

Sony's FE 12-24mm F/4 G lens

by Phil Rudin

Sony has a new compact ultra wide-angle 12mm to 24mm F/4 G zoom lens which has the shortest focal length of any full-frame E-mount lenses and stunning corner-to-corner resolution at all apertures. This ultra-wide rectilinear lens is designed for the Sony alpha A7/A9 series full-frame sensor cameras. The lens can be used with sensor stabilized cameras and non-stabilized sensor E-mount cameras.

The F/4 aperture remains consistent across the entire range and the zoom ring is well dampened giving a buttery smooth zooming action. The 12-24mm F/4 has a zoom range of 122 to 84 degree on full frame Alpha series cameras making it an excellent ultra wide angle underwater photography lens. Using the 12-24mm F/4 with the E-mount APS-C mirrorless cameras the equivalent focal length range is 18-36mm. While this is a useful zoom range Sony-E series 10mm to 18mm F/4 OSS zoom lens for half the price makes more sense for underwater use with APS-C cameras.

With a minimum focus distance of just 28cm (11 inches) the 12-24mm lens will focus all the way to the Zen Underwater DP-230 dome glass with a maximum reproduction ratio

of 1:7.14. The optical design includes 17 elements in 13 groups including four aspherical elements to control spherical aberration which results in a high degree of sharpness while also limiting distortion. One super ED element and three ED elements reduce surface reflections, flare and ghosting for increased contrast. Color rendering is excellent even in bright lighting conditions.

The seven rounded diaphragm blades offer decent bokeh wide open. This lens features the advanced inner-focus mechanism driven by Sony's Direct Drive SSM system for fast and accurate auto focus lock-on as well as smooth, quiet operation. The lens also weighs a mere 565 grams (1.24lb) with dimensions of 87mm X 117.4mm (3.43 X 4.62") including the built-in hood. By comparison the Canon EF 11-24mm F/4 weighs in at a hefty 1180 grams and is 108mmX132mm while the Nikon 14-24mm F/2.8 and Sigma 14-24 F/2.8 Art weight in at 1000g at 98X131.5mm and 1150g at 96.4X135.1mm respectively.

The Sony FE 12-24 also has improved moisture sealing and dust proofing along with a customizable focus hold button above the AF/MF switch. The front glass element is



Beach Dive, Blue Planet Diving Center, Dubrovnik Croatia., Behind Hotel Dubrovnik Palace, Sony A7 III, Sony FE 12-24 F/4 at 24mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-320, F/14, 1/250th sec

a rounded so a filter can be directly mounted to the lens. The supplied lens cap slides over the lens hood and locks securely in place being one of the best caps I have used for a lens with an integrated hood. While the 12-24 zoom range is excellent for U/W work I have also been very impressed with this lens for travel, landscape and architecture. NiSi makes an excellent





150mm filter holder and a verity of filters designed for the this lens if you are interested in travel and landscape. The Sony FE 12-24mm F/4 G ships with front and rear caps, a built in lens hood, plus a quality padded lens bag for storage and transport. The Sony FE 12-24mm F/4 has a retail price of around \$1698.00/£1619.00 and the lens is available from your local authorized Sony dealer.

Zen Underwater Dp-230 Port And Nauticam Gears

Zen Underwater was founded in 2007 with the single goal of designing

and building the highest quality optical glass dome ports available.

I chose to pair the Sony 12-24mm F/4 zoom with the outstanding Zen-DP-230-N-120-1124D Optical Glass Port for Nauticam housings.

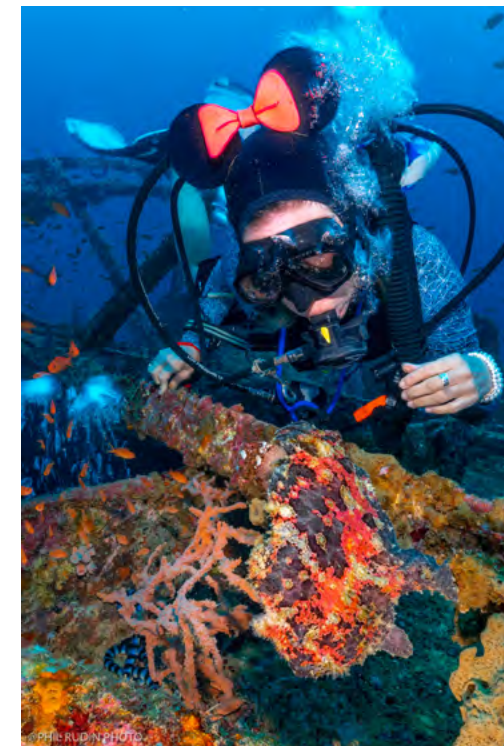
The DP-230 (230mm/9 inch) is the largest dome port in the Ft. Lauderdale, Florida based Zen dome port lineup. This 100 meter rated port is designed for the Nauticam N120 port mount and features a large inner diameter to accept ultra wide zoom lenses like the Canon 11-24mm F/4 and Sony FE 12-24 F/4 which both have fixed lens hoods. Zen Underwater dome ports are state-of-



