

Ikelite Sony A6400 Housing

by Phil Rudin

Ikelite Underwater Systems is a USA based company which has expended its distribution network to cover most areas of the world during its over fifty years in business. Ikelite has developed a large and loyal customer base built on a foundation of excellent customer support and product reliability.

Ikelite supports the Sony Alpha line of APS-C sensor cameras with housings for the A6000, A6500, A6300 and the newest A6400 which was announced in mid January 2019. In March 2016 Ikelite announced a housing for the Sony A6300 camera which uses the Dry Lock Micro (DLM) port system for Sony E-mount and FE-mount lenses.

I reviewed the Sony A6300 system for the Sept/Oct 2016 issue of uwpmag.com after field testing the new system during a dive trip to the Philippines. The Ikelite A6400 housing became available soon after the release of the new camera and I have just returned from field testing this system in Mexico.

Sony A6400 camera

The Sony Alpha A6400

mirrorless APS-C sensor camera has been developed around the same high quality 24MP APS-C sized Exmor CMOS sensor used in the A6300.

The A6400 has the BIONZ X processing engine and while the chip is not identical to the Professional Sony A9 it has vastly improved. The A6400 has 4K/30p video capture, tilting touch screen with 180 degrees up and 90 degrees down tilt.

Image quality in RAW is all but identical to the A6300/A6500 with ISO sensitivity from ISO 100-32000 (expandable to 102400), dust and moisture sealed magnesium-alloy body with much more. What most separates the A6400 replacement camera from the A6300 is the impressive autofocus capabilities and boot-up times using the advanced Bionz X processor with 425 phase detection points and real-time tracking.

Sony has also added the exceptional eye-auto focus and animal eye-auto focus features which have been carried over from the full frame Sony A9, A7R III and A7 III cameras version 5.00 firmware update. The most significant new autofocus feature on the A6400 is object tracking which



replaces both lock-on AF and center lock-on AF. I will address this features in the field testing portion of this review.

The A6400 has the same focus peaking (showing a color for the in

focus areas during manual focus) used in the Sony A7R III full frame camera body and while many will never use manual focus feature it is nice to know it is available if needed.

The most impressive features



of the A6400 for me were the outstanding AF speeds, overall image quality, low light performance and the improvements in overall camera speed. I found that for underwater photographers the most significant drawbacks with the A6400 are its rather slow 1/160th flash sync speed, the rather poor battery life with the 90mm F/2.8 macro lens and for videographers a continuing problem with manual white balance issues that all carried over from the A6300.

I would hope that going forward Sony will update the APS-C camera line with the new “Z” batteries used in the A9, A7 III and A7R III full frame cameras. The A6400 also lacks IBIS which is not a major downside for me.

The Sony A6400 sells in the US for an MSRP of \$898.00 for the body and \$998.00 with the 16-50mm F/3.5-5.6 kit zoom lens. These prices are about \$100.00 less than A6300 at its release. I consider the A6400 to be one of the best value at its price point compared to many other APS-C mirrorless or DSLR cameras because of the outstanding image quality, its small size, AF speed and feature set. I also highly recommend the A6400 with the 18-135mm F/3.5-5.6 lens as



a kit. The 18-135mm zoom is perhaps the most optically advanced Sony “E” lens available and is an excellent choice for land/travel photography.

Ikelite A6400 Housing And Port System

The Ikelite Sony Alpha A6400 housing has the DLM port mount design and looks like a smaller version of the Ikelite Sony A7R III housing I reviewed in UWPMAG.com issue #103.

The A6400 housing features the same opaque gray ABS-PC polycarbonate material for the front section of the housing and a transparent DSLR style polycarbonate housing back. The gray color provides extra protection from the sun during long boat rides and allows better contrast when viewing the LCD screen.

The new Sony A6400 housing unlike the previous A6300 housing has adopted a new approach to TTL flash photography. The previous housing had the TTL circuitry built into the housing and supported the complete line of Ikelite DS series TTL strobes using Ikelite electronic single or dual sync cords.

Ikelite’s new DL2 DS Link TTL Converter for



Sony mounts into the B1A Bulkhead on the outside of the housing using the five pin connection for dual or single Ikelite TTL sync cords.

On the inside of the housing the B1A bulkhead is connected to the ST1 hotshoe which attaches to the hot shoe on top of the camera. This external sealed DL2 converter design uses integrated TTL encoding specific to all of the Sony Alpha camera models and is tuned to Sony’s exposure protocol. That makes the DL2 DS link compatible with Sony A6000, A6300, A6400, A6500 and all of the A7 and A9 full frame cameras both past and present.

