ZW Technics

#11043 Optoelectronic TTL-Converter (for NIKON) for SEA&SEA underwater photo housings

MANUAL

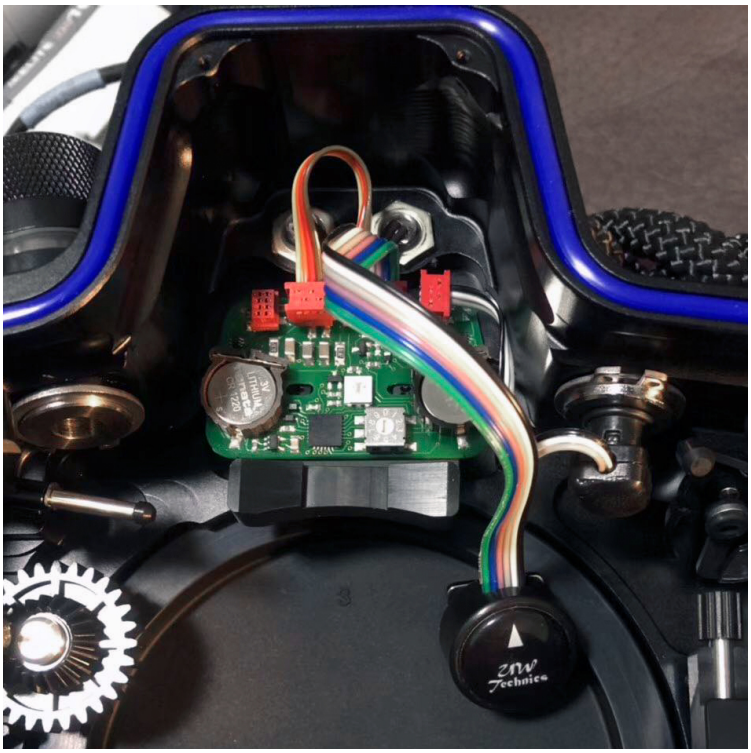
Specifications

- Compatible photo cameras: all Nikon DSLR and Mirrorless cameras
- Compatible underwater housings : Sea&Sea MDX-D500, MDX-D850, etc. (specify other compatible models)
- Compatible TTL strobes: Inon Z-240, Z-330, Sea&Sea YS-250, YS-D1,YS-D2; Ikelite DS-161, DS-160
- TTL outputs onboard: 2 optical, 2 electric
- ISO camera range: 50….25600
- Continuous shooting mode (CL / CH) support: yes
- "Rear/Front Curtain" modes support: yes
- Switching "TTL / M" underwater: yes
- (+/-) "Flash Exposure compensation" control underwater: yes
- Switching power "ON/OFF": automatic by camera command
- Battery type: CR1220 (2pcs.)
- Current consumption (in standby mode) 0.01 mkA
- Battery capacity (+20°C): 25 000 flashes, or 1 year continuous work
- Recommended Fiber-optic cable type: Nauticam 26616, HowShot 613L, Sea&Sea
- Compatible Electric Sea&Sea Bulkhead type: Nikonos-5
- Dual Electric Sea&Sea cable support: yes
- Indication: 3-color status LED: "TTL mode", "Manual Mode", "Low Battery"

Safety Warning for Batteries usage

- Use batteries only CR1220 type.
- Batteries must be new and undamaged. Carefully check batteries before usage.
- To avoid leakage or explosion, always check appropriate battery terminals position ("plus" / "minus") before installing to the TTL-Converter.
- Never expose batteries to overheating, short-circuiting, disassembling, high pressure, mechanical deformation. Save batteries from high humidity and water. All these circumstances may cause a chemical leakage, electric shock, explosion or fire, which can be dangerous for health.
- Always remove batteries from TTL-Converter after use, before storage.
- Utilize used batteries according appropriate rules.
- Keep out batteries of children. Save batteries in inaccessible for children place

installation



- Replace original optical bulkheads of the housing by special optical bulkheads for LEDs, included with TTL-Converter. Tighten the nuts slightly. Fix the nuts by a drop of paint, to prevent unscrewing for future.
- Unscrew 2 bolts from podium in the housing.
- Install TTL-Converter board on the podium. Screw long bolts through the board holes to podium.
- Insert LEDs into optical bulkheads. Fix LED by a drop of glue, if necessary.
- Connect LED's cable to TTL-Converter central 4-pin socket on the board.
- Install batteries to TTL-Converter. Both batteries must be installed terminal "+" upwards.
- *(Optional).* Connect Nikonos-5 bulkhead of the housing to one of the 4-pin side sockets on the board, using cable/connector included with TTL-Converter. The second cable/connector (for 2-nd bulkhead, if exists) is optional product, must be purchased separately.

External cable connections for underwater strobes

- TTL-Converter maintains synchronization for underwater strobes by Fiber Optical cable connection and by Electric cable connection as well.