the-art made from the highest quality materials using cutting edge optical technology.

Like all of the Zen ports I have reviewed for UWPMAG.com the fabrication process begins with BK7 dome glass for outstanding optical performance. I chose the DP-230 port for its large 120mm radius of curvature because it is excellent for full frame cameras using ultra-wide rectilinear lenses.

For shooting over/under images the large glass surface minimizes water beading and creates a smooth transition from air to sea. Annoying reflections off the camera and lens



Alli and the giant Frogfish, Alma Jean Wreck, Philippines, Puerto Gallera. Sony A7 III, Sony FE 12-24 F/4 at 24mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-640, F/22, 1/25th sec

often seen in the final image while shooting with acrylic ports at or near the surface have been all but mitigated. Zen Underwater uses a magnesium fluoride broadband antireflective coating on the interior dome element which minimizes the camera/lens reflections.

The Zen DP-230 weights in

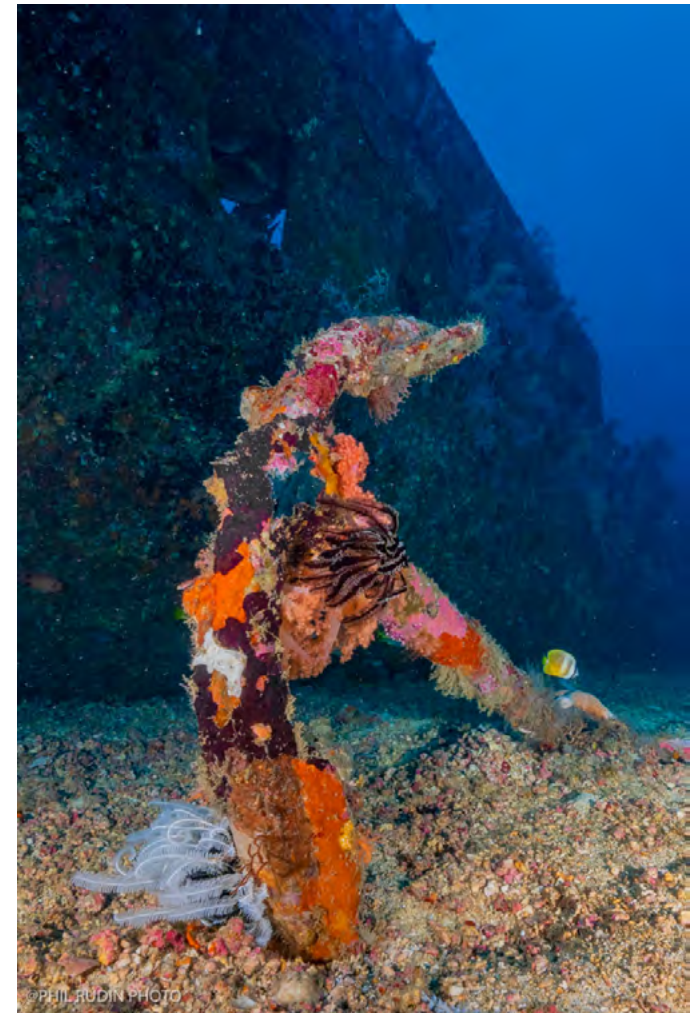


Reef Scene, Puerto Gallera, Philippines, Verde Island, Sony A7 III, Sony FE 12-24 F/4 at 12mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-640, F/14, 1/160th sec

at 2.2kg (4.8 lbs) the exterior diameter is 250mm (10") with an overall height of 110mm (4.3"). The port ships with a quality neoprene protective cover which is secured over the two lens shade blades. The two blades are held in place by eight alan screws which are removable for shooting with Fisheye lenses like the Canon 8-15mm which I use on the Sony system with a Metabones converter. The Zen Underwater DP-230 dome port retails for

\$1899.00/£1775.00.