The DL2 converter can be switched between TTL and manual flash exposure by pushing a button on the converter. The converter can be used in two flash modes, flash fill or rear curtain exposure. The DL2 DS is powered by the strobe battery when turned on and will be in TTL mode indicated by a bright blue LED indicator light on the converter.



Just set the Ikelite strobes to TTL and the system is ready to fire in TTL. Plus/minus exposure compensation can be accessed through the camera menus. To shoot in manual strobe exposure push the mode button on the side of the converter, the LED indicator light will change to red and power levels can then be set manually on the strobe.

The new converter works with all of Ikelite's DS strobe line and is also available a configuration for Nikon cameras. The complete DL2 DS TTL converter, B1A bulkhead and ST1 hotshoe Kit retails for \$450.00 USD. The TTL converter can also be moved between Sony housings when upgrading.

Removing the TTL circuitry from inside the housing reduces the

retail cost of the housing by \$200.00 over the past A6000, A6300 and A6500 housings. This allows those using fiber optic strobes to avoid the extra cost of the Ikelite built-in TTL circuitry. Strobes using fiber optics can be fired in TTL using the two fiber optic ports on the front top of the A6400 housing. Strobes using fiber optic cords mimic the A6400's on-board popup flash to achieve TTL or manual flash. Fiber optic cables can be used with TTL strobes like the Inon S-TTL, Sea & Sea DS-TTL and several more.

The housing also includes a rear button to raise the on-board flash for people like me who forget to do so before entering the water.

Every Ikelite A6400 housing is pressure tested to 60 meters (200



Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 18mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-100, F/13, 1/160th sec.

feet) and the ABS-PC construction provides corrosion resistance with a minimal amount of maintenance.

The light gray color and clear back give a direct view of the main O-ring seal and an excellent edge-to-edge view of the three inch 921,600 dot LCD screen which can be tilted up about 20 degrees for better viewing.

The A6400 housing has no pickup finder for the 2,359,296 Dot EVF which is of little use without a large accessory optical viewfinder which is not supported for this

housing. I would add that the A6400's three inch LCD worked very well and I did not miss the EVF during my test dives.

The control buttons on the housing back are well placed for a housing of this size, the button control symbols are laser engraved on the back of the housing so they won't peel off or fade.

All of the cameras essential buttons and controls can be reached even with gloves and most are accessed in the same way as when

the camera is being used above water. Large dry suit gloves may present a bit of a problem as with any housing of this size.

The video start/stop button is RED and out of the way of the other control buttons. With past housings I have accidentally bump the video control button and started recording, this was not an issue with this housing. It is also quite easy to move the mode control dial to the movie mode and use the shutter button to activate video if an opportunity presents itself and you have reassigned the video button for another function.

The housing has a shutter lever and a thumb lever for AF/MF & AEL which makes back control auto focusing quite easy and intuitive. If you prefer using the front shutter release to half press for focus and release this also works very well. For this review I did not use the back focus at all because the auto focus tracking is that good in AF-C. Both focusing options worked equally well with this camera.

For this review I had the focus trigger mounted facing down rather than up as shown on the Ikelite web site. This allowed me trigger the camera using my right thumb rather than my right forefinger. Using the 1/16 inch Allen wrench provided with the housing the trigger can be repositioned in less than a minute.

The housing also includes a lens release control which is located on the left side of the housing. This is a very useful control since several of the supported Sony/Zeiss lenses need to be mounted from the front of the housing while the port is removed.

The camera attaches to the camera tray using the standard 1/4-20 screw which is attached to the tray. The tray allows access to the battery compartment and memory card slot without needing to be removed.

When the tray slides into the rear of the housing both the lens release and rear thumb control lever need to be raised to allow space for the camera. Once the camera body is installed you can then slide the TTL sync cord into the hot shoe and secure it with a clockwise turn of the locking device. My suggestion is to keep the body cap on the camera and have the housing facing port side down at all times.

The camera tray has no locking device and could slide out if tilted backwards. The back plate can then be secured to the housing using the two locking clamps which will hold the camera firmly in place. Remember to tilt the LCD screen outward for a better view

Barrel Sponge, Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 10mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-125, F/8, 1/160th sec.



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before closing the back. A lens and gear can then be mounted to the front of the camera and the port is then mounted over the lens. Once you have installed the camera a few times this process becomes second nature.

The zoom/focus wheel for lenses like the Sony E 10-18mm F/4 zoom are located on the Ikelite dome ports not on the housing. Ikelite offers optional trays with one or two grips which can be used with removable flex arms or O-ring ball heads for standard strobe/video arms and clamps. The housing has two 1/4-20 mounting points on the bottom to attach the Ikelite tray and the tray has a tripod mounting point for video shooters.

