

EasyDive

Optoelectronic TTL-Converter (for CANON) for EasyDive underwater photo housings

User's Manual

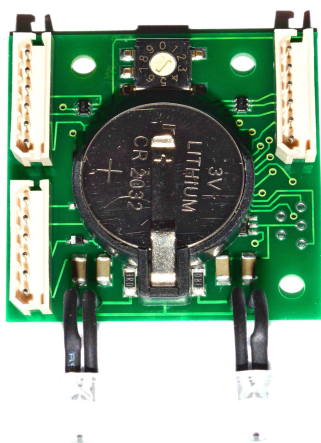
Specifications

Compatible photo cameras:	all Canon DSLR and mirrorless cameras
Compatible underwater housings:	EasyDive
Compatible strobes:	Inon Z240, Z330; Sea&Sea YS-250, YS-D1, YS-D2; Ikelite DS-161, DS-160
TTL board outputs:	2 optical, 2 electric
(+/-) "Flash Exposure compensation" adjustment underwater:	yes
1-st / 2-nd curtain modes support:	yes
Switching "TTL / M" underwater by camera controls:	yes
Continuous (fast serial) shooting mode support:	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:	CR2032 (2pcs.)
Current consumption (in standby mode)	0.1 mA
Battery capacity at continuous work (+20°C):	3-5 years, 65 000 flashes
Recommended Fiber-optic cable type:	Nauticam #26616, HowShot 613L
Available Electric Bulkhead type (optional accessory):	Nikonos-5, Ikelite, S-6
Dual Electric cables ("Sea&Sea", "Ikelite") support:	yes
Dimensions of TTL board:	40mm x 40mm x 10mm

Safety Warning for Batteries usage

- Use batteries only CR2032 type (2 pcs.).
- 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



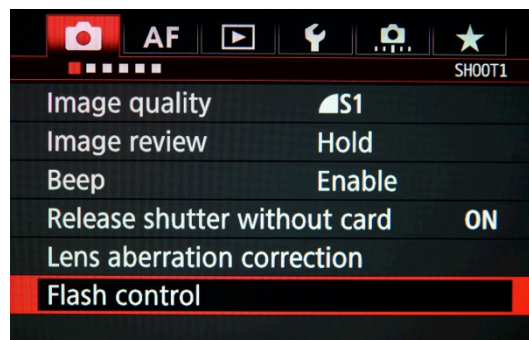
- Install plastic base into the housing front part.
- Install TTL-Converter board on the plastic base. Screw bolts by screwdriver.
- Insert both LEDs into housing optical bulkheads, maximum closer to transparent element. Bend LED wires as necessary for proper installation.
- **IMPORTANT!** Push both LEDs maximum deep into the optical bulkheads by any tool. The LED must be maximum close to transparent optical element inside the bulkhead to get normal TTL accuracy.
- (*Optional*). In case of usage Electric Wire Synchronization for underwater strobes, connect housing electric bulkhead cables to left and right 6-pin sockets on the board.
- **IMPORTANT!** Strongly recommended to use only original 613-core fiber optical cables listed in Specifications above. Usage of inconsistent or low transmission index cables causes wrong TTL exposure of underwater shots.
- Connect HotShoe interface cable to the down socket on the board.

External cable connections for underwater strobes

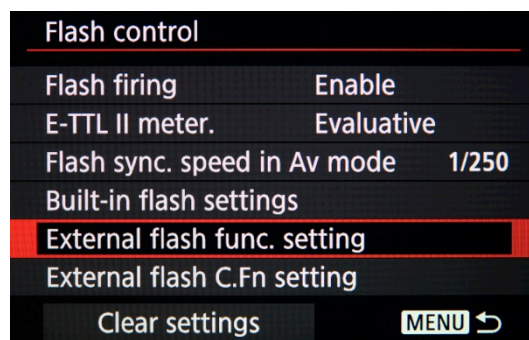
- TTL-Converter maintains synchronization for underwater strobes by Fiber Optical cable connection and by electric cable connection as well.
- Maximum 2 Fiber Optic cables can be used (via housing optical bulkheads). It is possible to connect 2 underwater strobes.
- **IMPORTANT!** Dual fiber optical 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.