To zoom the lens I used the Nauticam SEL1224G zoom gear (\$175.00/£162.00). Nauticam also offers the SEL 1224G focus gear (\$175.00/£162.00) for manual focusing. Nauticam's recommended port configuration includes the N100 to N120 35.5 mm port adapter with zoom/focus knob which retails for \$420.00/£389.00 and the N-120 40mm extension ring with port lock which



Anchor at the Alma Jane Wreck, Philippines., Puerto Gallera, Sony A7 III, Sony FE 12-24 F/4 at 12mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-640, F/20, 1/160th sec

retails for \$300.00/£278.00.

The N100-N120 port adapter allows the 120mm dome port mount to be mated with the 100mm port opening on all Nauticam housings for Sony full frame cameras. This port adapter is for

the Nauticam/Sony NA-A7 II, NA-A7 III and A9 housings allowing the housing wheel to zoom the lens while the port adapter wheel handles manual focusing.

The N100-N120 35.5mm port adapter also features a locking device on the outside of the extension for mounting extensions and ports. Be aware that the older Nauticam NA-A7 housings require a 40mm N100 to N120 port adapter for this lens. With the newer 35.5mm port adapter configuration the two zooming wheels sit quite close together but both can reach easily by using the left forefinger on the front of the focus wheel while using your thumb on the back of the zoom wheel. Using this technique was ideal for me even wearing gloves.

Using Sony's new Direct Drive SSM AF lenses on the A7 III and A7R III camera bodies result in auto focus speed and accuracy that is in a word excellent. I had no need to opt for the manual focus gear which would I think be more useful for video shooters. Nauticam's N-120 40mm extension ring with lock has an improved inner locking device and installs between the N100-N120 35.5mm port adapter and Zen DP-230 dome port. The extension moves the port glass away from the front of the lens to achieve the sharpest image quality possible. This same N-120 40mm extension ring with port lock is also used for the Nauticam/Sony NA-A7 housings.

Field testing the lens and port combination

I tested the Sony 12-24mm lens and Nauticam DP-230 dome port combination during trips to Croatia and the Philippines where I received excellent support from the dive operations listed

below.

My test system included Sony A7-III camera bodies, the Nauticam NA-A7III/A7RIII housing and the additional equipment items listed above. For lighting I also used two Inon Z-330 strobes fired with Nauticam's manual flash trigger for Sony, Nauticam fiber optic cables and four Nauticam eight inch ball arms.

The large interior volume of the DP-230 port was more than buoyant enough to negate the need for my ten inch Nauticam float arms. With the eight inch arm configuration the housing was balanced to my liking and I had no wrist fatigue even after several dives per day. With the air pocket captured by the DP-230 the port had a tendency turn the port glass up a bit this was overcome with little difficulty. You can refer to my article in uwpmag.com issue #104 for more information about the complete camera and housing system used for this review.

To assemble the housing first mount the two piece zoom gear to the lens by sliding the gear ring over the zoom ring on the lens. Next the larger piece with the gear teeth slides into place over the ring and is pushed into alignment. Then the camera body is mounted onto the camera tray without the lens installed but with the body cap left in place.

Be sure that you have a fully charged battery and one or two formatted SD cards in the camera. Slide the camera and tray into place inside the front half of housing and lock the tray with the locking lever. Then mount the Nauticam flash trigger in place on the camera hot shoe making sure that it is pushed all the way forward. If you are preparing the system to go diving turn on the flash trigger and the moisture alarm in the back half of housing then secure the back of the housing to the front using the



Alli near the mast, Alma Jean Wreck, Philippines., Puerto Gallera, Sony A7 III, Sony FE 12-24 F/4 at 24mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-640, F/22, 1/25th sec

two locking levers.

