Canon EOS R and Ikelite 200DL housing

by Phil Rudin





I first got my hands on the new Canon EOS R in late November at DEMA, the Dive & Equipment Marketing Association show held yearly in the US.

I had read quite a bit of the hype associated with the releases of both the new Canon EOS R and the Nikon Z6 & Z7 full frame mirrorless cameras along with the prognostications about how they would stack up against Sony's latest A7 III series full frame offerings.

For all three of these companies moving to a full frame mirrorless system required an entire new line of mirrorless lenses and mirrorless mount adapters to support full frame DSLR lenses already in their current lens lineups. The first mirrorless lens offerings from Canon and Nikon are not very well suited to underwater photography but loyal owners should be able to carry over current lenses using many of the ports, gears and extensions they already own.

The EOS R is Canons first mirrorless full frame camera and it features a 30.3MP high resolution full frame CMOS sensor much like the one used in the 5D MK IV DSLR. The EOS R includes the latest DIGIC 8 image processor and has a native ISO range from 100-40,000 with a continuous shooting speed up to 8 frames per second in S-AF and 5 frames in C-AF.

The body has UHD 4K30 video recording at 10-bit 4:2:2 output over HDMI and a dual pixel CMOS AF system with up to 5655 selectable AF points. The EOS R has an excellent 3.69m-dot OLED EVF which has 0.71x magnification. The large 3.15 inch 2.1m-dot LCD screen features a swivel design for easier use which is also front-facing for bloggers. It is also has touchscreen and multi-function bar for intuitive control over shooting, playback, and menu navigation.

Other features include a single card slot for SD, SDHC & SDXC media cards, eTTL with a maximum 1/200th sec. sync speed, robust weather sealing for the new EOS R and RF lenses like the 24-105 F/4L used for this review. The EOS R features a large 54mm diameter lens mount which allows lenses with larger rear lens elements to sit closer to the sensor than on a DSLR allowing increased corner and outer edge sharpness. The lenses can also be a bit more compact than equivalent coverage area EF-mount lenses.



Some Canon RF lenses will feature a customizable control ring which will also be available on one of the three EF-mount lens adapters, this ring can be used to control various exposure settings. With RF lenses, manual focus is being controlled electronically which allows for changing the direction of rotation for the manual focus ring to suit each photographers needs.

The EOS R is also capable of using the large EF-mount lens lineup via three optional adapters, a simple EF to R adapter, one which supports the customizable control ring and another that features a drop-in filter mount. The EOS R has been widely reviewed by sites like DPReview.com and I would direct to those sites for a full camera review.

The Canon EOS R body retails for around $2299.00/£2249.00 and is sold as a kit with the EF-EOS R mount adapter for $2398.00/£2349.00 or with the 24-105 F/4L lens for $3399.00/£3269.00.

For this review I provided with two lenses the Canon EF 8-15mm F/4L Fisheye USM zoom with the Canon EF-EOS R mount adapter and the Canon RF 24-105mm F/4L IS USM. The EF 8-15mm Fisheye is a highly recommended DSLR lens which was released in 2011 and the RF 24-105 F/4L is a native lens, one of the first four lenses released specifically for the EOS R mirrorless system.

While I have only tested the RF 24-105mm on the EOS R I found the build quality and image quality to be excellent. I have no doubt that this lens is capable of excellent results with the much higher resolution mirrorless sensors that are sure to come from Canon in the near future. The RF 24-105mm also has the built in image stabilization which Canon chose to omit from the first EOS R mirrorless full frame body.

I have used the EF 8-15mm Fisheye with the higher MP Sony 42MP bodies in past reviews and had excellent results. Most unique about the EF 8-15mm Fisheye is that it works like two lenses in one package. The 8mm end of the lens is a full frame circular fisheye while the 15mm end of the lens is a conventional fisheye on full frame. This lens focuses to 15cm (5.91 inches) with a maximum reproduction ratio of 1:3 which makes it excellent for close focus wide angle with a small dome port like the Ikelite 8 inch compact.