Initial Settings

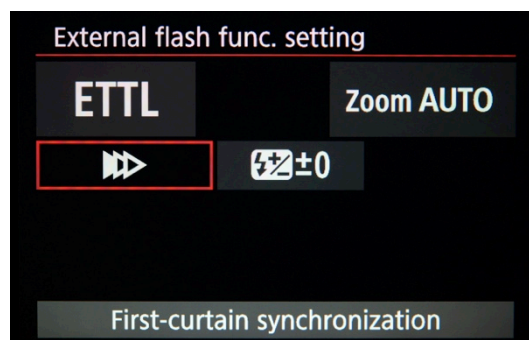
- Set and check camera settings before underwater shooting:
 - Set Camera mode (“M”, “P”, “A”, “S” etc.), dependently of preferences. For underwater shooting it is recommended to use M mode, when user can set aperture and shutter speed manually.
 - Set appropriate Exposure Metering (“Evaluative”, “Partial”, “Spot”, “Center-weighted”) according your shooting conditions . 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.
 - Set camera’s “Flash Exposure Compensation” (and “Exposure Compensation”) to “0 ev”, as initial setting.
 - Set appropriate ISO. Recommended to use ISO 100...400 for best resolution and TTL accuracy underwater.
 - Set Aperture and Shutter Speed according real underwater conditions and shooting task. Pay attention that max fast sync speed of DSLR cameras is about 1/250 for shooting with underwater strobes.
 - 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.
- Using camera menu photographer can totally control TTL-Converter underwater. Flash settings are always stored in TTL-Converter nonvolatile onboard memory, even after power is turned off.
- Enter **Flash control** menu to set initial preferences:



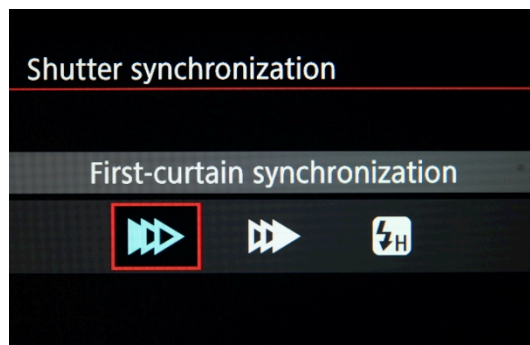
- Enter **External flash func. setting** submenu:




- **Flash firing** – “Enable” (switch ON the flash) or “Disable” (switch OFF the flash)
 - **E-TTL II meter.** – Recommended to set “**Average**” metering type, as initial setting, “**Evaluative**” type also can be useful with some camera models.
 - **Flash sync. speed in Av mode** – “1/250 fixed”, “1/60-1/250 auto” or “Auto’
- Enter submenu for **Shutter Synchronization** setting:

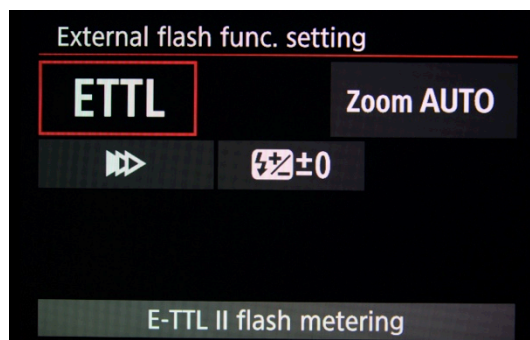


- Set 1st or 2nd curtain synchronization, dependently of the shooting task.



