frame mirrorless cameras and high quality lenses. Sony's advanced innovation over the past six years has paid off with the A7R IV at the top of the DPReviews Semi-Professional Full-Frame category and the A1 at the top of the Professional camera category.

The Sony A1 is an extremely robust camera which covers a broad range of user needs. Sony is now the largest manufacturer of mirrorless full frame lenses with seventy native full frame lenses like the new 12-24mm

F/2.8, 20mm F/1.8 and 200-600mm tele lens. The newly announced 14mm F/1.8 GM is less than half the weight of the Sigma 14mm F/1.8 and about two-thirds the size.

The new Sony FE 28-60mm "kit" zoom will work with Nauticam's WACP-1 and WWL-1/1B water contact optics as well as Nauticam CMC 1 & 2 closeup lenses. After market manufactures like Rokinon/ Samsung, Sigma, Tamron, Tokina, Venus Optics, Zeiss and more have also jumped on the Sony bandwagon. Providing Sony FE full frame direct mount lenses brings the total of available auto focus lenses to over 250 and additional 180 manual focus lenses. Sony has still not added a fisheye or fisheye zoom lens to its lens lineup. I have used the adapted Canon 8-15mm fisheye zoom for close to five years now and it work well but Sony needs to step up and offer a fisheye.

Sony Alpha A1 Camera

Sony's A1 full frame mirrorless camera includes excellent 5-axis sensor based in-body image-stabilization with a CIPA rating of 5.5 stops of stabilization. Resolution is a maximum of 8640 x 5760 from

the 50.1MP sensor in the native 3:2 format. The hybrid auto focus system now has 759 phase detection points and 425 contrast detection points which offer advanced real-time eye AF subject tracking with human, animal and bird modes along with advanced subject tracking.

At the heart of the Alpha 1 or A1 is Sony's newly designed 50.1 MP "Stacked" full-frame Exmor CMOS BSI sensor and Bionz XR processing engine. This new "Stacked" sensor design optimizes processing speeds allowing the camera to shoot up to 30 FPS in continuous shooting at full frame. While most underwater photographers don't shoot at such high speed they can still benefit from this advanced sensor design.

The hybrid AF system covers 92% of the image area and enables up to 120 AF and AE calculations to be performed per second for exceptionally fast subject tracking and accuracy. The stacked sensor and Bionz XR processed allow information to move so quickly that the camera can sync in flash mode at up to 1/400th of a second and at 1/500th sec. in APS-C mode.

In the APS-C the AF system covers 100% of the frame rendering respectable 5616 X 3744 21MP files. This added speed also allows video at 8K 30p without overheating and at 4k 120p 10-bit with sensitivity in low



light shooting as high as ISO 102400.

The new stacked sensor makes the A1 an excellent video camera with 8K and 4K recording resolution full pixel readouts, internal 4:2:2 10-bit sampling and 16-bit raw output via a full-size HDMI. The A1 has no recording limits and S-Cinetome support for smooth skin tones and well-controlled highlights along with soft colors.

Like Sony's A7s III the A1 has the 9.44m-dot OLED EVF that can

refresh at up to 240 FPS. Sports shooters will love this EVF which greatly reduces blackout while shooting at high continues speeds up to 30 frames per second. The A1 also has Bluetooth and WiFi connectivity with 2x2 MIMO, wireless remote control and high speed file transfer making the A1 an ideal camera for fast action sports shooters.

Nature photographers will also appreciate the high frame rates, stellar auto focus speed and accuracy, 15-stop dynamic range and the new lossless compressed RAW files. At the 30 FPS high frame rate the camera is using the electronic shutter and the A1 because of the stacked sensor is the only camera that can shoot at up to 30 FPS with flash sync speeds up to 1/200th of a second. This is a whole new ball game for high speed shooting in the studio and sports venues and much more.

The A1 also sports the much requested newly reorganized menu system first released with the A7s III. This system is much more intuitive and much easier to navigate. The new auto focus system is quick and precise focusing in a variety of lighting conditions with sensitivity down to -6 EV.

The camera now supports both high speed high speed SD cards and Sony's new CFExpress type A super high speed media cards. Be

aware that the new Type A cards are expensive at this time because of lack of competition and they require a dedicated CFExpress Type A card reader. If you are not shooting at high speeds the SD cards will work well however the transfer rates with the new cards are much faster given a proper high speed storage device.