Be aware that the assembled system is fairly light in salt water when using the six inch dome and the macro port. I found no need for float arms or buoyancy floats to keep the system well balanced for use with one hand. I always keep the system slightly negative so that I can but it down if I want. Finally the housing has an optional vacuum system which includes the pump for drawing the vacuum. I recommend this \$185.00 option for additional security from flooding.

Ikelite offers a verity of ports to support both Sony E-mount and FE-mount full frame lenses. Supported lenses include the E-mount 16-50mm

“kit” zoom, 18-55mm zoom, 16mm with the fisheye and ultra-wide converters, 10-18mm zoom, 30mm macro Zeiss 50mm macro and Zeiss 12mm F/2.8 plus several more. Sony FE (full frame) lenses include the 28mm with the fisheye and ultra wide converters, 24-70mm F/4 zoom and 90mm macro. I

kelite also supports the Canon 60mm and 100mm macro lenses using the FE to E-mount Metabones adapter. Keep in mind that the full frame lenses have a 1.5X crop factor on the APS-C sensor. Consult the ikelite.com web site for port charts as additional lenses are always being added as the system expands.

The A6400 housing is rated to 60 meters (200ft) tips the scales at 1195 g (2.6 pounds) without ports and the dimensions are 184 x 1140 x 152 mm (7.25 x 5.5 x 6 in). The housing ships in the US with installed O-rings, hex keys, lubricant and a manufactures one year warranty for an MSRP of \$775.00. Ikelite trays, arms, ports, gears, strobes, TTL converter, sync cords, vacuum kit and more are sold separately.



Caribbean Spiny Lobster, Cozumel Mexico, Sony A6400, Sony E 10-18mm F/4 OSS at 18mm, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-800, F/14, 1/160th sec.

Field Testing The Ikelite A6400 Housing

I field tested the Ikelite A6400 housing system on a recent trip to Cozumel, Mexico. My system included the housing with vacuum system, two Ikelite DS 161 strobes with the Ikelite DL2 DS TTL converter and a dual sync cord, tray with ball mounts and strobe arms.

For the A6400 review I used three E-mount lenses the Zeiss Touit 50mm F/2.8 macro, Sony 10-18mm

F/4 zoom with OSS and the Sony 16mm F/2.8 with Sony VCL-ECF2 Fisheye converter. Each lens requires a different port, the Zeiss 50mm macro uses the 5516.45 flat port (with 67mm threads) and 5516.65 extension, the Sony 10-18mm zoom works best with dome port with zoom 5516.15 and 5515.43 zoom gear, this is a six inch port, the larger eight inch port can also be used but without the zoom feature, the 16mm with Fisheye converter is best used with the 5516.11 six inch super-wide dome

port with the dome shade removed. An eight inch port can be used with both the Sony E 16mm/fisheye combo and E 10-18 zoom the large port is most suited for split images. The ikelite.com web site has the complete list of lens and port options.

The 10-18 zoom is mounted to the camera from the front of the housing as I described above followed by the gear. Once the gear is aligned on the lens I found that mounting the dome port worked best when the port is face down on a flat surface with the neoprene cover in place. It is very easy to lineup the housing over the port and push it firmly into place before securing the three retaining screws that hold the port securely to the housing.

I strongly suggest lubricating all O-rings regularly and disconnecting ports from extensions every few dives if you don't want them to stick together. If you are using fiber optical sync cords they should have the 90 degree mount and they should be installed before the eight inch port to allow clearance between the cords and back the port. With the Zeiss 50mm macro and Sony 16mm with fisheye converter both lenses can be mounted to the camera before it slides into the housing allowing the ports to be mounted at any time prior to drawing the housing vacuum.

The Sony E 10-18mm zoom worked well with the six inch port and would be my first pick as a rectilinear wide angle

zoom. The Zeiss E-mount 12mm is still optically the best W/A lens I have tested with the Sony APS-C system. The E 16mm with the fisheye adapter was a bit better than expected but no where near as good as a dedicated fisheye would be, hoping to see Sony step-up and provide a native fisheye in APS-C or full frame soon.

Since I am frequently ask about my camera settings I shoot in manual mode at ISO-100 to 320 for macro most often with the highest shutter sync speed which for A6400 is 1/160th sec. I use the same settings for electrical sync and fiber optic strobes in TTL or manual, my F/stop range for macro is from F/8 to F/16.

For wide and fisheye lenses I shoot in manual mode at ISO 200-640 and 1/15th to 1/160th with an F/stop range from F/5.6 to F/16. These settings are a starting point and will change depending on the subject matter, water conditions, depth, time of day and more.

