UW Technics

#11040 Optoelectronic TTL-Converter (for NIKON) for ISOTTA underwater photo housings

MANUAL

Specifications

- Compatible photo cameras: NIKON
- Compatible underwater housings : ISOTTA
- Compatible strobes: Inon Z330, Z240; Sea&Sea YS-250, YS-D1,YS-D2; Ikelite DS-161, DS-160
- TTL outputs: 2 optical, 2 electric
- (+/-) “Flash Exposure compensation” adjustment underwater: yes
- Continuous (serial) shooting mode support: yes
- 1-st / 2-nd curtain modes support: yes
- Switching “TTL / M” underwater by camera controls: yes
- Setting strobe power manually by camera controls in M mode: 1/64…..1/1
- Switching power “ON/OFF”: automatic by camera command
- Battery type: CR1632 (2pcs.)
- Current consumption (in standby mode) 0.1 mkA
- Battery capacity (+20°C): 3 years, 45 000 flashes
- Compatible Fiber-optic cable type: Nauticam #26216, #26217, HowShot 613L
- Dual Electric cables (“Sea&Sea”, “Ikelite”) support: yes

Safety Warning for Batteries usage

- Use batteries only CR1632 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.
- Remove batteries from TTL-Converter before longtime storage.
- Utilize used batteries according appropriate rules.
- Keep out batteries of children. Save batteries in inaccessible for children place

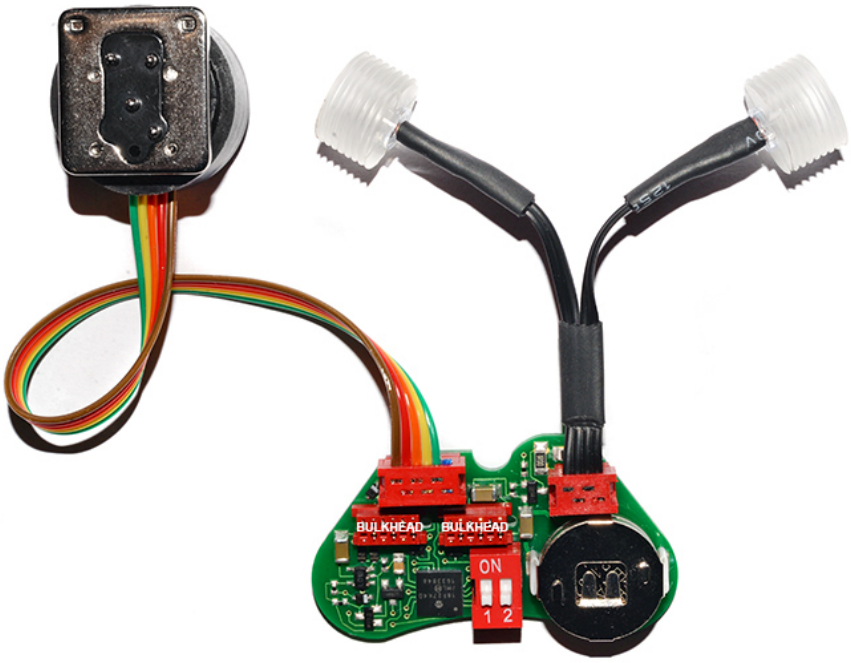
Installation

- Insert batteries into TTL-Converter. Before installation check that “plus” terminal of each battery is in Up position.
- Open the housing. Unscrew 3 bolts with plastic clamps, delete standard communication board from the housing.
- Install TTL-converter to the same place. Screw 3 bolts, pointing clamps as necessary.
- Insert both LEDs into optical bulkheads. Push both LEDs maximum deep into the optical bulkheads by any tool. LED must be maximum close to transparent optical element inside the bulkhead to get normal TTL accuracy.
- ***(Optional)*** In case of using Electric Wire Synchronization, connect electric bulkheads cables to 6-pin sockets on the TTL-Converter board. Connector pinout is ISOTTA standard.
- Recommended to change batteries after 3 years of product usage.

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.
- Maximum 2 Fiber Optic cables can be used (via housing optical bulkheads). It is poosible 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 for TTL operation only single fiber optical cables.
- Maximum 2 Electric cables can be connected (via housing electric bulkheads).
- Dual electric cables (“Sea&Sea”, “Ikelite”) are supported by TTL system at each electric output as well. Using 2 dual cables, it is possible to connect 4 underwater strobes simultaneously.

TTL Board pinout



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" to "0 Ev, as initial setting.
  - For Nikon DSLR cameras, set "0 Ev "Flash compensation" in camera menu, as initial setting.
  - For Nikon Z-6 / Z-7 mirrorless cameras, set -0.5 Ev "Flash compensation" in camera menu, as initial setting.
  - 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 onboard switch according your strobe type:

  - **OFF, OFF** - Z-330, Z-240, YS-D1
  - **OFF, ON** - YS-D2
  - **ON, ON** - YS-250
  - **ON, OFF** - DS-161, 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 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.

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.