Most of the focal lengths between the 8mm and 15mm ends of the this lens will be cropped off on the top and bottom of the frame as the lens is zoomed. It you would like to read my full review for the 8-15mm fisheye zoom it can be found in UWP issue #93. At this time like the Nikon Z6 & Z7 the EOS R is living in a parallel universe between the 60+ EF and EF-S lenses which are adaptable with the EF-EOS R mount and the four new RF lenses none of which are really well suited to underwater work.

The Canon RF 24-105mm F/4L lens retails for $1099.00/£1119.00 the EF-EOS-R mount adapter retails for $199.00/£199.00 and the EF 8-15mm F/4L Fisheye retails for $1249.00/£1149.00.

Ikelite 200DL Canon EOS R Housing

Ikelite Underwater Systems is a USA based company which has expanded its distribution network to cover most areas of the world during its fifty plus years in business. Ikelite has a large and loyal customer base built on a foundation of excellent customer support and product reliability. During DEMA in November 2018 Ikelite introduced a new 200DL housing for the recently released Canon EOS R Full Frame mirrorless camera.

The newly released Ikelite 200DL housings future the greatly improved “Dry Lock” port mounting system. New lighter ports are also being added to the product line and a lighter and thinner back plate is being developed for shallow water applications like surf photography.

The 200DL housing is the same size used for all of the current Canon DSLR’S, Nikon DSLR’S, Panasonic DC-G/GH systems and the Sony A7 II, A7 III and A9 series cameras. Please don’t get the impression that because all of these camera systems use the same 200DL size that modifications to the 200DL are not on going.

I will point out just a few of the improvements I noticed on the EOS R housing when I first handled it at DEMA. The backplate has been shaved down so that it fits flush to the front half of the housing, on the inside of the backplate the area around the cameras viewfinder has been recessed so that the cameras eyepiece comes closer to the rear housing viewfinder allowing a better view into the viewfinder, the black pad on the

rear plate which holds the camera in place has been moved lower so that it presses against the camera tray instead of the camera and drainage holes have been added to the housing grips so that the water runs out as soon as you finish the dive and not on the floor in your home or hotel room. Improvements to control ergonomics have also been made along with port and gear upgrades.

The Ikelite 200DL housing for Canon EOS R features the signature opaque light gray ABS-PC polycarbonate material for the front section of the housing with a transparent DSLR style polycarbonate housing back plate. The light gray housing color matches the Ikelite DS strobe line creating an attractive system package. The light gray housing color also shades the camera and provides extra protection from the sun during long boat rides.

The EOS R production housing supports Canon e-TTL on the EOS R camera when paired with Ikelite DS series TTL strobes. My prototype housing was only wired for shooting with production Ikelite DS strobes firing in manual mode. I have extensive past experience using Ikelite TTL in other Ikelite housings and the electronics have always been excellent.

The housing can be purchased with a manual sync adapter or the optional CT2K Canon e-TTL kit with Hotshoe. The CT2K provides integrated TTL encoding specific to each camera model and tuned to the Canon EOS R exposure protocol. The TTL converter fits under the camera mounting tray and is a plug and shoot unit which requires no maintenance or additional battery.

Exposure compensation in TTL mode is supported using the cameras built-in controls which can be accessed in several ways and assigned to



Florida Freshwater Turtle, Ginnie Springs, Florida, Canon EOS R camera, Canon 8-15mm F/4L Fisheye with EOS R lens adapter at 15mm, two Ikelite DS-161 Strobes, 8 inch compact port, ISO-400, F/13, 1/200th sec

different function buttons to suit the users needs. Other TTL strobes from Ikelite, Inon, Sea & Sea and others can also be used with Ikelite electronic sync connections but only in manual exposure modes.

The housing includes a base plate with left-hand quick release rubberized handle, mounting threads for an optional right handle, port opening cover which locks in place, a waterproof bulkhead cap to protect the strobe cord socket when not in use, silicone O-ring lube and a two year limited warranty. A verity of optional ports, extensions and gears are available which cover lenses form Canon and third party manufactures. The ikelite.com web site has a complete lens chart which is continually being updated as new lenses are released.

My prototype housing included the optional right-hand quick release handle, vacuum pump with gauge and cable grip. The housing was also equipped with two Ikelite accessories I had not used

before, the straight magnified optical viewfinder and the new trim weight system for DSLR and mirrorless housings.