The new A1 imaging processor and autofocus algorithms work so well that I have abandoned back button focusing and AF-S relying instead on the Lock-on AF Expanded Flexible Spot in AF-C mode. This combination allows me to lock focus with a half press of the shutter and then drag the focus point around the frame while maintaining the original focus area. This means I can focus on an animals eye in the center of the frame then drag the eye around the frame for the best composition without losing the tack sharp focus on the eye.

Lock-on expanded flexible spot also allows you to adjust the speed that you drag the focused point around the frame. I have changed the factory default setting and sped up the movement to meet my needs.

Subtle but very useful is the A1's focus area box which can be reduced or enlarged in size and can also be set to white or red for ease of use. For those who have used earlier versions of the A7 cameras and tried to locate



the flat gray focus box underwater or in bright light I feel your pain. I have the A1 focus box set to RED and it is now near imposible not to see as soon as you look into the LCD or electronic viewfinder.

On the subject of the electronic viewfinder the 9.44 million dot panel has an adjustable refresh rate goes as high as 240 FPS with little blackout giving a life like view of the scene through the viewfinder. Once you have mastered using this EVF you will never want to go back to an optical DSLR viewfinder. The new viewfinder also covers 100% of the frame with a 25mm eye point and has a diopter adjustments from -4 to + 3. I have had the A1 camera and Nauticam housing for a limited time so I will be experimenting with all of the focus settings and will report my findings in future reviews with this camera.

The LCD screen on the A1 is unchanged at 1.44M dots and three inches with touch sensitivity control.

This was a mistake on a \$6500.00 Flagship camera that Sony should have addressed. The lions share of both EVF and LCD panels used for all camera brands are made by Sony. To add insult to injury as soon as the A1 was released Sony announced that they were updating the Sony A7R III and A7R IV LED panels and replace the old 1.44m dot screens with 2.35M dot screens. Even the \$3900.00 Canon EOS R5 and \$3000.00 Nikon Z7 II have 3.2 inch 2.1M dot LCD's.

As a blackwater photographer I find the LDC screen invaluable for locating very small subjects in near zero light. A better LCD panel would enhance the ability to see smaller subjects and finer detail.

Many readers have asked me about implementation of the animal eye autofocus feature on Sony cameras. With my limited testing I have found the animal eye AF is more than a bit hit and miss underwater while human eye AF works well.

Eye AF does not work in conjunction with lock-on expanded flexible spot because the idea with eye AF is to find the animal/human eye regardless of where it is in the frame and lock onto it. You can even choose between the right or left eye and select one person's eye out of a group of people in the frame. I have used the human eye AF shooting models both underwater and while doing splits and it is spot on.

For pets like cats and dogs animal eye AF works very well. I had great success using animal eye AF for horses, dogs, and a cow but it is still not reliable for marine life. The A1 has added bird eye AF but I have not had the camera long enough to test that feature.

The A1 has a larger more ergonomic grip which makes the camera more user friendly. Unlike the A7R series of cameras the A1 has the shooting speed and focus selection dial on the left top of the camera like the Sony A9 II high speed sports camera bodies. This is a double dial with the shooting speed options on top, single, high speed and so on with a center locking button while focus selection, AF-S, AF-C and so on is on the bottom dial with a lock on rear of the dial.

On the right top is a rear dial with a lock for the exposure compensation, a programmable dial for shutter speed and a locking dial

for choosing shooting styles like M, S, A, P, video, three programmable settings and more.

The AF-ON and multi-selector buttons are large and designed to make them easy to find without taking your eye away from the viewfinder while shooting above water. This is important for using the AF-ON button to magnify an image in the viewfinder without having to take your eye away. The magnified image enlarges to cover the focus point so that you can immediately see if focus is correct.

I have been able to review and enlarge the image in the Nauticam housing without removing my eye from the 45 degree optical viewfinder as well. This feature definitely speeds up workflow and the new EVF panel lets you see that your images are tack sharp. The EVF & LCD panels also allow you to see a live histogram and/or a four color histograms in image review.

The memory card door has a locking device which is push to open and close. The new arrangement improves weather-sealing and prevents the card door from opening accidentally which has happened to me several times with past A7 models. Both top and bottom card slots accept the SD and CFExpress type A cards, the #1 slot is at the top and the #2 slot is at the bottom unlike some older models.



The A1 has over 100 menu features to select from and many of those features have multiple subsets. I have selected the menu features that I use most and moved them into the super menu accessed via the Fn function button. I can open that small subset of items underwater and easily change them using the arrow pad and OK button.

If I am shooting in TTL with the S-Turtle flash adapter I can just go into the super menu and easily change +/-flash compensation.