Fiber optical cables:

- Maximum 2 Fiber Optic cables can be used (via housing optical bulkheads). Posible to connect 2 underwater strobes.
- **IMPORTANT!** Dual fiber optical cables usually don't support reliable TTL operation via optical bulkheads, because of their optical connector construction. Recommended to use only single fiber optical cables.

Electric cables:

- Maximum 2 Electric cables can be connected (via housing electric bulkheads).
- Dual electric cable ("Sea&Sea") is supported by TTL system at each electric output as well. Using 2 dual cables, possible to control 4 underwater strobes simultaneously.

Shooting in TTL mode

- Set and check camera settings before underwater shooting:
  - Set appropriate camera's Exposure Meter Type ("Matrix", "Central-weighted, "Point") according your shooting tasks. Right type of exposure metering is the key setting for accurate TTL work. In case of wrong setting, the shot may be overlighted, or underlighted.
  - For TTL operation user can set desired sync speed by camera menu, excluding sync speeds marked as "Auto FP". According the construction underwater strobes cannot work in FP synchronization, that is why "Auto FP" camera command is free for them, and it is assigned in TTL Converter firmware for switching system to Manual mode. Photographer can use it to switch TTL / M underwater.
  - Set "exposure compensation" and "flash exposure compensation" to "0ev", as initial settings.
  - Set appropriate ISO. TTL-Converter can work in ISO range 50….25600. Recommended to use ISO 50….400 for best resolution and TTL accuracy underwater. For Macro shooting recommended ISO 50-200.
    Be careful choosing extremely high ISO or "Auto-ISO" mode, it may cause overlighting by underwater strobes.
  - Set camera aperture and shutter speed according real underwater conditions and shooting task.
  - Set recommended apertures F8-F16 for wide angle photo, and F16-F22 for Macro photo, as initial settings.
  - Use other settings recommended by your camera User's Manual.

- **IMPORTANT**! For normal TTL accuracy the minimum distance from strobe to a subject must be more than 0.35m under water (or more than 0.7m at land tests).
- Set underwater strobe dial switch to desired TTL mode. Please refer to strobe User's Manual to choose appropriate mode. Usually it marked "S-TTL" ("DS-TTL II", "TTL") on the strobe's body.
- Set (+/-Ev) dial switch on the strobe body to "0 Ev" position, as initial setting for Optical TTL usage. It may be adjusted later.
- For Z-240 Electric cable TTL usage set (+/-Ev) dial switch to position "TTL" (another words "9 o'clock" position). For Z-240 Fiber Optical cable TTL usage set (+/-Ev) dial switch to position "0 Ev" (another words "12 o'clock" position). Magnet must be in "Push" position for both cases.
- Set TTL-Converter rotary switch according your strobe type:

  - **0 – Manual Mode (TTL protocol is disabled)**
  - **1 – Inon Z240, Inon Z330**
  - **2 – Sea&Sea YS-D1**
  - **3 – Sea&Sea YS-D2**
  - **4 – Sea&Sea YS-250**
  - **5 – Ikelite DS-161, Ikelite DS-160**

- Slide Hot Shoe connector into the camera Hot Shoe socket.
- Camera recognizes Nikon compatible TTL device on it's HotShoe and confirms it by appropriate symbol "Flash"on the service screen.
- Dive and make TTL underwater photo, checking image quality and histogram via camera LCD.
- Dependently of concrete underwater subject type, strobes condition, ambient light underwater and etc, photographer should use +/- TTL correction ("Flash Exposure Compensation") to reach balanced TTL lighting.
- Photographer can adjust +/-TTL correction by 2 ways:
  - Use optical +/- TTL correction (+/-Ev) dial switch on the underwater strobe body (available for Fiber-optical connection only).
  - Use camera's "flash exposure compensation" function for +/- TTL correction (available for both Fiber-optical TTL and Electric Wire TTL connections). Available range for Nikon cameras "Flash exposure compensation": -3ev…0...+1ev. User can adjust it by steps 0.3ev or 0.5ev (set by camera menu), viewing +/-Ev value on the camera screen.
- TTL-Converter maintains normal accuracy TTL lighting control only for underwater conditions. Land tests may give little bit different results.
- Continuose shooting in CL/CH camera modes are available for all modes of TTL Converter. But udnerwater strobe usually recycles a significant time (2-3 seconds), so the shots in series may have different lighting. For accurate TTL work it is strongly recommended to make 2-3 seconds interval between shots. To reach acceptable lighting for shots in fast series, user should use Manual mode and set minimum strobe intensities.
- TTL-Converter activates automatically (switch ON) when user pushes camera's Shutter Release Button for focusing or shooting. Device goes to standby mode (switch OFF) also automatically few seconds later, according the camera command, or after disconnection of camera's HotShoe.
- In some shooting conditions TTL may be not effective or **out of working range.** This case please use Manual modes.

