

Turtle TTL Optical Flash Trigger

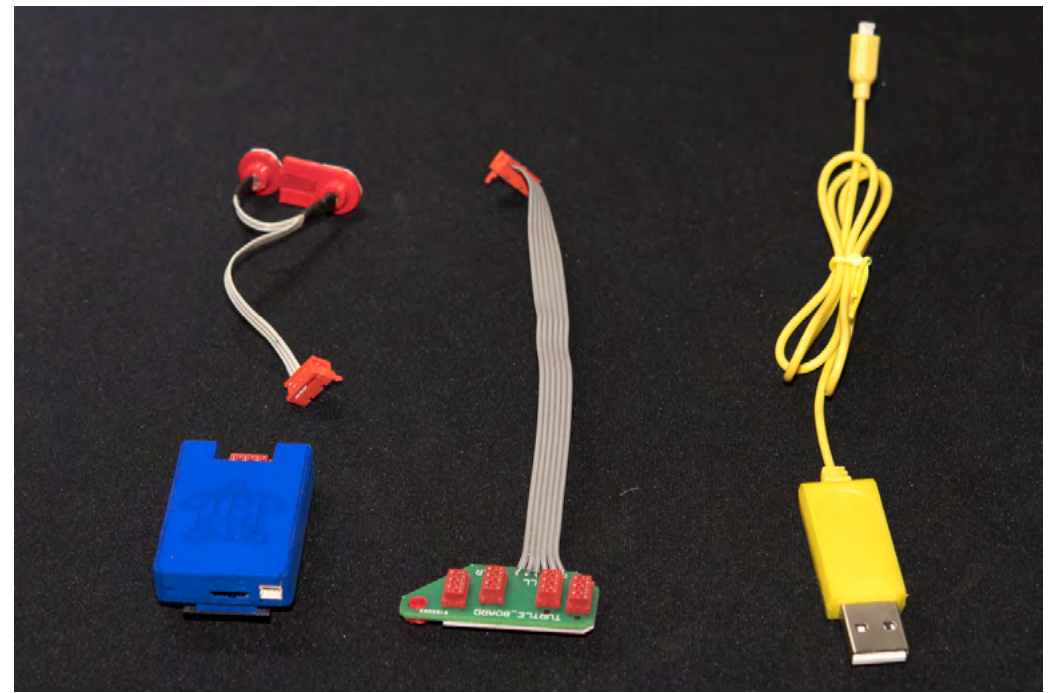
by Alex Tyrrell

For the last few years I have been eagerly awaiting the release of an optical flash trigger that can be used in my Subal housing. The main reason being for travel, so I can leave behind the heavy electronic sync-cords (including a back-up set, plus a spare dual cable just in case!), to be replaced with lightweight fiber-optic cables. An added advantage is having four fewer O-Rings to inspect and maintain, even though I generally leave the sync-cords permanently attached to the strobes when diving regularly. Also, optical cables will make packing for my daily shooting a touch easier, leaving my strobes free from cables to pack wherever I like in my rucksack that I use to carry my already prepped rig to the boat.

I have been a Nikon & Subal user for more than 10 years, starting out on the D200, then upgrading to the D7000 that gave me the option of triggering the strobes using the internal flash. But from numerous reports I had read, this wasn't the ideal solution with restrictions on the recycle time of the onboard flash. And

a recent upgrade to the D500 ruled out this option altogether, as there is no onboard flash, as is the case with all pro-body cameras, including the Nikon D4 and D5 and Canon 1DX, 5D and 6D.

If you use Nauticam housings, you have had an option for optical triggering your strobes for some time, initially with the Nauticam Flash Trigger and more recently the UW Technics Circuitry that is also available for Aquatica housings. Nauticam have also recently released a TTL circuit board with both optical & electrical connections. Sea & Sea offer an Optical YS-Convertor for some Nikon, Canon & Sony housings that converted the electrical signal from the camera to an optical one to trigger the strobes in either Manual or TTL, the same as the UW Technics does. But other housing brands the only option was to the use of the onboard flash to trigger the strobes via fiber optic connections. And as previously mentioned, this isn't even an option for my Subal ND500 and other pro bodies.