Another A1 feature is that stills and movies have separate super menus so you can set up to twelve menu functions for each. I have also assigned custom key functions which are useful for me like the C3 button to boost the image brightness. The red video button is assigned so that I can quickly toggle between the EVF and LCD. I have the AEL button assigned to quickly toggle between full frame and the very useful APS-C mode.

The A1 uses the same NP-FZ100 battery and also has very robust new



weather sealing which is expected with a camera of professional quality.

The 50.1MP A1 provides exceptional image quality with plenty of dynamic range and an ability to do large crops. In APS-C mode the focus points cover the entire frame and renders excellent 21MP image. This matters to me because I get a faster work flow and additional options when shooting.

The Sony FE 90mm F/2.8 macro lens is a must-have for underwater macro shooters and one push of the AEL button toggles to APS-C giving an equivalent FOV of a 135mm macro lens extending my lens range. I have already found this to be quite useful with the Sony FE 90mm and FE 50mm macro lenses. I am aware that I can just crop the FF image to achieve APS-C or other format sizes. However what I see in the viewfinder in APS-C mode is exactly what I get giving me two cameras in one with all of the additional features of the A1 system.

The Sony A1 is the best full

frame camera available in today's market for overall performance. The difference between the A7R IV and the A1 in regard to image quality is negligible while overall speed and feature set is improved in all areas.

The rollout price of Sony A1 is \$6500.00, certainly not cheap. However the price is in line with other manufacturer's Flagship camera models for high speed sports shooting. The difference is that the A1 excels in all areas of photography, excellent for high resolution still imaging, with equally impressive high end video specs and the fastest sports camera on the planet.

The A1 uses the same vertical battery grip as the A7r IV for added battery life for sports shooters. Canon and Nikon have both announced intentions to release similar high speed mirrorless sports cameras this year but with very little substance as to the specs. Canon has announced that they have developed their own stacked sensor and Nikon will surely purchase the same if they intend to remain competitive over the next five or so years.

It is clear that mirrorless cameras will be moving away from mechanical shutters and embracing electronic shutters. Many sports shooters will probably never get anywhere near the 500,000 activation rating of the Sony A1 mechanical shutter opting instead

for the electronic shutter the majority of the time. The next big leap from the stacked sensors in the next five or ten years will be to global shutters which eliminate mechanical shutters and the need for DSLR's all together.

Nauticam NA-A1 Housing and Ports

The Nauticam NA-A1 is a next generation of housings for the Sony full frame line of mirrorless cameras. Nauticam has always continued to improve with age because as their mission statement says they "Think beyond what has been done before and never rest on past accomplishments".

My first Nauticam housing review for uwpmag.com the NA-NEX5 dates back to 2010 and I am always amazed to see the subtle improvements introduced with each new generation of housings and accessories. The latest N100-N120 35.5MM port adapter II (for A7RIV and after) is one example. The new housing extends further to accept the larger battery grip on the new A1 so the prior N100-N120 adapter for Sony A7 II & III cameras no longer fits.

In addition to the redesign which retains the same 35.5mm length the port locking device has been moved to the top of the adapter making it easier to align and lock ports. The adapter also has a new redesigned gearbox



with an increased zoom/focus gear ratio which means a faster and more precise control of lenses for video. This new gearbox is also found in the new NA-A1 housing zoom/focus control wheel.

The new NA-A1 housing now features M14 & M24 mounting points with the M14 on the rear housing plate for the vacuum valve or flash sync port. An M24 accessory port is added to the front left side of the housing for HDMI output connectivity.

Other new features include a new O-ring sealing design for the LCD window and new handle brackets designed to enhance stability

underwater.

The most noticeable difference for me was when I removed the housing from the box. I immediately noticed that the carrying case appeared smaller than the one for the NA-A7RIV housing. When I removed the housing from the case I could see that the size of the housing was smaller than the NA-A7RIV housing I had been using but very close in size the NA-2020 and NA-A7sIII housings. My Sony A7R IV camera is actually very similar in size to the A1 and fit directly on the A1 tray and into the A1 housing.

In manual mode all of the basic

controls also worked like the on/off switch, aperture and shutter controls and the playback control. Other controls did not align but in a pinch I could use the A7R IV in the housing. The A7s III can also be adapted to the housing with complete control using an optional Nauticam A7s III camera tray. All of these subtle improvements help the user to focus less on the equipment and more on the creative process.

The NA-A1 housing has the same excellent twin locking system used on all of the Nauticam DSLR and full frame mirrorless housings. This secures the front half of the housing to the rear by turning the locking device 90 degrees. To unlock push in the two red safety locking buttons and turn the locks.