Shooting in Controlled Manual Mode of TTL-Converter

- Switching to "Controlled Manual mode" during the diving (underwater) is a useful feature. It also gives possibility to adjust underwater strobe power manually by camera controls. User can keep hands on the housing during this operation.
- Underwater strobes must be in "S-TTL" ("DS-TTL", "TTL") mode. Strobe's dial (+/-Ev) corrector must be at "0" position.
- Switch TTL-Converter to Controlled Manual Mode, using camera menu:
  Bracketing/flash >> Flash sync speed >> 1/200 Auto FP (or 1/250 Auto FP)
  All sync speeds in menu, marked *"Auto FP"*, point TTL-Converter to "Controlled Manual Mode" without pre-flashes. Then, underwater strobe light power can be adjusted by camera controls, using camera "flash exposure compensation" scale and wheel.
- Available adjustment range for underwater strobe: from Minimum strobe's power (displays as "-3ev" on camera screen) to Maximum strobe's power (displays as "+1ev" on camera screen). Possible to set step 0.3ev or 0.5ev, by menu.
- TTL-Converter does not make pre-flashes in this mode.
- Pay attention, that "Auto FP" function also makes available to set very fast shutter speeds on the camera. To avoid mistakes for lighting using underwater strobes, set shutter speeds not faster than normal *speed of synchronization* for your camera. Most modern Nikon cameras with mechanical shutter have maximum sync speed 1/200 or 1/250 (without Auto FP). Some old Nikon cameras have electronic shutter and maximum synchronization speed up to 1/500 without Auto FP.

Shooting in Simple Manual mode of TTL-Converter

- Switch system to Manual mode by setting TTL-Converter onboard rotary switch to "0" position.
- This operation can be done only before submerging, when the housing is open. This is forced Manual mode.
- Camera TTL protocol is totally disabled. Simbol "Flash" disappeares from camera service screen.
- TTL-Converter outputs single control pulse (max duration) at each shutter release.
- In this Manual mode all Pre-flashes in system are disabled.
- On the strobe body user should set "Manual mode without Pre-flashes" by the dial switch, and adjust strobe light intensity by the other dial switch on the strobe body.
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Shooting in Manual Mode of underwater strobe

- Set appropriate type of Manual mode on the strobe body:
  - If TTL-Converter is in TTL mode, then set "Manual mode with pre-flashes" by the switches on the strobe body.
  - If TTL-Converter is in "Controlled Manual Mode" or "Simple Manual Mode", then set "Manual mode without pre-flashes" by the switches on the strobe body. In "Controlled Manual mode" of TTL Converter it is recommended to set max strobe power by camera menu scale ("flash exposure compensation" scale is used for that aim in such mode).
- Adjust strobe light power by the second dial switch on the strobe body.

Continuous (Serial) Shooting using underwater strobes

- Small size underwater strobes like Z-240, Z-330, YS-D1, YS-D2 etc. have rather weak charger and capacitor inside, which cannot charge strobe enough between quick TTL double flashes (pre-flash + main flash, - for each shot). Each next shot the energy is not enough to keep accurate pre-flash duration. That is why, small size underwater strobes are not recommended for Continuous (Serial) Shooting mode in TTL. Normal lighting will have only 1-st shot in series, next shots will have different lighting.

- Large size underwater strobes, like YS-250, DS-161, DS-160 etc., have more powerful charger and large main capacitor inside. Those strobes work some better in Continuos (Serial) Shooting mode in TTL. User can make some more shots with acceptable lighting. But anyway, the best lighting accuracy will have only 1-st shot in series, the others may have different lighting.

- In common case, all underwater strobes support accurate TTL lighting only in Single Shot mode. Underwater strobe must be fully charged before each flash. Usually, charging time for modern underwater strobes takes 2…3 seconds.

- In common case, for Continuos (Serial) Shooting with underwater strobes, it is strongly recommended to use Manual mode (without Pre-flashes) and set minimum strobe intensities. This way possible to get more quantity of shots in series with acceptable lighting accuracy.

Shooting with flash off

- Photographer can assign "Fn" camera button (by menu) to option "flash off".
  Then, pushing "Fn" button, user can shoot with flash off.

Indication

- Onboard 3-color status LED purposed for system functionality check only, it shows system information after each flash:
  - **GREEN** – "TTL Mode"
  - **BLUE** – "Manual Mode"
  - **RED** – "Low Battery"

Storage

- After shooting please switch Off the camera.
- Slide Off TTL-Converter's connector from the camera's Hot Shoe socket. This way you defend the TTL-Converter from any accidents. Also, you save TTL-Converter's battery, because its current consumption is minimum then.
- For a long time storage remove batteries from TTL-Converter.

Warranty

- Product warranted against any manufacturing defects for 2 year from the date of purchase for consumer use.
- Manufacturer accepts no liability for any damage to and defects in the housing caused by improper use and/or poor maintenance.
- Manufacturer does not hold responsibility for damage of any nature, to any equipment used with the product.
- Manufacturer accepts no liability for any loss of captured images or the inability to capture images even if it is due to the malfunctioning of the product.
- This warranty only applies to products purchased from authorized dealers and does not extend beyond the original retail purchaser.
- Unauthorized modifications and/or repairs of the product will automatically invalidate this warranty.
- To return products for service, please contact authorized dealer in your region.