Shooting in TTL mode

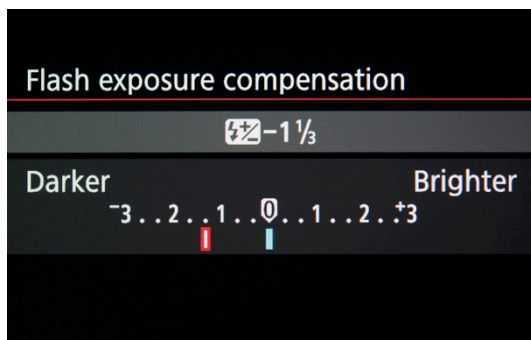
- Set TTL-Converter onboard rotary switch according your strobe type:
 - 0 - Manual mode (TTL protocol is disabled)
 - 1 - Inon Z240 / Z330
 - 2 - Sea&Sea YS-D1
 - 3 - Sea&Sea YS-D2
 - 4 - Sea&Sea YS-250
 - 5 - Ikelite DS-161 / DS-160
 - 6 – reserved
 - 7 – reserved
 - 8 – reserved
 - 9 – reserved
- Set main dial switch on the underwater strobe body to TTL mode. Please refer to concrete strobe User's Manual to choose appropriate mode (Z330, Z-240 set to "S-TTL", YS-D1/D2 set to "DS-TTL", YS-250/DS-161/DS160 set to "TTL").
- Set another dial (+/-Ev correction) on the underwater strobe body to "0 ev" position, as initial setting. Using Z-240 strobe, pay attention: magnet must be in "Push" position, for fiber optical connection set second dial switch to "0ev" (position "12 o'clock"), for electric wire connection set to "ttl" mark as fixed position ("9 o'clock"). In case of optical TTL, adjustment (+/-) is available by the strobe dial "+/-Ev" and also by the camera wheel "flash exposure compensation", the final value is the sum of these two corrections. In case of electric wire TTL, adjustment (+/-) is unavailable by the strobe dial, but available by the camera control wheel using "flash exposure compensation".
- Connect TTL-Converter Hot Shoe plug to the camera Hot Shoe socket. Switch ON the camera. TTL-Converter activates automatically (switch ON) when user pushes camera Shutter Release Button for shooting or focusing. Device goes to standby mode (switch OFF) also automatically few seconds later (according the camera command), or after disconnection from camera Hot Shoe socket.
- Camera recognizes E-TTL device on the Hot Shoe socket and confirms compatibility by the "Flash" symbol  on the service screen. Submenu "External Flash func. settings" becomes available in camera menu only in case of full compatibility of camera and TTL-Converter.
- Enter submenu **Flash mode**:



- Set **ETTL mode**:



- During the initial tests, dependently of concrete camera, strobes condition, batteries etc., photographer should set small constant (+/-) correction to TTL Flash exposure control. Pay attention on this. Later, photographer should use necessary correction in wide range, according shooting conditions, if images are to bright or too dark.



TTL Flash exposure correction is available by 2 ways:

- Use "+/-Ev" dial on the underwater strobe body (adjustment works for fiber-optical type connection only).
 - Use camera "Flash Exposure Compensation" function. Such adjustment is recommended, it is more deep, works for both types of connection. Available "Flash Exposure Compensation" range for Canon cameras: -3ev...0...+3ev. User can adjust it by steps 0.3ev or 0.5ev (choose the step by camera menu), viewing the value on the camera menu scale. The same adjustment is available by camera wheel, looking to camera service screen scale.
- Shooting macro, for normal TTL accuracy the nearest distance from underwater strobe to a target must be more than 0.35m underwater (or more than 0.7m for the land tests), to keep the system inside of working TTL range. But camera can be positioned as close to the target as user needs.
 - TTL-Converter is tuned for normal TTL accuracy under water. Land tests may give another results.
 - In some shooting conditions or camera settings, TTL system may be not effective or **out of working range**. This case photographer should use Manual modes.

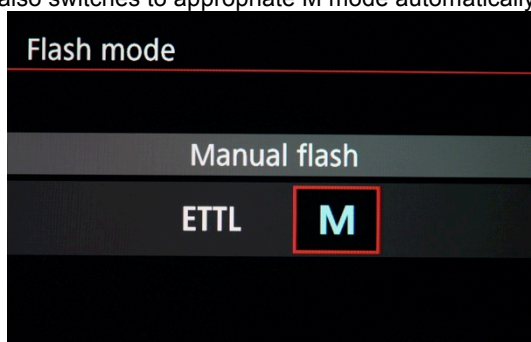
Shooting in Manual mode

- Underwater photographer can use 3 different ways to shoot in Manual mode:
 - Camera menu Manual mode
 - Underwater strobe Manual mode
 - TTL-Converter forced Manual mode
- **Camera menu Manual Mode**