The trim weight system addresses an issue I pointed out in my review of Ikelite's DL200/Sony A7R III housing in UWP issue #103 where the 200DL housing with the eight inch dome port would float in both salt water and fresh water. The Trim Weight System mounts to the tripod threads on the bottom of the housing and extends forward under the port. You then mount any hard or soft weight (not included) up to five pounds using an elastic velcro strap to offset the buoyancy of the dome.

I used a three pound weight in salt water and it allowed me to put the housing on the bottom without having it float away. The trim weight system weights 273g (9.6oz) and can easily be packed in checked or carry-on luggage.

Field Testing the Ikelite 200DL/EOS R Housing

For the Canon EF 8-15mm F/4L Fisheye zoom I used the Dry Lock eight inch Compact acrylic port (#75344) and the 28mm lens extension (#75028 and gear 5509.30). This lens can also be used with the full eight inch dome (#75340) and 20mm extension (#75020) or without the extension. The difference between these ports is that the 8 inch compact dome port takes a cross section of the top of the full 8 inch port so that it retains the same curvature while reducing the diameter to under six inches.

This was my first time using the Compact port and I wanted to compare the results with the past images I had taken using the 8-15 fisheye and full 8 inch port. After my side by side comparison of images taken with the compact port I was hard pressed to see any image quality differences when shooting within my normal F/stop range.

At the circular fisheye 8mm end of the lens both port need to have the shades removed to prevent vignetting, this is done by loosening three small Allen screws on the port and pulling it off. Once the port shade is removed the neoprene port cover which I always leave on until I am in the water can still be used to protect the dome.

With the compact port I did not need the trim weights because the housing was very well balanced for my liking. With the full eight inch dome port I would highly recommended the trim weight system for best balance in both salt and fresh water. The 8-15mm fisheye has excellent depth of field from F/8 on a full frame sensor and I control ambient exposure using shutter speed and ISO to balance strobe lighting. I find the best corner sharpness with wide, super wide and fisheye lenses in the F/13 to F/20 range on full frame but I was not disappointed with wider aperture settings down to F/8.



Tanic water from the Santa Fe River flows over Devil's Ear cave entrance at Ginnie Springs, Florida, Canon EOS R camera, Canon 8-15mm F/4L Fisheye with EOS R lens adapter at 8mm, 8 inch compact port, ISO-400, F/8, 1/320th sec, no strobes

Large acrylic dome ports tend to reflect the etchings on the front of the lens back onto the sensor in overhead sun light when you are near the surface. With coated optical glass ports this is much less of an issue. With Ikelite's large 8 inch port at or near the surface in bright overhead sunlight I have had reflections onto the sensor in the past but with the new compact port this was not an issue for me.

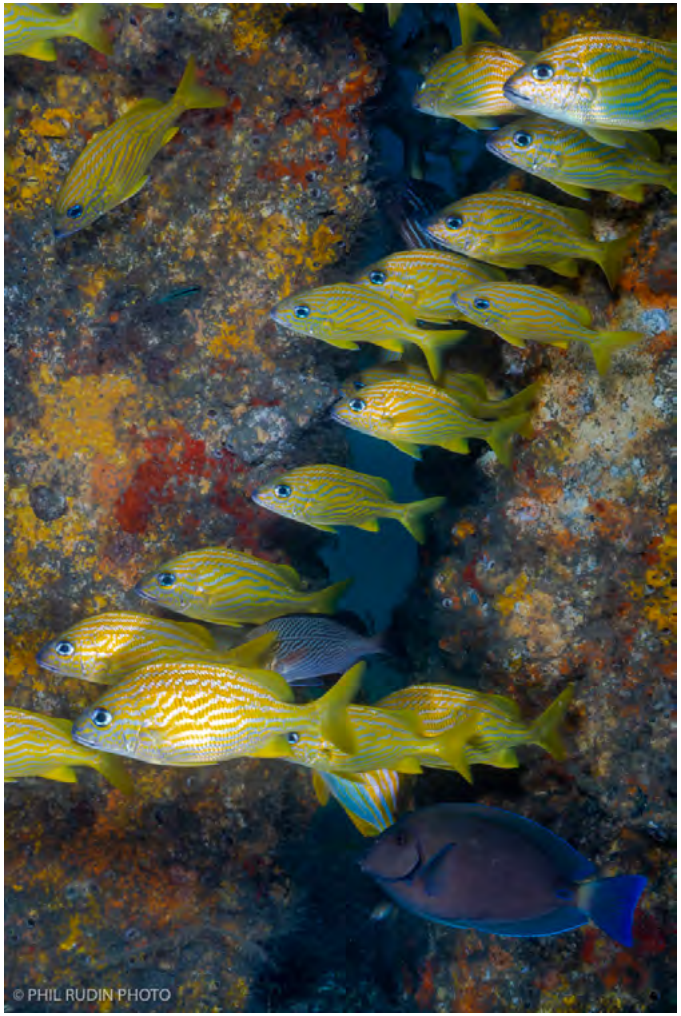
The RF 24-105mm F4L lens requires the full 8 inch port (#75340) and you have two port extension options. Extensions (75020 and 75042) combined give the superior edge sharpness at a total length of 62mm or the 50mm (#75050) extension can be used. Both combinations require zoom gear (#5509.32). Again I would be