The housing has corresponding levers, push buttons and control dials for every function on the camera body. These controls are very well placed and should be easy to use even with heavy gloves. The rear half of the housing has a large LCD window and a quality optical glass pickup finder for the outstanding EVF. I always replace the Nauticam pickup finder with Nauticam's excellent 45 degree optical viewfinder. This is at least the eighth Nauticam housing I have used with the same 45 degree optical viewfinder. Switching between the pickup finder and the 45 degree

viewfinder takes me less than a minute and does not require any tools. Once installed the larger viewfinder really helps those of use with aging eyes who are seeking better critical focus and composition. Nauticam also offers an optional 180 degree optical viewfinder which works very well for wide angle and motion shots. Both of the viewfinders have a plus & minus diopter control which can be adjusted underwater.

Another subtle improvement on the NA-A1 housing is the slightly deeper housing back. Many of the land camera reviewers complained that the A1 did not ship with a 180 degree forward facing LCD screen, think selfies. The A1 LCD instead tilts straight out towards the inside rear of the A1 housing. The deeper housing back allows you to tilt the LCD screen further from the camera. As a result it is easier to see the entire screen.



Even with the 45 degree accessory viewfinder installed if I want to see the entire LCD screen all I need do is turn the viewfinder 45 degrees out of the way. This is a huge improvement that gives you the best of both worlds EVF and LCD.

The signature Nauticam red port locking lever is on the front lefthand side of the housing and the lens release button is on the right viewed from the front of the housing. This allows you to remove the port or port adapter and install or remove a lens without removing the camera or even opening the housing.

The housing even has a blue reset switch for the vacuum system if you change ports without opening the housing. This is a very useful feature because larger lenses like the Sony FE 12-24mm F/4 zoom must be mounted from the front of the housing.

The switch to turn on the vacuum

system electronics is located in the rear half of the housing along with the audible alarm, LED warning light and battery mount. The vacuum system is an accessory I highly recommend since the housing already comes with all of the electronics and a flood alarm built in. The M14 vacuum valve kit with the vacuum pump and tool for user installation cost around \$260.00.

I average over 100 dives a year and I change the alarm system battery once a year as a routine. I also recommend carrying spare batteries for all your needs when traveling just to be on the safe side.

The rubberized handgrips are removable and include the redesigned stainless mounting plates to reinforce the stability of the handgrips. The handgrips are very comfortable, they adjust depending on your hand size and the thickness of the gloves you may be wearing.

The grips include standard ball head mounts for strobe and video support arms as well as other accessories. Additional ball mounts can be added to the housing over the support brackets for things like focusing lights, additional strobes, video lights and more.

The top of the housing also features two threaded fiber optic ports with caps for optical sync cords. Compatible strobes are triggered using the optional Nauticam Mini flash trigger for Sony Alpha-series cameras and Nauticam universal fiber optic cables. The Nauticam Mini flash for Sony (\$267.00 USD) triggers a verity of strobes with fiber optic compatibility including Inon Z-330, Z-240 type4, S-2000, D-2000 type4, D-200 as well as Sea & Sea YS-250, YS-D1 and YS-01 strobes (will not trigger S&S YS-D2) with more being added.

The Mini is a manual flash trigger and has NO TTL function. The Mini flash trigger is sold with two batteries that provide thousands of flashes and reduces drain on the camera battery associated with on-board flash recycling. The Mini flash trigger also recycles much faster than an on-board camera flash allowing you to shoot between six and ten frames a second if your external strobes recycle times can keep up. After market flash triggers like



the S-Turtle flash trigger and UW Technics can add TTL flash operation using fiber optic sync cords.

The Sony A1 will sync up to 1/400th sec in full frame and up to 1/500th sec, in APS-C mode. BE AWARE that to reach these sync speeds you need a proprietary type flash trigger like the S-turtle or UW Technics. These two flash triggers have the same sync configuration to hot shoe as Sony land flashes this is how they are able to do TTL.

The Nauticam flash trigger has a single pin to hot shoe connection to fire in manual. I have attached a photo of both triggers so that readers can see the difference. With the proprietary flash triggers you can shoot the higher sync speeds in manual or TTL with the Nauticam flash trigger top sync is 1/250th of a second.