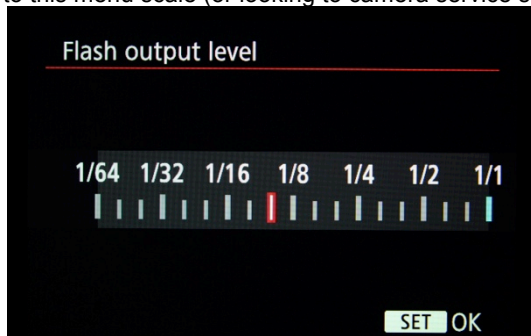
Switch system to Manual mode by camera menu.

Set underwater strobe to S-TTL (TTL) mode for flash output adjustment by camera wheel and screen.

This is preferable Manual mode for universal usage, easy switchable and controllable under water during the diving. This case TTL-Converter also switches to appropriate M mode automatically by camera command.



In such Manual mode also becomes available flash output level scale in submenu. User can adjust flash output level by camera wheel, looking to this menu scale (or looking to camera service screen):



For information: In such Manual mode all Pre-flashes in system are disabled.

- **Underwater Strobe Manual Mode:**

Set underwater strobe to M (or FULL) mode without pre-flashes. Adjust strobe light intensity by the dial switch on the strobe body.

Recommended settings in camera menu: "M" mode, flash output level "1/1".

For information: If camera is in "M" mode by menu, - all Pre-flashes in system are disabled.

If user needs to get full dump from underwater strobe, - set "FULL" on the strobe body, set camera menu to "M" mode and flash output level "1/1" by camera menu.

- **TTL-Converter Manual Mode (set by onboard switch):**

Set TTL-Converter onboard rotary switch to "0" position.

Set underwater strobe to M (or FULL) mode without pre-flashes. Adjust strobe light intensity by the dial switch on the strobe body.

Setting TTL-Converter rotary switch to "0" position can be done only before submerging, when the housing is open. This is forced Manual mode. This case camera does not recognize any device on it's HotShoe socket, TTL protocol in system is totally disabled.

In this mode TTL-Converter emits single pulse of fixed (maximum) duration at each shutter release.

This mode is recommended for any creative shooting, for example using long length fiber optical cables (up to 40m length is supported), or for usage with TTL incompatible underwater strobes, or for any other difficult situations.

For information: In this Manual mode all Pre-flashes are disabled.

Continuous (Serial) Shooting using underwater strobes

- TTL-Converter supports Continuous shooting in all modes, including TTL and M modes. But the main role in this case plays underwater strobes specific (read below).
- Compact size underwater strobes like Z-240, Z-330, D2000, YS-D1, YS-D2 etc. have rather weak charger inside, which cannot charge the strobe quick enough between series of TTL doubled flashes (pre-flash + main flash). Each next shot the energy is not enough to keep accurate pre-flash duration. That is why, compact size underwater strobes are not recommended for Continuous (Serial) Shooting in TTL mode. Normal lighting will have only 1-st shots in series, next shots will have different lighting or impossible. The effect depends on concrete strobe type certainly.
- Large size underwater strobes, like YS-250, DS-161, DS-160 etc. have more powerful charger inside and large main capacitor. Those strobes work some better in Continuous (Serial) Shooting TTL mode. User can make some more shots with acceptable lighting. But anyway, the best lighting accuracy will have only first 1-2 shots in series, the others may have different lighting. The effect depends on concrete strobe type certainly.
- In common case, all underwater strobes support accurate TTL lighting only in "Single Shot" camera mode. Underwater strobe must be fully charged before each flash, to get accurate TTL control. Usually, charge time of modern underwater strobes - 1...2 seconds.
- **For Continuous (Serial) Shooting with underwater strobes, it is strongly recommended to use Manual mode and set minimum strobe intensities. This way it is possible to get serial shots with acceptable lighting accuracy.**

Storage

- After shooting switch Off the camera.
- Disconnect TTL-Converter Hot Shoe plug from camera after the diving. This way you defend the TTL-Converter from any accidents. Also you save TTL-Converter battery, because current consumption is minimum in this case.
- 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.