recommending the trim weight system with this lens/port combination for best results.

With the port and two extension 62mm combination I had an issue with focusing beyond about 60mm. At the 24mm end the port works well and the images are crisp and sharp. As the lens is zoomed out it begins to hunt and then to not focus at all. This is a common issue with lenses that have minimum focus distance beyond about 30cm (1ft). The RF 24-105mm minimum focus distance is around 45cm (1.48 ft) so the lens is trying to focus outside the virtual image created by the 8 inch dome port by around 60mm. As Ikelite indicates on their website a +4 closeup lens is recommended to resolve this issue and allows the lens to zoom through the entire range. Since I don't own the +4 lens I was unable to properly test the longer end of this lens. I hope to have a chance to fully test this lens in future reviews of Canon mirrorless cameras.

Both lenses are mounted from the front of the Ikelite housing so the camera first needs to be installed in the housing. Mount the assembled camera (formatted card, fresh battery, etc.) onto the camera tray using the simple tripod screw and slide the camera into the front half of the housing. Be aware that the camera tray has no lock so the best way to prevent the camera from moving is to point the front of the housing with the port side down until the housing is fully sealed. The hotshoe then needs to be pushed ALL the way forward into the camera hotshoe, next align the control levels over the controls on the camera.

Once this is done the back plate is mounted and the three lid-snaps can be secured using even pressure on all three to properly seal the rear O-ring. After the housing is closed the camera tray will not move and the lens can be mounted from the front port opening. I keep the front cap on the camera until I am ready to mount the lens to prevent the rather large sensor from collecting any dust bunnies.



Schooling French Grunts, Blue Heron Bridge, Riviera Beach, Florida, Canon EOS R, Canon 24-105mm at 61mm, two Ikelite DS-161 Strobes, ISO-400, F/16, 1/200th sec



Schooling Atlantic Spadefish, Blue Heron Bridge, Riviera Beach, Florida, Canon EOS R, Canon 24-105mm at 24mm, two Ikelite DS-161 Strobes, ISO-400, F/20, 1/200th sec

Ikelite has developed an excellent system for mounting lens gears. Rather than mounting the gears directly to the lens they have taken a different approach. Ikelite provides a port cover, zoom/focus gear retainer and gear retainer tool with the DL200 housings. Using the gear retainer tool remove the gear retaining ring turning counter clockwise, then

remove the port cap.

The next step is to install the zoom/focus gear into the port opening with the gear teeth towards the inside of the housing. Make sure that the teeth align with the teeth on the zoom/focus control wheel which is operated from the left hand side of the housing. Then replace the threaded retainer ring with the tool turning clockwise until snug. Now the gear is captured in place and won't be miss aligned while the lens is mounted to the camera body. Just remove the camera and lens caps, push the lens into place through the zoom gear and lock into place on the camera body. Once this is done test to be sure the lens is zooming or focusing correctly.

I have used this gear system on several of the Ikelite housings and it is a simple and very effective way to keep the gears aligned on the lenses with a minimum of frustration. The port is then installed over the lens and pushed into place over the O-ring on the front port mount. Three thumbscrews are provided to hold the port in place on the front port mount.