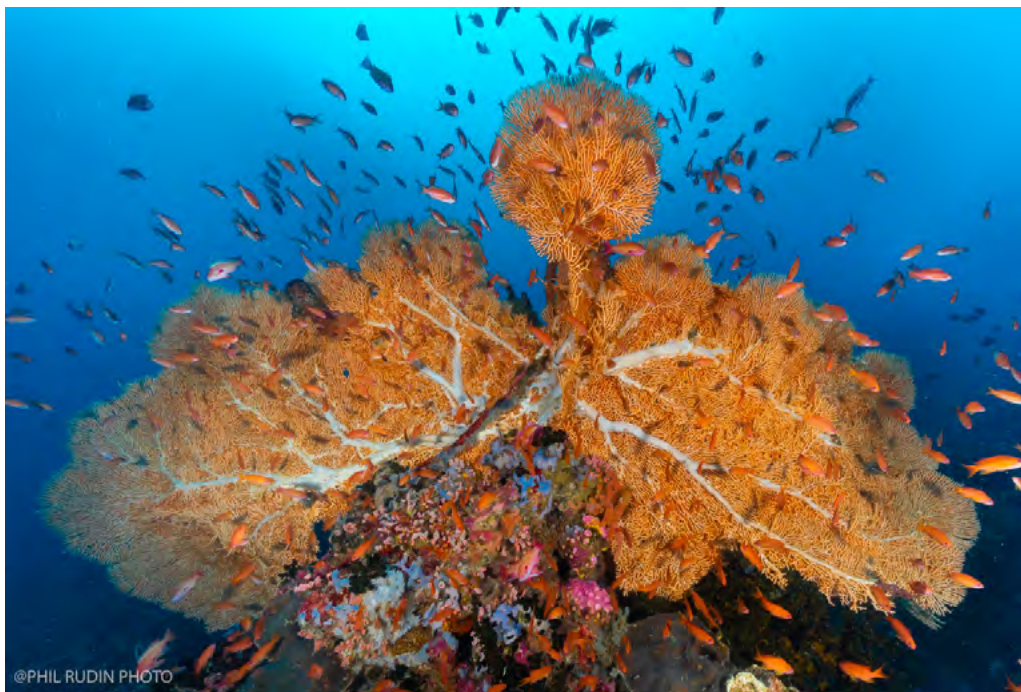
Next mount the Nauticam N100-120 port adapter to the front of the housing using the signature red Nauticam port locking device and

unlock the outside port locking device on the port adapter. Next make sure the port is cleaned and mount the 40mm port extension onto the port securing the locking device.

The lens is then mounted to the camera by removing the rear lens cap and the camera body cap. I turn the housing face down to prevent any dust or water from falling onto the exposed sensor during this process. Next remove the lens cap, slide the port and extension over the lens then align with the marks on the extension ring turning clockwise to secure the port into place. Next close the locking device on the side of the port adapter and make sure the port is secured firmly to the housing.

When this process is complete the port shade blades should be aligned at the top and bottom so that they will not vignette when the lens is zoomed to its widest angle. Next turn on the camera and strobes, then test fire the strobes to be sure everything is working properly. Finally remove the vacuum valve cover, draw the vacuum using the Nauticam pump and replace the cap.

The Sony lens performed very well behind the DP-230mm dome port below water and while shooting over/under images. I shoot split images at F/16 to F/22 for greatest DOF in overhead sunlight keeping the sun to my back when possible. I also use the



Giant Sea Fan, Puerto Gallera, Philippines, Verde Island, Sony A7 III, Sony FE 12-24 F/4 at 12mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-640, F/14, 1/125th sec

Inon Z-330 strobes for lighting on the underwater side in some cases.

I found the lens and port combination excellent for wreck scenes, reef scenes, model photography and close focus work. The lens will focus to the port glass and will work well as a close focus wide angle lens for larger subjects like octopi, scorpionfish, turtle portraits and more.

I prefer to use the Canon 8-15mm fisheye lens with a smaller 100-140mm fisheye dome port for smaller

CFWA subjects.

As I stated above the auto focus is fast and very accurate using the A7 III body in both AF-S and AF-C modes. With all of the 35mm full frame sensor cameras I have used the best results for both depth of field and corner sharpness come at F/13 or above. Most non-pixel peeping underwater photographers will be more than happy shooting this lens in the F/8 to F/16 range but for maximum corner sharpness F/13 or greater renders the best results.



Diver on the North Rocks, Rovinj Croatia. Sony A7 III, Sony FE 12-24 F/4 at 12mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-320, F/13, 1/30th sec

At the 12mm end of this lens divers and other large subjects become distorted as they are moved away from the center of the frame. The distortion is not as severe as with a fisheye lens but is still something to keep in mind. Going vertically centered, repositioning the subject towards the center of the frame in landscape or

zooming down a bit to the 16-18mm range will help prevent this distortion.