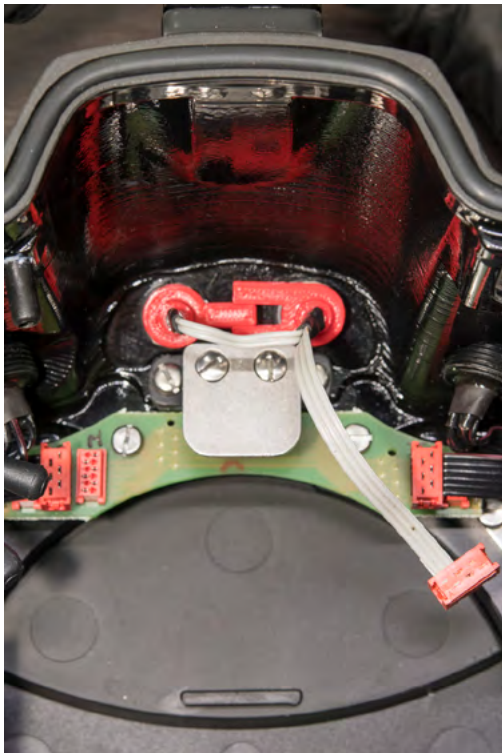
TURTLE, LED Board, TURTLE Board & USB Charger

Enter the TURTLE from Hungarian based TRT Electronics that is currently available in models that work with either Nikon & Canon cameras. The TURTLE is tiny (smaller and lighter than an AA Eneloop battery) so when plugged into the cameras accessory shoe, it will still fit inside most camera housings.

All that is needed is the housing to have Fiber Optic Ports that the LED's can be attached behind. And for older housings that do not have the fiber optic ports, there will soon be an LED bulkhead available allowing you

to use the optical capabilities of the TURTLE. But the TURTLE is more than just an optical trigger, it provides TTL flash function for a variety of strobes in both optical and electronic form.

The TURTLE measures a diminutive 41mm long, by 29mm wide and 14mm deep and is shipped with an LED Board that connects directly into the TURTLE for optical strobe triggering in both Manual and TTL Flash Modes. These have a self-adhesive backing, so you simply stick them into place on the inside of your housing.



LED Board Installed In Housing – the LED Board is attached via the self-adhesive pads on the inside of the Fiber Optic Ports.



TRT Installed In Subal ND500 – The TRT easily fits into the Subal ND500



The underside of the TURTLE showing the DIP Switch in the bottom right corner that is set according to the make of strobe you are using.

There is also the TURTLE Board (an electronic circuit board) that allows connection of both electronic bulkheads and the Optical Board, again allowing both manual and TTL strobe triggering. You also get a USB Charging Cable in the box. The cost of the unit is €459 for the Nikon version and €489 for the Canon model.

The internal battery of the TURTLE is advertised as giving

2,000 images on a single charge and a full recharge takes only 1-hour, via a 5V1A USB port. So you can charge from your laptop, power bank or wall mounted USB plug. It has a battery life indicator LED at the rear that blinks when 30% remaining is reached.

The unit is billed to have full electronic TTL Mode via the TURTLE Board compatible with Sea & Sea

YSD1 & D2, Sea & Sea YS250, Inon Z220, Inon Z240 Type 3 & 4 as well as all Ikelite models. Optical TTL is compatible with YSD1, YSD2 & Z240 and the TURTLE Board can be omitted with the LED Board connecting directly to the TURTLE.

To set up the TURTLE for your specific strobe model, you need to set the DIP Switch on the bottom of the unit. Instructions on which of the four

available settings to use are provided with the unit and are quick and easy to change.

I ordered my TURTLE direct from TRT Electronics in December, which was shipped to the UK and then had it brought over to Thailand just before Christmas, though was unable to dive with it until the end of January, due to various reasons including some nasty weather that brought viz down to zero! But since installing it into my housing I have been very happy with the results. It has triggered my strobes every time without fault, using both Sea & Sea YS-250 Pros and Inon Z240.

Only owning Nikon cameras means I have only tried the Nikon version, and there were some specific settings that needed to be set within the camera to get the unit to perform optimally.

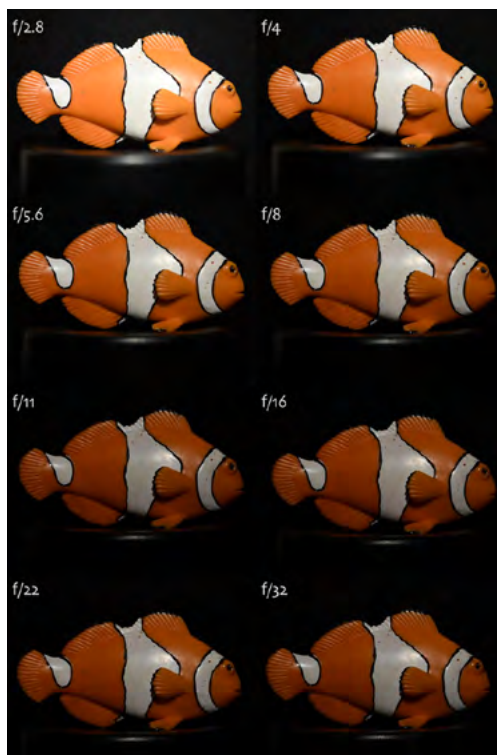
First of all I had to turn off the LCD Illumination (Custom Menu d9) as this is what controls the TTL/ Manual Modes. When you attach the TURTLE to the cameras accessory shoe and power on the unit, the default mode is TTL that is indicated on the rear LCD screen.