The Ikelite DS 161 TTL strobes and the new DL2 converter are an excellent combination for both TTL and manual use. If reducing the size of the system is important for travel

***Sergeant Major, Cozumel Mexico,
Sony A6400, Sony E 10-18mm F/4
OSS at 10mm, Ikelite housing and
port, Two Ikelite DS-161 Strobes in
manual, ISO-250, F/8, 1/160th sec.***





Sailors Choice, Cozumel Mexico, Sony A6400, Sony E 16mm F/2.8 with Fisheye Converter, Ikelite housing and port, Two Ikelite DS-161 Strobes in manual, ISO-640, F/16, 1/160th sec.

the DS-51 strobes are also an option. I also tested the system using strobes fired with fiber optic cables and the on-board camera flash. Results were also very good but the on-board flash can be slow recycling adding to the drain in camera battery power.

The biggest news for underwater photographers is the excellent auto focus speed and accuracy obtained using continuous AF (also single-AF) and the new object tracking and eye-AF features. These are also features which can be added to the Sony Alpha III and A9 line of full frame mirrorless

cameras using the new Version 5.00 firmware upgrade for A9 and Version 3.00 for A7 III and A7R III.

With eye-AF the system activates as soon as you half press the shutter and follows the subjects eye around the frame. With previous firmware a second function button on the lens or camera body needed to be pressed to start eye-AF and held while the shutter was pressed to take the exposure. This system worked well above water but was a bit of a struggle underwater. I had the eye-AF assigned to the OK button on my A7R



Peacock Flounder, Sony A6400, Zeiss 50mm F/2.8 macro, Ikelite housing and port, Two Ikelite DS-161 Strobes in TTL, ISO-100, F/13, 1/160th sec.

III which is a bit difficult to press on the housing while pressing the shutter release.

Shooting models underwater with or without a face mask the eye-AF is excellent even from a meter or more away. The green AF box locks on the eye and then follows the model around the frame in portrait or landscape orientation. With the A6400 and the full frame upgrades all you need to do is half press the shutter button and the system locks on and follows the eye around the frame.

This system also features animal

eye-AF and will lock onto many animals which have eyes similar to the human eye. It works very well with animals like dogs, cats, many birds and other wild life. Underwater I was not able to make it work well with fish, octopus, crabs or other critters who's eyes are quite different.

What is even more promising than the excellent eye-AF for U/W photographers is how well the AF-C/AF-S system works with what Sony calls Real-Time Tracking. Real-Time Tracking is most associated with fast moving subjects using long



Sailfin Blenny, Sony A6400, Zeiss 50mm F/2.8 macro, Ikelite housing and port, Two Ikelite DS-161 Strobes in TTL, ISO-100, F/13, 1/160th sec.



Octopus, Sony A6400, Zeiss 50mm F/2.8 macro, Ikelite housing and port, Two Ikelite DS-161 Strobes in TTL, ISO-100, F/13, 1/160th sec.

lenses for events like motor racing, motorcycles, sports action, birds in flight and more.

Using the A6400 and Zeiss 50mm F/2.8 macro with the focus area set to Tracking Expanded Flexible Spot in AF-C the AF locks onto a subject and holds the focus as long as the shutter button is half pressed. Rather than having the subject moving like with a motorcycle the locked on subject can be moved around the frame. The best example of this is to lock onto the animals eye in the center of the frame then recompose

the eye to a different part of the frame with the eye remaining in focus the entire time. This is a bit like using back focus for the eye and then recomposing and releasing the shutter.

The up side to the real-time tracking is that the eye is much more consistently in focus than when using back focus. Using this system my rate of keepers in sharp focus has improved and the speed at which the system locks focus is among the best if not the best of any APS-C system I have used. The Zeiss 50mm macro which was considered slow and hard

to lock-on with the A6300 is now a speedy workhorse.

For more information on how to setup these features on the A6400 and Sony's full frame mirrorless camera line I suggest looking at markgaler.com for a free 200 page PDF download explaining all of the A6400 functions.

The A6400/Ikelite would be an excellent underwater system for anyone entering underwater photography, moving up from a compact system or downsizing from a DSLR to mirrorless. The Ikelite

A6400 housing is a great choice if you are looking for an interchangeable lens system that combines reasonable price, size, speed and image quality. Most new A6400 users will be shooting with the kit lens to start and adding lenses and ports if they do not already own higher quality lenses.

Thanks to the Ikelite team for their assistance with the underwater equipment used for this review.

Phil Rudin

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