When using this lens I try to remember to select subjects that allow me to take advantage of the entire zoom range not just the ultra wide 12mm end. When shooting a lens this wide using on a camera with on-sensor image stabilization you can get away with shooting at a flash sync speeds as low as 1/10th of a second. Unless I am trying to create image blur I keep the flash sync in the 1/30th to 1/250th range since everything underwater is in motion making image blur common at slower shutter speeds.

With the excellent high dynamic range and low noise levels of both the A7 III and A7R III bumping the ISO to 640 and above to maintain higher F/numbers is a breeze. I prefer auto white balance which seems most effective when shooting stills and the AF set to the wide focus area setting. I also use multi metering and center metering modes with wide lenses like the Sony 12-24 F/4, Sony 16-35 F/4, Canon 8-15 Fisheye and Zeiss 18mm F/2.8.

I also use Inon 4600K warming filters on my Z-330 strobes to accentuate warm subjects while enriching blue water backgrounds. Inon also offers a 4900K warming filter which is good for enriching skin tones. The tradeoff for these filters appears to be about a one stop loss of light output, a small price to pay for a verity of color output choices.

I also align the front of the Z-330 strobes with the grips on the housing keeping them parallel to each other. This helps to prevent backscatter and harsh side lighting and flare from entering the frame.

For wider shots with greater camera to subject distances I turn the strobes about thirty degrees outward but still in line with the grips this helps to

Diver on the Baron Gautsch Wreck near a lifeboat davit, Rovinj Croatia, Sony A7 III, Sony FE 12-24 F/4 at 12mm, Nauticam NA-A7III housing, Zen DP-230 Dome Port, Two Inon Z-330 Strobes, ISO-320, F/7.1, 1/200th sec

reduce backscatter. When shooting subjects very close to the dome the strobe heads are parallel to dome port but still aligned with the grips.

When using a lens as wide as 12mm (122 degrees) backscatter and flare are common if strobes are not properly positioned for every shot. Just like with fisheye lenses looking into the corners of the EVF or LCD while composing the image is important. Items like your own fin tips, strobe cables, unwanted diver parts, sun flare and more can sneak into the corners of your image and ruin an otherwise excellent composition.

I will admit that I had to rethink and reconfigure my travel kit to accommodate the additional weight and size of the DP-230 dome port.

I opted to cushion the port with bubble wrap and stand it on the side in my ThinkTank Urban Disguise 60V2.0 shoulder bag rather than try to fit it into my Airport Roller bag. With the additional items in my shoulder bag it exceeded the airline weight restrictions by a few kilos, a risk I was willing to except since my shoulder bag is weighed far less often at the airports than my roller bag.

I would highly recommend this lens and port combination over the other Sony Full Frame wide angle lens offerings for underwater use unless for some reason you just can't live without a faster F/2.8 lens.

Thanks to the Nauticam USA team for assistance with equipment used for this review. Visit your authorized Nauticam, Sony and Zen



Underwater dealers for local pricing and further details.

I would also like to thank Asia Divers and El Galleon Resort in Puerto Galera, Philippines as well as Blue Planet Diving Center, Dubrovnik Croatia and Diving Rovinj, Rovinj Croatia for the excellent diving experiences while compiling information for this review.

Don't settle for 2nd best



Film - No Filter No
White Balance



Digital - No Filter Manual
White Balance



Magic Filter Manual
White Balance

Digital cameras have opened up new possibilities to underwater photographers. For available light photography manual white balance is an invaluable tool for restoring colours. But when you use it without a filter you are not making the most of the technique. You're doing all the hard work without reaping the full rewards. These three photos are all taken of the same wreck in the Red Sea. The left hand image was taken on slide film, which rendered the scene completely blue. The middle image is taken with a digital SLR without a filter, using manual white balance. The white balance has brought out some of the colour of the wreck, but it has also sucked all the blue out of the water behind the wreck, making it almost grey. The right hand image is taken with the same digital camera and lens, but this time using an original Magic Filter. The filter attenuates blue light meaning that the colours of the wreck are brought out and it stands out from the background water, which is recorded as an accurate blue.

www.magic-filters.com