To be clear the Dry Lock ports have no O-ring, the O-ring is located on the housing port mount. In previous Ikelite reviews I have found the Dry Lock port system to be far superior to Ikelite's old FL port system which secured the ports with four locks on the front of the housing.



Little Devil at Ginnie Springs, Florida, Canon EOS R camera, Canon 8-15mm F/4L Fisheye with EOS R lens adapter at 10mm (notice how the edges of the frame are cut off using 10mm), 8 inch compact port, Ikelite DS-161 Strobes, ISO-400, F/16, 1/200th sec

The housing also comes with a vacuum valve already installed and I recommend purchasing the optional vacuum pump and gauge ($60.00 US) to add an additional layer of protection from flood damage to the system. When the housing is fully assembled and everything has been tested including firing the strobes simply attach the pump to the valve and pull the vacuum.

For this review I used two



The Author (foreground) with Dive Buddy Christian at Ginnie Springs, Florida, Canon EOS R camera, Canon 8-15mm F/4L Fisheye with EOS R lens adapter at 8mm, 8 inch compact port, Ikelite DS-161 Strobes, ISO-800, F/22, 1/200th sec

Ikelite DS-161 strobes with four Ikelite seven inch double ball arms with clamps and an Ikelite dual sync cord. My prototype housing was not equipped with TTL circuitry so I was shooting with a manual sync cord and adjusting strobe power levels on the fly using the 10 1/2stop manual control increments. Since this is my normal shooting style with all strobes



Under the Blue Heron Bridge, Riviera Beach, Florida, Canon EOS R, Canon 24-105mm at 24mm, two Ikelite DS-161 Strobes, ISO-400, F/16, 1/200th sec

I did not miss the TTL. I have found Ikelite's DS-161 strobes to be among the best in the industry and they did not disappoint when used with the Canon EOS R camera and lenses. My full review for the Ikelite DS-161 strobes is in UWP issue #81.

The controls on the DL200 housing are ergonomic and intuitive making it easy to use the rear thumb focus level which I prefer in most cases. While testing this system I shot using the LCD screen and for the first time the optional straight optical viewfinder.

Auto focus for the most part was fast and accurate in AF-S using both the LCD and the accessory viewfinder. I did not find the AF-C on the EOS R to be at all useful underwater an issue I hope Canon will be able to address through a firmware upgrade.

I preferred using the EOS R's very large and excellent electronic viewfinder with the accessory optical viewfinder both for wide lenses and closeups. I also found it difficult to toggle between the EVF and LCD because no function button is located on the body for that purpose. Canon instead relies on the sensor under the viewfinder to switch between EVF and LCD something that does not work inside any underwater housing.

The housing ships with a useful pickup finder but it does not do justice to the outstanding EVF found on the EOS R. I would recommend adding an optional Ikelite 45 degree or straight optical viewfinder if you intend to us the EVF frequently.

The zoom/focus control on this housing is smooth and easy to reach with the left forefinger. I controlled many settings like ISO, focus area, frame rate, focus point array and more from the large control display on the accessed through the Info button on the rear of the camera. This function can also be assigned to other buttons on the camera body.

Changes in the control display are very easy to see and navigate through using the arrow pad buttons on the rear of the housing. For shutter speed and aperture control I used the front and rear control wheels on the housing. A complete DL200 housing manual describing all of the controls can be found on the Ikelite.com web site in the housing information area.

Since I am not much of a video shooter you will need to look elsewhere for reviews of video performance using EOS R. The customizable multi-function bar located at the top right of the EVF is not supported by this or any of the other EOS R housings I have seen. This function is a bit like trying to support a touch screen from inside a housing. All of the functions accessed by the multi-function bar can also be accessed via other controls supported by the housing.

The Ikelite DL200 Canon EOS R housings retail in the US for $1695.00/£1650.00, the eight inch DL port is $450.00/£460.00 and the DL eight inch compact port $350.00/£360.00 port extensions are in the $200.00/£210.00 to $250.00/£285.00 range, with gears in the $25.00/£28.00 to $35.00/£33.00 range depending on the lens being used. The Ikelite DL200 system is attractively priced and is excellent value.

Phil Rudin
www.instagram.com/philrudinphotography
www.ikelite.com