To switch to Manual Mode, turn on the LCD Illumination by flicking the power switch past the ON setting. Repeat to go back to TTL Mode. If you turn the camera off or the Standby Timer is activated (the camera is not



The Flash Mode (M or TTL) is displayed in the bottom left of the D500 LCD Screen when the Info button is pressed.

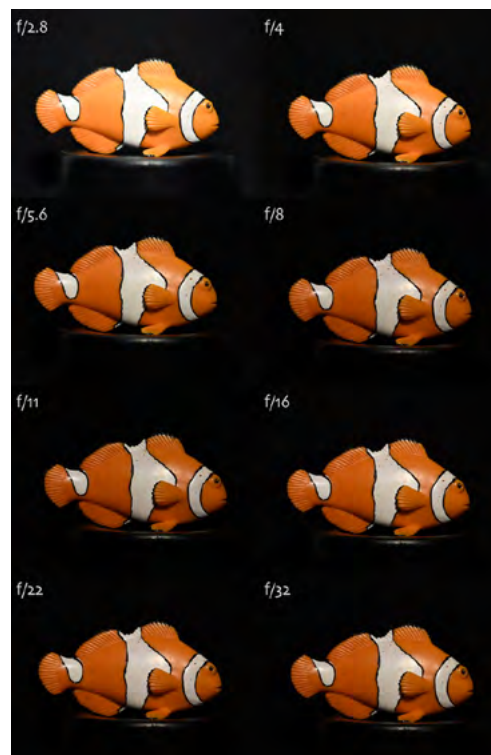
used for a certain period of time and the shooting data is not visible from the viewfinder), the Flash Mode with reset to the default TTL Mode. This is fine when shooting in TTL, but not ideal if shooting manual, as your strobe will then fire on the TTL pre-flash and may not have fully recycled for the actual exposure. To stop this happening I changed the Standby Timer (Custom Menu C2) to a duration of 10 minutes, which means



TTL YSD1 Test - D500 with 60mm Lens, Sea & Sea YSD1 on TTL Mode, ISO 100 - 1/1250th

that after 10 minutes of inactivity it will then go into Standby Mode and reset the TURTLE to TTL. I initially set this to No Limit, but found that the camera's battery drained quicker than usual, and if you forget to turn the camera off in between dives you may be left with a depleted battery.

I timed how long it took for the battery to completely drain, by leaving the camera turned on and the Standby Timer set to No Limit and it was approx. 4-hours on the D500 with



TTL Z240 Test – D500 with 60mm Lens, Inon Z240 on S-TTL Mode, ISO 100 - 1/250th

a new, fully charged, original Nikon battery.

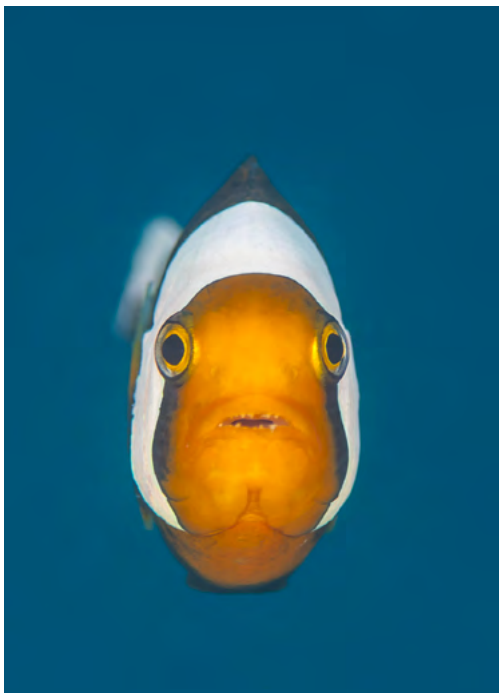
The other option is leaving your Standby Timer set to a shorter duration for improved battery life and then remembering to check what mode the TURTLE is set to prior to shooting, and quickly changing if in the wrong mode.

The Canon version of the TURTLE needs to be set into Manual Mode via the DIP Switch, so will not have this issue, however this does

mean you cannot switch between TTL and Manual Mode during a dive, which is a feature that some users may find helpful. I have mentioned this to Balázs at TRT Electronics and this has been taken on board and will be addressed in future models, possibly by incorporating a choice of Manual or TTL default option that can be selected by the user. This would be good for times when you are more than likely to be shooting manual than TTL and therefore optimize battery life i.e. wide-angle shooting when TTL accuracy is not so reliable.