All current ports and port extensions are compatibly with the Nauticam N100 to N120 by 35.5 mm port adapter II for A1. All of your additional accessories can also



SunFish, Florida Springs, Sony A1, Sony FE 90mm F/2.8 macro, Nauticam NA-A1 housing, two Backscatter MF-1 Flashes, ISO-500, F/14, 1/500th sec, in APS-C crop mode

be carried over with no problems. Nauticam and Zen Underwater have a verity of port options for the NA-A1 housing using both the N100 mm and N120 mm DSLR port mount options. This will allow owners moving over from Nauticam DSLR housings to use some of their ports and to migrate some DSLR lenses by using the Metabones EF or Sigma MC-11 lens adapters.

The Nauticam NA-A1 housing retails for \$3534.00 USD and the N100-N120 port adapter II for NA-A1 (part #37305) retails for \$543.00.

Field Testing the Sony A1 & Nauticam NA-A1

For this review I selected the Sony FE 90mm F/2.8 macro G OSS lens which easily handles the larger A1's 50MP files and is without question has the best image quality of macro lens I have ever used. The 90mm macro was paired with the dedicated Nauticam N100 macro port with 67 mm threads. This allows you add a flip adapter and closeup lenses like the Nauticam SMC-1 while shooting in full frame or APS-C formats.

I also used Sony FE 28-60mm “kit” lens with the new Nauticam WWL-1B reviewed in this issue. The FE 28-60 can also be used with Nauticam CMC-1 & 2 closeup lenses. I use two Inon Z-330 flashes and two Backscatter MF-1 flashes for the stills in this review. With the two Z-330’s I also attached the 4600K color dome diffusers.

I configure the 90mm macro lens with the focus limiter set from 1:1 to infinity in auto focus. On past Sony A7 cameras I set the focus limiter from 1:1 to 0.5 meters which renders everything from life size, 1:1 to about 1:10 in focus. I find that most of the macro/closeup subjects I want to photograph fall well within that shooting range.

As I have said in past reviews it takes a few dives to get the hang of shooting within this rather short focusing range. By using the focus limiter I find that the lens is less likely to hunt and that the lens acquires focus more quickly than when it is set from 1:1 to infinity.

With the A1 and A7R IV set to AF-C with tracking flexible spot the camera does not hunt like it did with prior versions set to infinity. I have also moved away from using a manual focus gear for the SMC-1 even at greater magnification than life size. The AF has become so good that I just wasn’t using the gear much at all.

With the WWL-1B all of the images were taken with autofocus and limited use of the zoom gear. This lens has a zoom range from 130 to 68 degrees coverage. If you switch to APS-C you can get even greater magnification in the 45 degree range. The WWL-1B also works very well as a CFWA lens with the ability to shoot down to the port glass.

I used the Backscatter and Inon Z-330 flashes with two 50 mm X 250 mm Nauticam float arms



Spadefish, Blue Heron Bridge, Florida, Sony A1, Sony FE 28-60 Zoom At 33mm, Nauticam NA-A1 housing, Nauticam WWL-1B, two Inon Z330 Flashes, ISO-100, F/8, 1/400th sec

and two 200 mm double ball arms. The float arms and the WWL-1B which has a built-in float collar balance well and are easy to control in the water. I use the same arm configuration with the macro port.

For those of you thinking about moving from a sub-full frame system to a full frame system the reduced depth of field at any given F/stop over



White Tubercled Crayfish, Florida Springs, Sony A1, Sony FE 90mm F/2.8 macro, Nauticam NA-A1 housing, two Backscatter MF-1 Flashes, ISO-500, F/14, 1/250th sec

sub-full frame can present a few issues. First high megapixel cameras including the A1 and especially the A7R IV tend to highlight flaws associated with many lenses, so chose wisely when making lens purchases. Second the shallower DOF associated with full frame cameras requires more critical focus so taking a machine-gun approach to shooting may



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Hermit Crab, Blue Heron Bridge, Florida, Sony A1, Sony FE 28-60 Zoom At 60mm, Nauticam NA-A1 housing, Nauticam WWL-1B, two Inon Z330 Flashes, ISO-100, F/16, 1/400th sec

result in high numbers of poorly focused images.

In the water the NA-A1 housing is very well balanced and a dream to use. All of the controls fall easily at your finger tips and after a few dives I did not find myself having to look away from the viewfinder to change any of camera my settings.

Stay tuned for followup reviews with the Sony A1. My limited use of this system has only allowed me to hit on the most basic features of this camera system.

If the Sony Alpha 1 and

Nauticam NA-A1 are within your budget and you are seeking the very best in image quality, focus speed and overall performance for both stills and video in a full frame camera the A1 may be for you. With a large selection of quality lenses this package should be at or near the top of your wish list.

Thanks once again to the Nauticam USA (nauticam.com) team for assistance with equipment used for this review.

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Issue 120/27

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