I purchased the TURTLE with the intention of using it solely as an optical trigger, as I always shoot in manual mode. I had no real desire to shoot in TTL. My last venture into the realms of TTL while shooting underwater was back in 2011 while in Malapascua, using my D7000 with the internal flash, and to be honest really didn't like it, the shooting speed was just too slow.

After a single dive, I reverted to my trusty sync-cords and manual strobe exposures. But for the purpose of this review I thought I should give the TTL feature a go, so on a dive switched into TTL Mode, that on Nikon cameras is possible to do underwater by simply switching my Z240's to S-TTL, adjusting the power dial to the correct position and then switching the TURTLE into TTL



Saddleback Anemonefish (Amphiprion polymnus) – Nikon D500, Nikkor 105mm VR, 2 x Inon Z240 in S-TTL Mode, f/5 – 1/250th, ISO 400

Mode. This is achieved by simply activating the backlight on the power control.

I was then pleasantly surprised by the speed of shooting I could achieve in TTL Mode, that didn't seem that much slower than shooting in manual. I was able to capture precisely timed shots without the TTL lag that I had experienced on my D7000. Shrimp Gobies with fins fully extended were no problem. Saddleback Anemonefish facing into



Steinitz's Shrimpgoby (Amblyeleotris steinitzi) - Nikon D500, Nikkor 105mm VR, 2 x Inon Z240 in S-TTL Mode, f/4.5 – 1/250th, ISO 400

the camera for a split second posed no timing issues. And the exposures were good.

I purposely shot at wide apertures to test out the accuracy of the TTL (but did forget to dial down the ISO from 400 that I was using on a previous shot!). Also I selected the light coloured Shrimp Goby for my first subject to see how it handled the highlights. And my second subject of the Saddleback Anemonefish has both black and white colouration for an even tougher test.

On both subjects the exposure

was bright, definitely to the right side of the histogram, but the highlights were not blown out.

Upon downloading the images to Lightroom, a quick drop in exposure brought back the detail, leaving me with what I would have strived for if I were shooting manual exposures.

I started the dive thinking it would be one of the rare occasions I opted to shoot TTL, but came up thinking that I would quite probably use TTL again! Even though it is not essential in the digital age with the instance review of images allowing

for camera/strobe setting adjustments, there are certainly circumstances where TTL would be handy to ensure an accurate exposure.

I ran some dry tests with the TURTLE in TTL Mode using the LED Board to optically trigger the strobe. I tested both Inon Z240 and Sea & Sea YS-D1 to see how accurate and consistent the exposures were through a range of apertures.

I set-up my D500 with Nikkor 60mm ED lens, shooting a single strobe with no diffuser in place. Camera settings were ISO 100 and 1/250th shutter speed. I didn't dial in any TTL Exposure Compensation on the strobe.

I ran through a range of whole f-stops from f/2.8 through to f/32 shooting a very cooperative plastic Anemonefish that I use for classroom practice in the photo courses I run, as this shows blown-out highlights very well.

When shooting with the Inon Z240, the D500's LCD showed some blown out highlights at f/2.8, but at all other apertures it was accurate and exposures were consistent.

When I imported the images into Lightroom CC it confirmed what the LCD showed, with a slightly brighter image at f/2.8 with a small amount of highlight clipping on the JPEG File. The RAW File did not show any clipped highlights.

With the Sea & Sea YS-D1 the exposure was a fraction darker than with the Z240 through the series, but still pretty consistent across the range of apertures. Again there was slight highlight clipping at f/2.8 on the JPEG File, but not on the RAW. A small positive adjustment to the TTL Exposure Compensation would easily rectify the slight underexposure from the YSD1.

The only improvements to the unit that I can currently think of, would be to add a manual mode override or default mode selection switch to preserve the camera battery life. And although not totally necessary, maybe some more advanced battery meter, letting you know the battery level prior to it reaching 30%. Though with 2,000 shots per charge, you still have 600 remaining at this point, so should easily get you through a days shooting!

Overall I am very impressed with the TURTLE and consider my money well spent. I'm also happily surprised at how well the TTL performed, particularly the shooting speed.

With no initial intention to use the TTL function, except maybe in rare circumstances, it may well be something I start switching to more frequently. Time will tell on this.

But the main reason I purchased this device will be put to good use

very soon, with an imminent trip to Lembeh. With the absence of four heavy electronic sync cords, plus the even heavier back-up dual cord, my camera bag will a bit lighter than normal!

Disclaimer: I purchased the TURTLE direct from TRT Electronics at a slightly discounted rate in exchange for feedback on the unit after testing, suggestions for improvements on future versions and the use of some of my images that were taken during the testing for their marketing.

Alex Tyrrell

Alex operates Dive4Photos, Thailand's only dedicated underwater photography training facility, located on Koh Tao in the Gulf of Thailand. He also runs regular Photo Workshops & Photo Tours to various destinations around Asia.

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